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Model	Page	Ohio Semitronics, Inc. Product Selection Guide Short Description	Measured Inputs: Direct Connect	Non-Contact	Measured Frequency Range (Hz)	AC Phase Fired	AC Zero Crossing	AC PWM	Output Options: DC	AC	Digital	Local Display	Relay Output
		Current Transformers											
MCCT	6	Metering Class Current Transformers, UR		•	50-400					•			
21279	7	Current Transformer (0.1A Secondary)		•	57-63					•			
21280	7	Current Transformer (0.1A Secondary)		•	57-63					•			
21281	7	Current Transformer (0.1A Secondary)		•	57-63					•			
CCT-800	8	Precision AC Current Transformer, Compensated		•	50-400					•			
ECT	9	Neutral Current Transformer, Electronic, Split-Core		•	50-60					•			
CTY	10	Split-Core Current Transformers, UR		•	50-60					•			
CTI	11	Split-Core Current Transformers		•	60					•			
FSCCT	12	Flexible Split-Core Current Transformers, UR		•	50-400					•			
LCCT	16	Low-Cost Current Transformers, UR		•	50-400					•			
		Current Measurement (Average Measuring)											
ACT	17	Current Transducer, 1Φ, UL, CE	•	•	50-60				•				
3ACT	19	Current Transducer, 3Φ, UL, CE	•	•	50-60				•				
CTC, CTD	21	Current Transducer, 1Φ, UL, CE, ☐		•	50-60, 400				•				
MCT5	23	Current Transducer, 1Φ, UL, DIN	•		48-65				•				
SCT	25	Split-Core Current Transducer, 1Φ, UL, ☐		•	50-400				•				
DCT	26	Current Transducer, 1Φ, DIN, CSA, CE	•		50-60				•				
		Current Switches											
CRD	27	Programmable Current Setpoint Relay/Transducer, 1Φ	•		dc, 50-425								•
CPD-4715	29	AC Current Present Detector, 1Φ, UL, CE, ☐		•	50-400								•
DSO-102	30	AC Current Switch, 1Φ		•	12-60								•
		Current Measurement (RMS Measuring)											
CTCR	31	Current Transducer, 1Φ, Loop Powered		•	50-400	•			•				
ACTR	32	Current Transducer, 1Φ, UL	•		48-420	•			•				
3CTR	33	Current Transducer, 3Φ	•		48-420	•			•				
CTRS	34	Current Transformer/Transducer, 1Φ, Split-Core		•	10-20k	•			•				
MCTR	36	Current Transducer, 1Φ, Loop-Powered, DIN	•	•	50-60	•			•				
DCTR	38	Current Transducer, 1Φ, DIN, CSA, CE	•		50-60	•			•				
CT7	39	Current Transducer (shunt isolator)	•		dc-500	•	•	•	•	•			
CT8	39	Current Transducer (shunt isolator)	•		dc-500	•	†	•	•				

(CONTINUED ON FOLLOWING PAGE)

OHIO SEMITRONICS, INC.
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PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

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Web Version Rev A 5/6/14

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		Current Measurement, Hall-Effect, Open Loop											
CTL	40	Current Transducer, 1Φ, 0-35A to 0-40kA, UL		•	dc/ac	•	•	•	•	•			
CTA	44	Signal Conditioner, 1Φ (for use with CTL Series)	•		dc-5000	•	†	•	•	•			
CTG	46	Current Transducer, Built-in Amplifier, 1Φ, UL		•	dc-400				•				
CTH	48	Current Transducer, Built-in Amplifier, 1Φ		•	dc				•				
CTLC	**50**	Current Transducer, Built-in Amplifier, 1Φ, Terminal Strip		•	dc				•				
ISC	52	Current Transducer, Hall-Effect, 1Φ, UL, ATEX, CE		•	dc				•				
CTLP	54	Current Transducer, Hall-Effect, 1Φ, Loop-Powered		•	dc				•				
		Current Measurement, Hall-Effect, Closed Loop											
CTF	55	Hall-Effect Current Transducer, 1Φ, 0.1% Linearity		•	dc-100k	•	•	•	•	•			
CTFB	55	Hall-Effect Current Transducer, 1Φ, 0.1% Linearity, PCB		•	dc-100k	•	•	•	•	•			
CTFG	56	AC/DC/Pulse Current Transducer, 1Φ		•	dc-35k	•	•	•	•	•			
		Current Measurement, Ultra-high Accuracy											
UFG	**57**	Precision AC/DC Current Transducer, 1Φ, 0.01% Accuracy		•	dc-10k				•	•			
		Hall-Effect Transducer Power Supplies											
CTA800	58	Signal Conditioner (for use with closed-loop sensors)	•		dc-50k	•	†	•	•	•			
PS-4753	**59**	Universal Power Supply for CTLC, CTG & CTH	•						•				
		Current Measurement, Rogowski Coil											
MFC150	60	Flexible Rogowski Coil		•	40-20k					•			
RPS50	62	Single-Channel, Multi-Scale Integrator, DIN, ▣	•		8-100k				•	•			
FCA3000	63	Three-Channel Integrator, DIN, ▣	•		8-100k				•				
		Voltage Measurement (Average Measuring)											
AVT	64	Voltage Transducer, 1Φ, UL, CE	•		50-60				•				
3AVT	66	Voltage Transducer, 3Φ, UL, CE	•		50-60				•				
MVT	68	Voltage Transducer, 1Φ, UL, DIN	•		48-65				•				
DVT	70	Voltage Transducer, 1Φ, DIN, CSA, CE	•		50-60				•				
		Voltage Measurement (RMS Measuring)											
AVTR	71	Voltage Transducer, 1Φ, UL	•		48-420	•			•				
3VTR	72	Voltage Transducer, 3Φ	•		48-420	•			•				
MVTR	**73**	Voltage Transducer, 1Φ, Loop Power, DIN	•		50-400	•			•				
DVTR	74	Voltage Transducer, 1Φ, DIN, CSA, CE	•		50-60				•				
VT8	75	Voltage Transducer, 1Φ	††		dc-10k	•	†	†	•				

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		DC Voltage Isolators											
VT7	77	DC Voltage Transducer/High-Voltage Isolator	††		dc-10k				•	•			
DVT7E	79	DC Voltage Transducer, User Selectable Ranges, DIN	•		dc				•				
VTU	81	Unidirectional DC Voltage Isolator	††		dc-1000				•				
VTH	82	Unidirectional DC High-Voltage Isolator	•		dc				•				
		AC Watt/Watthour/VAR Transducers											
PC5/PC4	83	AC Watt Transducer, 1-2-3 Element	•	•	48-70/400	•	†		•				
W/W4	88	AC Watt/Watthour Transducer, 1-2-3 Element	•	•	48-70/400	•	†		•				•
AGW	93,96	Precision Watt Transducer, 1-2-3 Element, UL	•	Opt.	58-62				•				
GW5	94	AC Watt Transducer, 1-2-3 Element	•	Opt.	48-62				•				
GV5	94	AC VAR Transducer, 1-2-3 Element	•	Opt.	50-60				•				
GWV5	98	Precision AC Watt/VAR Transducer, 1Φ, 3Φ	•	Opt.	50-60				•				
DW5	100	AC Watt Transducer, DIN, CSA, CE, 1Φ, 3Φ	•	Opt.	50-60				•				
DWV	102	AC Watt/VAR Transducer, DIN, CSA, CE, 1Φ, 3Φ	•	Opt.	50-60				•				
AGH	103,106	Precision AC Watt/Watthour Transducer, UL, 1Φ, 3Φ	•	Opt.	58-62				•				•
GH	104	AC Watt/Watthour Transducer, 1Φ, 3Φ	•	Opt.	48-62				•				•
VGH	104	AC VAR/VARhour Transducer, 1Φ, 3Φ	•	Opt.	50-60				•				•
P	108	Variable-Frequency AC Watt Transducer, 1-2-3 Element	†	•	5-500	•	†	•	•				
PC8	111	DC & Variable-Frequency AC Watt Transducer, 1Φ	•	•	dc-400	•	†	•	•				
PC20	113	AC Watt/Power Factor/Volt-Amp Transducer, 1Φ, 3Φ	•	Opt.	50-400				•				
MT	116	Multiplier (DC or AC Watt Transducer)	•		dc-70				•				
SWH	117	AC Watthour Transducer/Transformer, UL, 1Φ		•	48-62								•
ESP3	118	Energy Scout+ Watthour Meter, DIN, CE, ▣, 1Φ, 3Φ	•	Opt.	47-63						•	•	•
		Power Factor Transducers											
PF5	121	Phase Angle Transducer, 1Φ, 3Φ	•		50-60				•				
		Frequency Transducers											
AFT	123	Frequency Transducer, Wide-Range, UL, 1Φ	•		45-1000				•				
DFT	124	Frequency Transducer, DIN, CSA, CE, 1Φ	•		45-425				•				
DFTA	125	Frequency Transducer, Wide-Range, DIN, CSA, CE, 1Φ	•		10-1000				•				
		Process Signal Conditioners											
SG	126	Process Signal Conditioner, 1Φ	•		dc				•				
MSG	127	Process Signal Conditioner, DIN, 1Φ	•		dc				•				

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		Precision Integrators											
VFC	128	Precision Integrator, Converts dc Input to Pulse, 1Φ	•		dc								•
		Multifunction Transducers and Test Panels											
DSP	129	Digital AC Power Monitor, 3Φ	•		48-62	•					•		
PTB	131	Power Test Board, 1Φ, 3Φ	•	•	48-70	•	†		•				Opt.
PDM	135	Power Display Meter, 1Φ, 3Φ	•	Opt.	25-400			Opt.	Opt.		•	•	
		Multifunction Power Meters											
A210	137	Multifunction Power Meter, 63 Measureands, ⧈, CE, 1-3Φ	•		45-65				Opt.		Opt.	•	Opt.
A230	138	Multifunction Power Meter, 134 Measureands, ⧈, CE, 1-3Φ	•		45-65				Opt.		Opt.	•	Opt.
A230S	138	Multifunction Power Meter, 134 Measureands, ⧈, CE, 1-3Φ	•		45-65				Opt.		Opt.	•	Opt.
MM/COM	139	Communication Module for A210, A230 &A230S, CE	N/A	N/A	N/A	N/A	N/A	N/A	Opt.		Opt.		
APLUS	140	Multifunction Pwr. Meter w/Configurable I/O, UL, ⧈, CE, 1-3Φ	•		45-65				Opt.		Opt.	Opt.	Opt.
		Panel Meters & Counters											
OFM	142	Low-Cost 3½ Digit LED Meter	•									•	
OFT	142	Loop-Powered 6 Digit LCD Meter	•									•	Opt.
OFC	142	High-Performance 4 Digit LED Meter	•									•	Opt.
15660	144	Digital Meter, 4½ Digits, Panel Mount, LED Display, CE	•									•	
13835	144	Counter, Electronic, 8-digit LCD, Battery Backup	•									•	
		Precision Hall-Effect Probes											
HR	145	Precision Hall-Effect Probes											
		Accessories											
LDB, LRB	146	Current-to-Voltage Converter, Precision Load Resistor											
U3889	147	Disconnect Switches, 3V, 3I with Shorting Bars, UR											
FH	147	Fuse and Fuse Holders, 600Vac, 1/4A, 3Φ, UR, CSA											
	148	Glossary											
	150	Test Certificate Options											
	(BC)	Legacy Models Still Available (Inside Back Cover)											

Key to Symbols

- • Applies to most models. See product spec sheet for more complete specifications and options.
- † Recommend calling OSI Technical Support to discuss your application prior to purchase.
- †† Some models may require connection to a divider box. (provided)
- Opt Available as an option or with the purchase of an optional accessory.
- ⧈ Double Insulated

RoHS-Compliant Models Available! Consult Factory

For Terms and Conditions, refer to our website at: www.ohiosemitronics.com/Terms.pdf
For REACH compliance, refer to our website at: www.ohiosemitronics.com/REACH.pdf
For WEEE compliance, refer to our website at: www.ohiosemitronics.com/WEEE.pdf
For ISO 9000 certificate, refer to our website at: www.ohiosemitronics.com/ISO9001.pdf

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PART NUMBER INDEX

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METERING-CLASS CURRENT TRANSFORMERS

DESCRIPTION

The UL-Recognized metering-class current transformers provide the most accurate method of measuring AC current available. These transformers are typically used with AGW, GW5, GV5 and GH series Watt\Watthour and VAR transducers to provide accurate, reliable power measurements.

ACCURATE TO 0.3%

2011/65/EU RoHS COMPLIANT

File no. E134271

5 YEAR WARRANTY

(CT shown with LDB-40)

FEATURES

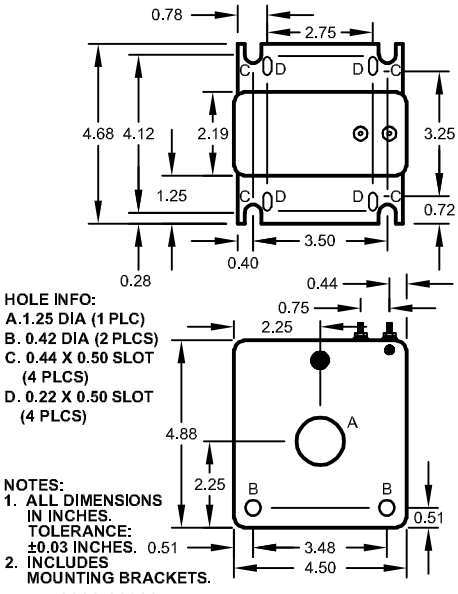
- For use with high-accuracy AGW, GW5, GV5 and GH series Watt, Watt/VAR, & Watt/Watthour transducers.
- Meets ANSI specifications for sub-metering applications.
- An open-secondary protection device is available separately. See LDB-40 specification sheet for details.

CURRENT RATIO	DIM. DRAWING	PART NUMBER	WT. (LBS)	ANSI METERING-CLASS ACCURACY (60HZ)					RELAY CLASS
				B 0.1	B 0.2	B 0.5	B 0.9	B 1.8	
100:5	1	12973	5.5	0.6	0.6	2.4	4.8	-	-
150:5	1	12974	5.5	0.3	0.3	1.2	1.2	2.4	C10
200:5	1	12975	5.5	0.3	0.3	0.6	1.2	2.4	C10
250:5	1	12976	5.5	0.3	0.3	0.3	0.6	1.2	C20
300:5	1	12977	5.5	0.3	0.3	0.3	0.3	0.6	C20
400:5	1	12978	5.5	0.3	0.3	0.3	0.3	0.6	C20
400:5	3	12316	13.8	0.3	0.3	0.3	0.6	1.2	C20
500:5	2	13480	3.5	0.3	0.3	0.3	0.3	0.6	C10
500:5	3	12317	13.8	0.3	0.3	0.3	0.6	0.6	C20
600:5	2	13481	3.5	0.3	0.3	0.3	0.6	0.6	C10
600:5	3	12318	13.9	0.3	0.3	0.3	0.3	0.6	C50
800:5	2	13483	3.5	0.3	0.3	0.3	0.3	0.3	C10
800:5	3	12319	14.2	0.3	0.3	0.3	0.3	0.3	C50
1000:5	2	13484	3.5	0.3	0.3	0.3	0.3	0.3	-
1000:5	3	12320	14.4	0.3	0.3	0.3	0.3	0.3	C100
1200:5	2	13485	3.5	0.3	0.3	0.3	0.3	0.3	-
1200:5	3	12321	12.2	0.3	0.3	0.3	0.3	0.3	C50
1500:5	2	13486	3.5	0.3	0.3	0.3	0.3	0.3	-
1500:5	3	12322	12.6	0.3	0.3	0.3	0.3	0.3	C100
2000:5	3	12323	13.3	0.3	0.3	0.3	0.3	0.3	C100
2500:5	3	12324	12.0	0.3	0.3	0.3	0.3	0.3	C100
3000:5	3	12325	12.5	0.3	0.3	0.3	0.3	0.3	C100

SPECIFICATIONS

Frequency..... 50-400Hz
Insulation Class 600V
Impulse Level .....10kV, full-wave
Continuous Thermal Current Rating Factor.....
1.33 at 30ºC ambient, 1.0 at 55ºC ambient
Terminals .....#8 - 32

DRAWING 1

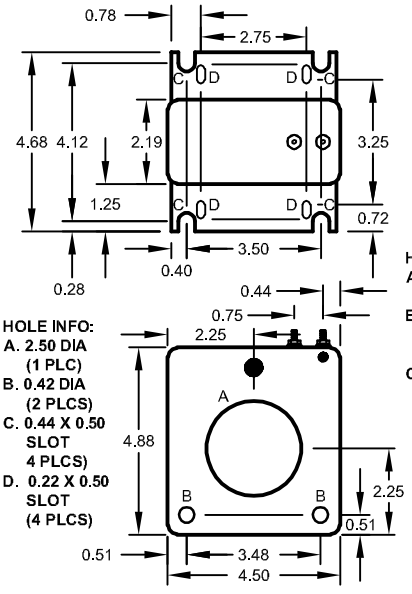


HOLE INFO:
A.1.25 DIA (1 PLC)
B. 0.42 DIA (2 PLCS)
C. 0.44 X 0.50 SLOT (4 PLCS)
D. 0.22 X 0.50 SLOT (4 PLCS)

NOTES:
1. ALL DIMENSIONS IN INCHES. TOLERANCE: ±0.03 INCHES.
2. INCLUDES MOUNTING BRACKETS.

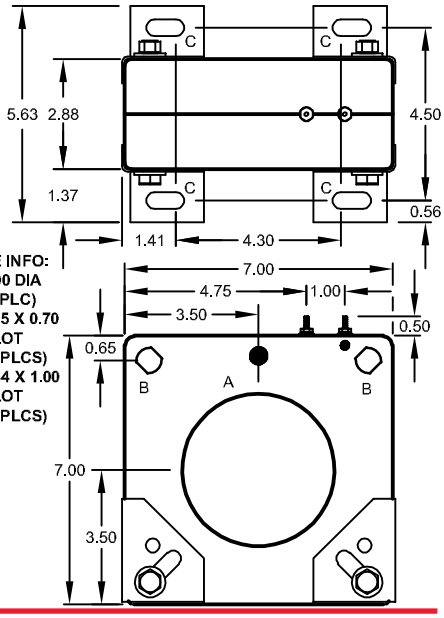
Dwg# 0902-00920-B Rev --

DRAWING 2



HOLE INFO:
A. 2.50 DIA (1 PLC)
B. 0.42 DIA (2 PLCS)
C. 0.44 X 0.50 SLOT 4 PLCS)
D. 0.22 X 0.50 SLOT (4 PLCS)

DRAWING 3



HOLE INFO:
A. 4.00 DIA (1 PLC)
B. 0.55 X 0.70 SLOT (4 PLCS)
C. 0.44 X 1.00 SLOT (4 PLCS)

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NEW!

CURRENT TRANSFORMERS (0.1A SECONDARY)

0.3% Metering Class
Low Cost

FEATURES
- 0.3% metering class accuracy.
- Secondary open-circuit voltage limited to less than 8.0Vac.

APPLICATIONS
- For use with any indicating device or ammeter requiring 0.1A input.
- Ideal for use with watt transducers, current transducers, and energy management systems.

5 YEAR WARRANTY

MODEL SELECTION

MODEL	INPUT AC AMPS	CURRENT RATIO
21279	100	1000:1
21280	200	2000:1
21281	400	4000:1

For use over insulated conductors only.

SPECIFICATIONS

INPUT
Current ..... See Table
Over-current (without damage) ..... 2X Rating
Frequency Range 57-63Hz

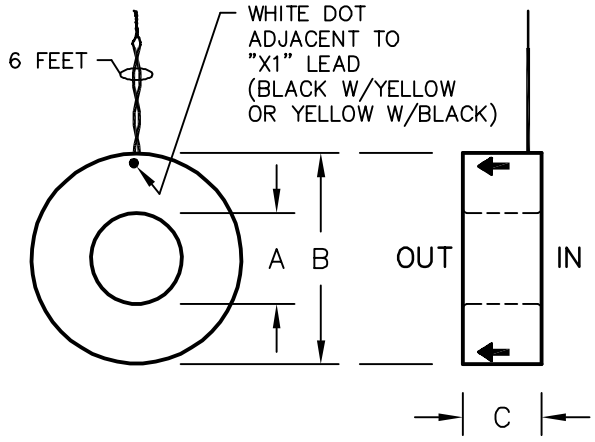
OUTPUT
Type 0-0.1Aac
Burden 0.1VA

ACCURACY ..... 0.3% Class

TEMPERATURE
Operating Range ..... -10ºC to 55ºC

PHYSICAL
Termination ..... 72", 16AWG
(X1) ..... Black w/Yellow or Yellow w/Black
(X2) ..... Yellow

CASE DIMENSIONS



MODEL	SENSOR DIMENSIONS (inches)			WEIGHT	COLOR
	A	B	C		
21279	0.75, min	2.28	0.75	6 oz.	Red
21280	0.75, min	2.28	0.75	7 oz.	Yellow
21281	1.40, min	3.25	1.05	12 oz.	Black

Dwg.# 0902-00622-B Rev B (mod.)

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NEW!

PRECISION AC CURRENT TRANSFORMER MODEL CCT-800

COMPENSATED CT

DESCRIPTION

The CCT-800 is an 800:0.2A solid-core, compensated CT. A compensated CT uses additional windings and electronic circuitry to compensate for losses within the transformer. This technique provides high accuracy across a wide dynamic range of input and is especially useful at the low end of the input range (0-10%).

2011/65/EU • ROHS COMPLIANT

5 YEAR WARRANTY

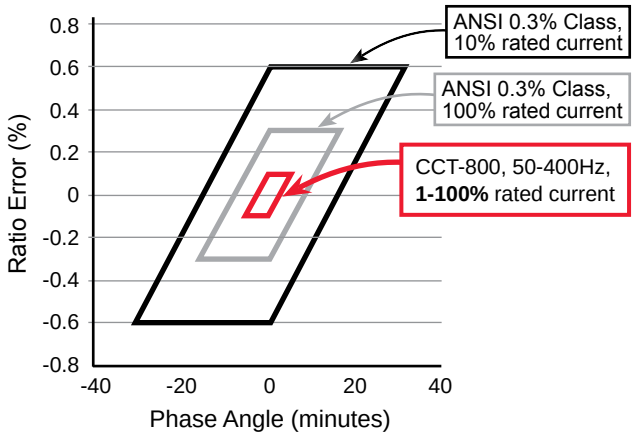
FEATURES

- ±0.1% Ratio Accuracy
- ±5.0 Minutes Phase Accuracy
- 100:1 Dynamic Range

APPLICATIONS

- Precision Measurements
- Standards

Limits of Accuracy Class for Current Transformers



SPECIFICATIONS

INPUT

Current (Primary)..... IP= 800Aac, max.
Overrange without damage.....1.2 X rating
Frequency Range.....16 to 400Hz

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

Type .....±15Vdc ±20%
Current .....≤10mAdc

OUTPUT

Scaling ..... 0-800A Input = 0-0.2A Output (IP/4000)
Burden.....0.1VA, max.

ACCURACY

Ratio..... 1-100% F.S. ..... ±0.1% Rdg.
Phase ..... 1-100% F.S. ..... ±5.0 minutes

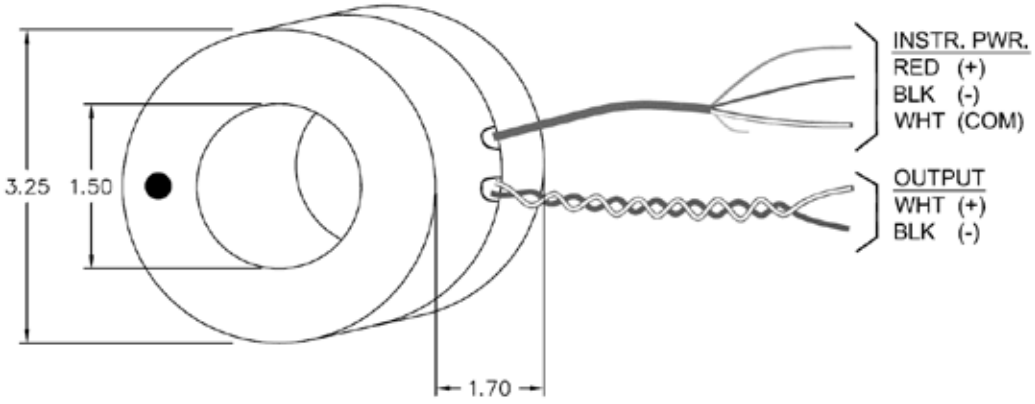
TEMPERATURE AND ENVIRONMENTAL

Operating Temperature Range..... -10 to 55ºC
Storage Temperature Range..... -25 to 60ºC
Operating Humidity ..... 0-95% RH, non-condensing

PHYSICAL

Weight ..... 0.80 lbs.
Termination, Instrument Power
3-Cond., PVC, shielded, brown .....22AWG, 6ft.
Termination, Output
Twisted-pair, black/white.....16AWG, 6ft.
Enclosure ..... ABS, Black

DIMENSIONS AND CONNECTIONS



All dimensions in inches
Tolerance - 0.00 ± 0.03 (Unless otherwise specified)

Dwg# 0902-00988-B Rev -- (prelim)

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C

NEW!

OSI NEUTRAL CURRENT TRANSFORMER MODEL ECT-

ELECTRONIC, SPLIT-CORE

FEATURES

- Split-core
- Large window

5 YEAR WARRANTY

2011/65/EU RoHS COMPLIANT

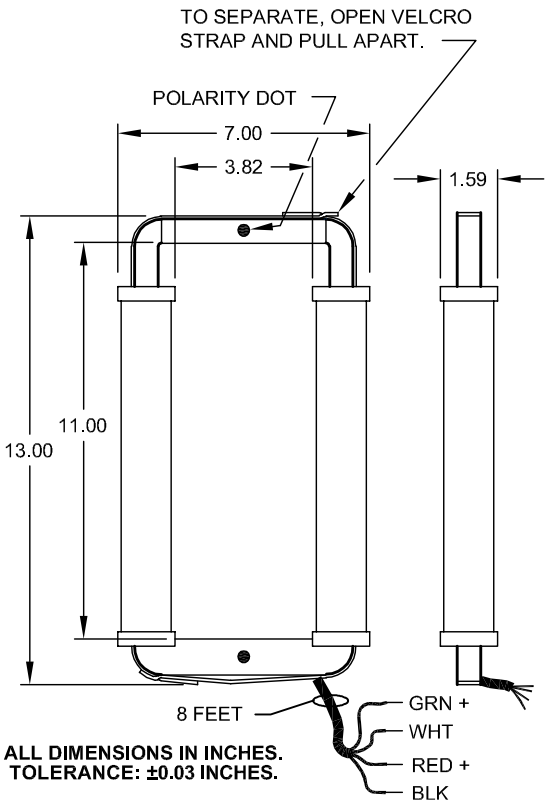
APPLICATIONS

- Neutral current measurement
- Multiple conductors

MODEL SELECTION

INPUT (Aac)	STANDARD OUTPUTS MODEL ECT-		SENSOR SIZE
	0-0.333Vac	0-1.0Vac	
0-10	10C-.3V	10C-1V	C
0-10	10D-.3V	10D-1V	D

DIMENSIONS & CONNECTIONS (D)



ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.

WIRE COLOR	SIGNAL	
Red	+	Instrument Power
Black	–	
Green	+	Output
White	–	

SPECIFICATIONS

For use over insulated conductors only!

INPUT
Current 0-10Aac
Over-current ..... 1.2 X F.S.
Frequency Range 50-60Hz

OUTPUT
Type ..... See Table
Loading ..... ≥500kΩ

INSTRUMENT POWER
Type ..... 24Vac/dc, ±10%, <12mA

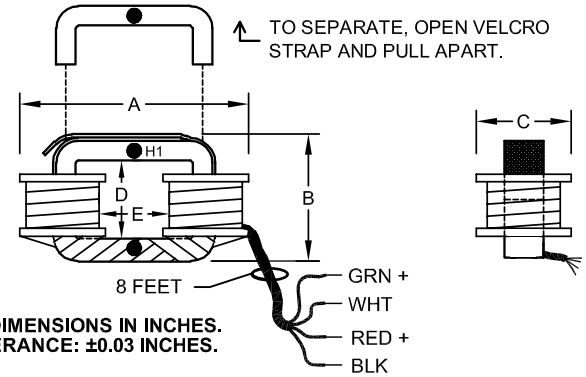
DIELECTRIC TEST
Input to Output/Instr. Pwr. ..... 2500Vac, 1min.

ACCURACY
10-100% F.S. ..... 0.30% Reading

PHYSICAL
Weight ..... 5.5lbs., approx.
Leads
Instrument Power ..... 96", 20AWG
Output ..... 96", 20AWG
Termination (all leads) ..... Stripped and tinned

ENVIRONMENTAL
Operating Temperature 0-55ºC
Operating Humidity ..... 0-95% Non-condensing

DIMENSIONS & CONNECTIONS (C)



ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.

SENSOR SIZE	DIMENSIONS (inches)					WT. (lbs.)
	A	B	C	D	E	
C	5.50	4.90	1.60	3.15	3.20	1.5

Dwg# 0902-00982-B Rev A

Dwg# 0902-00878-B Rev --

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--

SPLIT-CORE CURRENT TRANSFORMERS *MODEL* CTY-

FEATURES

- 0.5% Linearity
- Split-core
- AC Outputs 0.1A,1A, 5A, 0.333V, 1V, 5V

LOW COST

E134271

APPLICATIONS

- For use with OSI Watt transducers
- For use with OSI Current transducers
- Ideal for Ammeters, Wattmeters

INPUT AC AMPS	STANDARD OUTPUTS MODEL CTY-						SENSOR SIZE
	0-0.1Aac*	0-1Aac	0-5Aac	0-0.333Vac	0-1Vac	0-5Vac	
0-50	050A-.1	050A-1	NA	050A-.3V	050A-1V	050A-5V	A
0-100	100A-.1	100A-1	NA	100A-.3V	100A-1V	100A-5V	A
0-200	200A-.1	200A-1	NA	200A-.3V	200A-1V	200A-5V	A
0-100	100B-.1	100B-1	100B-5	100B-.3V	100B-1V	100B-5V	B
0-200	200B-.1	200B-1	200B-5	200B-.3V	200B-1V	200B-5V	B
0-300	300B-.1	300B-1	300B-5	300B-.3V	300B-1V	300B-5V	B
0-400	400B-.1	400B-1	400B-5	400B-.3V	400B-1V	400B-5V	B
0-500	500B-.1	500B-1	500B-5	500B-.3V	500B-1V	500B-5V	B
0-600	600B-.1	600B-1	600B-5	600B-.3V	600B-1V	600B-5V	B
0-800	800B-.1	800B-1	800B-5	800B-.3V	800B-1V	800B-5V	B
0-800	800C-.1	800C-1	800C-5	800C-.3V	800C-1V	800C-5V	C**
0-1000	1000C-.1	1000C-1	1000C-5	1000C-.3V	1000C-1V	1000C-5V	C**
0-1200	1200C-.1	1200C-1	1200C-5	1200C-.3V	1200C-1V	1200C-5V	C**
0-1200	1200D-.1	1200D-1	1200D-5	1200D-.3V	1200D-1V	1200D-5V	D
0-1500	1500C-.1	1500C-1	1500C-5	1500C-.3V	1500C-1V	1500C-5V	C**
0-1500	1500D-.1	1500D-1	1500D-5	1500D-.3V	1500D-1V	1500D-5V	D
0-2000	2000D-.1	2000D-1	2000D-5	2000D-.3V	2000D-1V	2000D-5V	D
0-2500	2500D-.1	2500D-1	2500D-5	2500D-.3V	2500D-1V	2500D-5V	D

Optional inputs and outputs are available, consult factory.

* 0.1Aac output models have an internal voltage-clamping circuit which limits the output voltage to less than 8Vac. CT secondaries may be opened safely without disconnecting the primary. These models are also suitable for use with WL50 series Watt/Watthour transducers.

** UL Recognition does not apply to C-size sensors.

2011/65/EU • RoHS COMPLIANT

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 1500A Input, with a 0.333Vac Output. Sensor size D

CTY-1500D-.3V

SPECIFICATIONS

For use over insulated conductors only!

INPUT

Current ..... See Table
Over-current ..... 1.2 X rating
Frequency Range 50-60Hz

OUTPUT

Signal ..... See Table
Burden, Sensor Size A
1Aac models ..... 50Aac 0.2VA
100Aac 0.5VA
200Aac 1VA
Burden, Sensor Sizes B, C and D
1Aac, 5Aac models ..... 100Aac 1VA
200Aac, 300Aac 2VA
400Aac through 800Aac 5VA
1000Aac through 2500Aac 10VA
Loading ..... 0.33Vac, 1Vac, 5Vac models ..... ≥500kΩ
0.1Aac models ..... ≤10Ω

DIELECTRIC TEST

Input to Output ..... 2500Vac, 1min.

ACCURACY

0-0.1Aac models ..... 0.30% Metering Class
0-1Aac models, sensor size "A" ..... ±1% F.S.
0-5Aac models ..... ±1% F.S.
All other models ..... ±0.5% F.S.

MECHANICAL

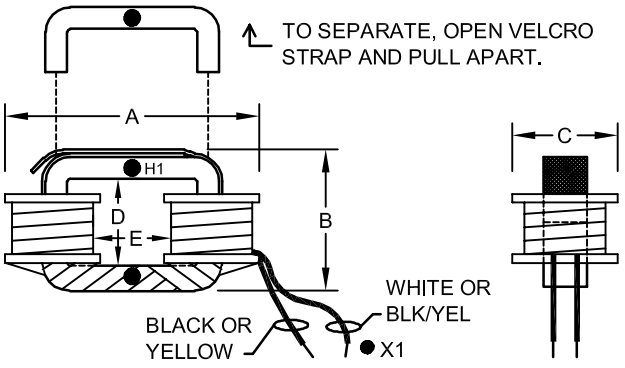
Operating Temperature ..... 55ºC Max.

SENSOR DIMENSIONS

SENSOR SIZE	DIMENSIONS (inches)					WT. (lbs.)
	A	B	C	D	E	
A	2.80	2.00	1.12	1.09	1.09	0.4
B	3.85	3.80	1.30	2.40	1.25	0.8
C	5.50	4.90	1.60	3.15	3.20	1.5
D	7.75	13.00	2.20	11.00	3.10	5.2

LEAD LENGTHS

5Aac models ..... 24",14AWG, White (X1) & Black
0.1Aac models ..... 72",16AWG, Blk/Yel (X1) & Yellow
All other models ..... 72",16AWG, White (X1) & Black



Dwg# 0902-00878-B Rev --

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NEW!

SPLIT-CORE CURRENT TRANSFORMERS *MODEL* CTI-

FEATURES

- Low Current Ranges
- Easy Installation (Split-Core)

5 YEAR WARRANTY

APPLICATIONS

- Current Measurement
- Power Measurement

MODEL SELECTION

CURRENT RATIO	MODEL	BURDEN	ACCURACY* (F.S.)
100:5A	CTI-100	0.5VA	±3%
150:5A	CTI-150	0.5VA	±2%
200:5A	CTI-200	1.0VA	±1%
250:5A	CTI-250	2.0VA	±1%
300:5A	CTI-300	2.0VA	±1%
400:5A	CTI-400	2.5VA	±1%

ORDERING INFORMATION

Example:
100A Input with 5A Output

CTI-100

*Note: Can be calibrated with OSI transducers for better accuracy - consult factory.

SPECIFICATIONS

INPUT

Current Range ..... See Table
Frequency 60Hz

DIELECTRIC RATING

Rated for installation on 600Vac lines.

OUTPUT

Type 0-5Aac

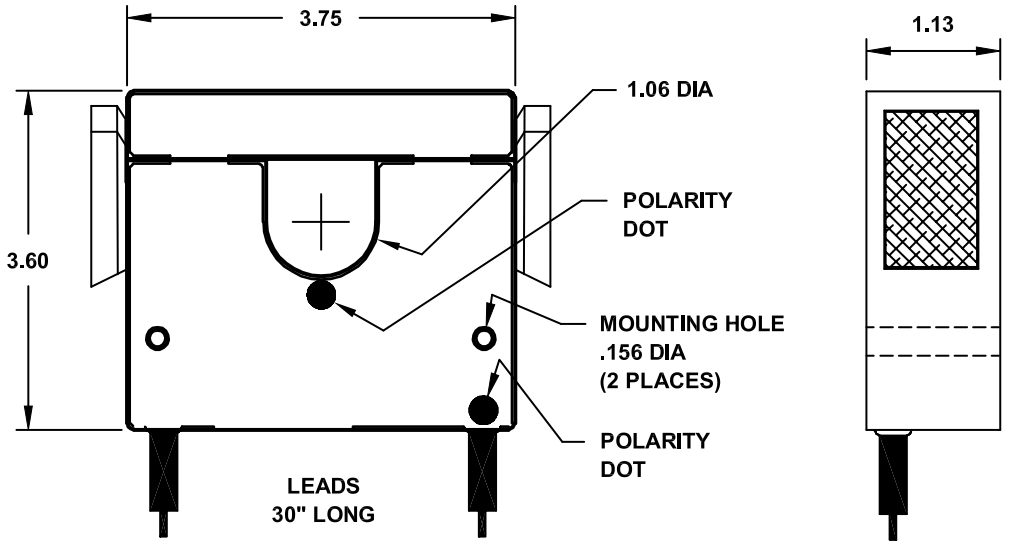
TEMPERATURE

Continuous Thermal Current Rating Factor
At 30ºC Ambient 1.33
At 55ºC Ambient 1.0

PHYSICAL

Case Material ..... Noryl SE1X, Black
Termination ..... 14AWG Wire, 30in.
Weight 1lb

SENSOR DIMENSIONS



NOTE: For positive output on white cable, insert positive current cable through the "polarity dot" side of the sensor.

ALL DIMENSIONS IN INCHES

Dwg# 0902-00428-B Rev A

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OSI FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

CIRCULAR AND RECTANGULAR WINDOW (BUS BAR) MODELS

DESCRIPTION

The OSI flexible split-core current transformers provide the lowest cost installation available. All models are made of a silicon steel core which allows the units to be split and twisted around existing conductors for easy installation. The units are encapsulated in silicon rubber to protect against moisture, dirt, oil and corona.

A wide variety of standard transformer ratios and sizes are available. Current ratings range from 200A to 6000A with circular window diameters from 4 to 18 inches, and rectangular windows from 2.75 x 6.63 inches to 4 x 11 inches. Custom input ranges and sizes are also available. Consult factory for details.

5 YEAR WARRANTY

c UL us

FEATURES

- Flexible split-core configuration provides for easy installation around existing conductors.
- Unit is encapsulated in silicon rubber to protect against moisture, dirt, oil and corona.

APPLICATIONS

- For use with any indicating device or Ammeter which is designed for 1A, 5A, 0.333V or 1V input.
- Ideal for use with OSI Watt transducers, current transducers and energy management systems.

SPECIFICATIONS

INPUT

Current ..... See Tables
Frequency Range.....50 to 400Hz

INSULATION LEVEL

Insulation..... 720V, BIL 10kV, Full Wave

OUTPUT

Type ..... See Tables
Burden..... See Tables

ACCURACY (at 60Hz)

200:5 thru 300:5 .....4% F.S.
400:5 thtu 500:5 .....3% F.S.
600:5 thru 800:5 .....2% F.S.
All others .....1% F.S.

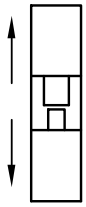
TEMPERATURE AND ENVIRONMENTAL

Operating Range.....-45°C to 55ºC
Thermal Rating Factor .....1.25 @ 30°C, 1.0 @ 55°C
Altitude ..... 4000m, max.

PHYSICAL

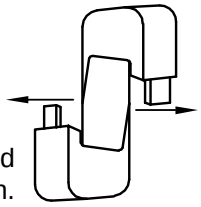
Encapsulation..... Silicon Rubber, Red
Sensor Dimensions ..... See Tables
Weight ..... See Tables
Output Cable .....12ft., yellow
≤800A Input Models .....12AWG, Black (X1), White
>800A Input Models .....16AWG, Black (X1), White
Termination..... #8 Spade Terminals
All models meet IEC 60044-1 standards.

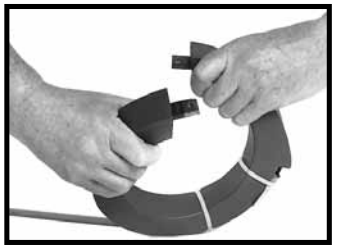
INSTALLATION



Step 1: Expand CT opening only enough to separate core.

Step 2: Twist upper and lower sections to open.





Note: Open split core with a twisting motion only!

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FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

MODELS WITH 1A SECONDARY

RATIO	WINDOW DIMENSIONS (in inches)							BURDEN AT 60Hz (VA)	ACCURACY AT 60Hz (±%)
	Circular (ID)					Rectangular (H x W)			
	4	6	8	11	18	2.75 x 6.63	4 x 11		
200:1	19325	-	-	-	-	-	-	0.5	1
250:1	19326	-	-	-	-	-	-	0.5	1
300:1	19327	-	-	-	-	-	-	0.5	1
400:1	19328	-	-	-	-	-	-	0.9	1
500:1	19329	19333	-	-	-	19365	-	2.0	1
600:1	19330	19334	-	-	-	19366	-	3.0	1
800:1	19331	19335	-	-	-	19367	-	5.0	1
1000:1	19332	19336	19341	-	-	19368	19372	10.0	1
1200:1	-	19337	19342	-	-	19369	19373	15.0	1
1500:1	-	19338	19343	19349	-	19370	19374	15.0	1
1600:1	-	19339	19344	19350	-	19371	19375	15.0	1
2000:1	-	19340	19345	19351	19357	-	19376	18.0	1
2400:1	-	-	19346	19352	19358	-	19377	20.0	1
2500:1	-	-	19347	19353	19359	-	19378	20.0	1
3000:1	-	-	19348	19354	19360	-	-	20.0	1
3500:1	-	-	-	19355	19361	-	-	20.0	1
4000:1	-	-	-	19356	19362	-	-	20.0	1
5000:1	-	-	-	-	19363	-	-	20.0	1
6000:1	-	-	-	-	19364	-	-	20.0	1

Sensor Size	4	6	8	11	18	2.75 x 6.63	4 x 11
Weight (lb)*	4.00	6.00	7.00	8.50	18.00	6.00	7.50

* Average weight for each sensor size

MODELS WITH 5A SECONDARY

RATIO	WINDOW DIMENSIONS (in inches)							BURDEN AT 60Hz (VA)	ACCURACY AT 60Hz (±%)
	Circular (ID)					Rectangular (H x W)			
	4	6	8	11	18	2.75 x 6.63	4 x 11		
200:5	13084	-	-	-	-	-	-	2	4
250:5	19289	-	-	-	-	-	-	2	4
300:5	12511	12520	-	-	-	-	-	2	4
400:5	12512	12521	-	-	-	19312	-	2	3
500:5	12513	12522	-	-	-	12599	-	3	3
600:5	12514	12523	-	-	-	12600	-	5	2
800:5	12515	12524	-	-	-	12601	-	5	2
1000:5	12516	12525	19293	-	-	12602	-	5	1
1200:5	12517	12526	19294	-	-	12603	-	5	1
1500:5	12518	12527	12534	19297	-	12604	19315	15	1
1600:5	19290	19291	19295	19298	-	19313	19316	15	1
2000:5	12519	12528	12535	19299	19304	12605	19317	25	1
2400:5	-	19292	19296	19300	19305	19314	19318	30	1
2500:5	-	12529	12536	19301	19306	12606	19319	35	1
3000:5	-	12530	12537	12542	19307	12607	19320	45	1
3500:5	-	12531	12538	12543	19308	12608	19321	45	1
4000:5	-	12532	12539	12544	19309	12609	19322	45	1
5000:5	-	12533	12540	12546	19310	-	19323	45	1
6000:5	-	-	12541	12547	19311	-	19324	45	1

Sensor Size	4	6	8	11	18	2.75 x 6.63	4 x 11
Weight (lb)*	3.50	4.25	5.50	7.50	17.00	4.25	6.25

* Average weight for each sensor size

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FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

MODELS WITH 0.333V SECONDARY

RATIO	WINDOW DIMENSIONS (in inches)							ACCURACY AT 60Hz (±%)
	Circular (ID)					Rectangular (H x W)		
	4	6	8	11	18	2.75 x 6.63	4 x 11	
200:0.333V	19433	-	-	-	-	-	-	1
250:0.333V	19434	-	-	-	-	-	-	1
300:0.333V	19435	-	-	-	-	-	-	1
400:0.333V	19435	-	-	-	-	-	-	1
500:0.333V	19437	19444	-	-	-	19487	-	1
600:0.333V	19438	19445	-	-	-	19488	-	1
800:0.333V	19439	19446	-	-	-	19489	-	1
1000:0.333V	19440	19447	19457	-	-	19490	19500	1
1200:0.333V	19441	19448	19458	-	-	19491	19501	1
1500:0.333V	19442	19449	19459	19469	-	19492	19502	1
1600:0.333V	19443	19450	19460	19470	-	19493	19503	1
2000:0.333V	-	19451	19461	19471	19479	19494	19504	1
2400:0.333V	-	19452	19462	19472	19480	19495	19505	1
2500:0.333V	-	19453	19463	19473	19481	19496	19506	1
3000:0.333V	-	19454	19464	19474	19482	19497	19507	1
3500:0.333V	-	19455	19465	19475	19483	19498	19508	1
4000:0.333V	-	19456	19466	19476	19484	19499	19509	1
5000:0.333V	-	-	19467	19477	19485	-	19510	1
6000:0.333V	-	-	19468	19478	19486	-	19511	1

Sensor Size	4	6	8	11	18	2.75 x 6.63	4 x 11
Weight (lb)*	3.50	4.25	5.50	7.50	17.00	4.25	6.25

* Average for sensor size

MODELS WITH 1V SECONDARY

RATIO	WINDOW DIMENSIONS (in inches)							ACCURACY AT 60Hz (±%)
	Circular (ID)					Rectangular (H x W)		
	4	6	8	11	18	2.75 x 6.63	4 x 11	
200:1V	19379	-	-	-	-	-	-	4
250:1V	19380	-	-	-	-	-	-	4
300:1V	19381	-	-	-	-	-	-	4
400:1V	19382	-	-	-	-	-	-	3
500:1V	19383	19387	-	-	-	19419	-	3
600:1V	19384	19388	-	-	-	19420	-	2
800:1V	19385	19389	-	-	-	19421	-	2
1000:1V	19386	19390	19395	-	-	19422	19426	1
1200:1V	-	19391	19396	-	-	19423	19427	1
1500:1V	-	19392	19397	19403	-	19424	19428	1
1600:1V	-	19393	19398	19404	-	19425	19429	1
2000:1V	-	19394	19399	19405	19411	-	19430	1
2400:1V	-	-	19400	19406	19412	-	19431	1
2500:1V	-	-	19401	19407	19413	-	19432	1
3000:1V	-	-	19402	19408	19414	-	-	1
3500:1V	-	-	-	19409	19415	-	-	1
4000:1V	-	-	-	19410	19416	-	-	1
5000:1V	-	-	-	-	19417	-	-	1
6000:1V	-	-	-	-	19418	-	-	1

Sensor Size	4	6	8	11	18	2.75 x 6.63	4 x 11
Weight (lb)*	4.00	6.00	7.00	8.50	18.00	6.00	7.50

* Average for sensor size

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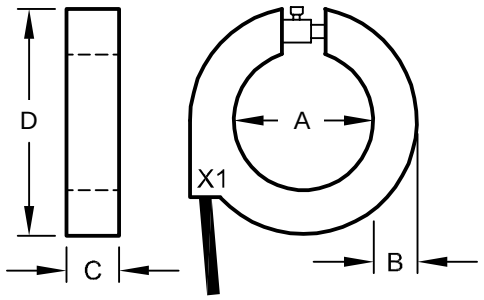
FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

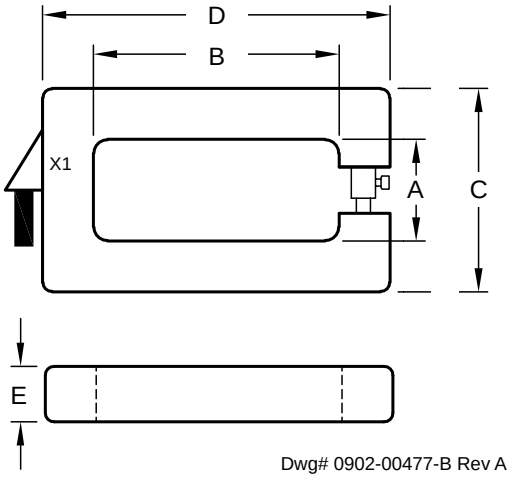
SENSOR DIMENSIONS

CIRCULAR WINDOW MODELS



WINDOW SIZE (ID)	SENSOR DIMENSIONS (in inches)			
	A	B	C	D
4.00	4.00	1.25	1.50	6.50
6.00	6.00	1.25	1.50	8.50
8.00	8.00	1.25	1.50	10.50
11.00	11.00	1.25	1.50	13.50
18.00	18.00	1.25	1.50	20.50

RECTANGULAR WINDOW MODELS



Dwg# 0902-00477-B Rev A (mod.)

WINDOW SIZE (H X W)	SENSOR DIMENSIONS (in inches)				
	A	B	C	D	E
2.75 x 6.625	2.75	6.63	5.50	9.38	1.50
4.00 x 11.00	4.00	11.00	6.50	13.38	1.50

INSTALLATION

INSTALLATION INSTRUCTIONS

1. Installation should be performed by qualified electricians only!
2. Make sure electrical service is disconnected before making any electrical connections.
3. Transformers are suitable for installation on 720Vac lines.
4. For best accuracy, install with measured conductor centered in sensor window.
5. Branch circuit protection is required to be provided in accordance with the National and Local codes of the inspection authority.
6. De-energize all services of supply to measuring circuit before disconnecting output leads to prevent dangerous voltages and possible damage to the current sensor.
7. To prevent contact with live circuits, when installed on a bare bus bar, the transducer is required to be mounted in an enclosure that requires the use of a tool for access. When installed on an insulated cable, this second enclosure is not required.

OPERATING INSTRUCTIONS

1. This unit is intended for indoor use at altitudes up to 4000 meters.
2. If cleaning of the exterior surface is necessary, de-energize all services of supply (both measuring and instrument power circuits) and brush with a soft brush or blow off with low-pressure air. Use appropriate eye protection. Not suitable for hose-down cleaning.
3. Maximum operating temperature range is -45ºC to 55ºC.

c UL us

UL recognized for USA and Canada

WARRANTY STATEMENT

Ohio Semitronics Inc. warrants this unit to be free of defects in material and workmanship for a period of five years from date of shipment. This unit must not be used in any manner other than as specified in this document.

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

LOW-COST CURRENT TRANSFORMERS

FREQUENCY RANGE 50-400 HERTZ

FEATURES

- Manufactured to meet requirements of UL 1244 and revisions
- All models on this page UL recognized - file number E134271.

5 YEAR WARRANTY

APPLICATIONS

- For use with OSI PC5 series and model W series Watt/Watthour transducers.
- Ideal for use with Ammeters, relays and Watt transducers.

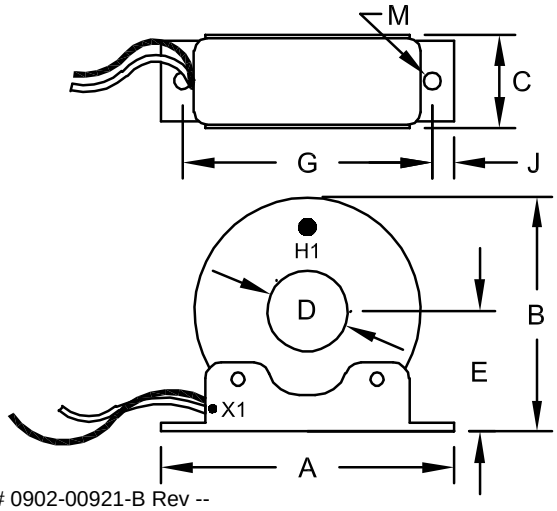
MODEL SELECTION

50-400 HERTZ CURRENT TRANSFORMER

CURRENT RATIO	ACCURACY AT 60Hz (%)	BURDEN AT 60Hz (VA)	PART NUMBER	WT. (LBS)	TRANSFORMER DIMENSIONS (INCHES)							
					A	B	C	D	E	G	J	M
50:5	3.0	1.5	10418	1.22	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
* 75:5	1.5	2.5	13076	1.25	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
100:5	1.5	5.0	10424	1.28	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
150:5	1.0	7.5	10421	1.35	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
200:5	1.0	12.5	10425	1.37	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
250:5	1.0	12.5	12271	1.39	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
300:5	1.0	15.0	10417	1.41	4.50	3.70	1.25	1.25	1.94	3.88	0.31	0.27x0.44
400:5	1.0	15.0	10420	1.47	6.50	4.70	1.25	2.50	2.46	5.75	0.38	0.28
500:5	1.0	25.0	12279	1.53	6.50	4.70	1.25	2.50	2.46	5.75	0.38	0.28
600:5	1.0	30.0	10422	1.59	6.50	4.70	1.25	2.50	2.46	5.75	0.38	0.28
750:5	1.0	30.0	12476	1.60	6.50	4.70	1.25	2.50	2.46	5.75	0.38	0.28
800:5	1.0	35.0	12280	1.61	6.50	4.70	1.25	2.50	2.46	5.75	0.38	0.28
1000:5	1.0	10.0	10423	0.65	6.50	4.70	1.25	3.00	2.46	5.75	0.38	0.28
1200:5	1.0	10.0	11014	0.73	6.50	4.70	1.25	3.00	2.46	5.75	0.38	0.28
1500:5	1.0	12.5	10998	0.86	6.50	4.70	1.25	3.00	2.46	5.75	0.38	0.28
1600:5	1.0	12.5	12284	1.10	6.50	4.70	1.25	3.00	2.46	5.75	0.38	0.28
* 2000:5	1.0	15.0	14046	1.10	6.50	4.70	1.25	3.00	2.46	5.75	0.38	0.28

* Not UL Recognized

DIMENSIONS



Dwg# 0902-00921-B Rev --

SPECIFICATIONS

Frequency..... 50-400Hz
Insulation Class ..... 0.6kV BIL 10kV full-wave
Lead Wire ..... UL1015, 105ºC, CSA approved
Size .....16 AWG, 24" length
Termination..... No. 8 ring terminal

NOTE: Models with input of 300A and below have slotted mounting holes.

Caution: *It is recommended that the incoming power be de-energized before installation. Current Transformer must have its secondary terminals shorted or the burden connected BEFORE ENERGIZING the primary.*

FOR INDOOR USE ONLY.

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4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
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OSI SINGLE-PHASE AC CURRENT TRANSDUCER *MODEL* ACT-

DESCRIPTION

The model ACT is a UL-, CUL-, and CE-approved AC current transducer which provides an isolated DC analog output that is directly proportional to the current input. The output is derived from the average absolute value of the input waveform and calibrated in terms of the RMS value of an input sine wave. With the exception of models which provide 4-20mA output, all other models require no external power connections.

c UL us LISTED
Measuring Equipment 7N93

CE

5 YEAR WARRANTY

FEATURES

- Accurate, reliable current measurement
- Rugged metal construction
- Designed to withstand motor start-up transients
- Average reading calibrated RMS
- Low Cost

APPLICATIONS

- Designed for use in applications which require inexpensive current measurement.
- Designed for use in applications where UL-, CUL-, or CE-approved measurement is required.

ORDERING INFORMATION

Example: 200 Amp AC Input with 4-20mA Output and 230Vac instrument power

ACT-200E-22

400Hz models are available - consult factory for the CT5 series, which is not UL-, CUL- or CE-approved.

MODEL SELECTION

INPUTS AC AMPS	SENSOR SIZE	STANDARD OUTPUT MODELS ACT-				
		UL, CUL & CE				UL & CUL
		0-1mAdc*	4-20mAdc**	0-10Vdc*	0-5Vdc*	4-20mAdc
0 - 1	INT	001A	001E2	001C	001CX5	001E
0 - 5	INT	005A	005E2	005C	005CX5	005E
0 - 10	INT	010A	010E2	010C	010CX5	010E
0 - 20	INT	020A	020E2	020C	020CX5	020E
0 - 25 †	W	025A	025E2	025C	025CX5	025E
0 - 50	W	050A	050E2	050C	050CX5	050E
0 - 100	W	100A	100E2	100C	100CX5	100E
0 - 200	W	200A	200E2	200C	200CX5	200E
0 - 300	W	300A	300E2	300C	300CX5	300E
0 - 400	X	400A	400E2	400C	400CX5	400E
0 - 500	X	500A	500E2	500C	500CX5	500E
0 - 600	X	600A	600E2	600C	600CX5	600E
0 - 800	X	800A	800E2	800C	800CX5	800E
0 - 1000	Y	1000A	1000E2	1000C	1000CX5	1000E
0 - 1500	Y	1500A	1500E2	1500C	1500CX5	1500E

* "A", "C", and "CX5" models are self-powered from measured line.
** "E2" models are loop-powered, and require 15-24Vdc instrument power.
† Indicates two turns required through transformer window.

SPECIFICATIONS

INPUT

Frequency Range 50/60Hz
Burden ..... 1.0VA F.S.
Current Overload (continuous)
20A model ..... 1.25 X F.S. rating
all other models ..... 2 X F.S. rating

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

"A", "C", "CX5" models ..... Self-powered
"E2" models 15-24Vdc
"E" models ..... 115Vac, 50/60Hz, ±15%, 10VA
"**-22**" option ..... 230Vac, 50/60Hz, ±15%, 10VA

OUTPUT

Response 400ms
Loading
"A" models ..... (0-1mAdc output) 0-10kΩ
"E" models ..... (4-20mAdc output) 0-1kΩ
"E2" models ... (4-20mAdc output) ....0-600Ω at 24V
"C" & "CX5" models (5Vdc, 10Vdc output) ..... ≥10MΩ
Field Adjustable Cal. ..... ±5%

ACCURACY

Internal sensor ..... ±0.25% F.S. @ 60Hz
External sensor ..... ±0.5% F.S. @ 60Hz
Includes effects of linearity and setpoint
Output Ripple ..... <1.0% F.S.

TEMPERATURE

Operating Range ..... -20ºC to +60ºC
Effect ..... ±1.0% Rdg.

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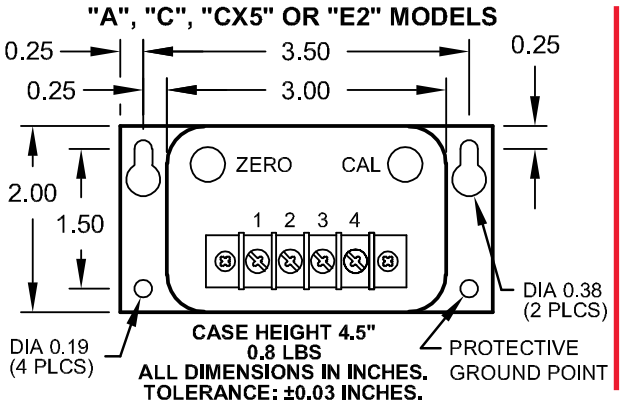
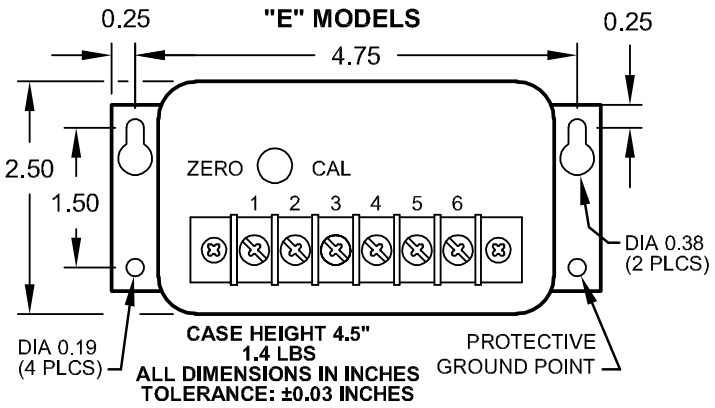
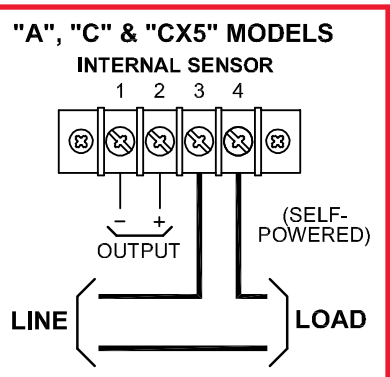
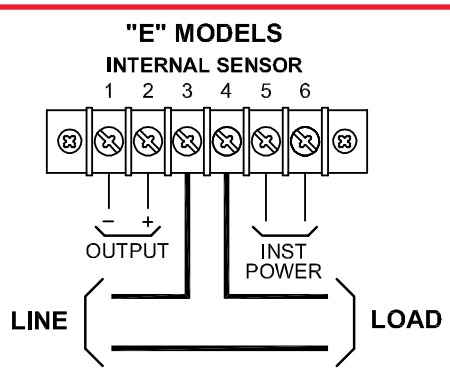
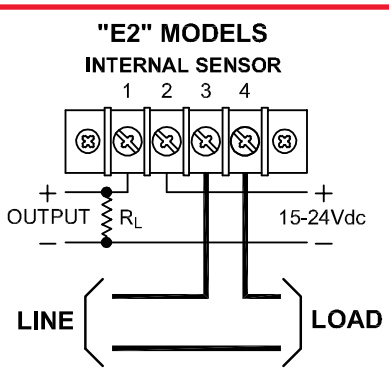
OSI CASE DIMENSIONS & CONNECTION DIAGRAMS MODEL ACT-

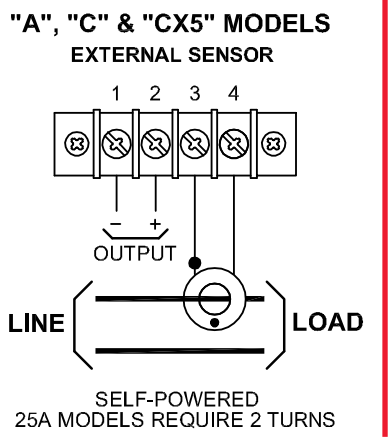


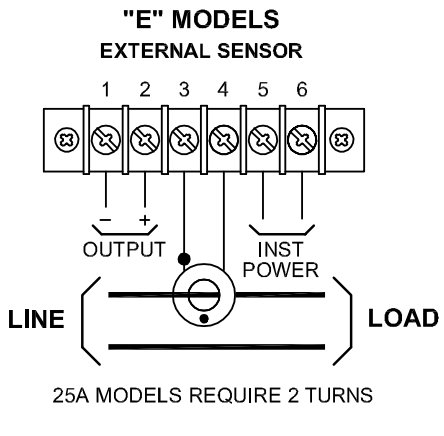


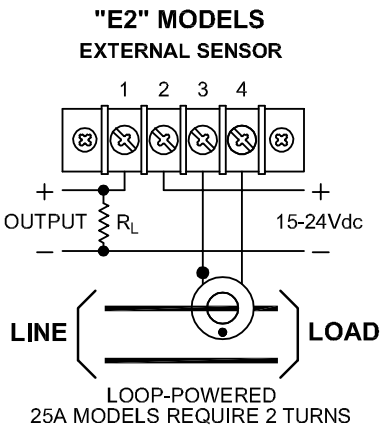




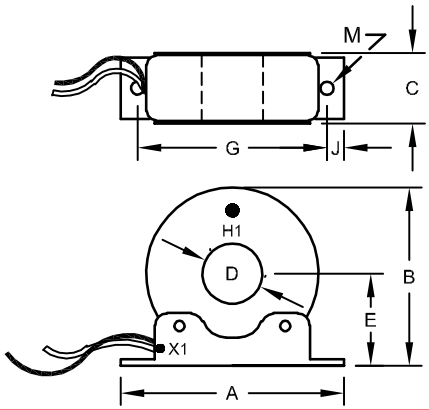








SENSOR DIMENSIONS



SENSOR SIZE	SENSOR DIMENSIONS (INCHES)								WT. LBS.
	A	B	C	D	E	G	J	M	
W	4.50	3.7	1.25	1.25	1.94	3.88	0.34	0.27 x 0.44	1.43
X	6.50	4.7	1.25	2.50	2.46	5.75	0.39	0.28	1.61
Y	6.50	4.7	1.25	3.00	2.46	5.75	0.39	0.28	1.10

Lead Length.....24 Inches

Dwg# 0902-00857-B Rev A

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OSI THREE-PHASE AC CURRENT TRANSDUCER *MODEL* 3ACT-

DESCRIPTION

The model 3ACT is a three-phase UL-, CUL-, and CE-approved ac current transducer which provides three isolated dc outputs which are directly proportional to the three current inputs.

The output is derived from the average absolute value of the input and is calibrated in terms of the RMS value of the input sine wave.

Models with full-scale input ranges of 25A and higher use external sensors (CTs).

With the exception of models which provide 4-20mA outputs, all models are self-powered from the measured line.

5 YEAR WARRANTY

FEATURES

- Accurate, reliable current measurement
- Rugged metal construction
- Designed to withstand motor start-up transients
- Average reading calibrated RMS
- Low Cost

APPLICATIONS

- Designed for use in applications which require inexpensive current measurement.
- Designed for use in applications where UL, CUL, or CE compliance is required.

INPUTS AC AMPS	SENSOR SIZE	STANDARD OUTPUT MODELS 3ACT-				
		UL, CUL & CE				UL & CUL
		0-1mAdc*	4-20mAdc**	0-10Vdc*	0-5Vdc*	4-20mA
0 - 1	INT	001A	001E2	001C	001CX5	001E
0 - 5	INT	005A	005E2	005C	005CX5	005E
0 - 10	INT	010A	010E2	010C	010CX5	010E
0 - 20	INT	020A	020E2	020C	020CX5	020E
0 - 25 †	W	025A	025E2	025C	025CX5	025E
0 - 50	W	050A	050E2	050C	050CX5	050E
0 - 100	W	100A	100E2	100C	100CX5	100E
0 - 200	W	200A	200E2	200C	200CX5	200E
0 - 300	W	300A	300E2	300C	300CX5	300E
0 - 400	X	400A	400E2	400C	400CX5	400E
0 - 500	X	500A	500E2	500C	500CX5	500E
0 - 600	X	600A	600E2	600C	600CX5	600E
0 - 800	X	800A	800E2	800C	800CX5	800E
0 - 1000	Y	1000A	1000E2	1000C	1000CX5	1000E
0 - 1500	Y	1500A	1500E2	1500C	1500CX5	1500E

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Measuring Equipment 7N93

CE

***** **"**A", "C", and "CX5" models are self-powered from measured line.
****** "E2" models are 4-20mA loop-powered, and require 15-24Vdc.
† Indicates two turns required through transformer window.

Standard "E" models require 115Vac instrument power.
For optional 230Vac instrument power - add suffix **"- 22"**.

For optional "3 outputs summed" - add suffix "**Y05**".
(NOTE: Not UL, CUL or CE listed.)

ORDERING INFORMATION

Example: Three 200Aac Inputs with Three 4-20mAdc Outputs.

3ACT-200E

SPECIFICATIONS

INPUT

Frequency Range 50/60Hz
Burden ..... 1.0VA F.S. (each input)
Current Overload (continuous)
20A model ..... 1.25 X F.S. rating
All other models..... 2 X F.S. rating

DIELECTRIC TEST

Input/Output/Case.....2200Vac

INSTRUMENT POWER

"E" models....Standard..... 115Vac, 50/60Hz, ±15%, 10VA
"-22" option ....230Vac, 50/60Hz, ±15%, 10VA
"E2" models.....15-24Vdc loop powered
All other models ..... Self-powered

OUTPUT

Response.....400ms
Loading
"A" models .....(0-1mAdc).....0-10kΩ
"E" models .....(4-20mAdc).....0-1kΩ
"E2" models .....(4-20mAdc)..... 0-600Ω at 24V
"C", "CX5" models .....(0-5Vdc, 0-10Vdc) .....≥10MΩ
Field Adjustable Cal. ..... ±5%

ACCURACY

Internal sensor ..... ±0.25% F.S. @ 60Hz
External sensor..... ±0.5% F.S. @ 60Hz
Includes effects of linearity and setpoint
Output Ripple ..... <1.0% F.S.

TEMPERATURE

Operating Range..... -20ºC to +60ºC
Effect.....±1.0% Rdg.

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4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
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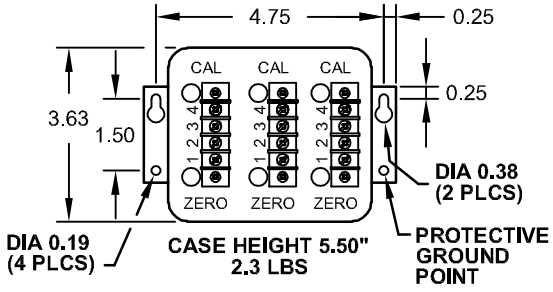
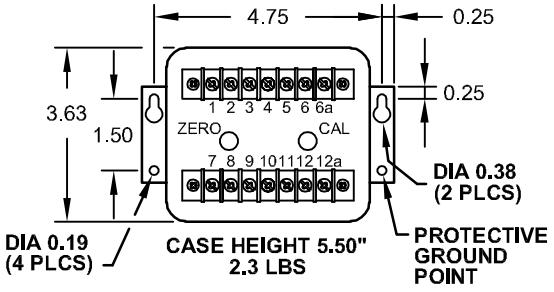
CASE DIMENSIONS & CONNECTION DIAGRAMS *MODEL* 3ACT-

MODELS WITH A, C, CX5 OR E2 OPTION

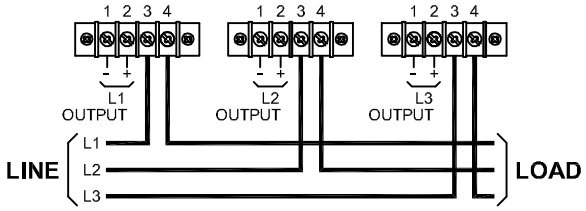


ALL DIMENSIONS ARE IN INCHES.

MODELS WITH E OPTION

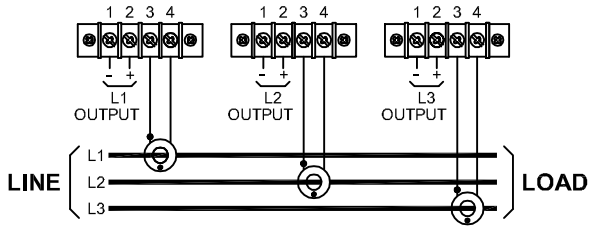


MODELS WITH A, C & CX5 OPTIONS - INTERNAL SENSOR



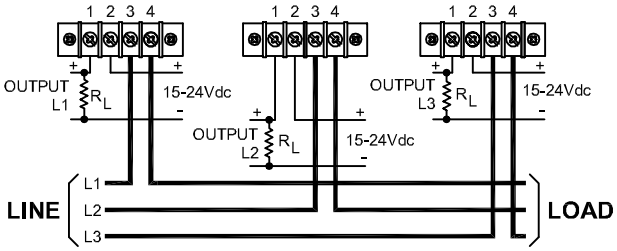
ALL MODEL "Y05" OUTPUT CONNECTIONS, TERMINALS 1 & 2 "L1"

MODELS WITH A, C & CX5 OPTIONS - EXTERNAL SENSOR

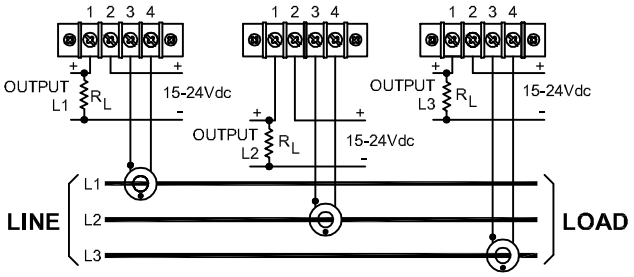


25A MODELS REQUIRE 2 TURNS OF THE CONDUCTOR THROUGH TRANSFORMER WINDOW.

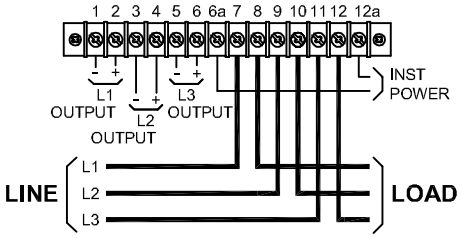
MODELS WITH E2 OPTION - INTERNAL SENSOR



MODELS WITH E2 OPTION - EXTERNAL SENSOR

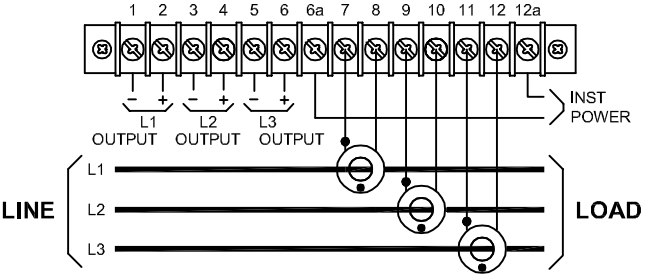


MODELS WITH E OPTION - INTERNAL SENSOR



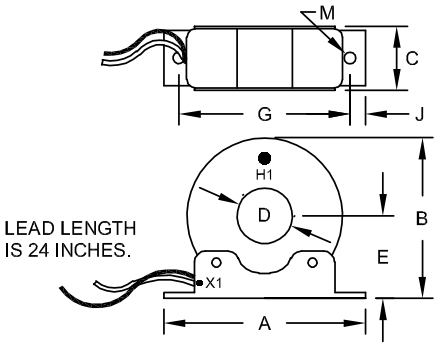
TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON
AC INSTRUMENT POWER ON TERMINALS 6A AND 12A

MODELS WITH E OPTION - EXTERNAL SENSOR



TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON
AC INSTRUMENT POWER ON TERMINALS 6A AND 12A

EXTERNAL SENSOR DIMENSIONS



SENS. SIZE	SENSOR DIMENSIONS (INCHES)								WT. LBS.
	A	B	C	D	E	G	J	M	
W	4.50	3.7	1.25	1.25	1.94	3.88	0.34	0.27 x 0.44	1.43
X	6.50	4.7	1.25	2.50	2.46	5.75	0.39	0.28	1.61
Y	6.50	4.7	1.25	3.00	2.46	5.75	0.39	0.28	1.10

Dwg# 0902-00411-B Rev A

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OSI AC CURRENT TRANSDUCER *MODELS* CTC- & CTD-

5Aac - 2000Aac RANGES

DESCRIPTION

The CTC & CTD units provide a self-powered 5Vdc, 10Vdc, or 1mAdc output, or a loop-powered 4-20mAdc output proportional to window currents, with input ranges up to 2000 Amperes at 50-400Hz. The dc output is proportional to the average absolute value of the input and is calibrated with the sine wave inputs.

FEATURES

- Insensitive to polarity
- Easy to install
- Accurate & reliable 50-400Hz.

APPLICATIONS

- Designed for applications requiring accurate current measurements.

INPUT AC AMPS	STANDARD OUTPUT MODEL CTC-				CASE SIZE
	5Vdc	10Vdc	1mAdc	4-20mAdc*	
0 - 5	005CX5	005C	-	005E2	A
0 - 10	010CX5	010C	-	010E2	A
0 - 15	015CX5	015C	-	015E2	A
0 - 20	020CX5	020C	-	020E2	A
0 - 25	025CX5	025C	-	025E2	A
0 - 30	030CX5	030C	-	030E2	A
0 - 35	035CX5	035C	-	035E2	A
0 - 40	040CX5	040C	-	040E2	A
0 - 50	050CX5	050C	-	050E2	A

INPUT AC AMPS	STANDARD OUTPUT MODEL CTD-				CASE SIZE
	5Vdc**	10Vdc**	1mAdc	4-20mAdc*	
0 - 50	050CX5	050C	050A	050E2	B
0 - 100	100CX5	100C	100A	100E2	B
0 - 150	150CX5	150C	150A	150E2	B
0 - 200	200CX5	200C	200A	200E2	B
0 - 300	300CX5	300C	300A	300E2	B
0 - 400	400CX5	400C	400A	400E2	B
0 - 500	500CX5	500C	500A	500E2	B
0 - 600	600CX5	600C	600A	600E2	B
0 - 800	800CX5	800C	800A	800E2	B
0 - 1000	1000CX5	1000C	1000A	1000E2	B
0 - 200	200CX5Z03	200CZ03	200AZ03	200E2Z03	C
0 - 300	300CX5Z03	300CZ03	300AZ03	300E2Z03	C
0 - 400	400CX5Z03	400CZ03	400AZ03	400E2Z03	C
0 - 500	500CX5Z03	500CZ03	500AZ03	500E2Z03	C
0 - 600	600CX5Z03	600CZ03	600AZ03	600E2Z03	C
0 - 800	800CX5Z03	800CZ03	800AZ03	800E2Z03	C
0 - 1000	1000CX5Z03	1000CZ03	1000AZ03	1000E2Z03	C
0 - 1200	1200CX5Z03	1200CZ03	1200AZ03	1200E2Z03	C
0 - 1500	1500CX5Z03	1500CZ03	1500AZ03	1500E2Z03	C
0 - 2000	2000CX5Z03	2000CZ03	2000AZ03	2000E2Z03	C

INPUT AC AMPS	STANDARD OUTPUT MODEL CTC-				CASE SIZE
	5Vdc	10Vdc	1mAdc	4-20mAdc*	
0 - 100	100CX5	100C	-	100E2	D**
0 - 150	150CX5	150C	-	150E2	D**
0 - 200	200CX5	200C	-	200E2	D**
0 - 300	300CX5	300C	-	300E2	D**
0 - 400	400CX5	400C	-	400E2	D**
0 - 500	500CX5	500C	-	500E2	D**
0 - 600	600CX5	600C	-	600E2	D**
0 - 800	800CX5	800C	-	800E2	D**
0 - 1000	1000CX5	1000C	-	1000E2	D**

CTC CASE STYLES

A Case

D Case

5 YEAR WARRANTY

CTD CASE STYLES

B Case

C Case

LISTED
Measuring Equipment 7N93

(D case not included in UL/CE listing.)

ORDERING INFORMATION

Example: 25 Amps ac Input with 4-20mA loop-powered Output

CTC-025E2

SPECIFICATIONS

INPUT

Current ..... See Table
Current Overload ..... Continuous ..... 1.3 X Rating
Transient ..... 5 X Rating (10s/hr)
Frequency Range ..... CTC 50-60Hz
CTD 50-400Hz

DIELECTRIC TEST

Input/Output/Case 1800Vac

INSTRUMENT POWER

"A", "C", "CX5" models ..... Self-Powered
"E2" models ..... 24Vdc, ±4Vdc, loop powered

OUTPUT

Type ..... See Table
Loading ..... "A" models 0-10kΩ
"C", "CX5" models ..... >10MΩ
"E2" models 0-500Ω
Response Time (to 90% F.S.) ..... Typical 300ms
5A & 10A models ..... <750ms

ACCURACY (linearity, setpoint, repeatability @ 60Hz)

CTC ..... 5A-50A models ..... ±0.25% F.S.
All others ..... ±0.5% F.S.
Output Ripple ..... All models ..... <±0.5% F.S.

TEMPERATURE

Operating Range ..... -20 to 60ºC
Effect ..... ±1.0% Rdg.

*4-20mA loop-powered models require an external 24Vdc power supply. These models are not CE-Compliant.
**CTC D-case models are not included in UL/CE listing. CTD voltage output models are not included in UL listing.

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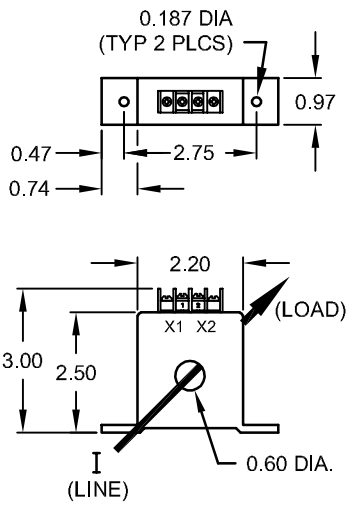
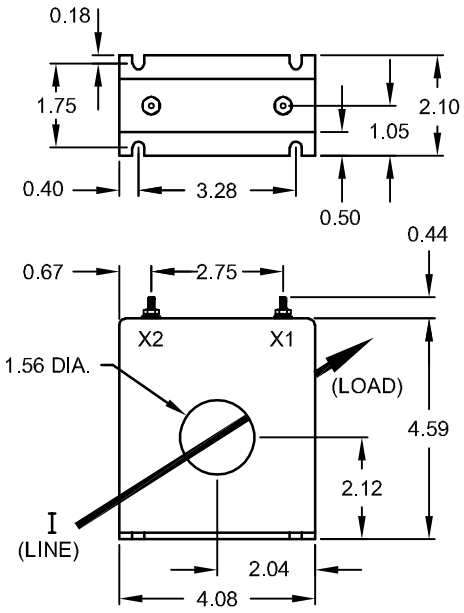
CONNECTIONS & CASE DIMENSIONS *MODEL* CTC- & CTD-

A CASE

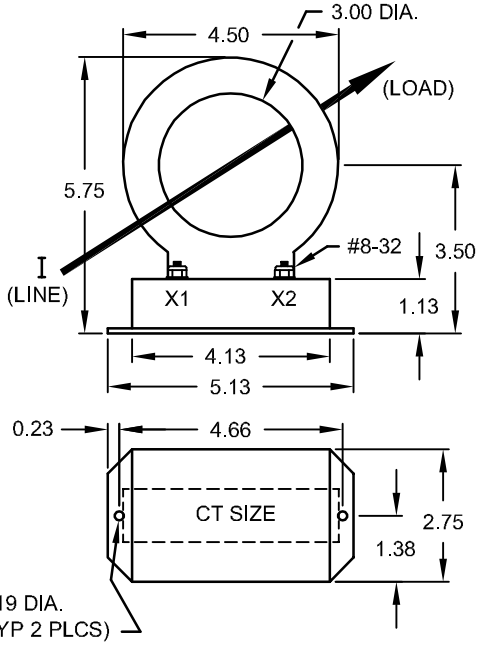


ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.

B CASE



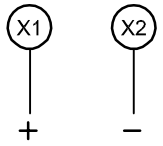
C CASE



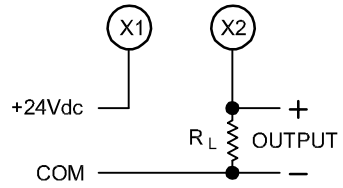
Dwg# 0902-00848-B Rev A

A & C CASE CONNECTIONS

A, C, CX5 MODELS

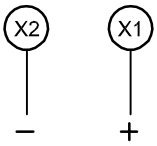


LOOP-POWERED OPTION E2

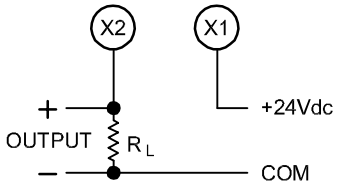


B CASE CONNECTIONS

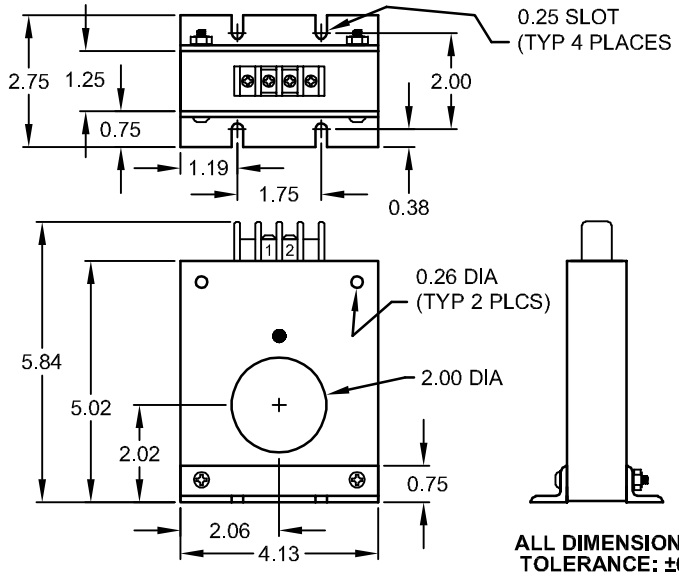
A, C, CX5 MODELS



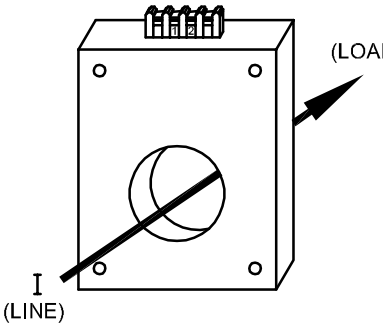
LOOP-POWERED OPTION E2



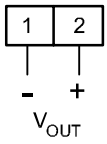
D CASE DIMENSIONS AND CONNECTIONS



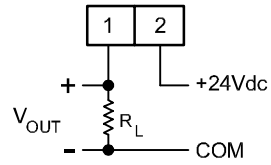
ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.



A, C, CX5 MODELS
5Vdc & 10Vdc
OUTPUT



E2 MODELS
4-20mAdc
LOOP POWER



Dwg# 0902-00848-B Rev A

OSI SINGLE-PHASE AC CURRENT TRANSDUCER *MODEL* MCT5-

DIN-RAIL-MOUNTED AC CURRENT TRANSDUCER
0.25% ACCURACY

FEATURES
- Ruggedized Polyamide DIN-mount case.
- Slim profile allows maximum use of available space.
- Field-selectable analog outputs.
- Recessed terminals provide increased safety.

APPLICATIONS
- Ideal for use in enclosures with dimensional constraints.
- Designed for industrial environments.
- OEM measurement systems.
- Designed for use with **OSI** current transformers.
- Easily integrated into control systems.

Transducer output is derived from the average absolute value of the input and calibrated as the RMS value of a sine wave input.

INPUT AC AMPS	STANDARD OUTPUTS MODEL MCT5-		
	0-1mAdc*	4-20mAdc	4-20mAdc**
0 - 1.0	001A	001E	001E2
0 - 5.0	005A	005E	005E2

* Models are self-powered from measured AC input line with **DIP-switch-selectable 0-1mA, 0-5Vdc, or 0-10Vdc output.**

** Denotes 4-20mA loop-powered unit, requires 15-40Vdc instrument power.
Standard 4-20mA models require 85-135 Vac instrument power.

5 YEAR WARRANTY

c UL us LISTED

Measuring Equipment 7N93

ORDERING INFORMATION
Example: 0-5A Input with 4-20mA Output.
MCT5-005E

SPECIFICATIONS

INPUT
Current ..... See Table
Frequency Range ..... 48 to 65Hz; 60Hz Nom.
Burden ..... 1-Amp models 0.05VA
5-Amp models 0.175VA
Current Overload
Continuous ..... 2 X F.S. rating
10s/hr ..... 10 X F.S. rating

DIELECTRIC TEST
Input/Output 1500Vac

OUTPUT
Response ..... (to 99%) 400ms
Field-Adjustable Span ..... ±5%
Loading
"A" models set for 0-1mA output 0-10KΩ
"A" models set for 0-5Vdc output ..... >5MΩ
"A" models set for 0-10Vdc output ..... >10MΩ
"E" models ..... (4-20mA) 0-500Ω
"E2" models ... (Loop Powered 4-20mA) 0-600Ω

INSTRUMENT POWER
"E" models **....** (4-20mA) 85-135Vac, 50-60Hz, 3VA
"E2" models .. (Loop-Powered 4-20mA) 15-40Vdc
"A" models ..... Self-Powered

ACCURACY
Accuracy ..... ±0.25% F.S.@ 60Hz
Includes effects of linearity and setpoint.
Output Ripple ..... <1.0% F.S.

TEMPERATURE
Effect
"A" & "E2" models .. (-20ºC to +65ºC) ..... ±1.0%
"E" models ..... (-20ºC to +40ºC) ..... ±1.0%

PHYSICAL
Termination ..... wire size 22AWG to 12AWG
Net Weight ..... 0.4 lb

CONNECTION DIAGRAMS AND DIMENSIONS SHOWN ON NEXT PAGE

(Consult factory for availability of DIN-rail)

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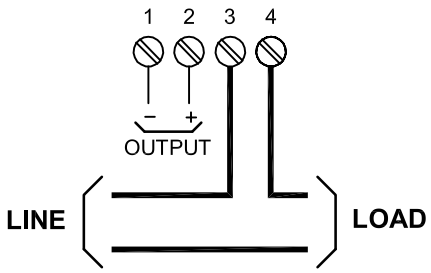
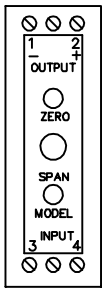
DIMENSIONS AND CONNECTION DIAGRAMS *MODEL* MCT5-

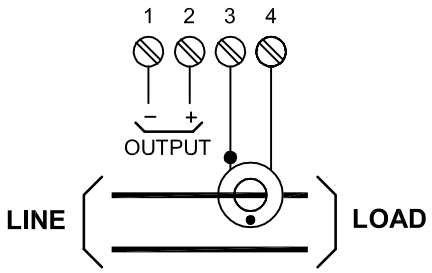
DIRECT CONNECTION



"A" MODELS (SELF-POWERED)

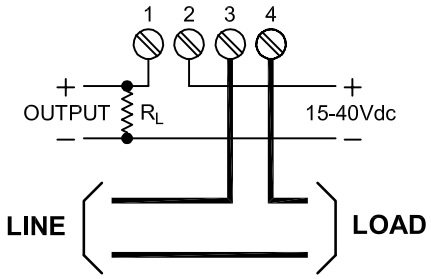


EXTERNAL CURRENT TRANSFORMERS

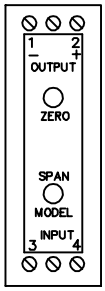


"A" MODELS (SELF-POWERED)

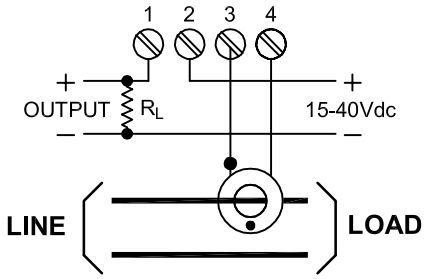
DIRECT CONNECTION



"E2" MODELS (LOOP-POWERED)

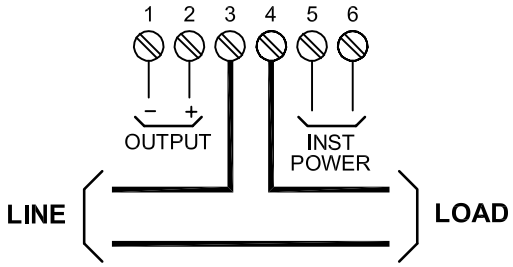


EXTERNAL CURRENT TRANSFORMERS

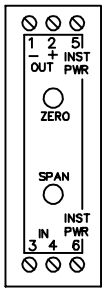


"E2" MODELS (LOOP-POWERED)

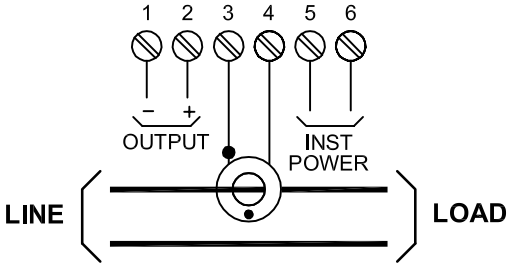
DIRECT CONNECTION



"E" MODELS (4-20mA OUTPUT)



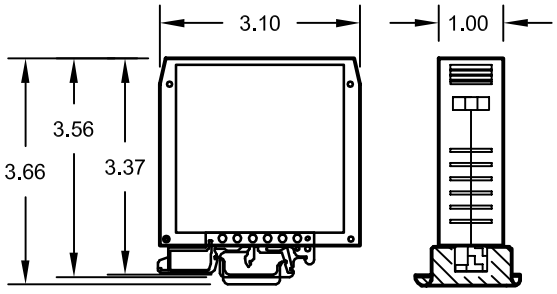
EXTERNAL CURRENT TRANSFORMERS



"E" MODELS (4-20mA OUTPUT)

CASE DIMENSIONS

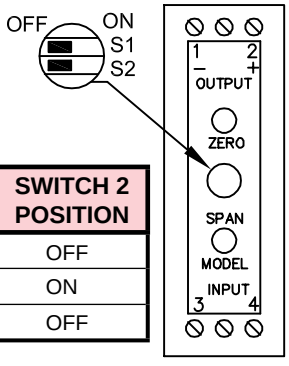
UNIT CAN BE MOUNTED ON:
STANDARD 35MM TOP-HAT DIN-RAIL (DIN3) PER EN 50022 OR STANDARD 32MM "G" DIN-RAIL (DIN1) PER EN 50035.



ALL DIMENSIONS IN INCHES.

"A" MODEL OUTPUT SELECTION

UNITS ARE SHIPPED WITH 0-1mA SETTING. REMOVE SNAP BUTTON FOR ACCESS TO DIP SWITCHES.



OUTPUT REQUIRED	SWITCH 1 POSITION	SWITCH 2 POSITION
0-1mA	OFF	OFF
0-5V	ON	ON
0-10V	ON	OFF

Dwg# 0902-00572-B Rev B

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OSI SPLIT-CORE AC CURRENT TRANSDUCER *MODEL* SCT-

AC INPUT / DC OUTPUT

DESCRIPTION

The SCT is a split-core current transformer integrated with a current transducer to provide current measurement ranges up to 500Aac. Outputs of 0-1mAdc, 0-5Vdc, or loop-powered 4-20mAdc are available.

The output is proportional to the average absolute value of the input and is calibrated to represent the RMS value of a sine wave.

5 YEAR WARRANTY

c UL us LISTED

Measuring Equipment 7N93

FEATURES

- Insensitive to polarity
- Split-core design for easy installation
- Accurate and reliable from 50-400Hz.

APPLICATIONS

- Designed for applications requiring accurate current measurements.

INPUT AC AMPS	STANDARD OUTPUTS MODEL SCT-		
	0-1mAdc*	4-20mAdc**	0-5Vdc*
0-50	050A	050E2	050CX5
0-100	100A	100E2	100CX5
0-200	200A	200E2	200CX5
0-300	300A	300E2	300CX5
0-400	400A	400E2	400CX5
0-500	500A	500E2	500CX5

ORDERING INFORMATION

Example: 100 Amp AC Input with 4-20mA Loop-Powered Output.
SCT-100E2

* models are self-powered from measured line.
** 4-20mA loop-powered models require 15-40Vdc supply.

SPECIFICATIONS

INPUT

Current ..... See Table
Frequency Range ..... 50 to 400Hz
Burden ..... 0.5VA max.
Current overload ..... 5 X rating for 10s/hr

DIELECTRIC TEST

Input/Output/Case 1800Vac

INSTRUMENT POWER

"A" & "CX5" models ..... Self-powered
"E2" models 15-40Vdc

OUTPUT

Response ..... (to 90%) ..... <300ms
Loading
"A" models ..... 0-1mA models 0-10kΩ
"CX5" models ... 0-5Vdc models ..... >100kΩ
"E2" models ..... 4-20mA models 0-500Ω

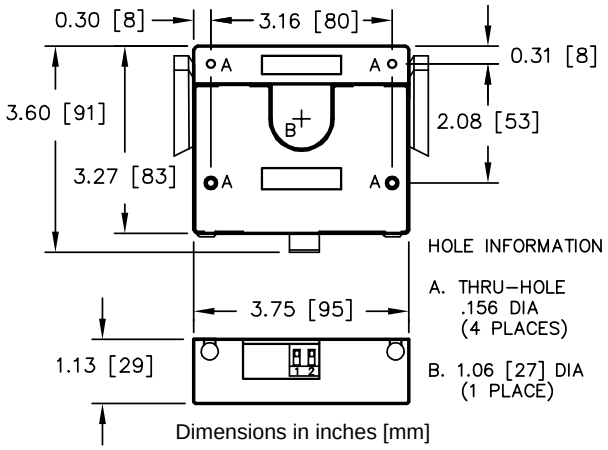
ACCURACY

25ºC, 60Hz ..... ±0.5% F.S.
All conditions ..... ±0.7% F.S.
Output Ripple ..... <0.5% F.S.

TEMPERATURE & PHYSICAL

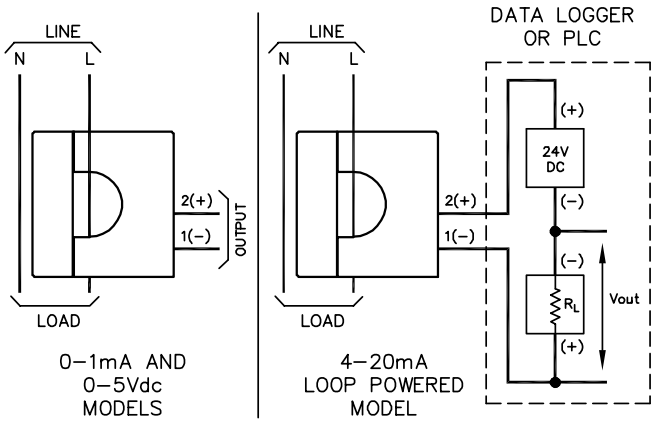
Temperature Range ..... -20ºC to 60ºC
Net Weight ..... 1.0 lb

CASE DIMENSIONS



Dimensions in inches [mm]

CONNECTION DIAGRAMS



Dwg# 0902-00361-B Rev G

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SINGLE-PHASE AC CURRENT TRANSDUCER *MODEL* DCT-

DIN-RAIL-MOUNTED AC CURRENT TRANSDUCER

FEATURES

- Accurate, reliable measurement.
- Both 1 and 5A ranges are available.
- Compact DIN Rail packaging.

APPLICATIONS

- Designed for use in OEM applications which require inexpensive current measurement.
- Designed for installations that require both CE and CSA approvals.
- Perfect for applications that require DIN-Rail mounting.

Transducer output is derived from the arithmetic mean value of the input and calibrated in terms of the RMS value of the sine wave input.

MODEL SELECTION

INPUT AC AMPS	STANDARD OUTPUTS MODEL DCT-				
	0-1mAdc*	4-20mA	4-20mA**	0-10Vdc	0-5Vdc
0 - 1	001A	001E	001E2	001C	001CX5
0 - 5	005A	005E	005E2	005C	005CX5

***A** models are self-powered from measured line.
****4-20mA** loop-powered models require 12-32Vdc.

ORDERING INFORMATION

Example: 5Aac Input with 4-20mA Output.

DCT - 005E

Standard E, C & CX5 models require 100-135Vac instr. power.
For optional 220Vac instrument power - Add suffix **"- 22"**.

SPECIFICATIONS

INPUT

Current ..... 0-1A or 0-5A
Frequency Range 50/60Hz
Burden ..... <1.5VA F.S.
Current Overload
Continuous ..... 120% of F.S. Input
1s, Transient ..... 20 X F.S. Rating

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

INSTRUMENT POWER

"A" models ..... none required
"E", "C", "CX5" models... 100-135Vac, 50/60Hz, 3.0VA
"E2" models ..... 12-32Vdc, loop-powered
"-22" Option ..... 230Vac, 50/60Hz, ±15%

OUTPUT

Output Loading
"A" models ..... (0-1mA output) 0-15kΩ
"C", "CX5" models (5V &10V) ..... 2.5kΩ Min.
"E" models ..... (4-20mA) 0-750Ω
"E2" models ..... (loop powered) ..... 0-600Ω@24V
Response Time 300ms

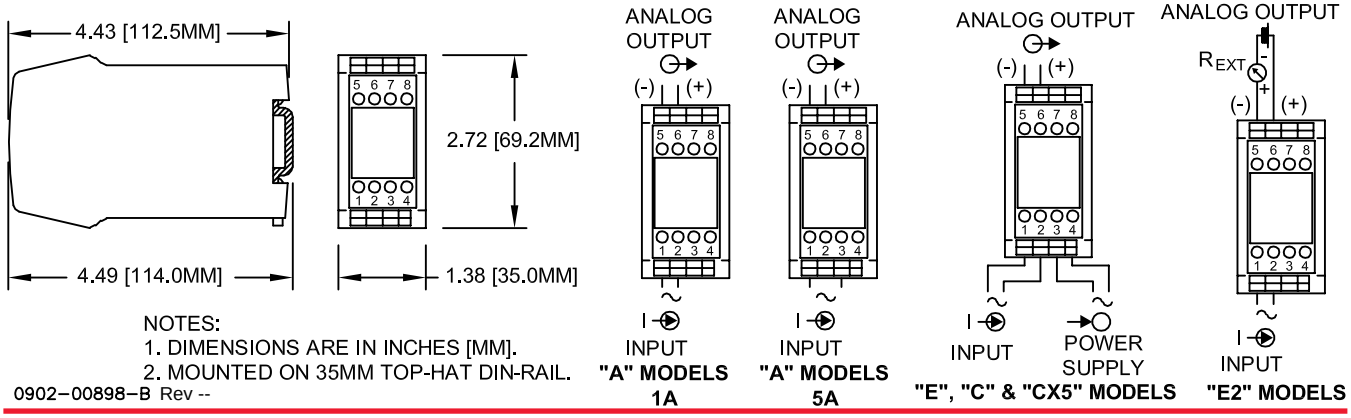
ACCURACY

Accuracy ..... ±0.5% F.S. @ 60Hz
Includes effects of linearity and setpoint.
Output Ripple ..... Less than 1.0% p.p.

TEMPERATURE & PHYSICAL

Operating Range ..... -10ºC to 55ºC
Termination ..... wire size up to 10AWG
Net Weight ..... 0.65 lb

CASE DIMENSIONS AND CONNECTIONS



NOTES:
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

0902–00898–B Rev --

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PROGRAMMABLE SETPOINT RELAY MODEL CRD-005

PROGRAMMABLE AS A PERCENT OF RANGE

FEATURES

- Programmable settings for either current or voltage input, threshold levels, and over- or under-relay alarms.
- Internal DIP-switches may be set for either 0-1mAdc or 0-10Vdc, and may be set for under-alarm or over-alarm relay operation.
- Factory setting “0-1mA and over-range alarm mode”
- Lid-mounted two-digit numerical push-button switch calibrated as percent of full scale with a threshold range of 1-99%.
- Red LED lamp lights to indicate when threshold level has been obtained.

5 YEAR WARRANTY

INPUT RANGE	INTERNAL SWITCH POSITIONS							
	1	2	3	4	5	6	7	8
	UNDER RANGE*							
0-1mAdc	ON	ON			ON	ON		
0-10Vdc	ON	ON				ON		
	OVER RANGE**							
0-1mAdc*			ON	ON	ON	ON		
0-10Vdc			ON	ON		ON		

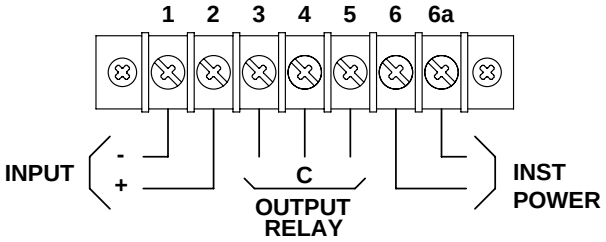
Highlighted area indicates Factory Setting. Unit is set at factory for the 0-1mA input and in the over-range alarm mode.

*The output relay will energize when instrument power is applied and the current is above the set point threshold. It will remain in a “Fail Safe” mode until either the input current drops below the set point threshold or instrument power is removed.

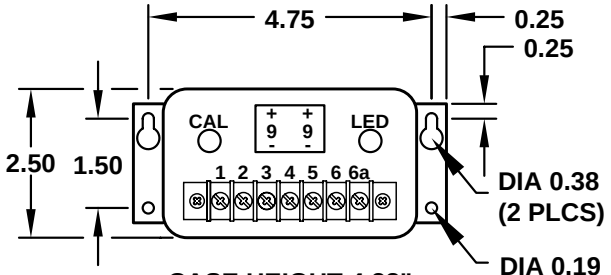
OUTPUT TERMINAL CONNECTIONS & LED OPERATION								
MODE OF OPERATION	UNDER RANGE*				OVER RANGE**			
	3	4	5	LED	3	4	5	LED
INST. POWER OFF	N/C	Com	N/O	OFF	N/C	Com	N/O	OFF
INST. POWER ON	N/C	Com	N/O	ON	N/O	Com	N/C	OFF
INST. PWR. ON INPUT BELOW SET POINT	N/C	Com	N/O	ON	N/O	Com	N/C	OFF
INST. PWR. ON INPUT ABOVE SET POINT	N/O	Com	N/C	OFF	N/C	Com	N/O	ON

** The output relay will energize when instrument power is applied and will remain in a “Fail Safe” mode until either the instrument power is removed or the input exceeds the set point threshold level.

CONNECTION DIAGRAM



CASE DIMENSIONS



CASE HEIGHT 4.38"
1.3 LBS
All dimensions in inches

SPECIFICATIONS

INPUT
- Current 1mAdc
- Current Burden 1kΩ
- Voltage 0-10Vdc
- Voltage Burden 10kΩ
- Set Point (Digital) ..... 1-99%, 1% minimum

DIELECTRIC TEST
- Input to Output and Case 1500Vac

INSTRUMENT POWER 85-135Vac, 50-400Hz, 2.5VA

OUTPUT
- Relay ..... Form C, SPDT
- Rating 120Vac, 3A
- Response Time 10ms

ACCURACY
- Accuracy ..... Setpoint ±2 digits
- Resolution ..... ±1 Digit
- Hysteresis ..... ±1 Digit
- Temperature Effect (-10ºC to +60ºC) ..... ±0.1%/ºC

MECHANICAL
- Mechanical Operations ..... 1 Million

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PROGRAMMABLE SETPOINT RELAY MODEL CRD-020

RANGES UP TO 20Aac CURRENT INPUT

FEATURES

- Programmable set-point relay setting for input current, threshold levels, over- and under-current operation.
- Internal DIP-switches may be set for current ranges of either 0-5, 0-10, 0-15, or 0-20 Amperes, and the relay mode for under- or over-current operation.
- Lid-mounted two-digit numerical push-button switch calibrated as percent of full scale with a threshold range of 1-99%.
- Red LED lamp lights to indicate when the threshold level has been obtained.

5 YEAR WARRANTY

INPUT RANGE (AMPS)	INTERNAL SWITCH POSITIONS							
	1	2	3	4	5	6	7	8
	UNDER CURRENT*							
5	ON	ON						ON
10	ON	ON					ON	
15	ON	ON				ON		
20	ON	ON			ON		ON	
	OVER CURRENT**							
5			ON	ON				ON
10			ON	ON			ON	
15			ON	ON		ON		
20			ON	ON	ON		ON	

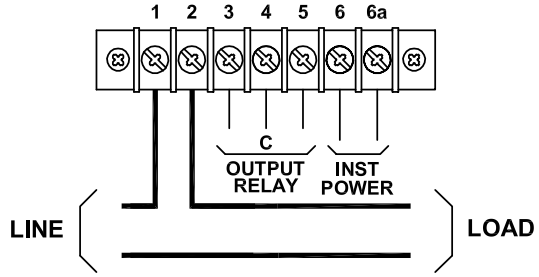
Highlighted area indicates Factory Setting. Unit is shipped from the factory with a 0-5 Amp input and in an over-current relay mode. The set point relay can be set to provide any one of the four current ranges and modes of operation.

* The output relay will energize when instrument power is applied and the current is above the set point threshold. It will remain in a "Fail Safe" mode until either the input current drops below the set point threshold or instrument power is removed.

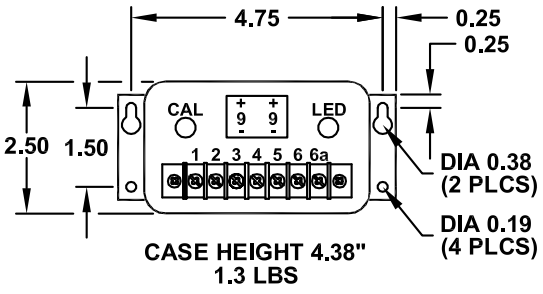
OUTPUT TERMINAL CONNECTIONS & LED OPERATION								
MODE OF OPERATION	UNDER RANGE*				OVER RANGE**			
	3	4	5	LED	3	4	5	LED
INST. POWER OFF	N/C	Com	N/O	OFF	N/C	Com	N/O	OFF
INST. POWER ON	N/C	Com	N/O	ON	N/O	Com	N/C	OFF
INST. PWR. ON, CURRENT BELOW SET POINT	N/C	Com	N/O	ON	N/O	Com	N/C	OFF
INST. PWR. ON, CURRENT ABOVE SET POINT	N/O	Com	N/C	OFF	N/C	Com	N/O	ON

** The output relay will energize when instrument power is applied and will remain in a "Fail Safe" mode until either the instrument power is removed or the input current exceeds the set point threshold level.

CONNECTION DIAGRAM



CASE DIMENSIONS



All dimensions in inches

SPECIFICATIONS

INPUT
Current Ranges..... (Selectable)
Operation.....5A Range.....80mA to 5A
10A Range.....160mA to 10A
15A Range.....200mA to 15A
20A Range.....220mA to 20A
Burden (Any Range) .....0.5VA, max.
Over-current (Any Range)
Continuous 25Aac
Transient 50Aac (10s/Hr)
Transient 250Aac (1s/Hr)
Frequency..... 50-425Hz, 60Hz Nom.

DIELECTRIC TEST
Input/Output/Instrument Power/Case.....1500Vac

INSTRUMENT POWER 85-135Vac, 50-400Hz, 2.5VA

OUTPUT
Relay..... Form C, SPDT
Rating.....120Vac, 3A
Mechanical Operations.....1 Million
Response Time to 90%...5A Range..... 200ms
10A Range..... 250ms
15A Range..... 350ms
20A Range..... 550ms

ACCURACY
Setpoint.....±2 digits
Resolution .....±1 digit
Hysteresis .....±1 digit

TEMPERATURE
Effect (-10°C to +60°C) ..... ±0.1%/°C, ±0.1% F.S.

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D

NEW!

CURRENT PRESENT DETECTOR MODEL CPD-4715

DESCRIPTION

The model CPD-4715 is a current present detector (current switch) with a solid-state relay output that indicates a measured current level of 0.5Aac or greater.

To operate, simply pass the current conductor through the window of the unit and activate the monitored circuit - no instrument power or additional setup is required.

c UL us LISTED
Measuring Equipment 7N93

2011/65/EU RoHS COMPLIANT

Declaration of Conformity available upon request.

SPECIFICATIONS

INPUT

Current	Trip Point (non-adjustable)	≤0.5Aac
Over-range	Continuous	100Aac
Frequency	Calibrated	60Hz
	Range	50-400Hz

OUTPUT

Solid State Relay

Relay Rating		Form A, Normally Open, 30Vac/40Vdc, 0.5Aac/dc
Contact Resistance	at contact current = 0.075A	Contact voltage drop = typical 1.5V, maximum 3.0V
Trip Point	(non-adjustable)	≤0.5Aac
Relay Action		Current under trip point = Open, Current above trip point = Closed
Turn-On Time	at 100% of trip point	approx. 100ms
Turn-Off Time		approx. 300ms

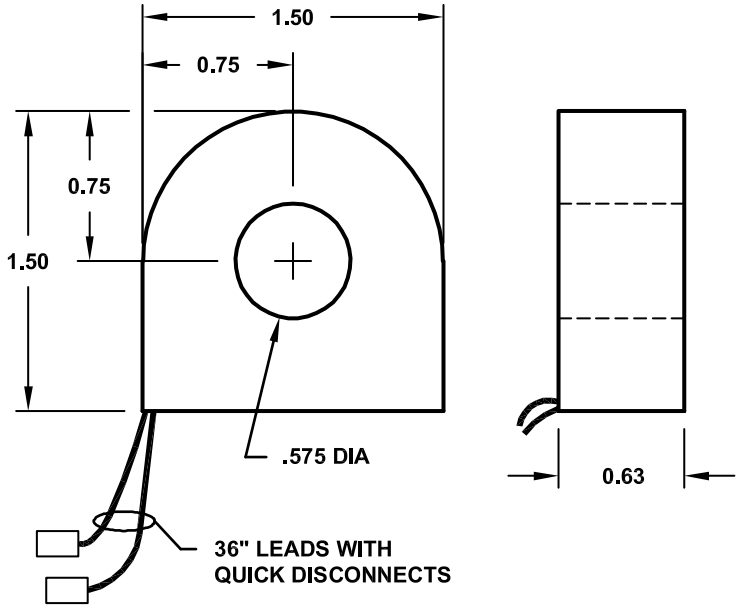
DIELECTRIC TEST 2250Vac

TEMPERATURE ..... Operating Range ..... -25°C to +60°C

PHYSICAL

Enclosure Material	LCP, UL94V-0, Black
Weight	0.15lb.
Leads	36in., 18AWG
Termination	0.25in. male and female quick-disconnects, Molex 19001-0002 and 19002-0002 or equivalent.

CASE DIMENSIONS (inches)



For installation on up to 600Vac lines.

Dwg# 0902-00613-B Rev A

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NEW!

AC CURRENT SWITCH — MODEL DSO-102

DESCRIPTION

The Model DSO-102 monitors load currents of devices such as fans, pumps and other critical items in HVAC systems. The solid state relay output provides a run status indication for these devices to compatible DDC/PLC control systems. The relay output of this model is completely isolated from the input current.

Units with the VF option are suitable for use in Variable Frequency Drive (VFD) systems with a frequency range of 12 to 60Hz (order Model DSO-102-VF).

Note: DSO-102 was previously DSO-102-N.O.

5 YEAR WARRANTY

SPECIFICATIONS

INPUT

Current Range (Jumper-selectable)...1-6A, 6-40A, 40-200A
Frequency
- Standard.....60Hz
- With VF option.....12-60Hz

OUTPUT

Solid State Relay .....Form A, Normally Open, 30Vdc, 0.150Adc maximum
Response Time
- Standard.....25ms
- With VF option.....2s

Threshold Setting.....Adjustable
Relay Action.....Load current Under threshold = Open
Load current Over threshold = Closed

INSTRUMENT POWER

All models ..... Self Powered

TEMPERATURE

Operating Range..... 10º-135ºF

PHYSICAL

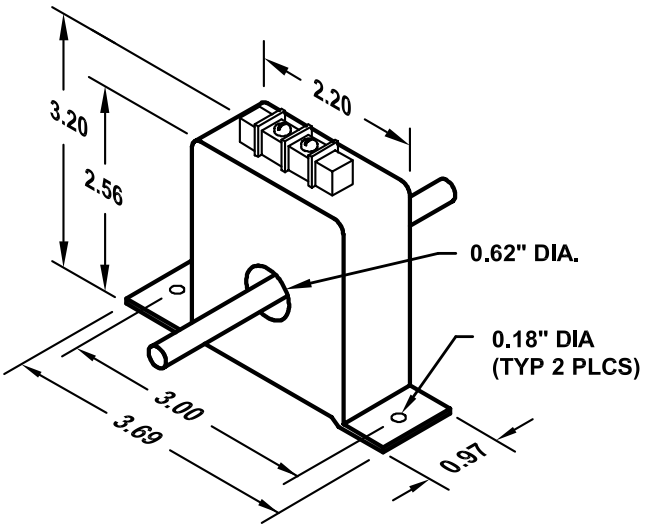
Enclosure..... ABS, Cycolac® , UL94V-0, Black
Net Weight 0.25lb

CONNECTIONS

Input..... Current-carrying cable is inserted through circular window opening.
Maximum cable size #3/0 (dia. <0.62")

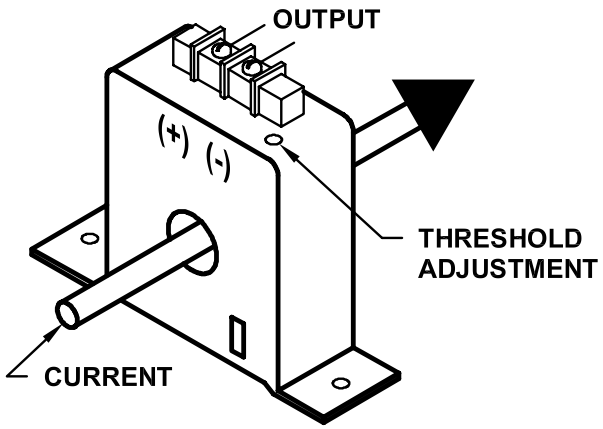
Output .....Wire-retaining screw terminals No. 6/32
Maximum wire size #14 AWG

DIMENSIONS



ALL DIMENSIONS IN INCHES

CONNECTION DIAGRAM



Dwg# 0902-00593-B Rev --

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C

NEW!

RMS CURRENT TRANSDUCER — MODEL CTCR-

NON-CONTACT, LOOP-POWERED, TRUE RMS

DESCRIPTION

The CTCR series of transducers provides a non-contact, loop-powered, method of current measurement. The dc output is directly proportional to the true RMS value of ac window current. Measurement ranges of 1A to 100A are available.

2011/65/EU • RoHS COMPLIANT

5 YEAR WARRANTY

FEATURES

- ±0.25% accuracy (±0.5% on 1A model)
- True RMS measurement
- Non-contact
- Loop-powered
- Ease of Installation

SPECIFICATIONS

INPUT

Current Range ..... See Table
Over-range w/o damage .. Continuous ..... 1.3X Rating
Transient (10s/hr) .. 5X Rating
Frequency Range 50-400Hz

OUTPUT

Type ..... 2-Wire ..... 4-20mAdc, loop-powered
Scaling ..... 0-F.S. Input = 4-20mAdc Output
Loading ..... 24Vdc loop power 0-500Ω
15Vdc loop power 0-400Ω
Response ..... to 90% ..... 250ms, Typical
Ripple ..... ≤1.0% F.S. pk-pk

DIELECTRIC TEST

Conductor Through Window to Output 2200Vac

INSTRUMENT POWER

Loop-Powered ..... Nominal 24Vdc
Range 15-35Vdc

ACCURACY (setpoint, linearity, repeatability)

1A model
50/60Hz ..... 10-100% F.S. ..... ±0.5% F.S.
all other ..... ±2% F.S., Typical
5A-100A models
50/60Hz ..... 10-100% F.S. ..... ±0.25% F.S.
all other ..... ±1% F.S., Typical

TEMPERATURE

Operating ..... Range ..... -20°C to 60°C
Effect ..... ±1.0% F.S.

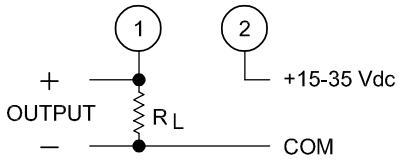
PHYSICAL

Termination ..... No. 6-32 Screw Terminals
Enclosure ..... ABS, Black, UL94V-0
Weight ..... 0.2 lb

MODEL SELECTION

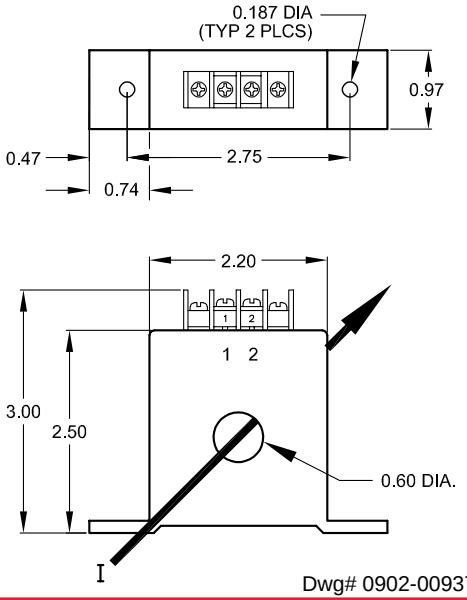
INPUT Aac	STANDARD OUTPUTS MODEL CTCR- (4-20mAdc loop-powered)
0-1	001E2
0-5	005E2
0-10	010E2
0-15	015E2
0-20	020E2
0-25	025E2
0-30	030E2
0-35	035E2
0-40	040E2
0-50	050E2
0-100	100E2

CONNECTION DIAGRAM



CASE DIMENSIONS

All dimensions in inches. (Tolerance: ±0.03in.)



Dwg# 0902-00937-B Rev B

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C

SINGLE-PHASE AC RMS CURRENT TRANSDUCER *MODEL* ACTR-

ACCURATE TO 0.25% FULL-SCALE

FEATURES

- Accurate measurement of the **true RMS** value of input signals over a wide frequency range.
- Input/output isolation.

APPLICATIONS

- For use in applications where measurement of non-sinusoidal waveforms is required.
- Designed to withstand motor start-up transients.

c UL us LISTED

Measuring Equipment 7N93

INPUT AMPS AC	STANDARD OUTPUTS MODEL ACTR-			
	0-1mAdc	**4-20mAdc**	**0-10Vdc**	**0-5Vdc**
0 - 1	001B	001E	001D	001X5
0 - 5	005B	005E	005D	005X5
0 - 10	010B	010E	010D	010X5
0 - 15	015B	015E	015D	015X5
0 - 20	020B	020E	020D	020X5

All standard units require 115Vac instrument power.
Optional 230Vac instrument power - Add suffix **"-22"**.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 15Aac Input with 0-10Vdc Output.
ACTR-015D

SPECIFICATIONS

INPUT

Current ..... See Table
Frequency Range..... 48-420Hz
Burden.....0.28VA F.S.
Current Overload (w/o damage)
1-10A Range ..... 2 X Rating (continuous)
15-20A Range ..... 25A maximum (continuous)
10 X Rating for one-second transient 10s/hr

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

Standard..... 115V, ±15%, 50/60Hz, 3.5VA
"**-22**" Option ..... 230V, ±15%, 50/60Hz, 3.5VA

OUTPUT

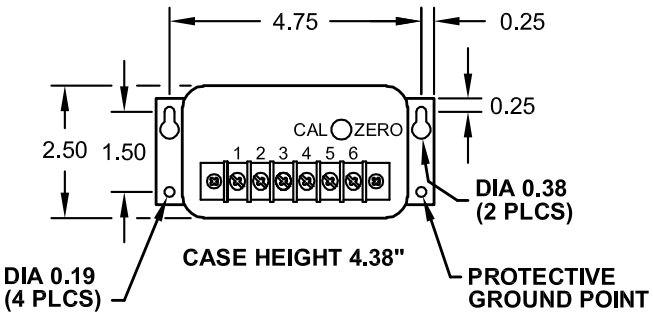
Type ..... See Table
Loading ..... **B** models 0-10kΩ
D & **X5** models.....2kΩ, min.
E models..... 0-500Ω
Response Time (to 90% F.S.) 100ms
Field-adjustable Calibration.....±10%

ACCURACY (Includes Effects of Linearity and Set Point)
At 60Hz .....±0.25% F.S.
(±0.5% typical over frequency range)
Output Ripple .....<1.0% F.S.

TEMPERATURE & PHYSICAL

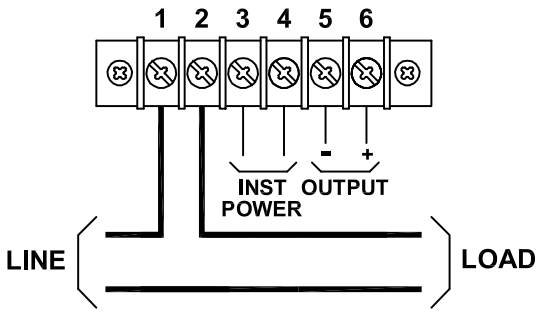
Operating Range.....-20 to 60ºC
Effect ..... ±1.0% Rdg.
Net Weight..... 1.5 Lbs.

CASE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES.

CONNECTION DIAGRAM



Dwg# 0902-00919-B Rev --

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C

OSI THREE-PHASE AC RMS CURRENT TRANSDUCER *MODEL* 3CTR-

3-IN-1 AC RMS CURRENT TRANSDUCER
0.25% ACCURACY

FEATURES

- Accurate measurement of the **true RMS** value of input current over a wide frequency range.
- Input/output dielectric test 2500V.
- **0.25% ACCURACY**

APPLICATIONS

- For use in applications where measurement of non-sinusoidal waveforms is required.
- Designed for use on three-phase systems, but may also be used to monitor three single-phase circuits where panel space is a premium.
- Designed to withstand motor start-up transients.

5 YEAR WARRANTY

All units have universal power supply 85-265Vac, 48-420Hz, or 110-370Vdc.

INPUT CURRENT	STANDARD OUTPUTS MODEL 3CTR-			
	0-1mAdc	4-20mAdc	0-10Vdc	0-5Vdc
0-1	001B	001E	001D	001X5
0-5	005B	005E	005D	005X5
0-10	010B	010E	010D	010X5
0-15	015B	015E	015D	015X5
0-20	020B	020E	020D	020X5

ORDERING INFORMATION

Example: 15 Amp AC Input with 0-10Vdc Output.
3CTR-015D

SPECIFICATIONS

INPUT

Current ..... See Table
Frequency Range 48-420Hz
Burden ..... (Each input) ..... 0.40VA @ F.S.
Overload
1-10A Range ..... 2 X F.S. (cont.)
15 & 20A Range ..... 1.25 X F.S. rating (cont.)
1A Range ..... 10A (10s transient)
All other ranges ..... 50A (10s transient)
250A (1s transient)

DIELECTRIC TEST

Input/Output/Case ..... 2500Vac, RMS

INSTRUMENT POWER

Standard 85-265Vac, 48-420Hz, 5VA
or 110-370Vdc, 5VA

OUTPUT

Response Time (to 90%) 100ms
Loading
"B" models ..... (0-1mAdc) 0-10kΩ
"D", "X5" models .. (0-5Vdc, 0-10Vdc) ..... 2kΩ min.
"E" models ..... (4-20mAdc) 0-500Ω
Field Adjustable Cal. ..... ±10%

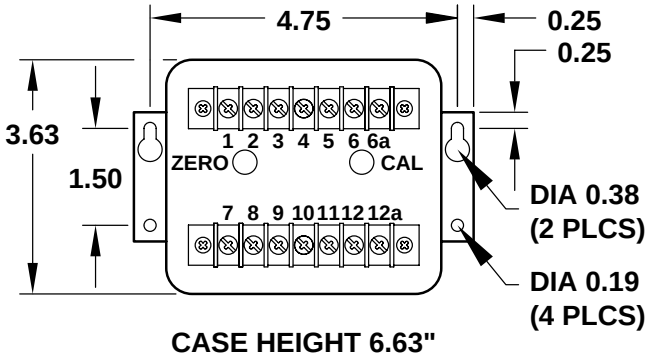
ACCURACY

Linearity & Setpoint ..... ±0.25% F.S. @ 60Hz
(±0.5% typical over frequency range.)
Output Ripple ..... <1.0% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect...(-20ºC to 60ºC) ..... ±1.0% Rdg.
Net Weight ..... 2.5 Lbs.

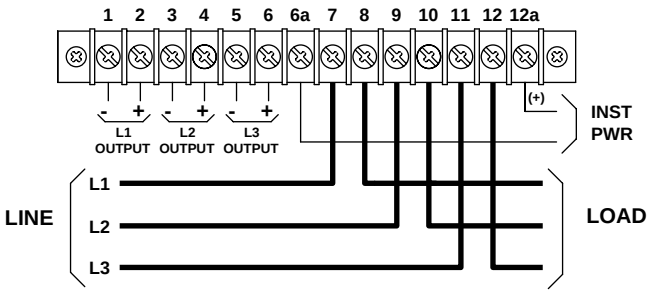
CASE DIMENSIONS



CASE HEIGHT 6.63"

All dimensions in inches

CONNECTION DIAGRAM



TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON

Dwg# 0902-00471-B Rev D

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OSI AC CURRENT TRANSFORMER/TRANSDUCER *MODEL* CTRS-

SPLIT-CORE

FEATURES

- Accurate measurement of the **true RMS** value of input signals.
- Split-core current sensors for easy installation.
- Current transformers contain open-circuit protection.
- Signal conditioners and current sensors are calibrated as sets and provide a choice of analog outputs. (0-5Vdc, 0-10Vdc, 0-1mAdc or 4-20mAdc)
- Current measurement ranges up to 40kAac.
- Flexible Rogowski coils (air-core CTs) are used for current measurement ranges of 1kAac and larger.
- Rogowski coil models use CE-compliant sensors.

APPLICATIONS

- For use in existing applications requiring installation with split-core sensors.
- Designed to withstand motor start-up currents.
- Easy installation in tight areas.

MODEL SELECTION

SENSOR	INPUTS AC AMPS	STANDARD MODELS CTRS-			
		0-1mAdc	4-20mAdc	0-10Vdc	0-5Vdc
CURRENT TRANSFORMER	0 to 5	005B	005E	005D	005X5
	0 to 10	010B	010E	010D	010X5
	0 to 15	015B	015E	015D	015X5
	0 to 20	020B	020E	020D	020X5
	0 to 25	025B	025E	025D	025X5
	0 to 50	050B	050E	050D	050X5
	0 to 100	101B	101E	101D	101X5
	0 to 200	201B	201E	201D	201X5
	0 to 300	301B	301E	301D	301X5
	0 to 400	401B	401E	401D	401X5
	0 to 500	501B	501E	501D	501X5
	0 to 1000	102B	102E	102D	102X5
ROGOSWKI COIL	0 to 1k	102RB	102RE	102RD	102RX5
	0 to 2k	202RB	202RE	202RD	202RX5
	0 to 5k	502RB	502RE	502RD	502RX5
	0 to 10k	103RB	103RE	103RD	103RX5
	0 to 15k	153RB	153RE	153RD	153RX5
	0 to 20k	203RB	203RE	203RD	203RX5
	0 to 25k	253RB	253RE	253RD	253RX5
	0 to 30k	303RB	303RE	303RD	303RX5
	0 to 40k	403RB	403RE	403RD	403RX5

5A to 1000A models use current transformers.
1kA to 40kA models use Rogowski coils.

AVAILABLE OPTIONS (add in order shown)**:**

230Vac instrument Power - Add suffix "**-22**"

Rogowski coil size:

COIL INSIDE DIAMETER	COIL LENGTH	MODEL
6.5in. (16.5cm)	23.6in. (60cm)	(standard)
10.5in. (26.7cm)	35.4in. (90cm)	Add suffix "**-1**"
14.0in. (35.4cm)	47.2in. (120cm)	Add suffix "**-2**"
21.5in. (54.6cm)	70.9in. (180cm)	Add suffix "**-3**"

Additional current ranges, sensor sizes and RoHS-compliant models are available - Consult factory.

ORDERING INFORMATION

Example: 10kAac Input with 0-10Vdc Output, 230Vac instrument power & 10.5-inch diameter Rogowski coil

CTRS-103RD-22-1

SPECIFICATIONS

INPUT

Current Range ..... See Table
Over range ..... (w/o damage) ..... 2 X F.S. (cont.)
5 X for 10s transient
10 X for 1s transient
Frequency Range ..... Non-"**R**" models 50-60Hz
"**R**" models ..... (see Accuracy)

DIELECTRIC TEST

Input/Output/Case/Instrument Power 1500Vac

INSTRUMENT POWER

Standard ..... 115Vac, ±15%, 50/60Hz, 3.5VA
Option **"-22"** ..... 230Vac, ±15%, 50/60Hz, 3.5VA

OUTPUT

Response Time (to 90%) .... Non-"**R**" models 100ms
"**R**" models 300ms
Loading
"B" models ..... 0-1mAdc 0-10kΩ
"D", "X5" models ..... 0-10Vdc, 0-5Vdc ..... 2kΩ min.
"E" models ..... 4-20mAdc 0-500Ω
Field-adjustable Calibration Range ..... ±10%, approx.

ACCURACY (linearity and set point)

Current Transformer (Non-"**R**") Models
5A to 10A models ..... ±0.5% F.S. @ 60Hz
15A to 1000A models ..... ±0.25% F.S. @ 60Hz
Rogowski Coil ("**R**") Models
With conductor centered in window... ±1.0% F.S. @ 60Hz
Linearity ..... ±0.25% F.S.
Set point variation with frequency
10Hz to 20Hz ..... ±2.0% F.S.
20Hz to 2kHz ..... ±1.0% F.S.
2kHz to 5kHz ..... ±3.0% F.S.
5kHz to 7kHz ..... ±7.0% F.S.
7kHz to 20kHz ..... ±30.0% F.S.
Position Sensitivity ..... ±2.0% F.S.
Output Ripple (all models) ..... <1.0% F.S.

PHYSICAL & ENVIRONMENTAL

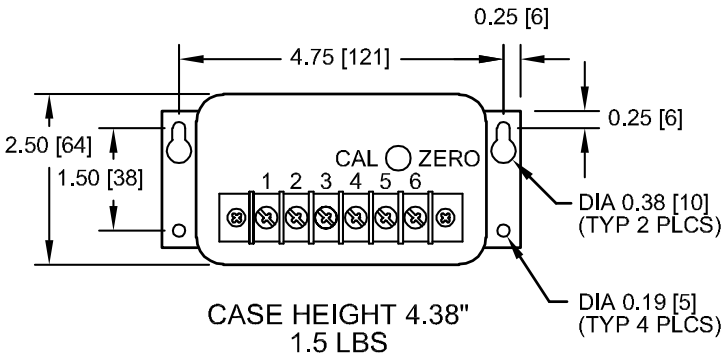
Temperature Effect (-20ºC to 60ºC) ... ±1.0% Rdg., ±0.1% F.S.
Weight (not including sensor) ..... 1.5 lbs

CURRENT MEASUREMENT (RMS)

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

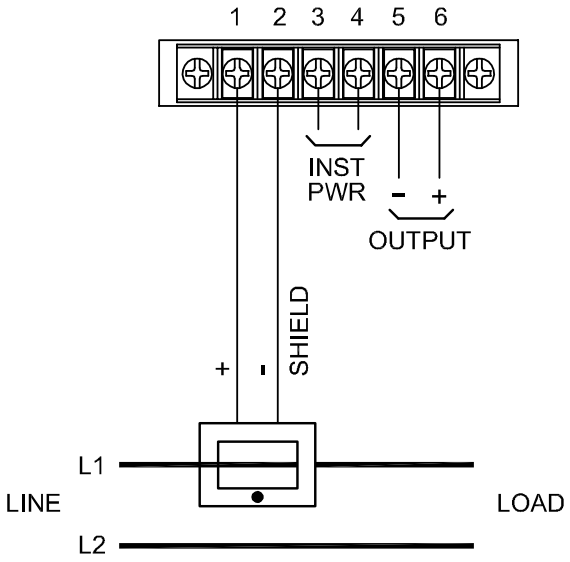
CONNECTIONS & CASE DIMENSIONS MODEL CTRS-

CASE DIMENSIONS



DIMENSIONS ARE IN INCHES [mm].
TOLERANCE = ±0.03 IN [±0.76mm] UNLESS OTHERWISE SPECIFIED

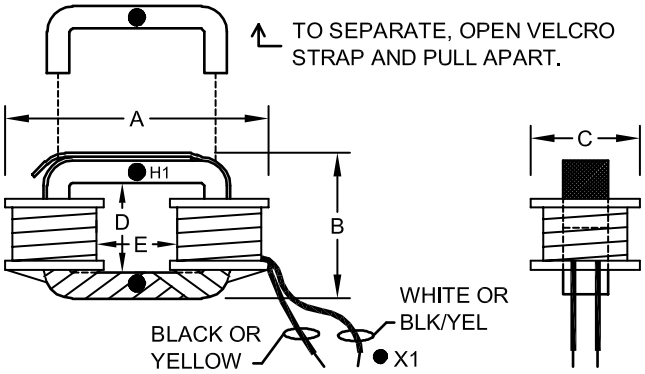
CONNECTION DIAGRAM



Dwg# 0902-00854-B Rev B (mod.)

SENSOR DIMENSIONS

5A to 1000A

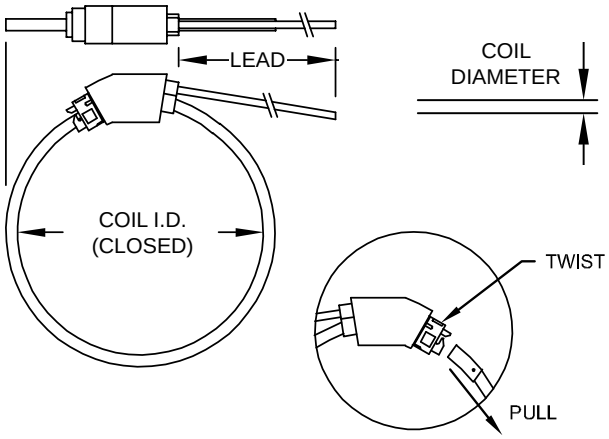


INPUTS AC AMPS	SENSOR SIZE	DIMENSIONS (in inches)					WT. LBS.
		A	B	C	D	E	
5 - 100	A	2.80	2.00	1.12	1.09	1.09	0.4
200 - 500	B	3.85	3.80	1.30	2.40	1.25	0.8
1000	C	5.50	4.90	1.60	3.15	3.20	1.5

Lead Length..... 72",16 gauge, White (X1) & Black

(Refer to CTY spec sheet for additional details.)

1kA to 40kA



TO SEPARATE COIL, TWIST AND PULL APART

COIL INSIDE DIAMETER	COIL LENGTH	MODEL
6.5in. (16.5cm)	23.6in. (60cm)	(standard)
10.5in. (26.7cm)	35.4in. (90cm)	Add suffix "**-1**"
14.0in. (35.6cm)	47.2in. (120cm)	Add suffix "**-2**"
21.5in. (54.6cm)	70.9in. (180cm)	Add suffix "**-3**"

Lead Length.....approx. 6.6ft (2m) standard
Coil Diameter..... 0.33 in. ±0.008 in. (8.4 ±0.2mm)

(Refer to MFC150 spec sheet for additional details.)

Consult factory for special current ranges, sensor sizes and RoHS-compliant models.

Dwg# 0902-00878-B Rev --

Dwg# 0902-00901-B Rev B (mod.)

CURRENT MEASUREMENT (RMS)

NEW!

OSI RMS CURRENT TRANSDUCER MODEL MCTR-

2-WIRE LOOP POWERED, TRUE RMS

FEATURES

- Accurate measurement of the true RMS value of input signals
- UL94V-0 Polyamide DIN-mount case
- Split-core CT option for easy installation
- Base unit and current sensor are calibrated as a set to provide a 4-20mA analog output.
- Current measurement ranges up to 1000A
- Slim profile allows maximum use of available space.
- Recessed terminals provide increased safety.
- Designed to withstand motor start-up currents

5 YEAR WARRANTY

2011/65/EU ROHS COMPLIANT

DIN-rail lengths available - Consult Factory

APPLICATIONS

- Use direct-input models with any CT with 0.1A, 1A, 5A or 0.333V secondary.
- Ideal for non-sinusoidal applications, such as VFDs and SCR-controlled loads.
- Retro-fit of existing applications requiring installation with split-core sensors (order with suffix "**S**")

MODEL SELECTION

INPUTS AC AMPS	STANDARD OUTPUT MODEL MCTR-	SENSOR SIZE
	4-20mAdc	
*0 to 0.333V	0.333E2	(direct input)
0 to 0.1	0.100E2	(direct input)
0 to 1	001E2	(direct input)
0 to 5	005E2	(direct input)
0 to 5	005E2S	1
0 to 10	010E2S	1
0 to 15	015E2S	1
0 to 20	020E2S	1
0 to 25	025E2S	1
0 to 50	050E2S	1
0 to 100	101E2S	1
0 to 200	201E2S	2
0 to 300	301E2S	2
0 to 400	401E2S	2
0 to 500	501E2S	2
0 to 1000	102E2S	3

*Note: The 0.333V model requires isolation through a separately-supplied external CT.

ORDERING INFORMATION

Example: 0-50A Input, with an external, split-core sensor and 4-20mA loop-powered output.

MCTR-050E2S

SPECIFICATIONS

INPUT

Type ..... See Table
Over-range (without damage)
Continuous ..... 1.5 X F.S. Rating
Transient ..... 10s/hr ..... 5 X F.S. Rating
1s/hr ..... 10 X F.S. Rating
Frequency Range 50-60Hz
Burden ..... 0.1A & 1A models 0.05VA
5A models 0.18VA
0.333V models 0.004VA

OUTPUT

Scaling ..... 0-F.S. Input = 4-20mAdc Output
Response ..... (to 90%) 300ms
Loading ..... (@ 24Vdc loop-power) 0-500Ω
Setpoint Adjustment ..... ±5%, minimum

DIELECTRIC TEST

Input/Output 2200Vac
*NOTE: 0.333V model requires isolation through external CT.

INSTRUMENT POWER

Loop-Powered ..... Nominal 24Vdc
Range 15-35Vdc

ACCURACY (Includes effects of linearity and setpoint)

Direct input models ..... 10-100% F.S. .... ±0.25% F.S.
"**S**" suffix (5-20A Input) ..... 10-100% F.S. ..... ±1.0% F.S.
"**S**" suffix (25-1000A input) ..... 10-100% F.S. ..... ±0.5% F.S.
Output Ripple ..... <1.0% pk-pk

TEMPERATURE

Operating Range ..... -20ºC to 60ºC
Effect ..... ±1.0% F.S.

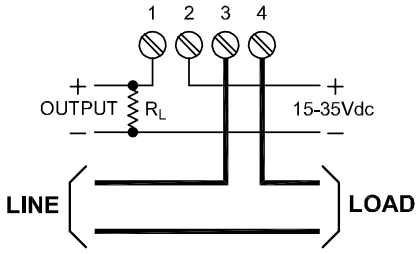
PHYSICAL (Base unit)

Net Weight ..... 0.4 lb
Unit can be mounted on ..... RAIL EN50035 (DIN 1) or RAIL EN50022 (DIN 2)

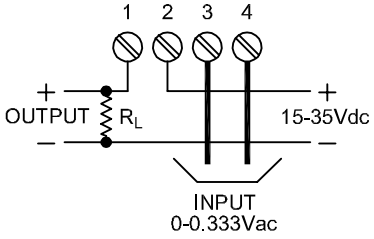
CURRENT MEASUREMENT (RMS)

CONNECTION DIAGRAMS

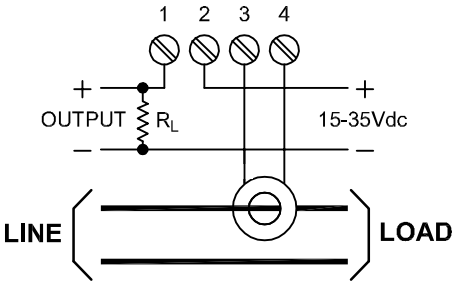
DIRECT CURRENT INPUT



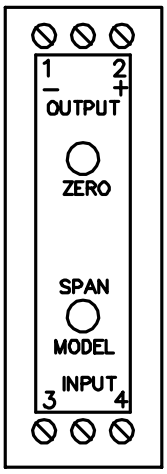
VOLTAGE INPUT



USING EXTERNAL CTs - "S" OPTION



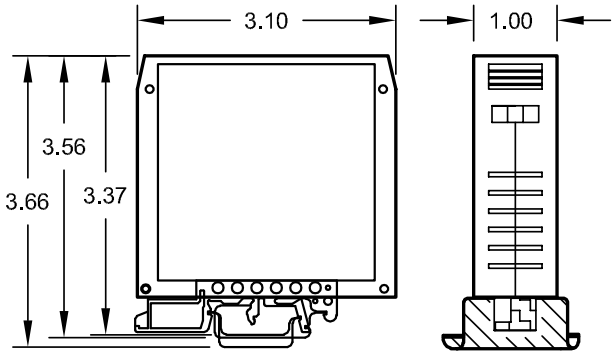
BASE UNIT (All Models)



Dwg# 0902-00861-B Rev A (mod)

DIMENSIONS

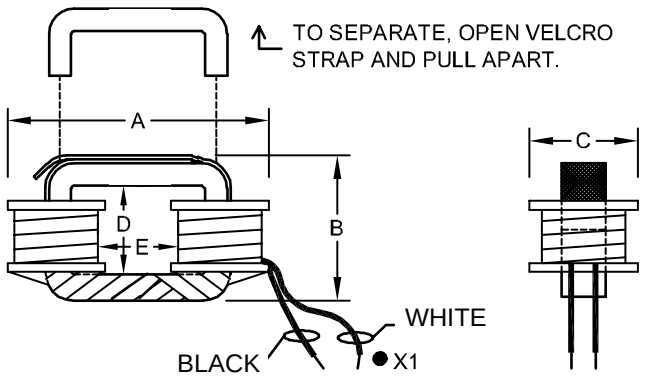
BASE UNIT (All Models)



All dimensions in inches. Tolerance: ±0.015 in.

Dwg# 0902-00861-B Rev A

CURRENT SENSORS - "S" OPTION



Dwg# 0902-00878-B Rev -- (mod)

INPUT	SENSOR SIZE	SENSOR DIMENSIONS (in inches, Tolerance. ±0.03in.)								WT. LBS.
		A	B	C	D	E	G	J	M	
5 to 100A	1	2.80	2.00	1.12	1.09	1.09	N/A	N/A	N/A	0.4
200 to 500A	2	3.85	3.80	1.30	2.40	1.25	N/A	N/A	N/A	0.8
1000A	3	5.50	4.90	1.60	3.15	3.20	N/A	N/A	N/A	1.5

Lead Type..... 5Aac models..... 24",14AWG, White (X1) & Black, Flying leads
All other models..... 72",16AWG, White (X1) & Black, Flying leads

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

SINGLE-PHASE AC RMS CURRENT TRANSDUCER *MODEL* DCTR-

DIN-RAIL-MOUNTED AC RMS CURRENT TRANSDUCER

FEATURES

- Accurate measurement of the **true RMS** value of the input signal.
- Universal ac/dc instrument power.
- One model for either 1A or 5A input.

APPLICATIONS

- For use in applications where measurement of non-sinusoidal or distorted waveforms is required.
- Applications that require CE or CSA approvals.
- Perfect for installations that require compact packaging.

5 YEAR WARRANTY

MODEL SELECTION

INPUT AC AMPS	STANDARD OUTPUTS MODEL DCTR-			
	0-1mAdc	4-20mAdc	0-10Vdc	0-5Vdc
0-1 or 0-5	005B	005E	005D	005X5

All standard units require 85-230Vac/dc instrument power.

ORDERING INFORMATION

Example: 1 Amp AC Input with 0 to 10Vdc Output.

DCTR-005D

SPECIFICATIONS

INPUT

Current ..... 0-1Aac or 0-5Aac
Frequency Range 50/60Hz
Burden ..... <1VA
Current Overload .... Continuous ..... 120% F.S.
For 1 second ..... 20 X F.S.

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 3.0VA

OUTPUT

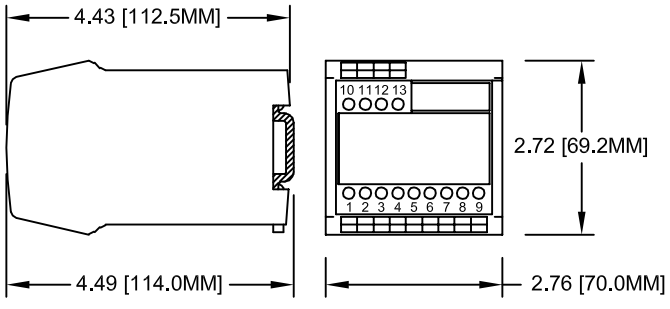
Loading
"B" model ..... (0-1mA output) 0-15kΩ
"D", "X5" models ..... (0-10, 0-5Vdc) ..... 2.5kΩ min.
"E" model ..... (4-20mA) 0-750Ω
Response Time ..... (to 90%) 300ms

ACCURACY ..... ±0.5% F.S. @ 60Hz
Output Ripple ..... <0.5% p.p.

TEMPERATURE & PHYSICAL

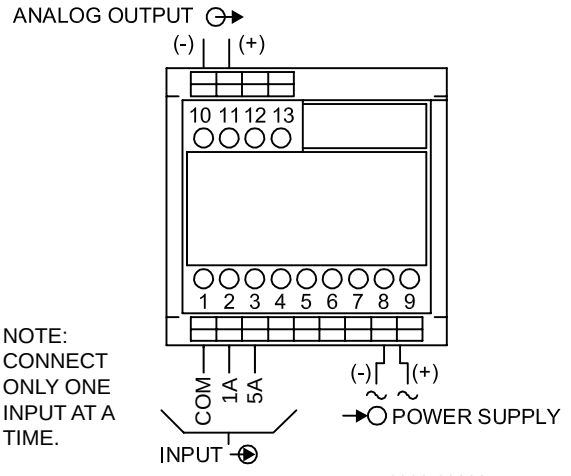
Operating Range ..... -10ºC to 55ºC
Termination ..... Wire size up to 10AWG
Net Weight ..... 0.7 lbs

CASE DIMENSIONS



NOTES:
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

CONNECTION DIAGRAM



NOTE: CONNECT ONLY ONE INPUT AT A TIME.

0902-00888-B Rev -- (mod.)

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PHONE: (614) 777-1005 * FAX: (614) 777-4511
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DC & RMS CURRENT TRANSDUCERS *MODELS* CT7- & CT8-

DC TO 500Hz 0.1A TO 20A INPUTS

DESCRIPTION

The **Model CT7- Series** (DC) current transducer produces an output which is directly proportional to the input signal from dc to 500Hz. It functions as a dc isolator or low-frequency ac transducer with dc response. The output is proportional to the input. (ac input/ac output, dc input/dc output)

The **Model CT8- Series** (RMS) current transducer provides an output directly proportional to the RMS value of the input over the dc to 500Hz range. The dc output is proportional to the RMS input including dc.
Full-scale current ranges of 0.1 to 20 Amperes, and 2500Vac input/output dielectric test make them suitable for many instrumentation needs.

5 YEAR WARRANTY

INPUT AMPS	STANDARD OUTPUTS MODEL CT7- & CT8-			
	1mA	4-20mA	10V	5V
0-0.1	002B	002E	002D	002X5
0-0.5	004B	004E	004D	004X5
0-1	006B	006E	006D	006X5
0-1.5	007B	007E	007D	007X5
0-2	008B	008E	008D	008X5
0-5	014B	014E	014D	014X5
0-10	015B	015E	015D	015X5
0-15	016B	016E	016D	016X5
0-20	017B	017E	017D	017X5

Bidirectional (±) output on CT7.
Other current & frequency ranges available, consult factory.
SAVE $ "-11" & "-22" models utilize a low-cost linear power supply.

ORDERING INFORMATION

Example: 0-5Adc Input, with 4-20mA Output & 125Vdc Inst. Pwr.
CT7-014E

Instrument Power Options

Option "-11" 95-135Vac, 50/60Hz, 5VA

Option "-22" 230Vac, 50/60Hz, 5VA

Options "-12", "-15", "-24", "-37", "-48".....
12Vdc thru 48Vdc, ±10%, 150mA max.

SPECIFICATIONS

INPUT
Current ..... See Table
Frequency Range dc-500Hz
Burden ..... VA (0.050V X F.S. current)
Overload ..... 1.25 X F.S. rating

OUTPUT
Response Time (to 90%)
CT7 Models 1ms
CT8 Models 100ms
Loading
0-1mA 0-10kΩ
5V & 10V ..... >2kΩ
20mA 0-500Ω
Field Adjustable Cal. ..... ±10%

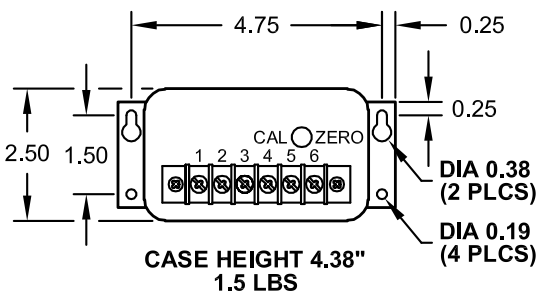
DIELECTRIC TEST
Input/Output/Case 2500Vac

INSTRUMENT POWER
Standard ..... 85-265Vac, 48-420Hz, 5VA, or 110-370Vdc
Options ..... See available instrument power options

ACCURACY .... Includes effects of linearity and repeatability.
CT7 Models ..... ±0.25% F.S. @ DC
CT8 Models ..... ±0.25% F.S. @ 48-420Hz
Ripple ..... <1.0% F.S.

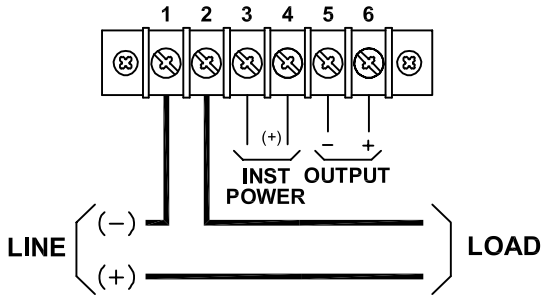
TEMPERATURE & PHYSICAL
Operating Range ..... -10ºC to 60ºC
Temperature Effect ..... ±1% Rdg.
Net Weight ..... 1.5 lbs

CASE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES.

CONNECTION DIAGRAM



FOR DC INST. POWER OBSERVE POLARITY AS SHOWN.

0902-00903-B Rev --

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI HALL-EFFECT CURRENT SENSORS *MODEL* CTL-

CIRCULAR WINDOW MODELS

CURRENT RANGE	MODEL NUMBER	NOMINAL OUTPUT	SENSOR SIZE
0 to 35A	CTL-51/35	35mV	A
0 to 50A	CTL-51/50	50mV	A
0 to 50A	CTL-101/50 *	50mV	C
0 to 75A	CTL-101/75 *	75mV	C
0 to 100A	CTL-101/100 *	100mV	C
0 to 150A	CTL-201/150 *	75mV	D
0 to 200A	CTL-201/200 *	100mV	D
0 to 300A	CTL-401/300 *	75mV	D
0 to 400A	CTL-401/400 *	100mV	D
0 to 500A	CTL-601/500	40mV	E
0 to 600A	CTL-601/600	50mV	E
0 to 800A	CTL-202/800	40mV	E
0 to 1000A	CTL-202/1000	50mV	E
0 to 1500A	CTL-202/1500	75mV	E
0 to 2000A	CTL-202/2000	100mV	E

* Split-core option is not included in UL listing.
Sensor size A is supplied as solid core only.

5 YEAR WARRANTY

c UL us LISTED *Measuring Equipment 7N93*

Window Size
A .....3/8”
C .....3/4”
D .....1 1/8”
E .....2”

ORDERING INFORMATION

Example: 300Amp Split-Core Current Sensor with Extended Temperature Range.

CTL-401TS/300
(Order in combination with appropriate CTA Signal Conditioner)

SPECIFICATIONS

INPUT
Current Range .....See Table.....dc/RMS
Over-current (without damage) ..... 50X rating
Resistance
0-400A models ..... 6Ω ±3Ω
600A+ models ..... 23Ω ±5Ω
Excitation Current 200mA

OUTPUT
With 200mA excitation current .....Nominal ±30%
Response Time (to 90% F.S.) .....50µ, typical
Resistance .....25Ω ±15Ω
Initial Offset ..... <±2mV

DIELECTRIC TEST (Conductor through window to output).
Standard Models 2200Vac
Suitable for installation on 600Vac or 850Vdc uninsulated bus
Option “**S**” with sensor size C and D.....1000Vdc
To be used with insulated conductors only.

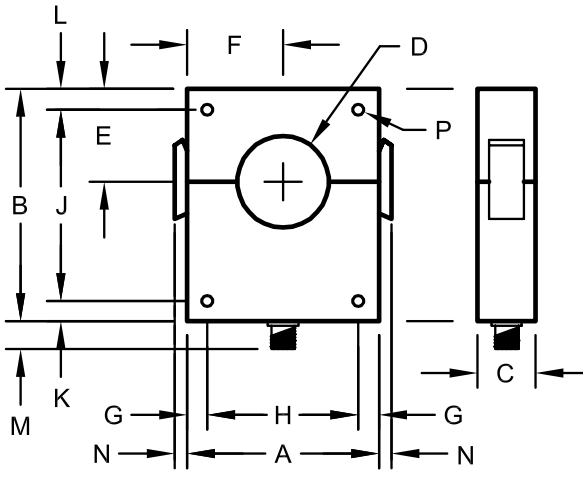
ACCURACY & LINEARITY
When Calibrated with CTAxxxx..... ±0.5% F.S.
(With current conductor centered in window)

TEMPERATURE
Operating Range
Standard.....-10ºC to 40ºC
Extended .... Add suffix “**T**”.....-40ºC to 65ºC
Effect..... ±1% F.S.

OPTIONS
Split-core (Sensor sizes C, D and E) .....Add suffix **“S”**

PHYSICAL
Cable Length ... A(all), C(solid), D(solid)... 18in. non-detachable
C (split)..... 8ft. non-detachable
D (split), E(all) ..... 8ft. detachable
Other cable lengths available - Consult factory.

DIMENSIONS A, C, D & E



Dwg# 0902-00927-B Rev --

SENS. SIZE	SENSOR DIMENSIONS (inches)														WT. LBS
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
A	1 1/8	1 1/2	1/2	3/8	9/16	9/16	9/32	9/16	NA	3/16	NA	NA	NA	1/8	0.12
C	2	2	3/4	3/4	7/8	1	1/4	1 1/2	NA	1/4	NA	NA	1/4	5/32	0.28
D	3 1/8	4	3/4	1 1/8	1 1/2	1 9/16	1/2	2 1/8	NA	1/2	NA	1/2	1/4	11/64	0.75
E	4 1/8	5	1 1/4	2	2	2 1/16	7/16	3 1/4	4 1/8	7/16	7/16	5/8	5/16	17/64	2

NOTES:
CTL specifications are for unidirectional operation. For bidirectional, add suffix “Y122”. (use wtih direct model CTA)
CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
See CTA spec sheet for details.

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI HALL-EFFECT CURRENT SENSORS *MODEL* CTL-

CIRCULAR WINDOW MODELS

CURRENT RANGE	MODEL NUMBER	TYPICAL OUTPUT	SENSOR SIZE
0 to 500A	CTL-601FS/500	40mV	F
0 to 600A	CTL-601FS/600	50mV	F
0 to 800A	CTL-202FS/800	40mV	F
0 to 1000A	CTL-202FS/1000	50mV	F
0 to 1000A	CTL-202EES/1000	100mV	EE
0 to 1500A	CTL-202FS/1500	75mV	F
0 to 1500A	CTL-202EES/1500	150mV	EE
0 to 2000A	CTL-202FS/2000	100mV	F
0 to 2000A	CTL-202EES/2000	200mV	EE
0 to 2500A	CTL-302EES/2500	85mV	EE
0 to 3000A	CTL-302EES/3000	100mV	EE

Split core standard on all models.

5 YEAR WARRANTY

c UL us LISTED *Measuring Equipment 7N93*

Window Size
F ..... 2 1/4”
EE.....4 1/4”

ORDERING INFORMATION

Example: 2000Amp split-core current sensor with extended temperature range and 4 1/4” window.

CTL-202EETS/2000

(Order in combination with appropriate CTA Signal Conditioner)

SPECIFICATIONS

INPUT

Current Range .....up to 2000A models..... dc/RMS
2500A & above .....dc/peak ac
Over-current (without damage)..... 50 X rating
Resistance ..... 23Ω ±5Ω
Excitation Current 200mA

OUTPUT

Typical Output (@ 200mA excitation) ..... Nominal ±30%
Response Time (to 90% F.S.) ..... 50µ, typical
Resistance ..... 25Ω ±15Ω
Initial Offset ..... <±2mV

DIELECTRIC TEST

Conductor Through Window to Output 2200Vac
Suitable for installation on 600Vac or 850Vdc uninsulated bus.

ACCURACY & LINEARITY

When Calibrated with CTA..... ±0.5% F.S.

TEMPERATURE

Operating Range
Standard..... -10ºC to +40ºC
Extended .....Add Suffix “**T**”..... -40ºC to +65ºC
Effect..... ±1% F.S.

CABLE LENGTHS

All models are supplied with detachable 8-foot cable.
Longer cables are available - Consult factory.

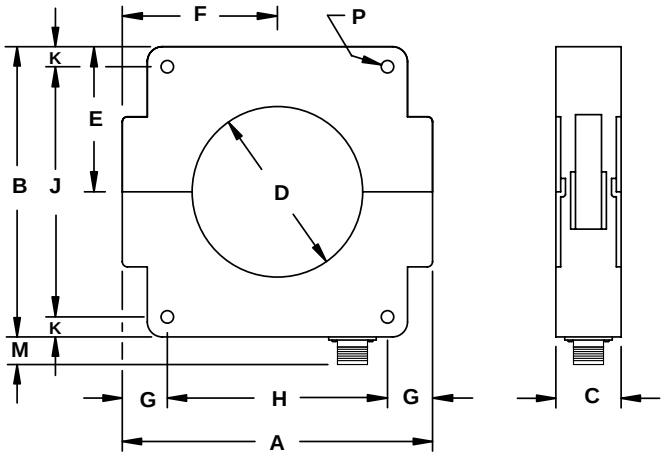
NOTES:

CTL specifications are for unidirectional operation.

For bidirectional, add suffix “Y122”. (use with direct model CTA)

CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
See CTA spec sheet for details.

CASE DIMENSIONS EE & F



SENS. SIZE	SENSOR DIMENSIONS (inches)												WT LBS.
	A	B	C	D	E	F	G	H	J	K	M	P	
F	5 3/8	5 1/4	1 5/8	2 1/4	2 5/8	2 11/16	1 1/16	3 1/4	4 1/8	9/16	5/8	1/4	2.8
EE	7 3/4	7 1/4	1 5/8	4 1/4	3 5/8	3 7/8	1 1/8	5 1/2	6 1/4	1/2	5/8	5/16	4.5

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

OHIO SEMITRONICS, INC. 4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

HALL-EFFECT CURRENT SENSORS *MODEL* CTL-

RECTANGULAR WINDOW (BUS BAR) MODELS

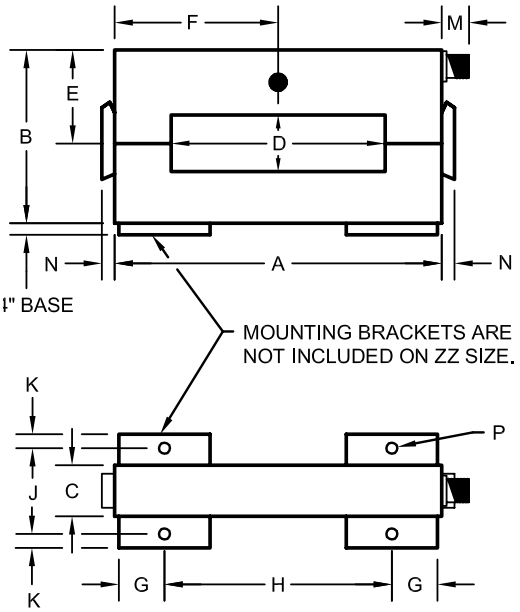
CURRENT RANGE	MODEL NUMBER	TYPICAL OUTPUT	SENSOR SIZE
0 to 500A	CTL-202HS/500	50mV	Z
0 to 1000A	CTL-202HS/1000	100mV	Z
0 to 1000A	CTL-202ZZS/1000	100mV	ZZ
0 to 1500A	CTL-202HS/1500	150mV	Z
0 to 1500A	CTL-202ZZS/1500	150mV	ZZ
0 to 2000A	CTL-202HS/2000	200mV	Z
0 to 2000A	CTL-202ZZS/2000	200mV	ZZ
0 to 2000A	CTL-502HS/2000	60mV	Z
0 to 2500A	CTL-302ZZS/2500	125mV	ZZ
0 to 2500A	CTL-502HS/2500	75mV	Z
0 to 3000A	CTL-302ZZS/3000	150mV	ZZ
0 to 3000A	CTL-502HS/3000	90mV	Z
0 to 4000A	CTL-502HS/4000	120mV	Z
0 to 5000A	CTL-502HS/5000	150mV	Z

All standard models are configured with a split core.
Solid-core option is available - Consult factory

5 YEAR WARRANTY

c UL us LISTED *Measuring Equipment 7N93*

CASE DIMENSIONS Z & ZZ



Dwg. # 0902-00806-B Rev --

Window Size
Z ..... $1\frac{1}{4}$ X $4\frac{1}{2}$"
ZZ ..... $2\frac{7}{16}$ X $4\frac{1}{2}$"

ORDERING INFORMATION

Example: 2000 Amp dc, Split-Core Current Sensor with Extended Temperature Range.

CTL-202HTS/2000
(Order in combination with appropriate CTA Signal Conditioner)

SPECIFICATIONS

INPUT
Current Range .....See Table.....dc/peak ac
Over-current (without damage).....50 X rating
Resistance .....23Ω ±5Ω
Excitation Current 200mA

OUTPUT
Typical Output (@ 200mA excitation) ..... Nominal ±30%
Response Time (to 90% F.S.) ..... 50µ, typical
Resistance ..... 25Ω ±15Ω
Initial Offset ..... <±2mV

DIELECTRIC TEST
Conductor Through Window to Output 2200Vac
Suitable for installation on 600Vac or 850Vdc uninsulated bus

ACCURACY & LINEARITY
When Calibrated with CTA..... ±1% F.S.

TEMPERATURE
Operating Range
Standard..... -10ºC to +40ºC
Extended ..... Add suffix "**T**" ..... -40ºC to +65ºC
Effect..... ±1% F.S.

CABLE LENGTH
All models are supplied with detachable 8-foot cable.
Longer cables are available - Consult factory.

NOTES:
CTL specifications are for unidirectional operation.

For bidirectional, add suffix "Y122". (use with direct model CTA)

CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
See CTA spec sheet for details.

SENS. SIZE	SENSOR DIMENSIONS (inches)													WT LBS.
	A	B	C	D	E	F	G	H	J	K	M	N	P	
Z	$7\frac{3}{16}$	$3\frac{15}{16}$	$1\frac{5}{16}$	$1\frac{1}{4}$ X $4\frac{1}{2}$	$2\frac{9}{64}$	$3\frac{1}{2}$	1	5	$1\frac{7}{8}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{5}{16}$	$\frac{3}{16}$	2.8
ZZ	$7\frac{3}{16}$	$5\frac{1}{2}$	$1\frac{1}{8}$	$2\frac{7}{16}$ X $4\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	N/A	N/A	N/A	N/A	$\frac{3}{8}$	$\frac{5}{16}$	N/A	3.5

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HALL-EFFECT CURRENT SENSORS *MODEL* CTL-

RECTANGULAR WINDOW (BUS BAR) MODELS

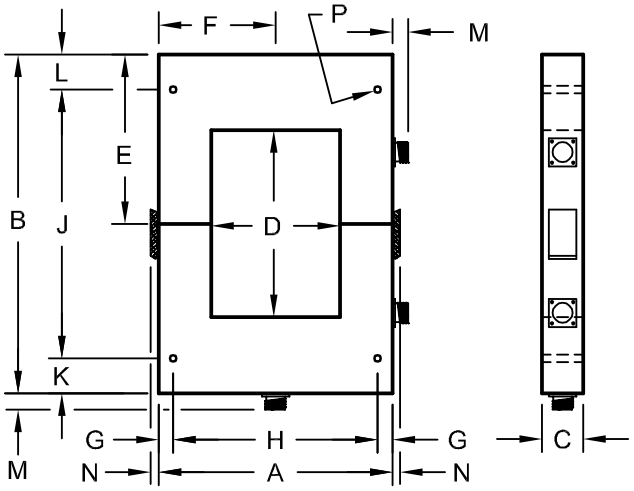
CURRENT RANGE	MODEL NUMBER	TYPICAL OUTPUT	SENSOR SIZE
0 to 2500A	CTL-502S/2500	75mV	G
0 to 3000A	CTL-502S/3000	90mV	G
0 to 4000A	CTL-502S/4000	120mV	G
0 to 5000A	CTL-502S/5000	150mV	G
0 to 5000A	CTL-103S/5000	50mV	H
0 to 6000A	CTL-103S/6000	60mV	H
0 to 7000A	CTL-103S/7000	70mV	H
0 to 8000A	CTL-103S/8000	80mV	H
0 to 9000A	CTL-103S/9000	90mV	H
0 to 10000A	CTL-103S/10000	100mV	H
0 to 12000A	CTL-203S/12000	60mV	H
0 to 15000A	CTL-203S/15000	75mV	H
0 to 18000A	CTL-203S/18000	90mV	H
0 to 20000A	CTL-203S/20000	100mV	H
0 to 25000A	CTL-303S/25000	85mV	HH*
0 to 30000A	CTL-303S/30000	100mV	HH*
0 to 35000A	CTL-403S/35000	90mV	HH*
0 to 40000A	CTL-403S/40000	100mV	HH*

*Sensor size HH is supplied as split-core only.
Sensor sizes G & H are supplied as either solid- or split-core.
Remove "**S**" from model number to indicate solid-core.

5 YEAR WARRANTY

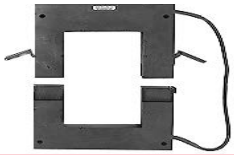
c UL us LISTED *Measuring Equipment 7N93*

CASE DIMENSIONS G, H & HH



Dwg. # 0902-00931-B Rev A

Window Size
G.....3 x 6½"
H.....5½ x 8"
HH ...13 x 13"



ORDERING INFORMATION

Example: 2500 Amp, Split-Core Current Sensor with Extended Temperature Range.

CTL-502TS/2500

(Order in combination w/ appropriate CTA Signal Conditioner)

SPECIFICATIONS

INPUT
- Current Range .....See Table..... dc/peak ac
- Over-current (without damage).....50 X rating
- Excitation Current 200mA
- Resistance
  - 500-5000A models .....23Ω ±5Ω
  - 6000A + models .....12Ω ±5Ω

OUTPUT
- Typical Output (@ 200mA excitation) .....Nominal ±30%
- Response Time (to 90% F.S.) .....50µ, typical
- Resistance
  - 500-5000A models .....25Ω ±15Ω
  - 6000A + models .....32Ω ±10Ω
- Initial Offset ..... <±2mV

DIELECTRIC TEST
- Conductor Through Window to Output 2200Vac
- Suitable for installation on 600Vac or 850Vdc uninsulated bus.

ACCURACY & LINEARITY (When calibrated with CTA)
- 502 and 103 models .....±1% F.S.
- 203, 303, and 403 models .....±2% F.S.

TEMPERATURE
- Operating Range
  - Standard.....-10ºC to +40ºC
  - Extended .....Add suffix "**T**" .....-40ºC to +65ºC
- Effect.....±1% F.S.
  - 20,000A models & up, Extended Range .....±2% F.S.

CABLE LENGTH
- All models are supplied with detachable 8-foot cable.
- Longer cables are available - Consult factory.

NOTES:

For HH case, remove red screws before unlatching head halves.

CTL specifications are for unidirectional operation.

For bidirectional, add suffix "Y122". (use with direct model CTA)

CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
See CTA spec sheet for details.

SENS. SIZE	SENSOR DIMENSIONS (inches)														WT LBS.
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
G	7 3/4	12	1 3/4	3 x 6 1/2	6	3 7/8	5/8	6 1/2	10 3/4	5/8	5/8	5/8	5/16	5/16	12.3
H	10	13 3/4	1 3/4	5 1/2 x 8	6 1/2	5	5/8	8 3/4	11 1/2	1 1/2	3/4	5/8	5/16	5/16	13
HH*	21	21	2	13 x 13	10 1/2	10 1/2	1 1/2	18	18	1 1/2	1 1/2	5/8	11/16	3/8	44

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

CTA SIGNAL CONDITIONERS — MODEL CTA

DESCRIPTION

The CTA Signal Conditioner provides the excitation current (instrument power) that the CTL Hall-effect sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal. The CTA is calibrated to the output of the specific CTL selected for the application. Each CTA model has a specific input range (mV) which corresponds to the output of the CTL.

The CTA family has two different types; Direct and RMS. Direct models provide an isolated output that is directly proportional to the amplitude and frequency of the input signal. If the input signal is ac, then the output signal is ac. If the input signal is dc, then the output signal is dc.

The RMS output models provide an output which is directly proportional to the RMS of the input signal. The output is dc regardless of whether the input is ac or dc. Each type has four output options: 1mAdc, 4-20mAc, 10Vdc, or 5Vdc. DC instrument power options are available from 12 to 48Vdc.

The table on the following page shows appropriate CTL/CTA combinations with available CTA output options.

NOTE: For bidirectional calibration, use direct model CTA and CTL with "Y122" suffix.

ORDERING INFORMATION

Example: 0-2000Adc CTL Input through 2" Window, Split-Core, ±0.5% Accuracy and Linearity, and 4-20mAdc CTA Output (direct, not RMS)

CTL-202S/2000 and CTA212P

CTA SPECIFICATIONS

INPUT (to CTA)

Standard (no option letter in model)..... 0-50mV

Option "**R**" 0-35mV	Option "**W**" 0-90mV
Option "**F**"..... 0-40mV	Option "**P**" 0-100mV
Option "**G**"..... 0-60mV	Option "**N**" 0-120mV
Option "**H**" 0-75mV	Option "**K**" 0-150mV
Option "**J**"..... 0-80mV	Option "**L**" 0-200mV

Frequency Range (of CTA Signal Conditioner only)... dc-5000Hz

OUTPUT

Field-adjustable Gain..... 25%

Loading

- Models with 1mA output.....0-10kΩ
- Models with 10V or 5V output ..... 2kΩ min.
- Models with 4-20mA output.....0-500Ω

Response time (to 90%)

- Direct models 40µs
- RMS models.....200ms

INSTRUMENT POWER

- Standard 115Vac, 50-400Hz, 2VA
- Option "**-22**"..... 230Vac ±15%, 50/60Hz
- Option "**-12**"..... 9-18Vdc
- Option "**-24**"..... 18-36Vdc
- Option "**-48**"..... 36-60Vdc

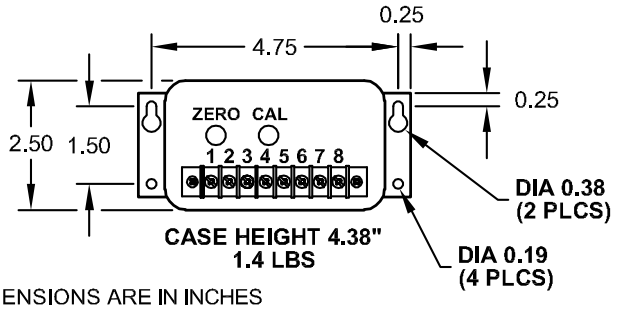
ACCURACY

- Linearity ..... ± 0.1% F.S.
- Output Ripple.....Less than 0.25% F.S.

TEMPERATURE

- Operating Range.....0ºC to +70ºC
- Effect.....±0.005%/ºC

CTA CASE DIMENSIONS

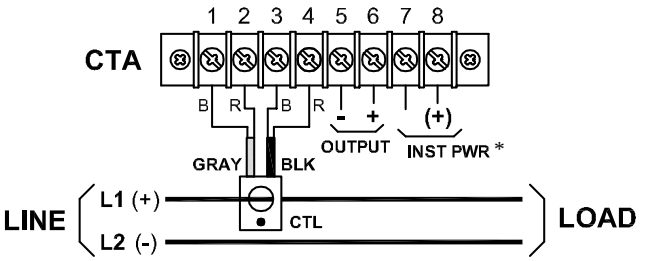


DIMENSIONS ARE IN INCHES
TOLERANCE = ±0.03 UNLESS NOTED.

Dwg# 0902-00922-B Rev --

CONNECTION DIAGRAMS

Caution: Connect CTL to CTA terminals 1, 2, 3, & 4 before applying instrument power to CTA terminals 7 & 8(+).

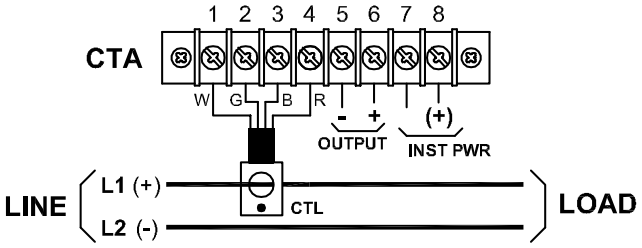


"RED DOT" SIDE OF CTL MUST FACE POSITIVE SUPPLY.

*DC Instrument Power positive on Term. 8. All shields tied to terminal 3.

CTL SENSOR SIZES A, C, D (solid core)

CABLE	WIRE	SIGNAL
GRAY	BLACK	OUTPUT (-)
GRAY	RED	OUTPUT (+)
SHIELD	SHIELD	SHIELD
BLACK	BLACK	EXCITATION (-)
BLACK	RED	EXCITATION (+)



"RED DOT" SIDE OF CTL MUST FACE POSITIVE SUPPLY.

CTL SENSOR SIZES E, EE, F, G, H & HH

PIN	COLOR	SIGNAL
A	WHITE	OUTPUT (-)
B	GREEN	OUTPUT (+)
C	BLACK	EXCITATION (-)
D	RED	EXCITATION (+)
E	SHIELD	SHIELD

CTL SENSOR SIZES D (split core), Z, & ZZ

PIN	COLOR	SIGNAL
1	WHITE	OUTPUT (-)
2	GREEN	OUTPUT (+)
4	SHIELD	SHIELD
6	BLACK	EXCITATION (-)
8	RED	EXCITATION (+)

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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Q

CTL & CTA COMBINATIONS — MODELS CTL-/CTA

When ordered together, CTL/CTA combinations are factory-calibrated as a set. To select the proper CTA model, locate the preferred CTL model and move to the right, selecting either direct or RMS style and the desired output signal.
*For bidirectional calibration, use direct model CTA and CTL with "Y122" suffix.

CTA MODEL SELECTION

INPUT CURRENT (THROUGH CTL WINDOW)	MODEL CTL CURRENT TRANSDUCER	ACC (% OF F.S.)	SENS. SIZE	DIRECT MODELS - AC/DC OUTPUT PROPORTIONAL TO AC/DC INPUT					RMS MODELS - DC OUTPUT PROPORTIONAL TO RMS OR DC INPUT			
				STANDARD OUTPUT MODEL CTA					STANDARD OUTPUT MODEL CTA			
				±5V*	±10V*	4-20mA	4/12/20mA*	±1mA*	0-5Vdc	0-10Vdc	4-20mAdc	0-1mAdc
0-35A	CTL-51(T)/35	±0.5	A	201RX5	201R	212R	212RY42	201RA	213RX5	213R	215R	214R
0-50A	CTL-51(T)/50	±0.5	A	201X5	201	212	212Y42	201A	213X5	213	215	214
0-50A	CTL-101(TS)/50	±0.5	C	201X5	201	212	212Y42	201A	213X5	213	215	214
0-75A	CTL-101(TS)/75	±0.5	C	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-100A	CTL-101(TS)/100	±0.5	C	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-150A	CTL-201(TS)/150	±0.5	D	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-200A	CTL-201(TS)/200	±0.5	D	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-300A	CTL-401(TS)/300	±0.5	D	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-400A	CTL-401(TS)/400	±0.5	D	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-500A	CTL-601(TS)/500	±0.5	E	201FX5	201F	212F	212FY42	201FA	213FX5	213F	215F	214F
0-500A	CTL-601F(T)S/500	±0.5	F	201FX5	201F	212F	212FY42	201FA	213FX5	213F	215F	214F
0-500A	CTL-202H(T)S/500	±1	Z	201X5	201	212	212Y42	201A	213X5	213	215	214
0-600A	CTL-601(TS)/600	±0.5	E	201X5	201	212	212Y42	201A	213X5	213	215	214
0-600A	CTL-601F(T)S/600	±0.5	F	201X5	201	212	212Y42	201A	213X5	213	215	214
0-800A	CTL-202(TS)/800	±0.5	E	201FX5	201F	212F	212FY42	201FA	213FX5	213F	215F	214F
0-800A	CTL-202F(T)S/800	±0.5	F	201FX5	201F	212F	212FY42	201FA	213FX5	213F	215F	214F
0-1000A	CTL-202(TS)/1000	±0.5	E	201X5	201	212	212Y42	201A	213X5	213	215	214
0-1000A	CTL-202F(T)S/1000	±0.5	F	201X5	201	212	212Y42	201A	213X5	213	215	214
0-1000A	CTL-202EE(T)S/1000	±0.5	EE	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-1000A	CTL-202H(T)S/1000	±1	Z	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-1000A	CTL-202ZZ(T)S/1000	±1	ZZ	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-1500A	CTL-202(TS)/1500	±0.5	E	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-1500A	CTL-202F(T)S/1500	±0.5	F	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-1500A	CTL-202EE(T)S/1500	±0.5	EE	201KX5	201K	212K	212KY42	201KA	213KX5	213K	215K	214K
0-1500A	CTL-202H(T)S/1500	±1	Z	201KX5	201K	212K	212KY42	201KA	213KX5	213K	215K	214K
0-1500A	CTL-202ZZ(T)S/1500	±1	ZZ	201KX5	201K	212K	212KY42	201KA	213KX5	213K	215K	214K
0-2000A	CTL-202(TS)/2000	±0.5	E	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-2000A	CTL-202F(T)S/2000	±0.5	F	201PX5	201P	212P	212PY42	201PA	213PX5	213P	215P	214P
0-2000A	CTL-202EE(T)S/2000	±0.5	EE	201LX5	201L	212L	212LY42	201LA	213LX5	213L	215L	214L
0-2000A	CTL-202H(T)S/2000	±1	Z	201LX5	201L	212L	212LY42	201LA	--	--	--	--
0-2000A	CTL-502H(T)S/2000	±1	Z	--	--	--	--	--	213GX5	213G	215G	214G
0-2000A	CTL-202ZZ(T)S/2000	±1	ZZ	201LX5	201L	212L	212LY42	201LA	--	--	--	--
0-2500A	CTL-302EE(T)S/2500	±0.5	EE	201JX5	201J	212J	212JY42	201JA	--	--	--	--
0-2500A	CTL-502H(T)S/2500	±1	Z	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-2500A	CTL-302ZZ(T)S/2500	±1	ZZ	201NX5	201N	212N	212NY42	201NA	--	--	--	--
0-2500A	CTL-502(TS)/2500	±1	G	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-3000A	CTL-302EE(T)S/3000	±0.5	EE	201PX5	201P	212P	212PY42	201PA	--	--	--	--
0-3000A	CTL-502H(T)S/3000	±1	Z	201WX5	201W	212W	212WY42	201WA	213WX5	213W	215W	214W
0-3000A	CTL-302ZZ(T)S/3000	±1	ZZ	201KX5	201K	212K	212KY42	201KA	--	--	--	--
0-3000A	CTL-502(TS)/3000	±1	G	201WX5	201W	212W	212WY42	201WA	213WX5	213W	215W	214W
0-4000A	CTL-502H(T)S/4000	±1	Z	201NX5	201N	212N	212NY42	201NA	--	--	--	--
0-4000A	CTL-502(TS)/4000	±1	G	201NX5	201N	212N	212NY42	201NA	--	--	--	--
0-5000A	CTL-502H(T)S/5000	±1	Z	201KX5	201K	212K	212KY42	201KA	--	--	--	--
0-5000A	CTL-502(TS)/5000	±1	G	201KX5	201K	212K	212KY42	201KA	--	--	--	--
0-5000A	CTL-103(T)S/5000	±1	H	201X5	201	212	212Y42	201A	213X5	213	215	214
0-6000A	CTL-103(T)S/6000	±1	H	201GX5	201G	212G	212GY42	201GA	213GX5	213G	215G	214G
0-7000A	CTL-103(T)S/7000	±1	H	201HX5	201H	212H	212HY42	201HA	213HX5	213H	215H	214H
0-8000A	CTL-103(T)S/8000	±1	H	201JX5	201J	212J	212JY42	201JA	213JX5	213J	215J	214J
0-9000A	CTL-103(T)S/9000	±1	H	201WX5	201W	212W	212WY42	201WA	--	--	--	--
0-10000A	CTL-103(T)S/10000	±1	H	201PX5	201P	212P	212PY42	201PA	--	--	--	--
0-12000A	CTL-203(T)S/12000	±2	H	201GX5	201G	212G	212GY42	201GA	213GX5	213G	215G	214G
0-15000A	CTL-203(T)S/15000	±2	H	201HX5	201H	212H	212HY42	201HA	--	--	--	--
0-18000A	CTL-203(T)S/18000	±2	H	201WX5	201W	212W	212WY42	201WA	--	--	--	--
0-20000A	CTL-203(T)S/20000	±2	H	201PX5	201P	212P	212PY42	201PA	--	--	--	--
0-25000A	CTL-303(T)S/25000	±2	HH	201JX5	201J	212J	212JY42	201JA	--	--	--	--
0-30000A	CTL-303(T)S/30000	±2	HH	201PX5	201P	212P	212PY42	201PA	--	--	--	--
0-35000A	CTL-403(T)S/35000	±2	HH	201WX5	201W	212W	212WY42	201WA	--	--	--	--
0-40000A	CTL-403(T)S/40000	±2	HH	201PX5	201P	212P	212PY42	201PA	--	--	--	--

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

HALL-EFFECT CURRENT TRANSDUCER *MODEL* CTG-

CURRENT SENSOR WITH OUTPUT AMPLIFIER
5Vdc OR 10Vdc OUTPUTS

DESCRIPTION

The CTG Current Transducer is a Hall-effect sensor integrated with an output amplifier. The CTG series offers a number of current ranges, outputs and sensor dimensions. Hall-effect current measurement is a non-contact technique that measures the magnetizing effects of current flowing in a conductor. This measurement type offers a number of benefits not afforded by conventional direct or contact (in-line) measurement. Some of these benefits are high electrical isolation between conductor and sensor output, high overload capability, fast response to input changes and no power consumption on measured circuit.

FEATURES

- **Accuracy of ±1% F.S.**
- 2200Vac line-to-output dielectric test.
- DC to 400Hertz response.
- Sensor and amplifier in one package.
- Available in split-core configurations.
- Output is proportional in direction and magnitude to the current flow through the window. (ac input yields ac output, dc input yields dc output)
- Overload capability to **10 times** rating (at 60Hz).
- Stability maintained during severe vibration.
- Models available to 5,000A.
- Response time less than 500µs.
- 8-foot cable length.

APPLICATIONS

- Replaces shunts. No insertion loss.
- Ideal for use on ac systems with dc components and/or chopped waveforms.

c UL us LISTED
Measuring Equipment 7N93

5 YEAR WARRANTY

MODEL SELECTION

Circular Window Models

Current Range	±10Vdc Output	±5Vdc Output	Sensor Size
0 - 100A	CTG-101	CTG-101X5	D
0 - 200A	CTG-201	CTG-201X5	D
0 - 300A	CTG-301	CTG-301X5	D
0 - 400A	CTG-401	CTG-401X5	D
0 - 500A	CTG-501 CTG-501FS	CTG-501X5 CTG-501FSX5	E F
0 - 600A	CTG-601 CTG-601FS	CTG-601X5 CTG-601FSX5	E F
0 - 800A	CTG-801 CTG-801FS	CTG-801X5 CTG-801FSX5	E F
0 - 1000A	CTG-102 CTG-102FS CTG-102EES	CTG-102X5 CTG-102FSX5 CTG-102EESX5	E F EE
0 - 1500A	CTG-152 CTG-152FS CTG-152EES	CTG-152X5 CTG-152FSX5 CTG-152EESX5	E F EE
0 - 2000A	CTG-202 CTG-202FS CTG-202EES	CTG-202X5 CTG-202FSX5 CTG-202EESX5	E F EE
0 - 2500A	CTG-252 CTG-252FS CTG-252EES	CTG-252X5 CTG-252FSX5 CTG-252EESX5	E F EE
0 - 3000A	CTG-302EES	CTG-302EESX5	EE

Rectangular Window Models

Current Range	±10Vdc Output	±5Vdc Output	Sensor Size
0 - 500A	CTG-501HS	CTG-501HX5S	Z
0 - 600A	CTG-601HS	CTG-601HX5S	Z
0 - 800A	CTG-801HS	CTG-801HX5S	Z
0 - 1000A	CTG-102HS	CTG-102HX5S	Z
0 - 1500A	CTG-152HS	CTG-152HX5S	Z
0 - 2000A	CTG-202HS CTG-202S	CTG-202HX5S CTG-202X5S	Z G*
0 - 2500A	CTG-252S	CTG-252X5S	G*
0 - 3000A	CTG-302HS CTG-302S	CTG-302HX5S CTG-302X5S	Z G*
0 - 4000A	CTG-402HS	CTG-402HX5S	Z
0 - 5000A	CTG-502HS	CTG-502HX5S	Z

* Sensor size "**G**" models are not UL listed.

ORDERING INFORMATION

Example: 300Amp Split-Core Current Sensor with ±5V Output and Extended Temperature Range.

CTG-301X5ST

For optional CTG power supply, see PS-4753 spec sheet.

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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SPECIFICATIONS, CONNECTIONS & INSTALLATION *MODEL* CTG-

SPECIFICATIONS

INPUT
Current .....See Table..... dc/Peak ac
Over-current (without damage) .....10 X rating

INSTRUMENT POWER .....Nominal .....±15Vdc
Range .....±13Vdc to ±18Vdc
Current .....<±20mAdc

DIELECTRIC TEST (Conductor Through Window to Output)
Sensor size **"D"** (split-core) 1000Vdc
All others 2200Vac

OUTPUT
Load on output ..... ≥25kΩ
Response Time .....(typical) 500µs
Saturation.....Approx. .....13.5V @±15Vdc

ACCURACY AND LINEARITY .....±1.0% F.S.

TEMPERATURE
Temperature Range .....Standard ..... 0ºC to +40ºC
Extended Temp. Range ....add **"T"** suffix ..... -20ºC to +60ºC
Temperature Effects .....±0.05%/ºC

PHYSICAL
Insulation..... 600Vac
Option "**S**".....Split-core
Dimensions .....Refer to CTH and CTL spec sheets
NOTE: For sensor size "**G**", connector height is 0.422in.

Sensor size **"D"** split-core models are not UL listed.
Sensor size **"F", "EE" & "Z"** are available in split-core only.

CONNECTIONS

TABLE 1: SENSOR SIZES D & Z			
Plastic Connector, 8ft. Rubber Cable			
PINS	**LEADS**	**TYPE**	
1	WHITE	-	OUTPUT *
2	GREEN	+	
6	BLACK	-15V	INSTRUMENT POWER
8	RED	+15V	
1	WHITE	COM	

TABLE 2: SENSOR SIZES E, EE, F & G			
Metal Connector, 8ft. Rubber Cable			
PINS	**LEADS**	**TYPE**	
A	WHITE	-	OUTPUT *
B	GREEN	+	
C	BLACK	-15V	INSTRUMENT POWER
D	RED	+15V	
A	WHITE	COM	

* "Red dot" side of CTG must face positive supply.

INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION INSTRUCTIONS
1. Installation should be performed by qualified electricians only!
2. Make sure electrical service is disconnected before making any electrical connections.
3. Branch circuit protection is required to be provided in accordance with the National and Local codes of the inspection authority.
4. Route wires as required and secure to terminals per connection diagram on this sheet and on the unit.
5. Transducers are suitable for installation on 600Vac lines.

OPERATING INSTRUCTIONS
1. This unit is intended for indoor use at altitudes up to 2000 meters.
2. Transient overvoltages according to Installation Category (overvoltage category) II, pollution Degree 2.
3. The output signal is intended to be "Not accessible to the user." To prevent contact with live circuits, the transducer is required to be mounted in an enclosure that requires the use of a tool for access.
4. If cleaning of the exterior surface is necessary, de-energize all services of supply (both measuring and instrument power circuits) and brush with a soft brush or blow off with low-pressure air. Use appropriate eye protection. Not suitable for hose-down cleaning.
5. Maximum relative humidity is 80 percent for temperatures up to 31ºC decreasing linearly to 50 percent relative humidity at 40°C.
6. Maximum operating temperature range is -20ºC to 60ºC (refer to specifications for accuracy).

c UL US LISTED
UL approved for USA and Canada

Direct Current (dc)

WARRANTY STATEMENT
Ohio Semitronics Inc. warrants this unit to be free of defects in material and workmanship for a period of five years from date of shipment. This unit must not be used in any manner other than as specified in this document.

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HALL-EFFECT DC CURRENT TRANSDUCER *MODEL* CTH-

CURRENT SENSOR WITH OUTPUT AMPLIFIER
4-20mA, 5Vdc OR 10Vdc OUTPUT

DESCRIPTION

The CTH Series Current Transducer is a Hall-effect sensor integrated with an output amplifier. The CTH Series Current Transducer offers a 4-20mA, 4-12-20mA, 5V, or 10V output and can be operated from either a 24Vdc source or a low-cost 24Vac control transformer. Available options are split-core, extended temperature range, ruggedized design and 12Vdc or 15Vdc instrument power.

5 YEAR WARRANTY

FEATURES

- **ACCURACY 0.5%**
- Sensor & Amplifier in one package
- Output is proportional in direction and magnitude to the current flow through the window. (ac input yields ac output, dc input yields dc output)
- Available in split-core configurations
- Replaces shunts. No insertion loss.

ORDERING INFORMATION

Example: 0-300Adc Input, 4-20mA Output, Split-Core Option and Extended Temperature Range, with 15Vdc Instrument Power.

CTH-301LST-15

Power supply available by using the PS-4753-5 or -6.

SPECIFICATIONS

INPUT

Current ..... See Tables ..... dc or Peak ac
Over-current ..... 10 X rating

INSTRUMENT POWER

Standard ..... 24Vdc or ac ±10%
Instrument Current ..... 25mA + load current

DIELECTRIC TEST

Bare Bus to Output 3750Vac
Split-Core Sensor Size D 1000Vdc

OUTPUT

Load ..... 4-20mA models 0-500Ω
5 & 10V models ..... >2KΩ
Response Time (to 90%) ..... 500µs, typical

TEMPERATURE

Temperature Effects.. (0ºC to +40ºC) ..... ±0.025%/ºC
Temperature Range ..... 0ºC to +40ºC
Extended Temp. Range ..... -40ºC to +60ºC

ACCURACY AND LINEARITY

CTH-050, CTH-050M, CTH-050X5, CTH-050D.... ±1.0% F.S.
CTH-025, CTH-025M, CTH-025X5, CTH-025D.... ±2.0% F.S.
All Other Models ..... ±0.5% F.S.

AVAILABLE OPTIONS

Add Suffix in order shown:
Split-Core ..... Add suffix **"S"**
Extended Temperature Range ..... Add Suffix **"T"**
Ruggedized (potted) ..... Add Suffix **"R"**
NOTE: Sensor size D split-Core models are potted, so **"R"** is not required in model number.
Instrument Power..... 12Vdc, ±10%..... Add Suffix **"-12"**
15Vdc, ±10%..... Add Suffix **"-15"**

MODEL SELECTION

Circular Window Models

STANDARD OUTPUT MODEL CTH-					
Input DC Current	4-20mAdc Output	4-12-20mA dc Output	±5Vdc Output	±10Vdc Output	Sensor Size
0-25	025	025M	025X5	025D	B
0-50	050	050M	050X5	050D	B
0-100	101	101M	101X5	101D	B
0-100	101L	101LM	101LX5	101LD	D
0-200	201L	201LM	201LX5	201LD	D
0-300	301L	301LM	301LX5	301LD	D
0-400	401L	401LM	401LX5	401LD	D
0-500	501L	501LM	501LX5	501LD	E
0-500	501FLS	501FLMS	501FSX5	501FSD	F
0-600	601L	601LM	601LX5	601LD	E
0-600	601FLS	601FLMS	601FSX5	601FSD	F
0-800	801L	801LM	801LX5	801LD	E
0-800	801FLS	801FLMS	801FSX5	801FSD	F
0-1000	102L	102LM	102LX5	102LD	E
0-1000	102FLS	102FLMS	102FSX5	102FSD	F
0-1000	102EELS	102EELMS	102EESX5	102EESD	EE
0-1200	122L	122LM	122LX5	122LD	E
0-1200	122FLS	122FLMS	122FSX5	122FSD	F
0-1200	122EELS	122EELMS	122EESX5	122EESD	EE
0-1500	152L	152LM	152LX5	152LD	E
0-1500	152FLS	152FLMS	152FSX5	152FSD	F
0-1500	152EELS	152EELMS	152EESX5	152EESD	EE

Split-Core option "S" is available except for sensor size B.
All sensor size F, EE, and Z are standard split-core.
Consult factory if solid core is desired in these models.

Rectangular Window Models

STANDARD OUTPUT MODEL CTH-					
Input DC Current	4-20mAdc Output	4-12-20mA dc Output	±5Vdc Output	±10Vdc Output	Sensor Size
0-500	501HS	501HMS	501HX5S	501HDS	Z
0-600	601HS	601HMS	601HX5S	601HDS	Z
0-800	801HS	801HMS	801HX5S	801HDS	Z
0-1000	102HS	102HMS	102HX5S	102HDS	Z
0-1200	122HS	122HMS	122HX5S	122HDS	Z
0-1500	152HS	152HMS	152HX5S	152HDS	Z

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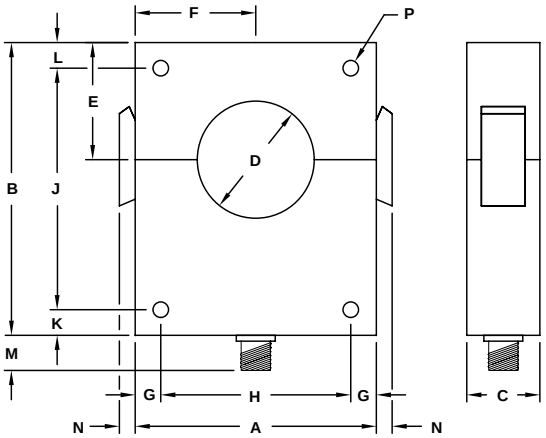
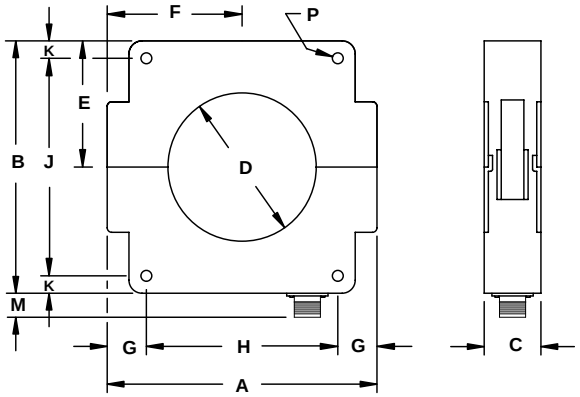
CONNECTIONS & CASE DIMENSIONS MODEL CTH-

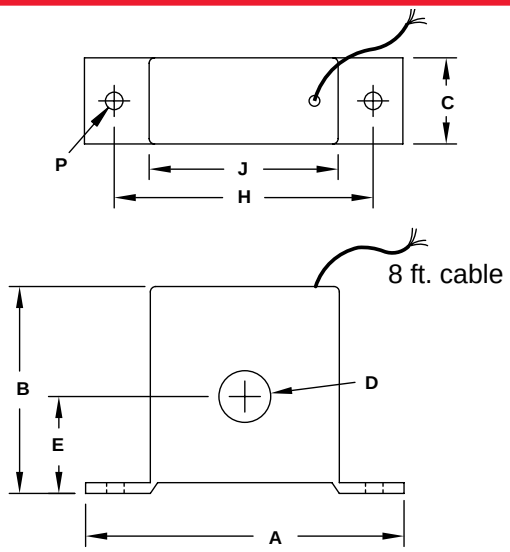
CASE DIMENSIONS D & E



CASE DIMENSIONS F & EE

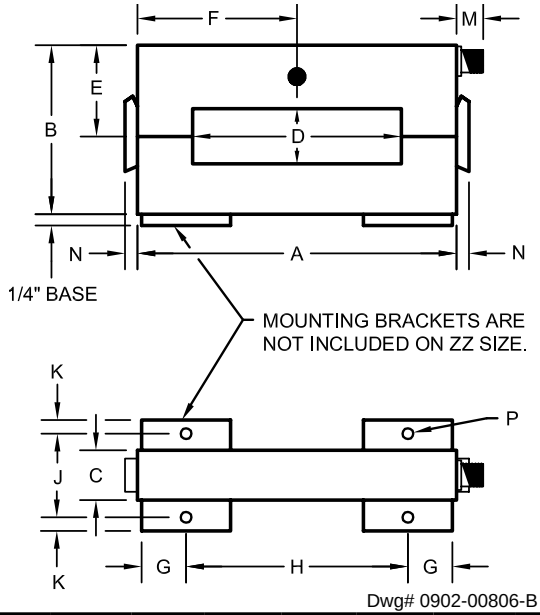


CASE DIMENSIONS B



Use Sensor Size D Cable Assembly for connections.
#22 AWG

CASE DIMENSIONS Z



Dwg# 0902-00806-B Rev --

SENS. SIZE	SENSOR DIMENSIONS (inches)														WT. LBS.
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
B	3 5/8	2 9/16	1	5/8	1 5/32	NA	NA	2 3/4	2 3/16	NA	NA	NA	NA	3/16	0.2
D	3 1/8	4	25/32	1 1/8	1 1/2	1 9/16	1/2	2 1/8	NA	1/2	NA	3/8	1/4	11/64	0.75
E	4 1/8	5	1 1/4	2	2	2 1/16	7/16	3 1/4	4 1/8	7/16	7/16	5/8	5/16	17/64	2.0
F	5 3/8	5 1/4	1 5/8	2 1/4	2 5/8	2 11/16	1 1/16	3 1/4	4 1/8	9/16	NA	5/8	NA	1/4	2.8
EE	7 3/4	7 1/4	1 5/8	4 1/4	3 5/8	3 7/8	1 1/8	5 1/2	6 1/4	1/2	NA	5/8	NA	5/16	4.5
Z	7 3/16	3 15/16	1 5/16	1 1/4 x 4 1/2	2 9/64	3 1/2	1	5	1 7/8	5/16	NA	1/2	5/16	3/16	2.8

CABLE ASSEMBLY

SENSOR SIZE D, Z				SENSOR SIZE E, EE, F			
CONN. PINS	18AWG 8' LEADS	TYPE		CONN. PINS	18AWG 8' LEADS	TYPE	
1	WHITE	-	OUTPUT*	A	WHITE	-	OUTPUT*
2	GREEN	+		B	GREEN	+	
6	BLACK	COM	INST. PWR.	C	BLACK	COM	INST. PWR.
8	RED	+24V		D	RED	+24V	

*For positive output, insert positive current cable through "red dot" side of sensor.

Power supply available by using the PS-4753-5 or -6.

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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NEW!

HALL-EFFECT DC CURRENT TRANSDUCER *MODEL* CTLC-

DESCRIPTION

The CTLC series current transducers are Hall-effect current sensors with signal conditioning and an output amplifier in a single compact package. All models are supplied in a split-core configuration for ease of installation.

Hall-effect current measurement is a non-contact technique that measures the magnetizing effects of current flowing in a conductor.

Advantages of this technique include high electrical isolation between the measured conductor and transducer output, high over-range capability and fast response to input changes.

5 YEAR WARRANTY

2011/65/EU • RoHS COMPLIANT

FEATURES

- **Accuracy = ±0.5% F.S.**
- Sensor, signal conditioning and amplifier in one package
- Output is proportional in direction and magnitude to current flow through the window. (4-20mA output is unidirectional)
- Split-core configuration
- Replaces shunts. No insertion loss.

ORDERING INFORMATION

Example: Split-core current transducer with 0-400Adc Input, 4-20mAdc Output, D size, 24Vdc/ac instrument power and extended temperature range

CTLC-401LST

Power supply available by using the PS-4753-5 or -6.

G case

EE case

D case

MODEL SELECTION

DC Current Input	MODEL CTLC-			Size
	4-20mAdc Output	±5Vdc Output	±10Vdc Output	
0-100A	101LS	101LSX5	101LDS	D
0-200A	201LS	201LSX5	201LDS	D
0-300A	301LS	301LSX5	301LDS	D
0-400A	401LS	401LSX5	401LDS	D
0-400A	401EELS	401EESX5	401EESD	EE
0-500A	501EELS	501EESX5	501EESD	EE
0-600A	601EELS	601EESX5	601EESD	EE
0-800A	801EELS	801EESX5	801EESD	EE
0-1000A	102EELS	102EESX5	102EESD	EE
0-1200A	122EELS	122EESX5	122EESD	EE
0-1500A	152EELS	152EESX5	152EESD	EE
0-2000A	202LS	202SX5	202SD	G
0-2500A	252LS	252SX5	252SD	G
0-3000A	302LS	302SX5	302SD	G

SPECIFICATIONS

INPUT

Current ..... See Table

Over-current without damage .....10 X rating

OUTPUT

Load ..... 4-20mA models..... 0-500Ω
5 and 10V models..... ≥2kΩ

Response Time (to 90%).....500µs, typical

INSTRUMENT POWER

Voltage .....24Vdc/ac ±10%

Current ..... 25mA + output current

DIELECTRIC TEST

Bare Conductor thru Window to Output 3750Vac

ACCURACY and LINEARITY .....±0.5% F.S.

TEMPERATURE and ENVIRONMENTAL

Operating Range .....0 to +40ºC
Extended Range (add suffix "**T**") ..... -40° to +60°C

Temperature Effect .....±0.025%/ºC

Humidity .....0-95%, non-condensing

PHYSICAL

Weight ..... D size ≤0.75lb., EE size ≤4.5lb.

Connections .....6-32 screw terminals

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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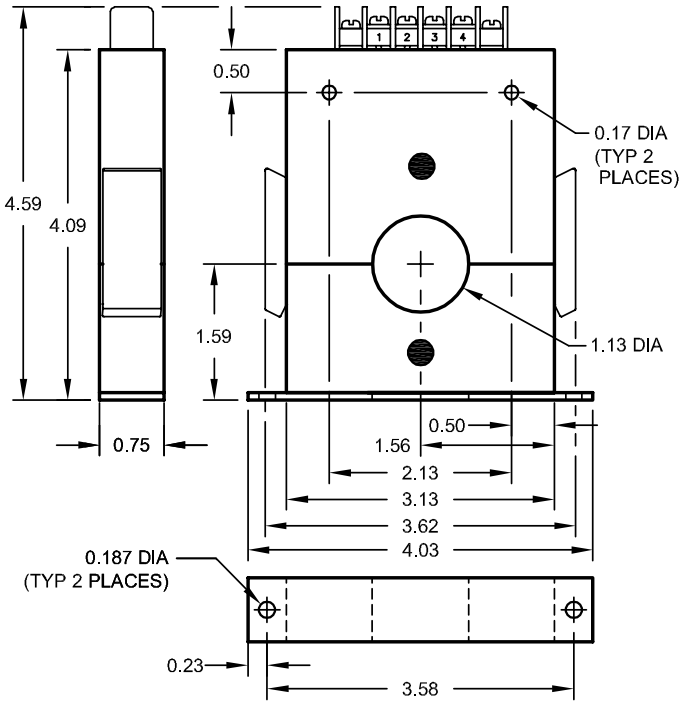
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

CASE DIMENSIONS AND CONNECTIONS *MODEL* CTLC-

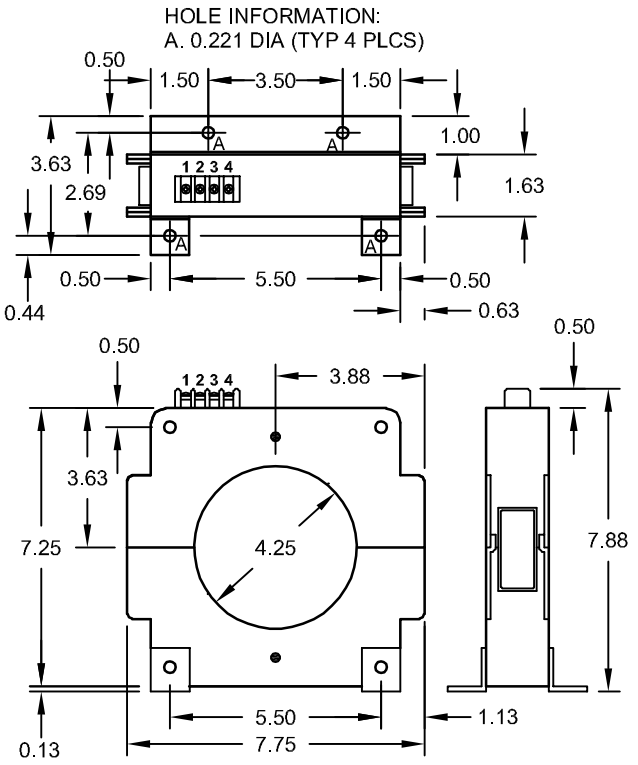
ALL DIMENSIONS ARE IN INCHES. TOLERANCE IS ±0.030" UNLESS OTHERWISE NOTED.

CASE DIMENSIONS D



Dwg.# 0902-00948-B Rev A

CASE DIMENSIONS EE

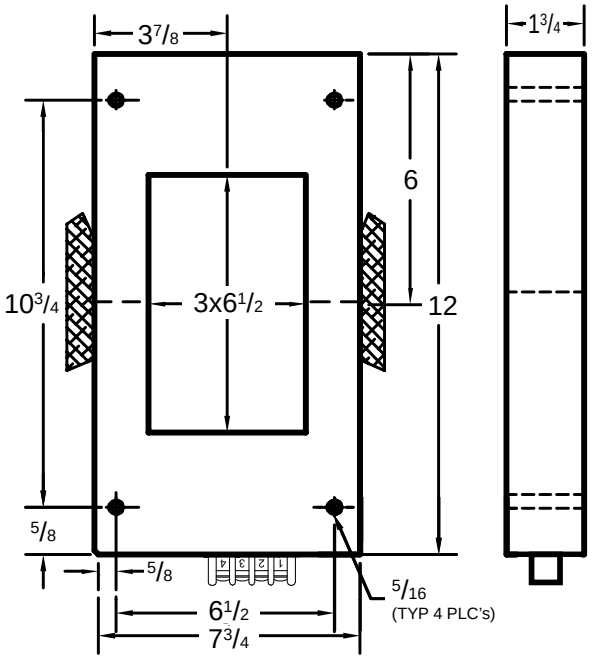


Dwg.# 0902-00955-B Rev D

MOUNTING INSTRUCTIONS

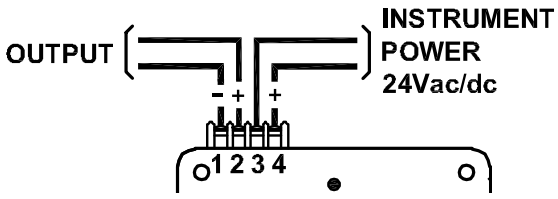
Unit must be installed in a vertical position as shown. The conductors through the window and the wires attached to the terminal strips must not apply any stress to the latches in any direction.

CASE DIMENSIONS G



Dwg.# 0902-00438-B Rev A (mod.) & Dwg.# 0902-00600-B Rev A (mod.)

CONNECTIONS



TERMINAL IDENTIFICATION	
Terminal 1 (–)	Output
Terminal 2 (+)	
Terminal 3 (–)	Instrument Power
Terminal 4 (+)	

"Red dot" side of CTL must face positive supply.

Power supply available by using the PS-4753-5 or -6.

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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OSI INTRINSICALLY-SAFE DC CURRENT TRANSDUCER *MODEL* ISC-

DESCRIPTION

The ISC current transducer provides a Hall-Effect sensor with an integrated signal conditioner. All units are packaged in a split-core configuration for ease of installation. Application flexibility is provided by a wide variety of input current ranges and output signal types.

Units meet the requirements of ATEX Directive 94/9/EC and UL/CUL Intrinsically Safe regulations (see standards listing). These standards are specifically related to the requirements for hazardous location installations in North America and the European Union (EU) but are widely accepted throughout the world. When used with appropriate safety barriers these units are recommended for installation in hazardous locations such as offshore platforms and petrochemical plants.

FEATURES

- Hall-Effect Current Sensor with Output Amplifier
- Split Core
- UL/CUL Intrinsically Safe Certification.
- Meets Requirements of ATEX Directive 94/9/EC

APPLICATIONS

- Current Sensing
- Torque Measurements
- Hazardous Locations Such as Offshore Platforms and Petrochemical Plants

5 YEAR WARRANTY

Intrinsically Safe Current Transducer meets the following standards:

CE 0575 Ex II 2/1 G

Ex ia IIC T4
DNV-2006-OSL-ATEX-0411X

c UL US LISTED
20BP

UL/CUL CLI, Div1, Gr A, B, C, D

SPECIFICATIONS

INPUT

Current ..... Linear ..... See Table
Over-current ..... Without Damage ..... 10X Rating
Frequency Range ..... (±1dB) ..... dc to 1kHz

DIELECTRIC TEST

Bus through Window to Output 5kVac

INSTRUMENT POWER

Nominal 24Vdc
Range 14-30Vdc
Max Current Draw 36mA

OUTPUT

Signal ..... See Table
Loading ..... Voltage Models ..... ≥100kΩ
Current Models ..... ≤250Ω
Response Time (to 90% F.S.) ..... <1ms
Offset ..... ≤1% F.S.

ACCURACY & LINEARITY ..... ±2% F.S.

TEMPERATURE

Operating Range ..... -10 to 60ºC
Effect ..... (-10ºC ≤ Tamb ≤ 60ºC) ..... ±1% F.S.

PHYSICAL

Weight ..... 2 lbs.
Enclosure ..... Noryl SE1X, Black

MODEL SELECTION

ORDERING INFORMATION

Example: Input 0-1000Adc
Output 0-2.9Vdc
ISC-102

INPUT DC AMPS	STANDARD OUTPUTS MODEL ISC-			
	0-2.9Vdc	0-5Vdc	0-10Vdc	4-20mAdc
*0-100	101	101X5	101D	101E
0-200	201	201X5	201D	201E
0-300	301	301X5	301D	301E
0-400	401	401X5	401D	401E
0-500	501	501X5	501D	501E
0-600	601	601X5	601D	601E
0-800	801	801X5	801D	801E
0-1000	102	102X5	102D	102E
0-1500	152	152X5	152D	152E
0-2000	202	202X5	202D	202E
0-2500	252	252X5	252D	252E

* Requires two turns through window.

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

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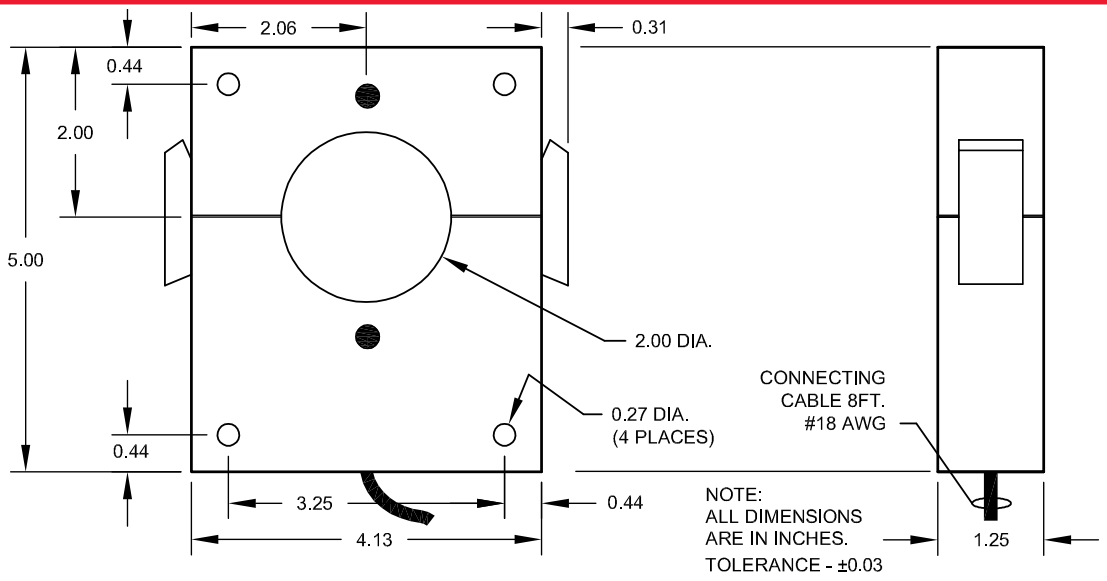
L

OSI INTRINSICALLY-SAFE DC CURRENT TRANSDUCER *MODEL* ISC-

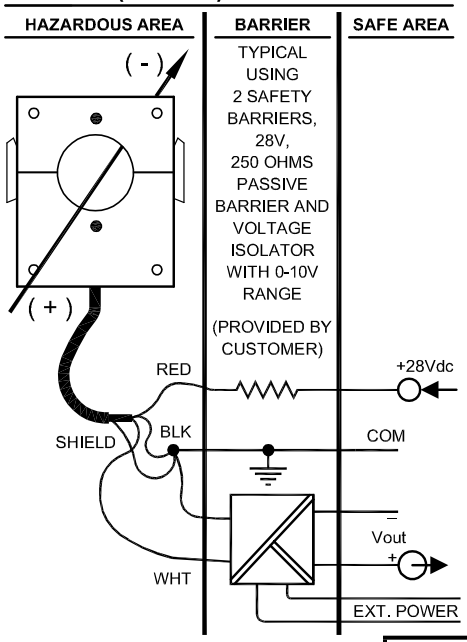
DIMENSIONS



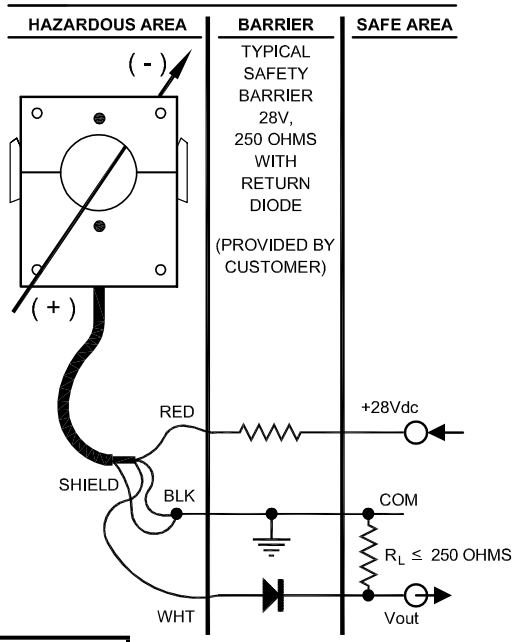
Dwg# 0902-00823-B Rev A

CONNECTION DIAGRAMS

TYPICAL CONNECTION WITH 0 - (2.9/5/10) VOLT OUTPUT



TYPICAL CONNECTION WITH 4-20mA OUTPUT



Entity Parameters			
Supply: Red(+), Black(-)		**Signal:** White(+), Black(-)	
Ui, Vmax	30Vdc	Ui, Vmax	10Vdc
Ii, Imax	110mA	Ii, Imax	29mA
Pi, Pmax	1.1W	Pi, Pmax	0.21W
Ci	0µF	Ci	60nF
Li	0mH	Li	0mH

WARNING:
1. Do Not use in environments where ethers are present.
2. Clean only with a damp cloth to prevent the possibility of electric discharge.

Reference also Control Drawing 0901-00226-B Rev C

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

HALL-EFFECT CURRENT TRANSDUCER *MODEL* CTLP-

LOOP POWERED

DESCRIPTION

The model CTLP is a Hall-effect current sensor with signal conditioning in a single compact package. Hall-effect current measurement is a non-contact technique that measures the magnetizing effects of current flowing in a conductor. Advantages of this technique include high electrical isolation between the measured conductor and transducer output, high over-range capability and fast response to input changes.

This loop-powered design simplifies installation by reducing instrument power and output signal connections to a simple 2-wire interface.

A Case


Z Case
Split Core

MODEL SELECTION

INPUT	CASE	MODEL
0-25Adc	A	CTLP-025
0-50Adc	A	CTLP-050
0-100Adc	A	CTLP-100
0-400Adc	Z	CTLP-401HL
0-500Adc	Z	CTLP-501HL
0-600Adc	Z	CTLP-601HL
0-800Adc	Z	CTLP-801HL
0-1000Adc	Z	CTLP-102HL
0-1500Adc	Z	CTLP-152HL
0-2000Adc	Z	CTLP-202HL
0-3000Adc	Z	CTLP-302HL

SPECIFICATIONS

INPUT
- Current Range ..... See Table
- Over-range w/o damage ... Continuous ..... 10X Rated
- Frequency Range ..... dc

OUTPUT
- Type ..... Loop-powered 4-20mAdc
- Scaling ..... 0-F.S. Input = 4-20mAdc Output
- Loading ..... 24Vdc loop-power, ±15% 0-500Ω
- Response ..... to 90% ..... 500µs, Typical

DIELECTRIC TEST
- Conductor through Window to Output 2200Vac

ACCURACY (Setpoint, Linearity, Repeatability)
- CTLP-025 ..... ±2.0% F.S.
- CTLP-050, CTLP-100 ..... ±1.0% F.S.
- All Others ..... ±0.5% F.S.

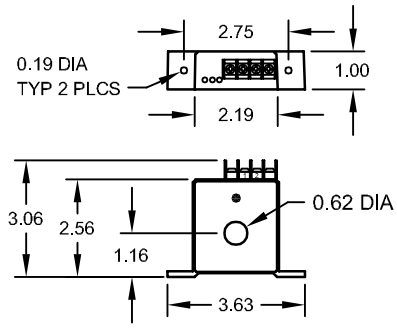
INSTRUMENT POWER
- Loop-powered ..... Voltage ..... 24Vdc, ±15%

TEMPERATURE
- Operating Range ..... standard ..... 0 to +40ºC
  - "**T**" option ..... -40ºC to +60ºC
- Effect ..... A case ..... standard ..... ±2.0% F.S.
  - "**T**" option ..... ±3.0% F.S.
- Z case ..... standard ..... ±1.0% F.S.
  - "**T**" option ..... ±2.5% F.S.

PHYSICAL
- Termination ..... 6-32 Screw Terminals
- Enclosure ..... A case ..... Noryl SE1X, Gray
  - Z case ..... Noryl SE1X, Black
- Weight ..... A case ..... 0.2 lb.
  - Z case ..... 1.4 lb.

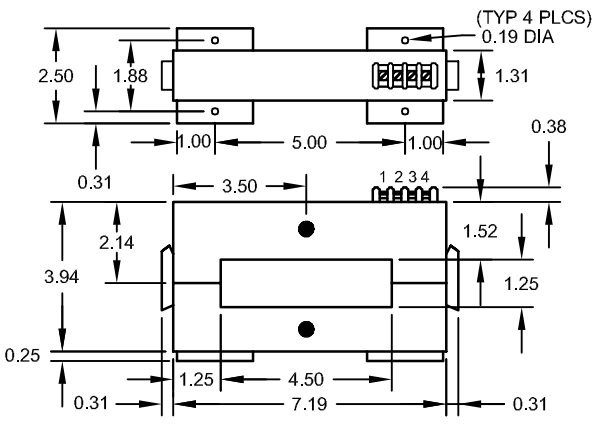
CASE DIMENSIONS

A CASE MODELS



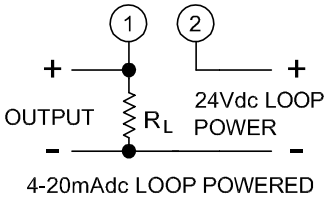
ALL DIMENSION ARE IN INCHES.
TOLERANCE: 0.00 ±0.03.

Z CASE MODELS

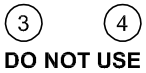


CONNECTIONS

ALL MODELS



4-20mAdc LOOP POWERED



DO NOT USE

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

0902-00834-B Rev A

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OSI HALL-EFFECT CURRENT SENSOR *MODEL* CTF & CTFB-

0.1% Linearity

5 YEAR WARRANTY

DESCRIPTION

The CTF and CTFB current sensors are closed-loop, highly-precise electronic sensors designed for ac, dc, pulse and variable-frequency drives. The output is directly proportional to the input and the output waveform is identical to the "through-window" current.

Model CTFB

Model CTF

The CTF and CTFB provide 0.1% linearity. Rugged construction and reduced temperature sensitivity ensure reliable measurements over a wide range of temperatures.

Models are provided in enclosures or circuit board arrangement.

Use CTA800-* for instrument power source and output signal conditioning.

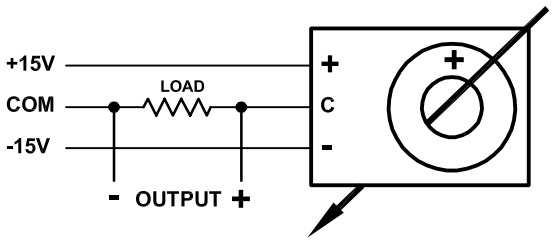
MODEL SELECTION

MODEL NUMBER	INPUT CURRENT (AMPS)		TEMPERATURE		TURNS RATIO	OUTPUT				ACCURACY F.S. @ 25ºC	LINEARITY F.S.	SENSOR CASE SIZE
						AC		DC				
	AC	DC	RANGE	OFFSET OVER RANGE		CAL	LOAD	CAL	LOAD			
CTFB-100TT	100	150	-25º to +70ºC	+0.75mA	1000:1	100mA	0-50Ω	150mA	0-50Ω	±0.4%	±0.1%	1
CTFB-100T	100	150	-40º to +80º	+1.0mA	1000:1	100mA	0-50Ω	150mA	0-50Ω	±0.4%	±0.1%	1
CTFB-300TT	300	750	-25º to +70º	+0.6mA	2000:1	150mA	0-40Ω	375mA	0-15Ω	±0.4%	±0.1%	1
CTFB-300T	300	750	-40º to +80º	+0.75mA	2000:1	150mA	0-40Ω	375mA	0-15Ω	±0.4%	±0.1%	1
CTF-500TT	500	750	-0º to +70º	+0.25 mA	5000:1	100mA	0-50Ω	150mA	0-15Ω	±0.3%	±0.1%	2
CTF-500T	500	750	-40º to +80º	+0.5mA	5000:1	100mA	0-50Ω	150mA	0-15Ω	±0.3%	±0.1%	2

SPECIFICATIONS

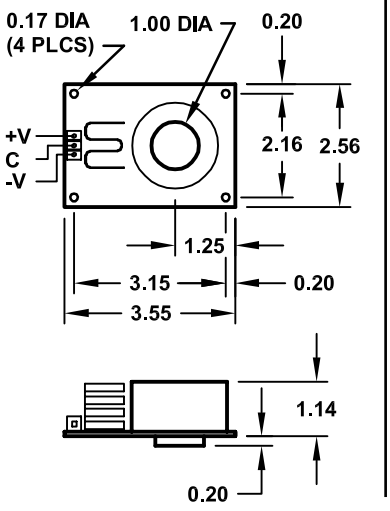
Current..... See Table
Response Time..... (to 90%)..... 1µs
di/dt.....50A/1µs
Bandwidth (-1dB).....dc to 100kHz
Instrument Power .....±15Vdc to ±18Vdc
Dielectric Test ..... (input/output) 3kV
Weight ..... CTFB ..... 0.4 lb
CTF..... 2.2 lb

CTFB CONNECTIONS

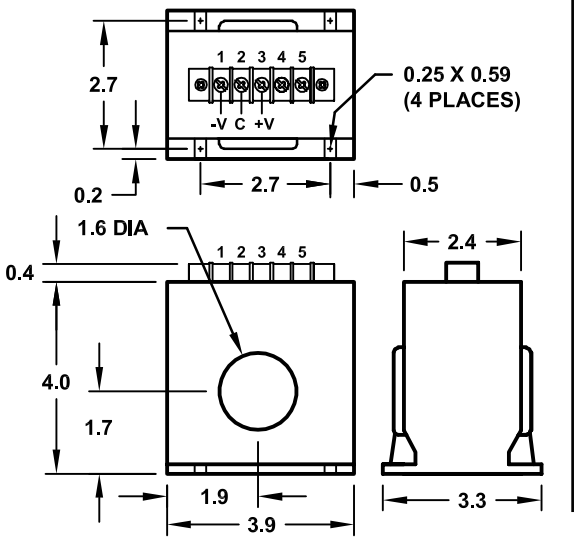


CASE DIMENSIONS (in inches)

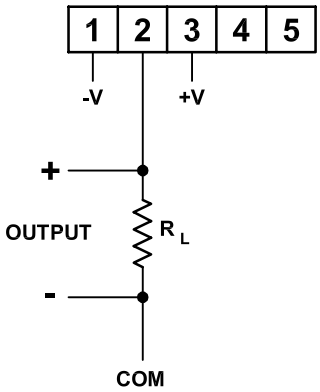
CASE 1 (CTFB)



CASE 2 (CTF)



CTF CONNECTIONS



Dwg. # 0902-00820-B Rev A

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AC/DC/PULSE CURRENT SENSOR — MODEL CTFG-

DESCRIPTION

The CTFG- series current sensors are closed-loop Hall-Effect current sensors designed to measure ac or dc currents, or a combination of both. With allowable input current from 100A through 500A, the series provides pulse current measurement up to 100A/µs.

FEATURES

- Rugged construction
- Reduced temperature sensitivity
- High galvanic isolation

5 YEAR WARRANTY

APPLICATIONS

- Suitable for safe and reliable operation in a wide range of environmental conditions.

MODEL SELECTION

INPUT CURRENT*	MODEL NUMBER	TURNS RATIO	OUTPUT
0 - 100A	CTFG-101	1000:1	100mA
0 - 200A	CTFG-201	2000:1	100mA
0 - 300A	CTFG-301	3000:1	100mA
0 - 400A	CTFG-401	4000:1	100mA
0 - 500A	CTFG-501	5000:1	100mA

* AC input current ratings based on 10Ω load or less.

ORDERING INFORMATION

Example: 0-300A Input and 0-100mA Output

CTFG-301

SPECIFICATIONS

INPUT

Current (ac RMS or dc) ..... See Table
Over-range (w/o damage)
Continuous ..... 110% F.S.
Transient ..... 10 X F.S. for 50ms/Hr
Bandwidth (-3dB) ..... dc to 35kHz
Response (di/dt correctly followed) 100A/µs

OUTPUT

Scaling/Turns Ratio ..... See Table
Loading (@15Vdc Instrument Power)
100-300A Models ..... Max ..... 50Ω** Min 0Ω
400-500A Models ..... Max ..... 40Ω** Min 0Ω
** Values shown are for dc/pkac. Max 10Ω for ac RMS.
Response Delay ..... ≤1µs

DIELECTRIC TEST (Cable through Window to Output)

60Hz, 1min. 2.2kV

INSTRUMENT POWER

Voltage ..... ±15Vdc, ±5%
Current ..... Quiescent ..... ±25mAdc
Maximum ..... Quiescent + Output Current

ACCURACY

With F.S. Input @ 25ºC ..... ±0.5% F.S.
Linearity ..... ±0.1% F.S.
Offset @ 25ºC ..... ±0.25mA

TEMPERATURE & ENVIRONMENTAL

Operating Range ..... -20 to 70ºC
Effect ..... -20ºC to 0ºC ..... ±20µA/ºC
0ºC to 70ºC ..... ±6µA/ºC
Storage Range ..... -25 to 85ºC
Operating Humidity ..... 0-95% non-condensing

PHYSICAL

Weight ..... 11.3oz.
Enclosure ..... Material ..... Noryl SE1X
Flammability ..... UL 94 V-1
Color ..... Black
Connections
Instrument Power & Output ..... M4 Stud
Primary Conductor ..... 1.25 in.(32mm) dia. window

NOTE: CTA800 signal conditioners provide the instrument power that the CTFG requires, as well as amplifying the low-level (mA) signal into a more typical signal. See CTA800 spec sheet for details.

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NEW!

OSI PRECISION AC/DC CURRENT TRANSDUCER *MODEL* UFG-

0.01% ACCURACY

DESCRIPTION

The UFG series solid-core current transducers provide ultra-high accuracy in a convenient compact enclosure. Units operate bidirectionally and provide an output that is a scaled replica of the input.

FEATURES

- Ultra-high accuracy of ±0.01% error, max.
- Nearly half the size of competitors' units
- Rugged construction

APPLICATIONS

- Precision measurements
- Medical devices
- Electric vehicle battery packs

MODEL SELECTION

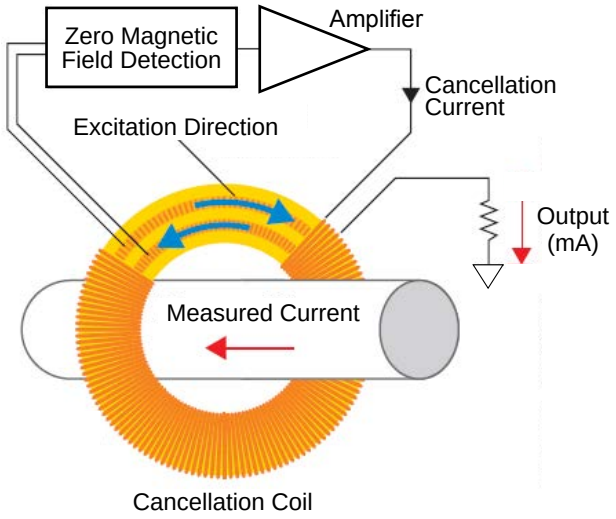
INPUT (Adc/pkac)	MODEL	OUTPUT
0 to ±200	UFG-201	0 to ±100mA
0 to ±600	UFG-601	0 to ±300mA

ORDERING INFORMATION

Example: 0 to ±600A Input with 0 to ±300mA Output

UFG-601

STRUCTURE



SPECIFICATIONS

INPUT

Current ..... See Table
Bandwidth ..... dc to 10kHz

OUTPUT

Current ..... See Table
Voltage ..... ±5V max.
Response 1µs
Load Resistor (Rb) .. UFG-201 ..... 50Ω, 0.01% acc., >2W
UFG-601 .. 16.666Ω, 0.01% acc., >2W
NOTE: Resistors similar to the Vishay VPR221 series are recommended.

ACCURACY

Setpoint, repeatability ..... ±0.01% F.S.
Linearity ..... ±0.01% F.S.
Offset ..... UFG-201 ..... ±10µA
UFG-601 ..... ±30µA
Hysteresis 1ppm

INSTRUMENT POWER

Voltage ..... ±15Vdc, ±5%
Current ..... 35mAdc plus output current

TEMPERATURE & ENVIRONMENTAL

Operating Range ..... -30 to 80°C
Effect .....
Operating Humidity ..... 0-95% non-condensing

PHYSICAL

Size ..... UFG-201... 1.38in. X 1.38in. X 0.79in., 0.59in. dia.
UFG-601 .. 2.36in. X 2.36in. X 1.61in., 1.18in. dia.
Weight ... UFG-201 ..... 1.1oz (30g)
UFG-601 ..... 0.6lb (0.3kg)
Termination
UFG-201 .... 4-pin, male.... EHR-4* (JST Mfg. Co., Ltd.)
UFG-601 .... 4-pin, male.... XHP-4* (JST Mfg. Co., Ltd.)
(*Mating connectors not supplied.)

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SIGNAL CONDITIONER — MODEL CTA800-

DESCRIPTION

The model CTA800/801 series of signal conditioners is designed to interface with the CTF(B) and CTFG series of closed-loop Hall-effect current sensors. All models provide a ±15Vdc power supply to power the current sensor.

Two types of signal conditioning are available:

Direct -this type is recommended for dc applications, but may also be used in ac applications to provide an output which is a scaled replica of the input.

RMS - this type is recommended for ac and ac/dc applications, and provides a dc output proportional to the true RMS value of the input.

The model **CTA800-P** provides a ±15Vdc power supply only.

5 YEAR WARRANTY

MODEL SELECTION

CTA80 ☐ – ☐ (-22)*

TYPE		OUTPUT(S)	
0	Direct (output is a scaled replica of the input)	B	0-1mAdc & ±15Vdc Supply
		D	0-10Vdc & ±15Vdc Supply
1	RMS (output is proportional to the RMS value of the input)	X5	0-5Vdc & ±15Vdc Supply
		E	4-20mAdc & ±15Vdc Supply
		EA	0-20mAdc & ±15Vdc Supply
		P	±15Vdc Supply Only

ORDERING INFORMATION

Example: Signal conditioner with 0-10Vdc output proportional to the RMS input and ±15Vdc sensor supply.

CTA801-D

*For optional 230Vac instrument power, add suffix "-22".

SPECIFICATIONS

INPUT (From external current sensor)
- Type ..... nominal 100mA
- Frequency .....dc to 50kHz

OUTPUT (Signal Conditioning)
- Type ..... See Table
- Loading .. "B" Models..... 0-10kΩ
  - "D" or "X5" Models.....2kΩ, min.
  - "E" or "EA" Models 0-500Ω
- Field Adjustment..... Gain .....±10%
- Ripple (RMS models @ dc & >50Hz).....<0.5% F.S.
- Response Time ..... (to 90% F.S.)
  - Direct Models (X5 or D) 1µs
  - Direct Models (B, E, EA) 30µs
  - RMS Models 100ms

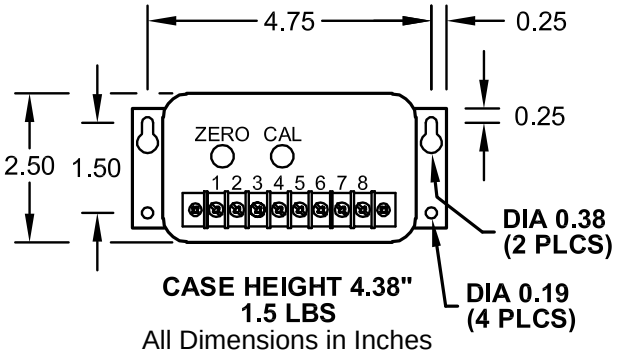
OUTPUT (Power supply for external sensor)
- Standard.....±15Vdc
  (Consult factory for additional options.)

INSTRUMENT POWER
- Standard.....115Vac ±10%, 50/60Hz
- Option "**-22**" ..... 230Vac ±10%, 50/60Hz

ACCURACY
- Linearity.....±0.1% F.S.

TEMPERATURE
- Operating Range 0-70ºC
- Effect .....±0.01%/ºC

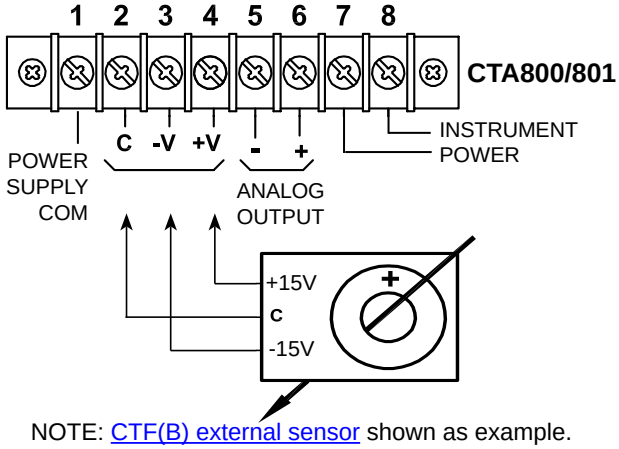
CASE DIMENSIONS



CASE HEIGHT 4.38"
1.5 LBS
All Dimensions in Inches

Dwg. # 0902-0879-B Rev --

CONNECTION DIAGRAM



NOTE: CTF(B) external sensor shown as example.

Dwg. # 0902-0820-B Rev -- (mod.)

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NEW!

OSI UNIVERSAL POWER SUPPLY MODEL PS-4753

DESCRIPTION

The Model PS-4753 universal power supply is designed to interface with the CTLC, CTG, CTH and CTU series current transducers to provide the excitation current (instrument power) that the open-loop Hall-effect sensor requires.

Instrument power to the PS-4753 is rated at 110Vdc-370Vdc or 85Vac -265Vac, or with option 3 or 4, 15Vdc to 60Vdc.

A single or dual ±12Vdc or ±15Vdc output is available to power the sensor(s).

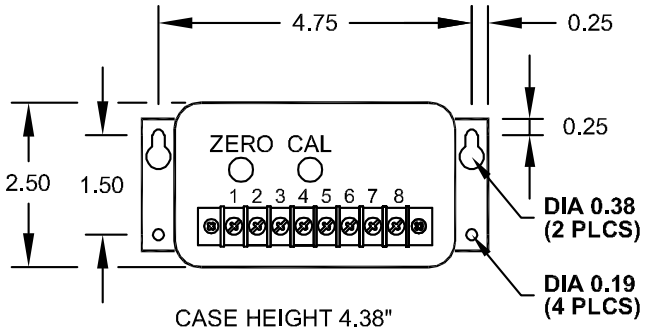
5 YEAR WARRANTY

MODEL SELECTION

MODEL	INSTRUMENT POWER	OUTPUT (to Sensor)
PS-4753	110-370Vdc or 85-265Vac	±15Vdc (30Vdc)
PS-4753-2	110-370Vdc or 85-265Vac	Dual ±15Vdc (30Vdc)
PS-4753-3	15-60Vdc	±15Vdc (30Vdc)
PS-4753-4	15-60Vdc	Dual ±15Vdc (30Vdc)
PS-4753-5	110-370Vdc or 85-265Vac	±12Vdc (24Vdc)
PS-4753-6	110-370Vdc or 85-265Vac	Dual ±12Vdc (24Vdc)

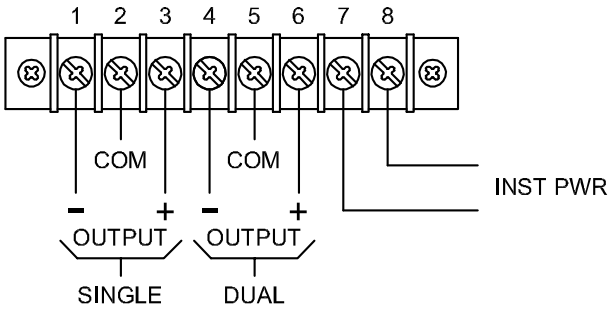
DIELECTRIC TEST..... Input/Output/Case.....2500Vac

CASE DIMENSIONS



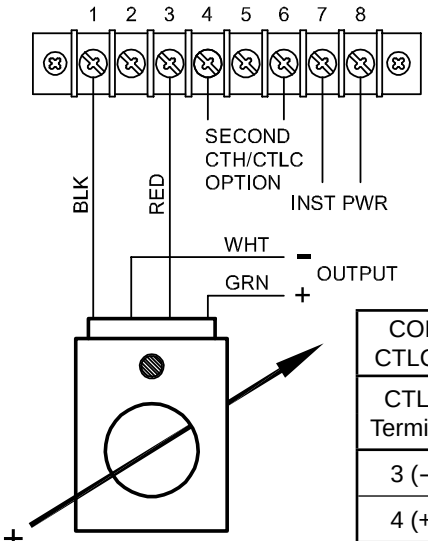
CASE HEIGHT 4.38"
1.4 LBS
ALL DIMENSIONS IN INCHES

CONNECTION DIAGRAM



CONNECTION EXAMPLES

CONNECTIONS TO ±12Vdc (24Vdc) CURRENT SENSORS

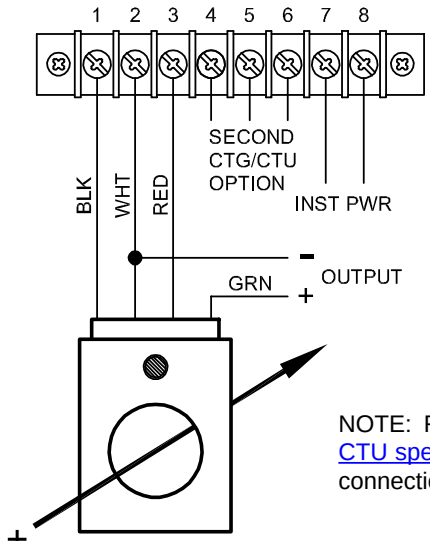


CTH / CTLC
±12Vdc (24Vdc) MODELS

CONNECTIONS TO CTLC 24Vdc MODELS		
CTLC Terminal	PS-4753 Term.	
	Single	Dual
3 (–)	1 (–)	4 (–)
4 (+)	3 (+)	6 (+)

NOTE: Refer to the CTLC or CTH spec sheet for additional connection details.

CONNECTIONS TO ±15Vdc (30Vdc) CURRENT SENSORS



CTG / CTU
±15Vdc (30Vdc) MODELS

NOTE: Refer to the CTG or CTU spec sheet for additional connection details.

Dwg# 0902-00679-B Rev B

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FLEXIBLE ROGOWSKI COILS — MFC150 SERIES

DESCRIPTION

MFC150 Series flexible current transducers operate based on the Rogowski principle. These coils are available in four standard sizes and can also be supplied according to customer's design by special order. Due to their design-specific features, Rogowski coils are an extremely flexible solution for current measurement and can be used in a number of cases where a traditional current transducer is not an option.

The MFC150 coil is provided with a shield that negates the influence of external magnetic fields allowing for ideal accuracy from low currents to hundreds of kiloamps.

5 YEAR WARRANTY

FEATURES

- High linearity
- Wide dynamic range
- Very useful with large wire bundles or awkwardly-shaped conductors, or in places with limited access.
- Cannot be damaged by large overloads.
- Light weight - can be suspended on the conductor being measured.

APPLICATIONS

- Measuring devices, lab instrumentation
- Power monitoring & control systems
- DC ripple measurement
- Harmonics and transients monitoring
- Very high current monitoring, including pulse current

Rogowski coils have been used for the detection and measurement of electric currents for several decades. They are based on a simple principle: an "air-cored" coil is placed around the conductor in a toroidal fashion and the magnetic field produced by the current induces a voltage in the coil. The voltage output is proportional to the rate of change of current. This voltage is integrated, thus producing an output proportional to the current.

By using precision winding techniques specially developed for the purpose, the coils are manufactured so that their output is not influenced by the position of the conductor within the toroid.

Rogowski coil current transducers are used for AC measurement applications.

They can be used similarly to current transformers but for many applications they have considerable advantages:

The transducer does not measure DC, but unlike a current transformer it can carry out accurate measurement of AC components even if there is a large superimposed DC component. This feature is particularly useful for measuring ripple currents in battery charging circuits.

BENEFITS

- By design, flexible Rogowski coils allow for installation over various conductor sizes or grouped cables.
- The coil output gives a low voltage signal; therefore there is no danger from an open-circuited secondary. This feature makes Rogowski transducers extremely suitable for temporary measurements.
- Unlike traditional current transformers with magnetic cores, the Rogowski coil is a non-intrusive transducer. Since it has no magnetic core, it draws no power from the main circuit carrying the current to be measured.
- The absence of a magnetic core allows for a wide frequency response up to hundreds of kHz. This makes the MFC150 Series particularly suitable for measurement of harmonic content and transients.

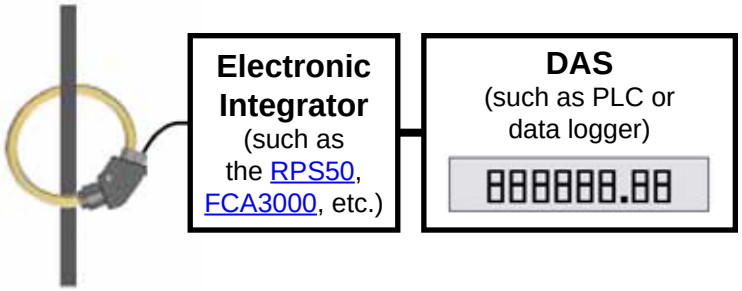
ORDERING INFORMATION

Example: 35" coil with 100mV/1kA output for use with an RPS50.

17645

A Rogowski coil current measuring system consists of the combination of a coil and conditioning electronics.

Rogowski coils must be connected to an electronic integrator for 90° phase shift compensation and frequency equalization.



FLEXIBLE ROGOWSKI COILS MFC150 SERIES

MODEL SELECTION

STANDARD OUTPUT MODELS						
Part Number	**Rogowski Coil Length* in inches (cm)**	**Approx. ID in inches (cm)**	**Output (@50Hz)**	**Accuracy (typical)**	**Coil Resistance**	**Frequency Range**
17644	23.6 (60)	6.5 (16.5)	100mV/1kA	< ±1%	20-140Ω	40Hz-20kHz
17645	35.4 (90)	10.5 (26.7)	100mV/1kA	< ±1%	20-140Ω	40Hz-20kHz
17646	47.2 (120)	14.0 (35.6)	100mV/1kA	< ±1%	20-140Ω	40Hz-20kHz
17647	70.9 (180)	21.5 (54.6)	100mV/1kA	< ±1%	20-140Ω	40Hz-20kHz

The standard connection lead length on each Rogowski coil is approximately 6.6 feet (200cm). Custom lead lengths by request.
*Custom coil lengths from 10 to 118 inches (25 to 300cm) available - Consult factory.

SPECIFICATIONS

TRANSDUCER

Length ..... 10 in. to 118 in. (25 to 300cm)
Coil Diameter ..... 0.33 in. ±0.008 in. (8.4 ±0.2mm)
Fastener Type ..... Bayonet holder
Net Weight ..... approx. 0.33 to 1.1 lb (150 to 500g)
Material ..... Thermoplastic rubber UL94-V0

ELECTRICAL CHARACTERISTICS

Output Level (RMS) (1) std. ..... 100mV/1kA@50Hz
Output Permissible Load ..... >15kΩ for best accuracy
Coil Resistance 70-900Ω
Accuracy (2) ..... <±1% Rdg., typical
Frequency Range (3) ..... approx. 40Hz to 20kHz (range depends upon coil length)
Working Voltage ..... 1000V_{RMS}, CAT III, 600V_{RMS}, CAT IV, Pollution Deg. 2
Test Voltage ..... 7400V_{RMS}/1min

STANDARDS COMPLIANCE

Safety: EN61010-1, EN61010-031, EN61010-2-031, and EN61010-2-032 Standards

CONNECTION LEAD

Lead Wires .. 2-conductor, 34-35AWG (0.15mm), plus shield
Length ..... approx. 6.6ft (2m) standard
Material ..... UL approved, 80°C, 1000V

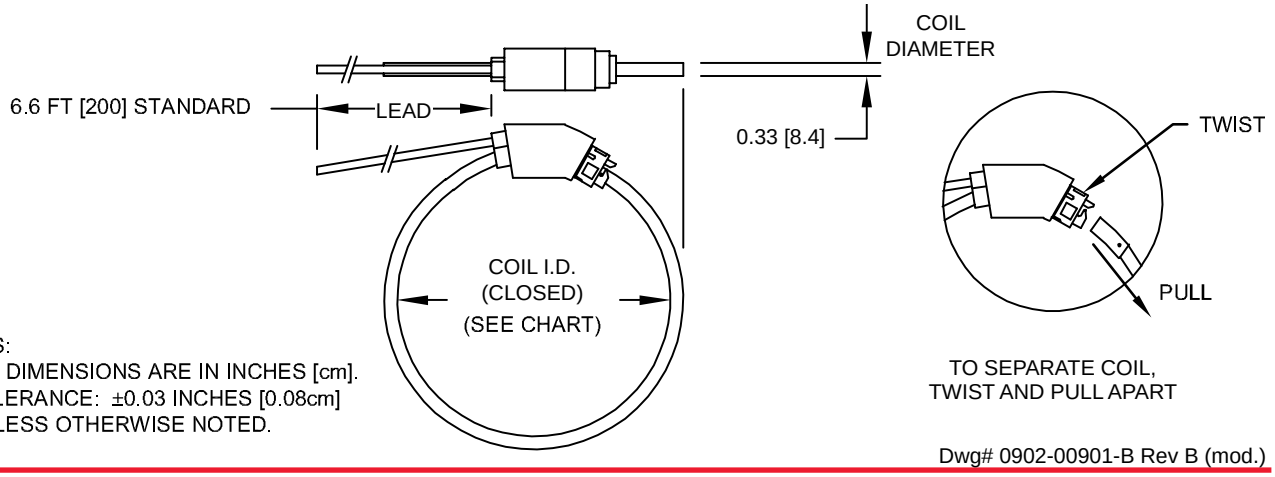
ENVIRONMENTAL CONDITIONS

Operating Temperature Range ..... -30°C to 80°C
Storage Temperature Range ..... -40°C to 80°C
Relative Humidity ..... 95% max., non-condensing
Protection Degree IP67

NOTES:

(1) The Rogowski coil output is proportional to the rate of change of current. The calculation formula is: Amperes(RMS) x Hertz x K x 10^{-6}, where K depends on manufacturing. The K value is 2 for 100mV models
(2) All accuracies are specified at 23°C (±2°C) with the conductor carrying the current centered in the coil.
(3) The low limit is approximate and is determined by noise effect on very low signals.

DIMENSIONS & CONNECTION DIAGRAM



NOTES:
1. ALL DIMENSIONS ARE IN INCHES [cm].
2. TOLERANCE: ±0.03 INCHES [0.08cm] UNLESS OTHERWISE NOTED.

TO SEPARATE COIL, TWIST AND PULL APART

Dwg# 0902-00901-B Rev B (mod.)

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MULTI-SCALE ROGOWSKI COIL INTEGRATOR *MODEL* RPS50-

DESCRIPTION

The RPS50 is a multi-scale signal conditioner designed to operate with the MFC150 series of Rogowski coils. Frequency equalization and 90º phase shift correction allow the use of Rogowski coils over a wide frequency range as well as with power and energy meters. Each unit provides a 0-3Vac output signal proportional to the instantaneous measured current. An optional dc output signal proportional to the RMS value of measured current is also available. Three DIP-switch-selectable ranges allow measurement of a wide range of current values with a single Rogowski coil.

FEATURES

- 90º phase shift correction allows Rogowski coils to be used with power and energy meters.
- Frequency equalization allows Rogowski coils to be used over a wide range of frequencies.
- DIP-switch-selectable ranges allow the same Rogowski coil to measure a wide range of current values.
- Compact and convenient DIN-Rail enclosure.
- Powered by any std. power mains Voltage from 85-250Vac or 110-250Vdc.

5 YEAR WARRANTY

APPLICATIONS

- Measuring devices, lab instrumentation
- Power monitoring and control systems
- Harmonic and transient monitoring
- DC ripple measurement
- Welding machine control
- High current measurement

MODEL SELECTION

– □ – □

FULL-SCALE INPUT		OUTPUT 2 (Optional, RMS)	
10K	10kAac	(blank)	(none)
50K	50kAac	**P**	0-1Vdc
250K	250kAac	**D**	0-10Vdc
		N	0-20mAdc
		E	4-20mAdc

NOTE: All models are designed for use with any separately-supplied 100mV/1kA, MFC150 series Rogowski coil.

SPECIFICATIONS

INPUT (From MFC150 series Rogowski coil)
Standard ..... 100mV/1kA@50Hz
Other values available upon request.
DIP-Switch-Selectable Ranges:
F.S. = 10kA.....0.5kA, 2.5kA, 10kA
F.S. = 50kA.....2.5kA, 10kA, 50kA
F.S. = 250kA.....10kA, 50kA, 250kA
Frequency Range (See Note 1).....8Hz-100kHz@-3dB

OUTPUT 1 (Proportional to the instantaneous measured current)
Scaling .....0-F.S. Range = 0-3Vac Output
Other values available upon request.
Loading ..... >10kΩ

OUTPUT 2 (Optional) (Proportional to RMS measured current)
Scaling
Option D .....0-F.S. Range = 0-10Vdc Output
Option E .....0-F.S. Range = 4-20mAdc Output
Option N .....0-F.S. Range = 0-20mAdc Output
Option P .....0-F.S. Range = 0-1Vdc Output
Loading
Option D .....>100kΩ
Option E ..... <300Ω
Option N ..... <300Ω
Option P .....>100kΩ

ACCURACY (See Note 2)
Accuracy .....±1.0% of F.S.

INSTRUMENT POWER
Rated Voltage (std.) ... 85–250Vac, 50/60Hz or 110–250Vdc
Consumption.....1.5VA max.

ENVIRONMENTAL
Operating Temperature Range .....-10ºC to +50ºC
Storage Temperature Range.....-25ºC to +70ºC
Relative Humidity.....80% non-condensing

MECHANICAL
Material .....Plastic enclosure
Protection.....IP20
Size (approximate).....4.5in. x 3.9in. x 0.9in.
Net Weight (approximate) 4.1oz
DIN-Rail Format.....EN50022

NOTES:
1. The low limit is approximate and is determined by signal-to-noise ratio.
2. The RPS50 is delivered with the specified accuracy. The calibration of each scale is adjustable by the user to achieve the maximum accuracy in conjunction with the coil being used.

STANDARDS COMPLIANCE

SAFETY .....73/23/EEC and 93/68/EEC directives, EN61010.1 safety standard

EMC.....89/366/EEC directive with following modifications: 93/31/EEC and 93/68/EEC, EN50081-2, EN50082-2, EN61326/A1

CONNECTIONS

Refer to User's Manual for installation instructions.

3-CHANNEL ROGOWSKI COIL INTEGRATOR *MODEL* FCA3000-

DESCRIPTION

The FCA3000 is a multi-channel current converter designed to operate with the MFC150 series of Rogowski coils. Three independent input channels allow for measurement of a single three-phase system or multiple single-phase systems. Three dc output signals indicate the true RMS value of the individual input channels. A fourth output signal represents the sum of the three inputs - system current for three-phase systems.

Application flexibility is provided by jumper-selectable output response time values and frequency equalization to allow Rogowski coils to be used over a wide range of frequencies.

FEATURES

- Three independent input/output channels
- Fourth output for sum of three input channels
- True RMS measurements
- Jumper-selectable output response time
- Compact and convenient DIN-Rail enclosure
- Powered by any standard power mains from 80 to 260Vac
- Optional 19 to 60Vdc instrument power

APPLICATIONS

- True RMS current measurement
- High-current measurement
- PLC interface
- SCADA systems

5 YEAR WARRANTY

CURRENT MEASUREMENT ROGOWSKI COILS

MODEL SELECTION

FCA3000 – □ – □ – □

FULL-SCALE INPUT		OUTPUT		INSTRUMENT POWER	
0300	300A	**D**	0-10Vdc	(blank)	80-260Vac (std)
3K	3kA	**N**	0-20mAdc	**DC**	19-60Vdc
K050	50kA	**E**	4-20mAdc		
K300	300kA				

ORDERING INFORMATION

Example: 3000A F.S. input, 0-10Vdc output, standard instrument power

FCA3000-3K-D

NOTE: All models are designed for use with any separately-supplied 100mV/1kA, MFC150 series Rogowski coil.

SPECIFICATIONS

INPUTS (3) From MFC150 series Rogowski coils
Standard ..... 100mV/1kA@50Hz
Other values available - Consult factory

OUTPUTS (4)
Scaling
Option D ..... 0-F.S. Input = 0-10Vdc Output
Option E ..... 0-F.S. Input = 4-20mAdc Output
Option N ..... 0-F.S. Input = 0-20mAdc Output
Loading
Option D ..... >100kΩ
Option E ..... <300Ω
Option N ..... <300Ω
Response Time (default value) 150ms
(jumper-selectable from 50 to approx. 150ms)

INSTRUMENT POWER
Voltage (std.) 80-260Vac, 45-65Hz
"-DC" option 19-60Vdc
Consumption ..... 3VA, max

ACCURACY
Accuracy (typical) ..... ±1%Rdg. ±0.3%F.S.

MECHANICAL
Enclosure Material ..... Noryl UL94-V0
Size (approximate) ..... 3.7in. x 6.2in. x 2.3in.
Weight (approximate) ..... 9oz.
DIN-Rail Format EN50022
Protection Degree .....front panel IP51
terminals IP20

ENVIRONMENTAL
Operating Temperature Range ..... -10 to 50°C
Storage ..... -25 to 60°C
Operating Humidity ..... 0-75% non-condensing

STANDARDS COMPLIANCE

SAFETY ..... 73/23/EEC and 93/68/EEC directives, EN61010.1 safety standard

EMC ..... 89/366/EEC directive with following modifications: 93/31/EEC and 93/68/EEC, EN50081-2, EN50082-2, EN61326/A1

CONNECTIONS

Refer to User's Manual for installation instructions.

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SINGLE-PHASE AC VOLTAGE TRANSDUCER *MODEL* AVT-

DESCRIPTION

The AVT model transducers are designed for applications where UL, CUL, or CE listing is required. The AVT provides isolated outputs which are proportional to the applied voltage. Transducer output is derived from the average absolute value of the input and calibrated as the RMS value of a sine wave input. The AVT takes one voltage input and provides one isolated output.

CE

c UL us LISTED

Measuring Equipment 7N93

5 YEAR WARRANTY

MODEL SELECTION

INPUT AC VOLTS	STANDARD OUTPUTS MODEL AVT-				
	UL, CUL & CE				UL & CUL
	0-1mAdc*	4-20mAdc**	0-10Vdc*	0-5Vdc*	4-20mAdc
0 - 90	090A	090E2	090C	090CX5	090E
0 - 150	150A	150E2	150C	150CX5	150E
0 - 300	300A	300E2	300C	300CX5	300E
0 - 600	600A	600E2	600C	600CX5	600E

***** **"**A", "C", and "CX5" models are self-powered from measured line.

****** "E2" models are 4-20mA loop-powered, and require 15-24Vdc instrument power.

Standard "E" models require 115Vac instrument power.
For optional 230Vac instrument power - add suffix **"- 22"**.

400Hz models are available - consult factory for VT series, which is not UL-, CUL- or CE-approved.

ORDERING INFORMATION

Example: 120Vac Input, single-phase with 4-20mA Output
AVT-150E

SPECIFICATIONS

INPUT
- Frequency Range 50/60Hz
- Burden ..... 90V & 150V models 1VA
  - 300V models 2VA
  - 600V models 3VA
- Overload ..... 90V, 150V & 300V models .... F.S. rating
  - 600V models 575V

DIELECTRIC TEST
- Input/Output/Case 2200Vac

INSTRUMENT POWER
- "A" ,"C" and "CX5" models ..... Self-powered
- "E2" models 15-24Vdc
- "E" models ..... 115Vac, 50/60Hz, ±15%, 10VA
- **"-22"** Option ..... 230Vac, 50/60Hz, ±15%, 10VA

OUTPUT
- Response 400ms
- Loading
  - "A" models .....(0-1mAdc output) 0-10kΩ
  - "E" models .....(4-20mA output) 0-1kΩ
  - "E2" models ...(4-20mA output @ 24Vdc)... 0-600Ω
  - "C" & "CX5" models (5V & 10V output) ..... ≥10MΩ
- Field Adjustable Cal. ..... ±5%

ACCURACY ..... ±0.25% F.S.@60Hz
Includes effects of linearity (10-100%) and setpoint.
Output Ripple ..... Less than 1.0% F.S.

TEMPERATURE
- Range ..... -20ºC to 60ºC
- Effect ..... ±1.0% Rdg.

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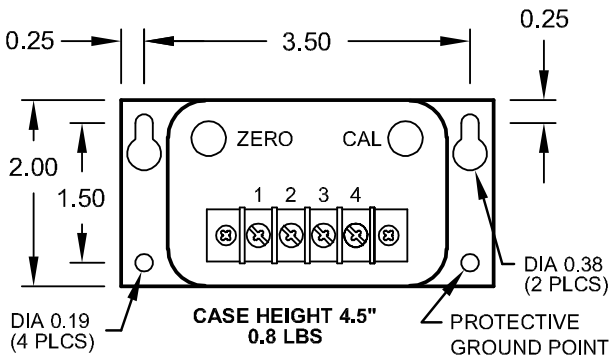
CASE DIMENSIONS & CONNECTION DIAGRAMS *MODEL* AVT-

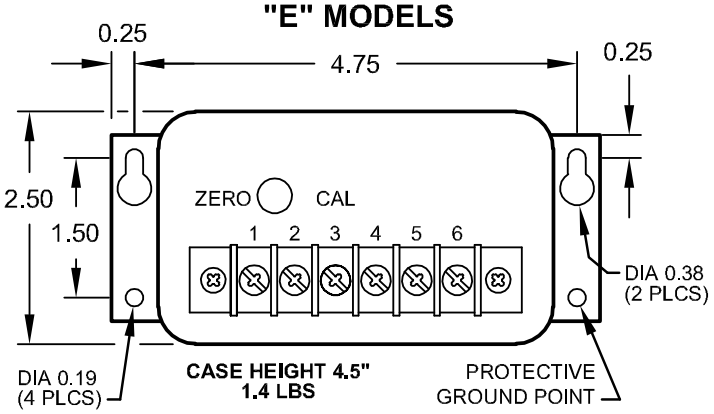
CASE DIMENSIONS

"A", "C", "CX5" OR "E2" MODELS



ALL DIMENSIONS ARE IN INCHES.
TOLERANCE: ±0.03 INCHES

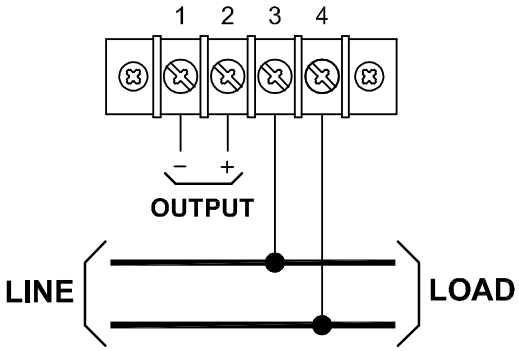
"E" MODELS



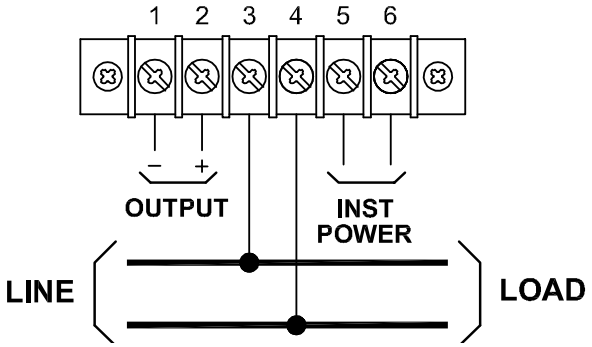
ALL DIMENSIONS ARE IN INCHES.
TOLERANCE: ±0.03 INCHES

CONNECTION DIAGRAMS

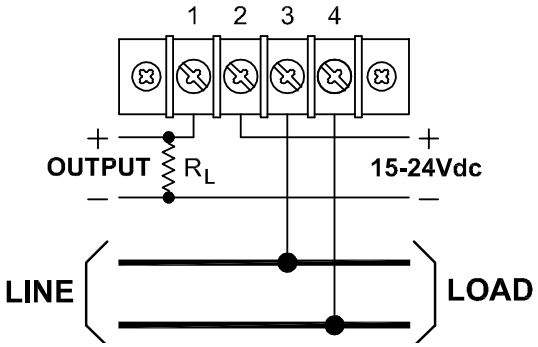
"A", "C" & "CX5" MODELS



"E" MODELS



"E2" MODELS



Dwg# 0902-00858-B Rev A

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THREE-PHASE AC VOLTAGE TRANSDUCER *MODEL* 3AVT-

DESCRIPTION

The 3AVT model transducers are designed for applications where UL, CUL, or CE listing is required. The 3AVT provides isolated outputs which are proportional to the applied voltage. Transducer output is derived from the average absolute value of the input and calibrated as the RMS value of a sine wave input. The 3AVT takes three voltage inputs and provides three separate isolated outputs.

5 YEAR WARRANTY

c UL us LISTED
Measuring Equipment 7N93

CE

MODEL SELECTION

INPUT AC VOLTS	STANDARD OUTPUTS MODEL 3AVT-				
	UL, CUL & CE				UL & CUL
	0-1mAdc*	4-20mAdc**	0-10Vdc*	0-5Vdc*	4-20mAdc
0 - 90	090A	090E2	090C	090CX5	090E
0 - 150	150A	150E2	150C	150CX5	150E
0 - 300	300A	300E2	300C	300CX5	300E
0 - 600	600A	600E2	600C	600CX5	600E

***** "A", "C", and "CX5" models are self-powered from measured line.
****** "E2" models are 4-20mA loop-powered, and require 15-24Vdc instrument power.
Standard "E" models require 115Vac instrument power.
For optional 230Vac instrument power - add suffix **"- 22"**.
400Hz models are available - consult factory for 3VT series, which is not UL-, CUL- or CE-approved.

ORDERING INFORMATION

Example: Three 120Vac Inputs, with three 4-20mA Outputs
3AVT-150E

SPECIFICATIONS

INPUT

Frequency Range 50/60Hz
Burden ..... 90V & 150V models 1VA
300V models 2VA
600V models 3VA
Overload ..... 90V, 150V & 300V models ..... F.S. rating
600V models 575V

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

"A" ,"C" and "CX5" models ..... Self-powered
"E2" models 15-24Vdc
"E" models ..... 115Vac, 50/60Hz, ±15%, 10VA
"-22" Option ..... 230Vac, 50/60Hz, ±15%, 10VA

OUTPUT

Response 400ms
Loading
"A" models ..... (0-1mAdc) 0-10kΩ
"E" models ..... (4-20mAdc) 0-1kΩ
"E2" models ..... (4-20mAdc @ 24Vdc) 0-600Ω
"C", "CX5" models ..... (0-5, 0-10Vdc) ..... ≥10MΩ
Field Adjustable Cal. ..... ±5%

ACCURACY ..... ±0.25% F.S. @60Hz

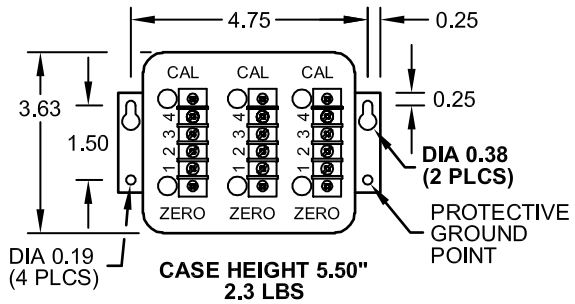
Includes effects of linearity (10-100%) and setpoint.
Output Ripple ..... Less than 1.0% F.S.

TEMPERATURE

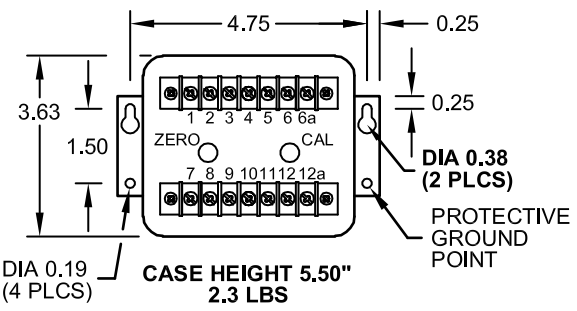
Temperature Range ..... -20ºC to 60ºC
Temperature Effect ..... ±1.0% Rdg.

CASE DIMENSIONS

"A", "C", "CX5", OR "E2" MODELS



"E" MODELS



All dimensions in inches

Dwg# 0902-00880-B Rev --

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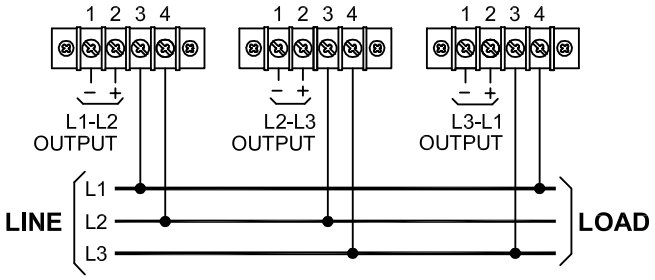
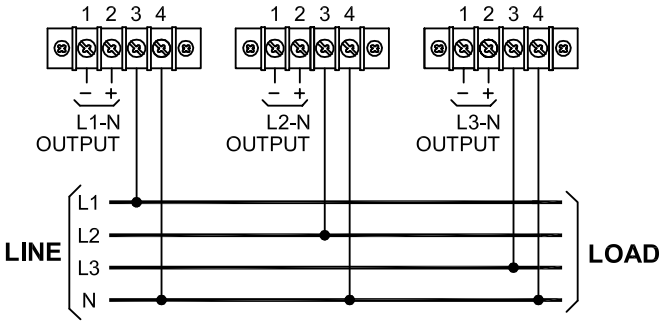
D

"A", "C" & "CX5" MODELS

THREE-PHASE, THREE-WIRE

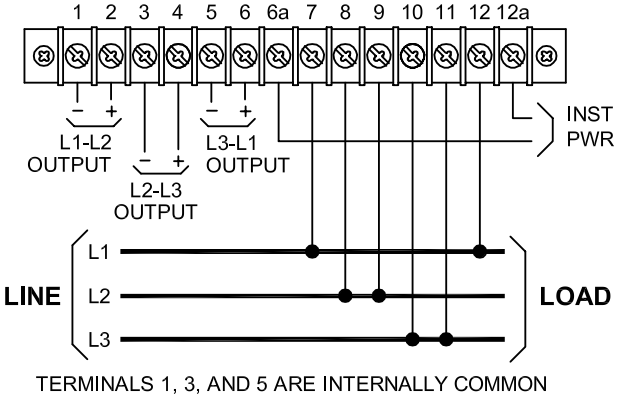


THREE-PHASE, FOUR-WIRE



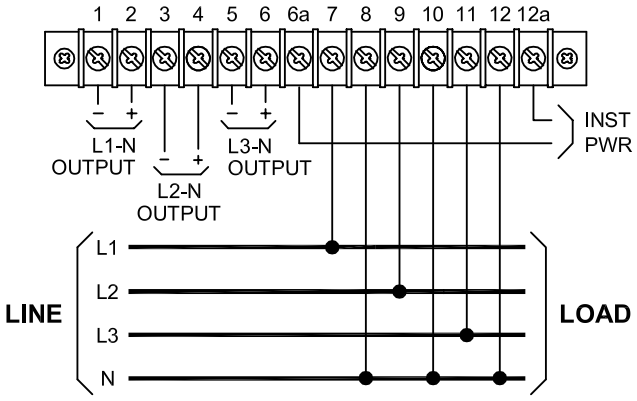
"E" MODELS

THREE-PHASE, THREE-WIRE



TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON

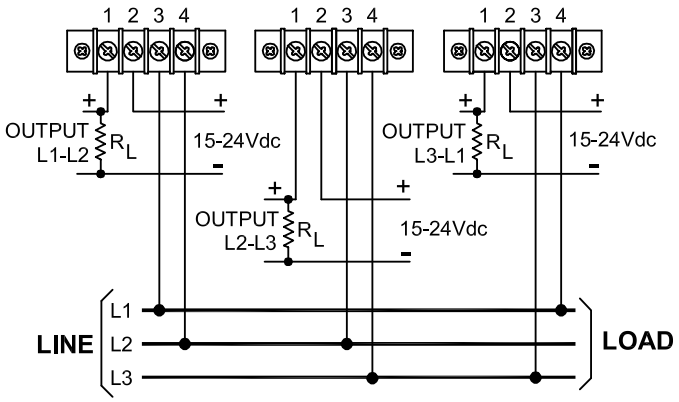
THREE-PHASE, FOUR-WIRE



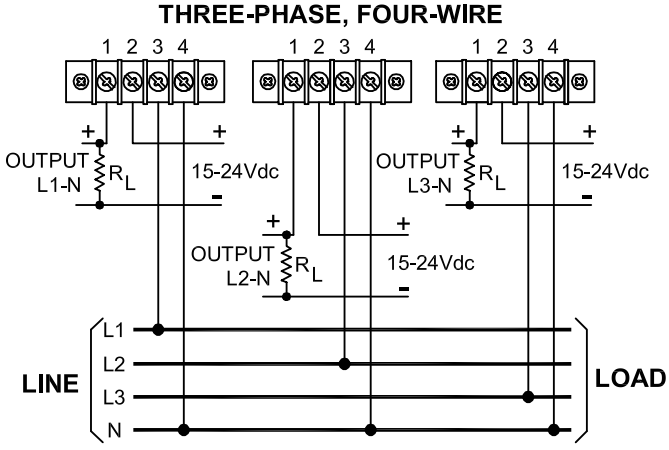
TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON

"E2" MODELS

THREE-PHASE, THREE-WIRE



THREE-PHASE, FOUR-WIRE



Dwg# 0902-00880-B Rev --

SINGLE-PHASE AC VOLTAGE TRANSDUCER *MODEL* MVT-

DIN-RAIL-MOUNTED AC VOLTAGE TRANSDUCER
0.25% ACCURACY

FEATURES
- Ruggedized Polyamide DIN-mount case.
- Slim profile allows maximum use of available space.
- Field-selectable analog outputs.
- Recessed terminals provide increased safety.

APPLICATIONS
- Ideal for use in enclosures with dimensional constraints.
- Designed for industrial environments.
- OEM measurement systems.
- Designed for use with potential transformers.
- Easily integrated into control systems.

Transducer output is derived from the average absolute value of the input and calibrated as the RMS value of a sine wave input.

INPUT AC VOLTAGE	STANDARD OUTPUTS MODEL MVT-		
	0-1mAdc*	4-20mAdc	4-20mAdc**
0-150	150A	150E	150E2
0-300	300A	†300E	300E2
†0-600	†600A	†600E	†600E2

† 600V Models and MVT-300E are not included in UL Listing.

* Models are self-powered from measured AC input line with **DIP-switch-selectable 0-5Vdc or 0-10Vdc output.**
** Denotes 4-20mA loop-powered unit, requires 15-40Vdc instrument power.
"E" models require 85-135Vac instrument power.

Note: 600Vac models supplied with potential transformer (PT)

DIN-rail lengths available: Consult Factory

5 YEAR WARRANTY

c UL us LISTED
Measuring Equipment 7N93

ORDERING INFORMATION

Example: 0-150Vac Input with 4-20mA Output.
MVT-150E

SPECIFICATIONS

INPUT
Voltage ..... See Table
Frequency Range ..... 48 to 65Hz; 60Hz Nominal
Burden ..... 150Vac models 1.0VA
300Vac, 600Vac models 2.0VA
Voltage Overload ..... F.S. rating

DIELECTRIC TEST
Input/Output 1500Vac

INSTRUMENT POWER
"A" models ..... Self-powered
"E" models 85-135Vac, 50/60Hz, 3.5VA
"E2" models ..... 15-40Vdc (Loop Powered)

PHYSICAL
Termination Wire Size ..... 22 to 12 AWG
Weight ..... 150Vac, 300Vac models ..... 0.25 lb
600Vac models with PT ..... 0.90 lb

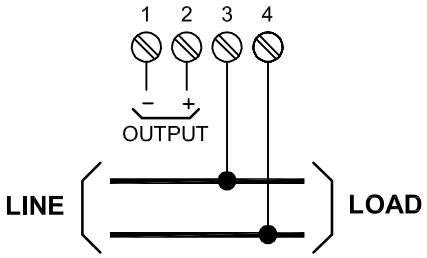
OUTPUT
Response Time ..... (to 99% F.S.) 400ms
Field-Adjustable Span ..... ±5%
Loading
"A" models set for 0-1mA output 0-10kΩ
"A" models set for 0-5Vdc output ..... >5MΩ
"A" models set for 0-10Vdc output ..... >10MΩ
"E" models (4-20mAdc output) 0-500Ω
"E2" models (4-20mAdc Loop Powered) 0-600Ω

ACCURACY (@ 60Hz.) ..... ±0.25% F.S.
Includes effects of linearity and setpoint (10% to 100% F.S.)
Output Ripple ..... <1.0% F.S.

TEMPERATURE EFFECT
"A" and "E2" models ..... (-20ºC to +65ºC) ..... ±1.0%
"E" models ..... (-20ºC to +40ºC) ..... ±1.0%

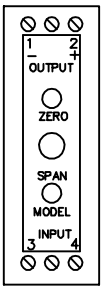
CONNECTIONS & CASE DIMENSIONS — MODEL MVT-

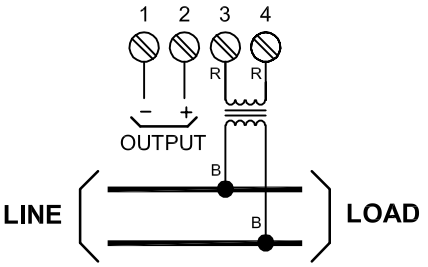
SELF-POWERED "A" MODELS



150 & 300Vac MODELS

PTs: CONNECT AS SHOWN IN 600V DIAGRAM.

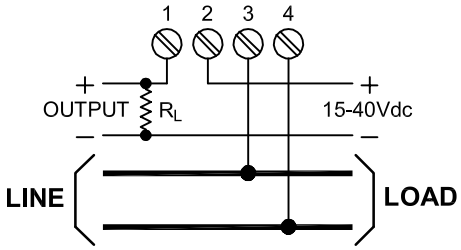




600Vac MODELS

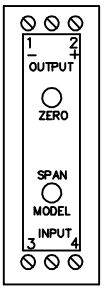
(PT SUPPLIED WITH UNIT)

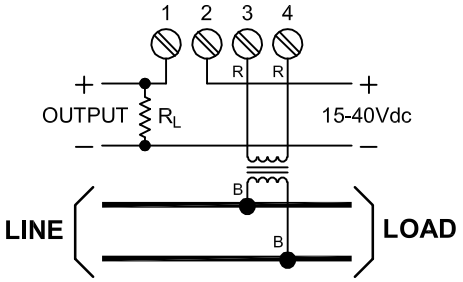
LOOP-POWERED "E2" MODELS



150 & 300Vac MODELS

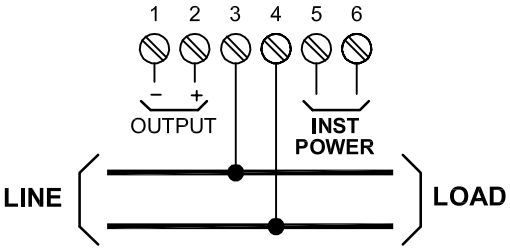
PTs: CONNECT AS SHOWN IN 600V DIAGRAM.





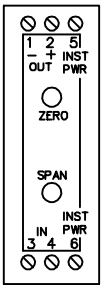
600Vac MODELS (PT SUPPLIED WITH UNIT)

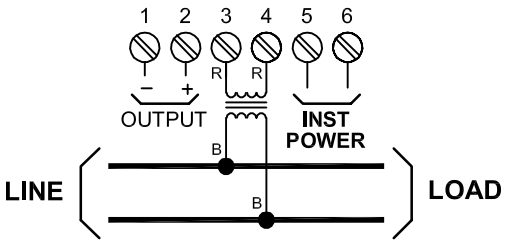
"E" MODELS



150 & 300Vac MODELS

* AC INSTRUMENT POWER, TERMINALS 5, 6





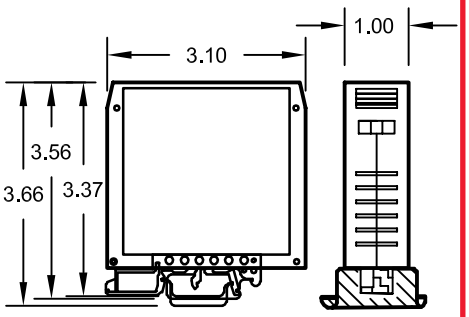
600Vac MODELS (PT SUPPLIED WITH UNIT)

* AC INSTRUMENT POWER, TERMINALS 5, 6

VOLTAGE MEASUREMENT (AVG)

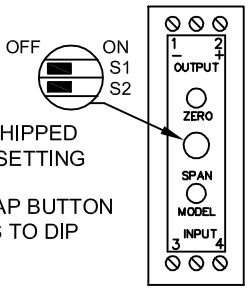
Mounting Dimensions

UNIT CAN BE MOUNTED ON:
STANDARD 35MM TOP-HAT DIN-RAIL (DIN3) PER EN 50022 OR STANDARD 32MM "G" DIN-RAIL (DIN1) PER EN 50035.



ALL DIMENSIONS IN INCHES.

Output Selections, "A" Models

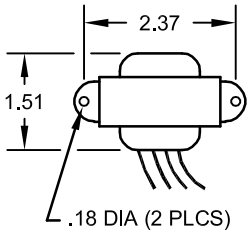


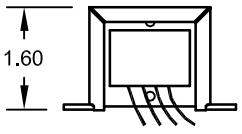
UNITS ARE SHIPPED WITH 0-1mA SETTING

REMOVE SNAP BUTTON FOR ACCESS TO DIP SWITCHES

OUTPUT	SWITCH POS. 1	SWITCH POS. 2
0-1mA	OFF	OFF
0-5V	ON	ON
0-10V	ON	OFF

PT Dimensions





ALL DIMENSIONS IN INCHES.

Dwg# 0902-00862-B Rev A

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

SINGLE-PHASE AC VOLTAGE TRANSDUCER *MODEL* DVT-

DIN-RAIL-MOUNTED AC VOLTAGE TRANSDUCER

DESCRIPTION

The DVT model transducers provide an electrically-isolated output which is proportional to the applied voltage. Transducer output is derived from the arithmetic mean value of the input and calibrated as the RMS value of a sine wave input.

The transducer fulfills requirements and regulations regarding EMC and safety (IEC 1010) and was designed, manufactured and tested in accordance with ISO 9001.

FEATURES

- Voltage ranges up to 600V.
- Current and voltage outputs available.
- Compact DIN-rail packaging.

5 YEAR WARRANTY

APPLICATIONS

- Where voltage measurements are required.
- Where CE or CSA approvals are required.
- SCADA, process control or OEM applications.

MODEL SELECTION

INPUT AC VOLTS	STANDARD OUTPUTS MODEL DVT-				
	0-1mAdc*	4-20mAdc	4-20mAdc**	0-10Vdc	0-5Vdc
0-90	090A	090E	090E2	090C	090CX5
0-150	120A	120E	120E2	120C	120CX5
0-300	240A	240E	240E2	240C	240CX5
0-600	600A	600E	600E2	600C	600CX5

ORDERING INFORMATION

Example: 120Vac Input with 4-20mA Output.

DVT-120E

DIN Rail lengths available - Consult factory

***** "A" models are self-powered from measured voltage line.
****** "E2" loop-powered models require 12-32Vdc instr. power.

"E", "C" & "CX5" models require instrument power.
Optional 230Vac instrument power - add suffix **"-22"**

SPECIFICATIONS

INPUT

Voltage ..... See Table
Frequency Range 50/60Hz
Burden ..... <2VA
Overload ..... 120% of F.S.

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

INSTRUMENT POWER

"A" models ..... Self-powered
"E", "C" & "CX5" models 100-135Vac, 50/60Hz, 3VA
"E2" loop-powered models 12-32Vdc
"**-22**" Option ..... 230Vac, 50/60Hz, ±15%

OUTPUT

Response Time (to 90% F.S.) 300ms
Loading
"A" models 0-15kΩ
"C" & "CX5" models ..... 2.5kΩ minimum
"E" models 0-750Ω
"E2" models ..... 0-600Ω @ 24V

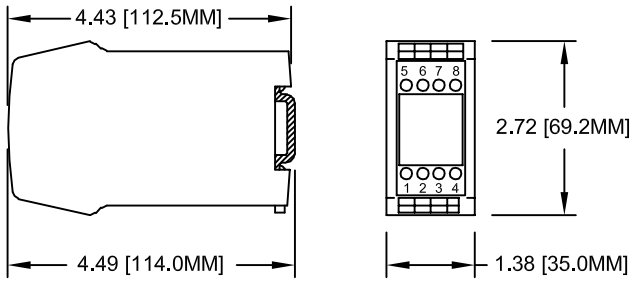
ACCURACY ..... ±0.5% F.S. @ 60Hz

Includes effects of linearity (20%-100%) and setpoint.
Output Ripple ..... <1.0% p.p.

TEMPERATURE & PHYSICAL

Temperature Range ..... -10ºC to +55ºC
Termination ..... #10 AWG max.
Net Weight ..... 0.6 lb

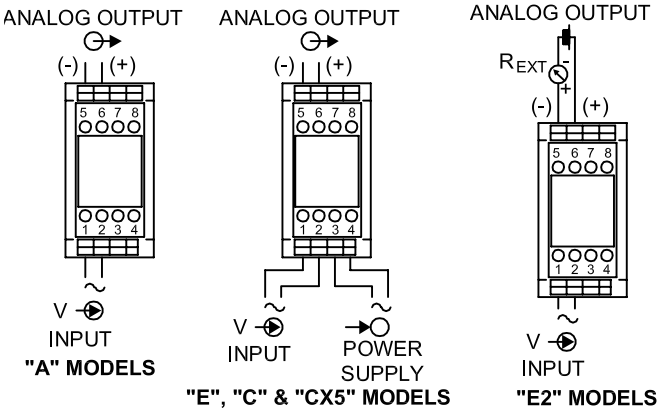
CASE DIMENSIONS



NOTES:
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00866-B Rev --

CONNECTION DIAGRAMS



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4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
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D

SINGLE-PHASE AC RMS VOLTAGE TRANSDUCER *MODEL* AVTR-

ACCURATE TO 0.25% FULL-SCALE

FEATURES

- Accurate measurement of the **true RMS** value of input signals over a wide frequency range.

APPLICATIONS

- For use in applications where measurement of nonsinusoidal waveforms is required.

5 YEAR WARRANTY

c UL us LISTED
Measuring Equipment 7N93

MODEL SELECTION

INPUT AC VOLTS	STANDARD OUTPUTS MODEL AVTR-			
	0-1mAdc	0-10Vdc	4-20mAdc	0-5Vdc
0-150	001B	001D	001E	001X5
0-300	002B	002D	002E	002X5
0-600	004B	004D	004E	004X5

All standard units require 115Vac instrument power.
Optional 230Vac instrument power - Add suffix **"-22"**.

ORDERING INFORMATION

Example: Single-phase 120Vac Input with 0-10Vdc Output.
AVTR-001D

SPECIFICATIONS

INPUT

Voltage ..... See Table
Frequency Range ..... 48 to 420 Hz
Burden ..... 150Vac Range ..... < 0.15VA
300Vac Range ..... < 0.30VA
600Vac Range ..... < 0.60VA
Overload ..... 150Vac & 300Vac Models ..... F.S. Rating
600Vac Models 575V

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

Standard ..... 115Vac, ±15%, 50/60Hz, 3.5VA
Option "**-22**" ..... 230Vac, ±15%, 50/60Hz, 3.5VA

OUTPUT

Response Time (90%) 100ms
Loading
"B" models ..... (0-1mAdc output) 0-10kΩ
"X5" & "D" models .... (0-5, 0-10Vdc output) ..... 2kΩ min.
"E" models ..... (4-20mAdc output) 0-500Ω
Field Adjustable Cal. ..... ±10%

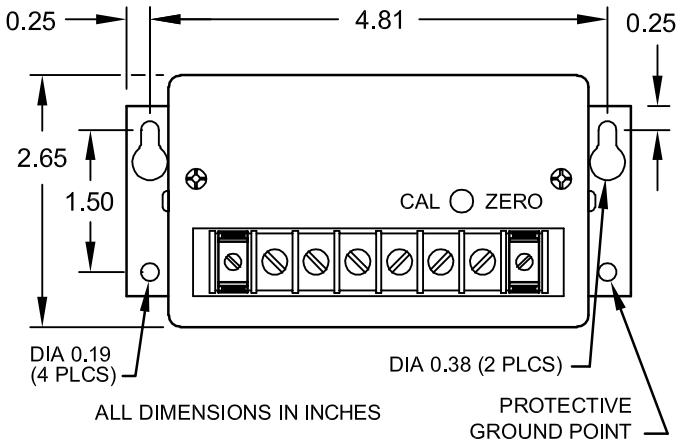
ACCURACY ..... ±0.25%F.S. @ 60Hz

Includes effects of linearity and setpoint.
Typical ±0.5% over frequency range.
Output Ripple ..... <1.0% F.S.

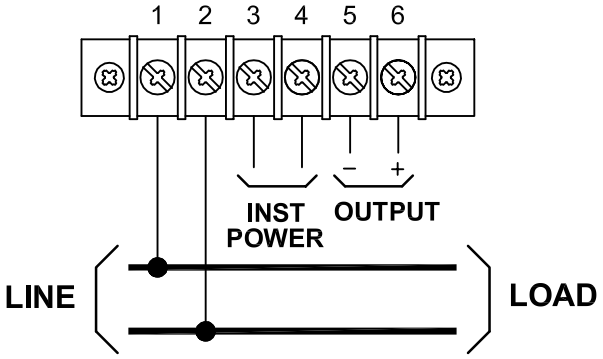
TEMPERATURE & PHYSICAL

Temperature Effect ..... (-20ºC to +60ºC) ..... ±1.0% Rdg.
Net Weight ..... 1.5 Lbs

CASE DIMENSIONS



CONNECTION DIAGRAM



Dwg# 0902-00867-B Rev --

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PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

THREE-PHASE AC RMS VOLTAGE TRANSDUCER *MODEL* 3VTR-

3-IN-1 AC RMS VOLTAGE TRANSDUCER
0.25% ACCURACY

FEATURES

- Accurate measurement of the **true RMS** value of input voltage over a wide frequency range.
- Input/Output dielectric test of 2500V.

5 YEAR WARRANTY

APPLICATIONS

- For use in applications where measurement of nonsinusoidal waveforms is required.
- Designed for use in three-phase systems, but may also be used to monitor three single-phase circuits where panel space is at a premium.

MODEL SELECTION

INPUT AC VOLTS	STANDARD OUTPUTS MODEL 3VTR-			
	0-1mAdc	0-10Vdc	4-20mAdc	0-5Vdc
0-150	001B	001D	001E	001X5
0-300	002B	002D	002E	002X5
0-600	004B	004D	004E	004X5

ORDERING INFORMATION

Example: 120Vac Input with a 0-10Vdc Output.
3VTR-001D

SPECIFICATIONS

INPUT

Voltage ..... See Table
Frequency Range 48-420Hz
Burden (Each input)
150Vac models ..... 0.4VA @ F.S.
300Vac models ..... 0.4VA @ F.S.
600Vac models ..... 0.4VA @ F.S.
Overload ..... F.S. Rating

OUTPUT

Response Time (to 90% F.S.) 100ms
Loading
"D" models ..... (0-1mAdc) 0-10kΩ
"D", "X5" models ..... (0-5Vdc, 0-10Vdc) ..... 2kΩ min.
"E" models ..... (4-20mA) 0-500Ω
Field Adjustable Cal. ..... ±10%

INSTRUMENT POWER

All units require 85-265Vac, 48-420Hz, 5VA or 110-370Vdc, 5VA.

DIELECTRIC TEST

Input/Output/Case ..... 2500Vac RMS

ACCURACY ..... ±0.25% F.S. @60Hz

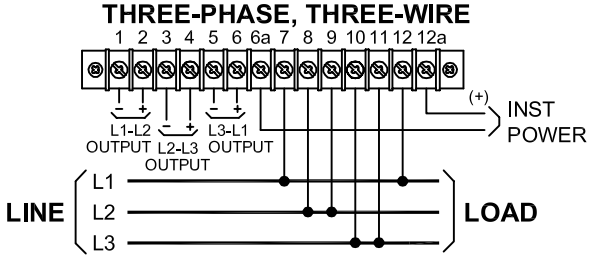
(Includes effects of linearity and setpoint from 10-100% of range. ±0.5% F.S. typical over frequency range.)
Output Ripple ..... <1.0% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect (-20ºC to +60ºC) ..... ±1.0% Rdg.
Net Weight ..... 2.5 lbs

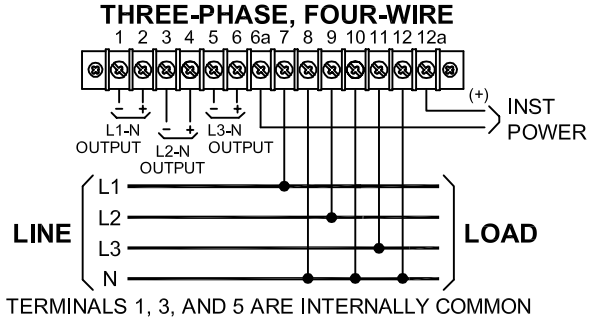
CONNECTION DIAGRAMS AND CASE DIMENSIONS

THREE-PHASE, THREE-WIRE

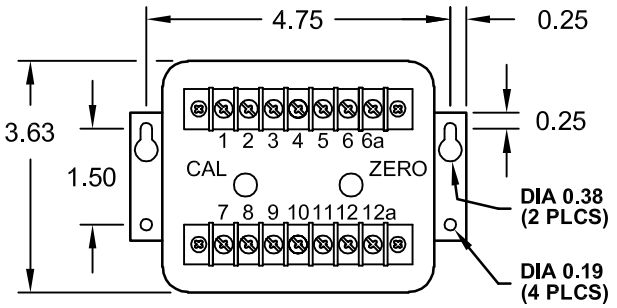


TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON

THREE-PHASE, FOUR-WIRE



TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON



CASE HEIGHT 6.63"
2.5 LBS

NOTES:
1. ALL DIMENSIONS IN INCHES.
2. ALL UNITS HAVE UNIVERSAL POWER SUPPLY 85-265Vac, 48-420Hz OR 110-370Vdc.

Dwg# 0902-00868-B Rev B

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * **1-800-537-6732**

C

NEW!

RMS VOLTAGE TRANSDUCER — MODEL MVTR-

2-WIRE LOOP POWERED, TRUE RMS

FEATURES

- Provides a fully-isolated 4-20mA output proportional to the measured voltage even in non-sinusoidal waveforms.
- Slim profile allows maximum use of control enclosure space.
- Recessed terminals provide increased safety.
- UL94V-0 polyamide DIN-mount case style.

APPLICATIONS

- True RMS transducer for accurately sensing voltage in single- and 3-phase installations.
- Ideal for non-sinusoidal applications, such as VFDs and SCR-controlled loads.
- Designed for industrial environments.

5 YEAR WARRANTY

2011/65/EU RoHS COMPLIANT

Transducer output is derived from the RMS value of the input.

DIN-rail lengths available: Consult Factory

MODEL SELECTION

INPUT AC VOLTAGE	STANDARD OUTPUTS MODEL MVTR-
	4-20mAdc
0-150	150E2
0-300	300E2
*0-600	*600E2

*Note: 600Vac models supplied with potential transformer (PT)

SPECIFICATIONS

INPUT

Voltage ..... See Table
Frequency Range ..... Standard 50-400Hz
Burden ..... 150Vac models 1.0VA
300Vac, 600Vac models 2.0VA
Voltage Overload ..... F.S. Rating

OUTPUT

Scaling ..... 0-F.S. Input = 4-20mAdc Output
Response (to 90%) ... 150 & 300V models 200ms
600V models 500ms
Loading ..... (@ 24Vdc Instr. Pwr.) 0-500Ω
Setpoint Adjustment ..... ±5%, minimum

DIELECTRIC TEST

Input/Output 2200Vac

INSTRUMENT POWER

Loop-Powered ..... Nominal 24Vdc
Range 15-35Vdc

ACCURACY (Includes effects of linearity and setpoint)

60Hz ..... 10-100% F.S. ..... ±0.25% F.S.
all others ..... ±1.0% F.S.
Output Ripple ..... <1.0% pk-pk

TEMPERATURE

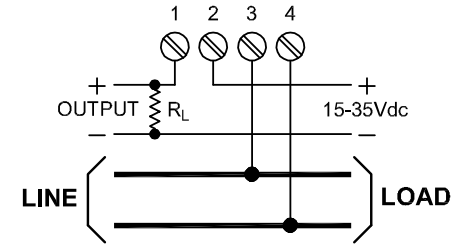
Operating Range ..... -20ºC to 60ºC
Effect ..... ±1.0% F.S.

PHYSICAL

Termination Wire Size ..... 22 to 12AWG
Net Weight ..... 150Vac, 300Vac models ..... 0.25 lb
600Vac models with PT ..... 0.90 lb
Unit can be mounted on ..... RAIL EN50035 (DIN 1), or RAIL EN50022 (DIN 2)

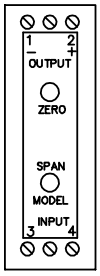
CONNECTIONS & DIMENSIONS

150 & 300Vac MODELS

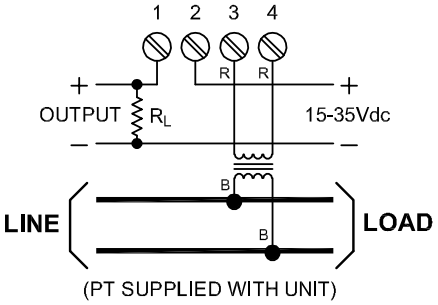


PTs: CONNECT AS SHOWN IN 600V DIAGRAM.

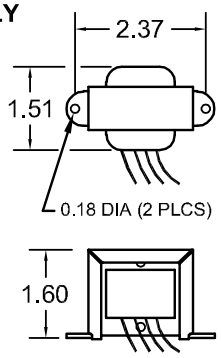
ALL MODELS



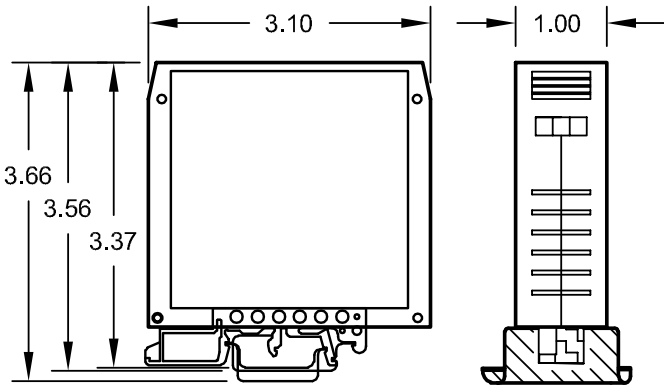
600Vac MODELS ONLY



(PT SUPPLIED WITH UNIT)



ALL MODELS



ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.

Dwg# 0902-00863-B Rev B

VOLTAGE MEASUREMENT (RMS)

OHIO SEMITRONICS, INC.
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

SINGLE-PHASE AC RMS VOLTAGE TRANSDUCER *MODEL* DVTR-

DIN-RAIL-MOUNTED AC RMS VOLTAGE TRANSDUCER

FEATURES

- Accurate measurement of the true RMS value of the input signal.
- Universal ac/dc instrument power.
- Models up to 600Vac input.

5 YEAR WARRANTY

APPLICATIONS

- For use in applications where measurement of nonsinusoidal or distorted waveforms is required.
- Applications that require CE or CSA approval.
- Perfect for installations that require compact packaging.

C US

MODEL SELECTION

INPUT AC VOLTS	STANDARD OUTPUTS MODEL DVTR-			
	0-1mAdc	0-10Vdc	4-20mAdc	0-5Vdc
0-90	090B	090D	090E	090X5
0-150	150B	150D	150E	150X5
0-300	300B	300D	300E	300X5
0-600	600B	600D	600E	600X5

All standard units require 85-230Vac/dc instrument power (dc or 50/60Hz.)
DIN-rail lengths available: Consult Factory

ORDERING INFORMATION

Example: 120Vac Input with a 0-10Vdc Output.

DVTR-150D

SPECIFICATIONS

INPUT

Voltage ..... See Table
Frequency Range 50/60Hz
Burden ..... <1VA F.S.
Overload ..... 120% F.S. Rating

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 3.0VA

TEMPERATURE

Operating Range ..... -10ºC to +55ºC

OUTPUT

Response Time (to 90%) 300ms
Loading
"B" models ..... (0-1mAdc output) 0-15kΩ
"D" & "X5" models .. (0-5, 0-10Vdc) ..... 5kΩ min.
"E" models ..... (4-20mAdc) 0-750Ω

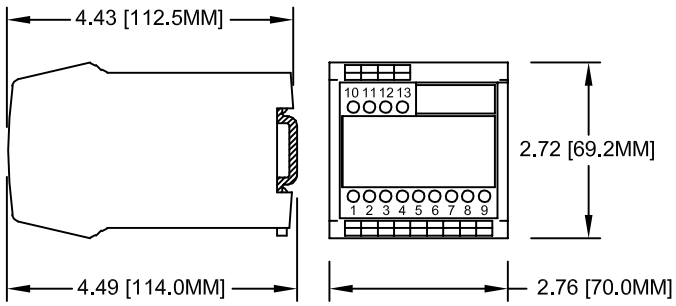
ACCURACY ..... ±0.5% F.S.@60Hz

Output Ripple ..... <0.5% pk-pk

PHYSICAL

Termination ..... #10 AWG max.
Net Weight ..... 0.7 lb

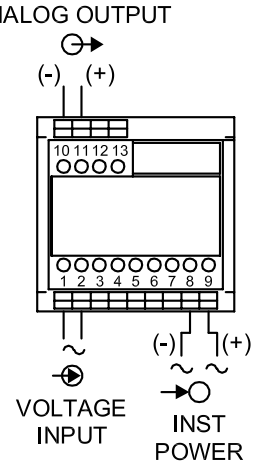
CASE DIMENSIONS



NOTES
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00869-B Rev --

CONNECTION DIAGRAM



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OSI RMS VOLTAGE TRANSDUCER MODEL VT8-

DC TO 10KHZ FREQUENCY RANGE

DESCRIPTION

The model **VT8** RMS voltage transducer provides an output directly proportional to the true RMS value of the input. Input voltages may be dc, ac, non-sinusoidal or complex combinations of these waveforms.

A wide variety of standard input ranges and output types are available. Consult factory for special ranges.

FEATURES

- True RMS measurement
- 2500Vac dielectric test
- Wide frequency range

APPLICATIONS

- Accurate measurement of dc, ac and non-sinusoidal waveforms.

5 YEAR WARRANTY

MODEL SELECTION

INPUT (mV)	STANDARD OUTPUTS MODEL VT8-			
	0-1mAdc	4-20mAdc	0-10Vdc	0-5Vdc
0 - 50	015B	015E	015D	015X5
0 - 100	016B	016E	016D	016X5
0 - 200	017B	017E	017D	017X5
0 - 250	018B	018E	018D	018X5
INPUT (Volts)	**STANDARD OUTPUTS MODEL VT8-**			
	0-1mAdc	**4-20mAdc**	**0-10Vdc**	**0-5Vdc**
0 - 10	001B	001E	001D	001X5
0 - 25	002B	002E	002D	002X5
0 - 50	003B	003E	003D	003X5
0 - 100	004B	004E	004D	004X5
0 - 150	005B	005E	005D	005X5
0 - 250	006B	006E	006D	006X5
0 - 300	007B	007E	007D	007X5
0 - 400	008B	008E	008D	008X5
0 - 500	009B	009E	009D	009X5
0 - 600	010B	010E	010D	010X5
*0 - 700	011B	011E	011D	011X5
*0 - 800	012B	012E	012D	012X5
*0 - 900	013B	013E	013D	013X5
*0 - 1000	014B	014E	014D	014X5

*** Supplied with external divider box.**

Instrument Power Options

Option "-11" ..... 115Vac ±15%, 50/60Hz, 5VA

Option "-22" ..... 230Vac ±15%, 50/60Hz, 5VA

Options "-12", "-15", "-24", "-28", "-37", "-48".....
12Vdc thru 48Vdc, ±10%, 150mA max.

Standard models contain a universal switching power supply. "**-11**" & "**-22**" models utilize a lower-cost linear power supply.

ORDERING INFORMATION

Example: 0-100Vac Input with
0-10Vdc Output and 115Vac Instr. Pwr.

VT8-004D-11

SPECIFICATIONS

INPUT

Voltage .....See Table
Frequency Range dc-10kHz
Overload
0.05-600V models .....2XF.S. or 600Vac/850Vdc max.
700V-1000V models (w/external divider box) ..... 1.25XF.S.
Burden .....>100kΩ

DIELECTRIC TEST

Input/Output/Case.....2500Vac

INSTRUMENT POWER

Standard ...85-265Vac, 48-420Hz, 5VA or 110-370Vdc, 5VA
"-11" option..... 115Vac ±15%, 50/60Hz, 5VA
"-22" option .....230Vac ±15%, 50/60Hz, 5VA
"**-12**", "**-15**", "**-24**" options ....12, 15, or 24Vdc ±10%, 150mA max.
"**-28**", "**-37**", "**-48**" options ....28, 37, or 48Vdc ±10%, 150mA max.

OUTPUT

Type .....See Table
Response..... (to 90%) 100ms
Loading
"B" models..... (0-1mAdc) 0-10kΩ
"D", "X5" models..... (0-10, 0-5Vdc) .....>2kΩ
"E" models..... (4-20mAdc) 0-500Ω
Field Adjustable Cal. ..... ±10%

ACCURACY

Includes effects of linearity, setpoint and repeatability.
All Models .....±0.25% F.S.@ 48-420Hz

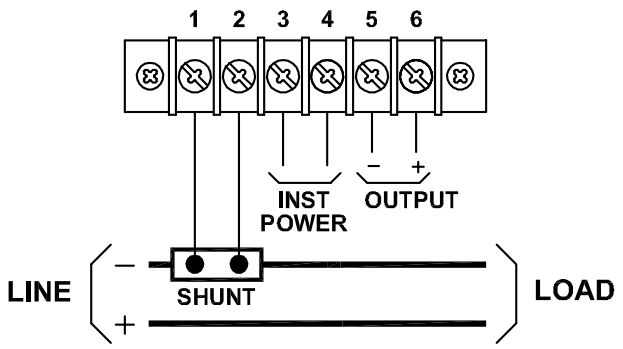
TEMPERATURE

Operating Range.....-10ºC to 60ºC
Effect..... ±1.0% Rdg., ±0.1%F.S.

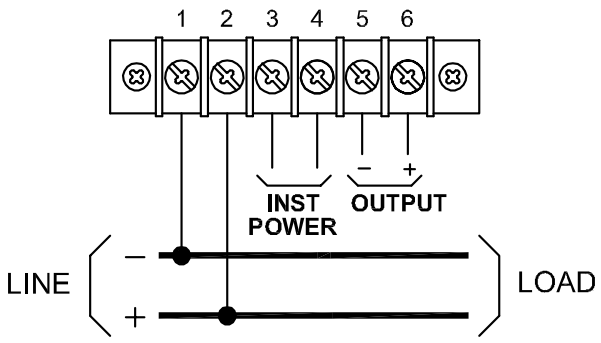
VOLTAGE MEASUREMENT (RMS)

CONNECTION DIAGRAMS

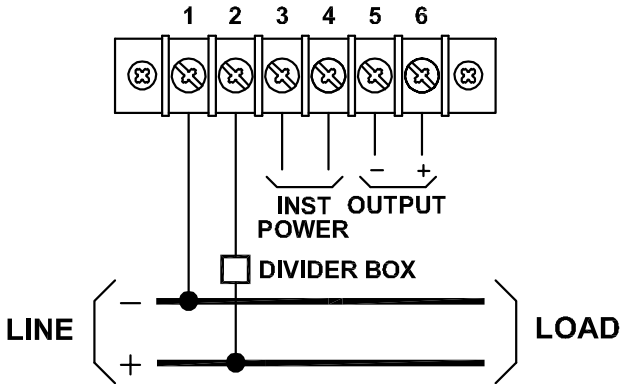
SHUNT ISOLATOR 50mV - 250mV MODELS



10V - 600V MODELS



700V - 1000V MODELS

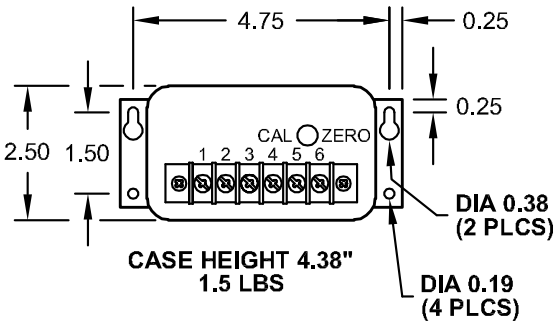


Dwg# 0902-00847-B Rev A

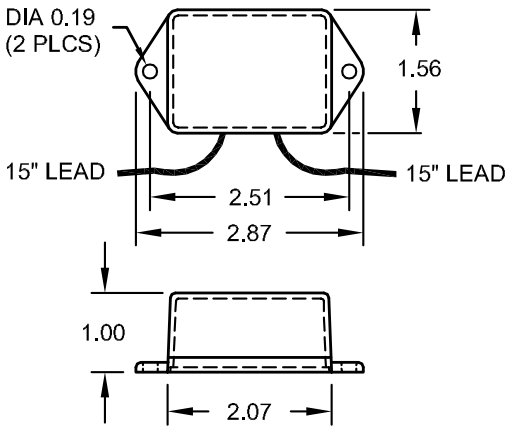
Note: All models above 600V input require a divider box in series with the input terminal #2.
Do not connect the input voltage directly! Damage to the VT8 will result if not properly connected.

CASE DIMENSIONS

MODEL VT7 & VT8



DIVIDER BOX



All dimensions in inches

DC VOLTAGE TRANSDUCER — MODEL VT7-

DC TO 10KHZ FREQUENCY RANGE

DESCRIPTION

The model **VT7** dc voltage transducer provides an output directly proportional to the input. It functions as a milliVolt shunt or high-voltage isolator.

This unit is primarily intended to measure and isolate dc voltages, but may also be used to monitor ac and non-sinusoidal waveforms. The output signal is a scaled replica of the input (ac input = ac output, etc.). For ac or bidirectional dc applications, a model with bidirectional output type must be used.

A wide variety of standard input ranges and output types are available. Consult factory for special ranges.

FEATURES

- dc voltage measurement
- 2500Vac dielectric test
- Wide frequency range

APPLICATIONS

- Accurate measurement and isolation of dc voltages.
- Shunt isolator

5 YEAR WARRANTY

MODEL SELECTION

*INPUT (mV)	STANDARD OUTPUTS MODEL VT7-			
	0-±1mA	4-20mA	0-±10V	0-±5V
*0 - 50	015B	015E	015D	015X5
*0 - 100	016B	016E	016D	016X5
*0 - 200	017B	017E	017D	017X5
*0 - 250	018B	018E	018D	018X5
INPUT (Volts)	**STANDARD OUTPUTS MODEL VT7-**			
	0-±1mA	4-20mA	0-±10V	0-±5V
0 - 10	001B	001E	001D	001X5
0 - 25	002B	002E	002D	002X5
0 - 50	003B	003E	003D	003X5
0 - 100	004B	004E	004D	004X5
0 - 150	005B	005E	005D	005X5
0 - 250	006B	006E	006D	006X5
0 - 300	007B	007E	007D	007X5
0 - 400	008B	008E	008D	008X5
0 - 500	009B	009E	009D	009X5
0 - 600	010B	010E	010D	010X5
**0 - 700	011B	011E	011D	011X5
**0 - 800	012B	012E	012D	012X5
**0 - 900	013B	013E	013D	013X5
**0 - 1000	014B	014E	014D	014X5

*** Shunt inputs**
**** Supplied with external divider box.**

Instrument Power Options

Option "-11" ..... 115Vac ±15%, 50/60Hz, 5VA

Option "-22" ..... 230Vac ±15%, 50/60Hz, 5VA

Options "-12", "-15", "-24", "-28", "-37", "-48".....
12Vdc thru 48Vdc, ±10%, 150mA max.

Standard models contain a universal switching power supply. "**-11**" & "**-22**" models utilize a lower-cost linear power supply.

ORDERING INFORMATION

Example: 0-50mVdc Input with
4-20mAdc Output and
125Vdc Instrument Power
VT7-015E

SPECIFICATIONS

INPUT

Voltage .....See Table
Frequency Range dc-10kHz
Overload
0.05-600V models .....2XF.S. or 600Vac/850Vdc max.
700V-1000V models (w/external divider box) ..... 1.25XF.S.
Burden .....>100kΩ

DIELECTRIC TEST

Input/Output/Case.....2500Vac

INSTRUMENT POWER

Standard ...85-265Vac, 48-420Hz, 5VA or 110-370Vdc, 5VA
"**-11**" option..... 115Vac ±15%, 50/60Hz, 5VA
"**-22**" option.....230Vac ±15%, 50/60Hz, 5VA
"**-12**", "**-15**", "**-24**" options ....12, 15, or 24Vdc ±10%, 150mA max.
"**-28**", "**-37**", "**-48**" options ....28, 37, or 48Vdc ±10%, 150mA max.

OUTPUT

Type .....See Table
Response..... (to 90%) 50µs
Loading
"B" models..... (0-1mA) 0-10kΩ
"D", "X5" models..... (0-10, 0-5V).....>2kΩ
"E" models..... (4-20mA) 0-500Ω
Field Adjustable Cal. ..... ±10%

ACCURACY

Includes effects of linearity, setpoint and repeatability.
All Models ..... ±0.25% F.S.@ DC

TEMPERATURE

Operating Range.....-10ºC to 60ºC
Effect..... ±1.0% Rdg., ±0.1%F.S.

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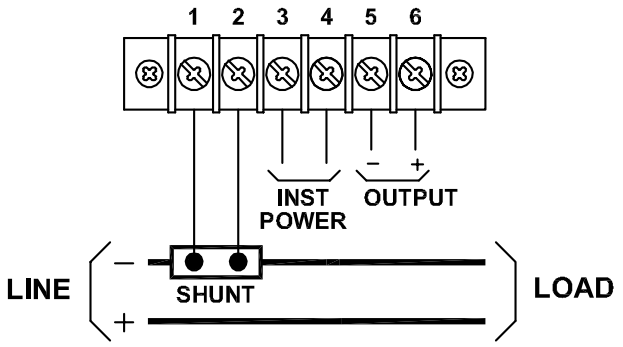
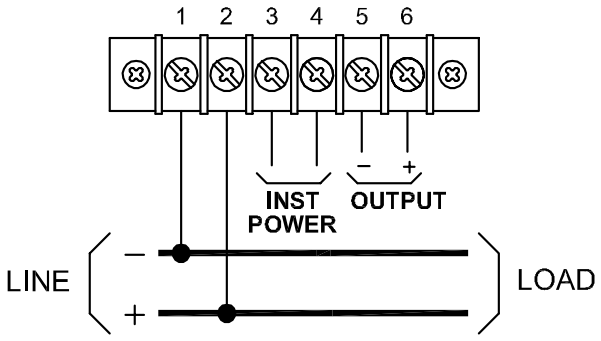
CONNECTION DIAGRAMS

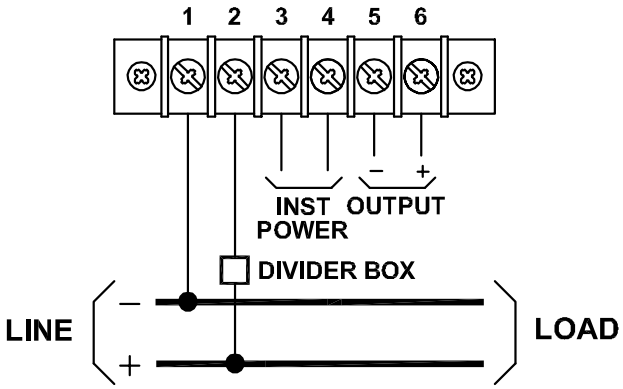
SHUNT ISOLATOR 50mV - 250mV MODELS



10V - 600V MODELS



700V - 1000V MODELS

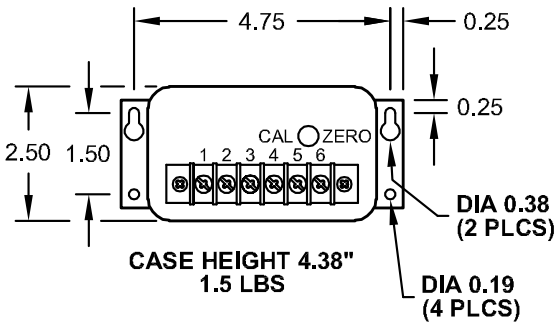


Dwg# 0902-00847-B Rev A

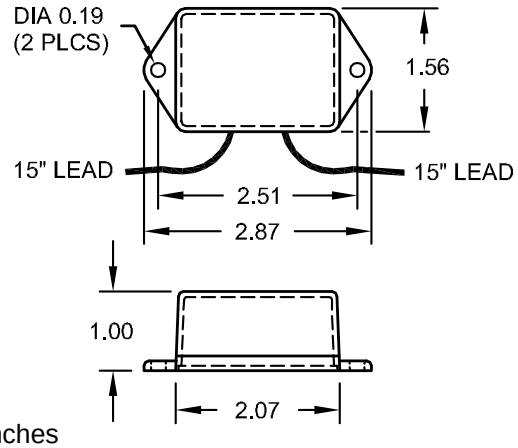
Note: All models above 600V input require a divider box in series with the input terminal #2.
Do not connect the input voltage directly! Damage to the VT7 will result if not properly connected.

CASE DIMENSIONS

MODEL VT7 & VT8



DIVIDER BOX



All dimensions in inches

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NEW!

DC VOLTAGE TRANSDUCER — MODEL DVT7E

USER-SELECTABLE INPUT RANGES WITH 4-20mA OUTPUT

DESCRIPTION

The **DVT7E** is a single-model dc voltage transducer with user-selectable input ranges. DIP switch-selectable ranges extend from 50mV to 600V. An output of 4-20mA is proportional to a zero-to-F.S. input for the selected range. Packaging is in a compact, easy-to-install, DIN rail-mount enclosure.

5 YEAR WARRANTY

FEATURES

- DC voltage measurement
- 4-20mA sensor-powered output
- Input, output and instrument power are electrically isolated
- DIN rail-mount enclosure

APPLICATIONS

- Shunt isolation
- Solar string voltage monitoring
- Monitoring of battery ground problems
- Monitoring of over-voltage or under-voltage conditions to avoid DC motor drive problems.

SPECIFICATIONS

INPUT

(3 separate inputs, each with DIP switch-selectable ranges)
Millivolt Input:
Selectable Ranges: 50, 100, 150, 250 & 500mVdc
Low-Voltage Input:
Selectable Ranges: 5, 10, 15, 25 & 50Vdc
High-Voltage Input:
Selectable Ranges: 50, 100, 150, 250, 500 & 600Vdc
(*1000V option is available - Consult factory for details)
Over-range (without damage)
500V and 600V Ranges 850Vpk
All Other Ranges ..... 2 X F.S. Rating
Frequency (all ranges) ..... Unidirectional dc
Impedance:
Millivolt Input ..... ≥1kΩ
Low-Voltage Input ..... ≥100kΩ
High-Voltage Input ..... ≥1MΩ

OUTPUT

Type 4-20mA
Scaling ..... 0-F.S. Input = 4-20mA Output
Response (to 90%) ..... 100µs, Typical
Loading 0-500Ω

INSTRUMENT POWER

Standard ..... 24V, ±20%, dc/50-400Hz, ≤2W

ACCURACY (Includes effects of setpoint, linearity and offset)

At Any Range Setting ..... ±0.5% F.S.

DIELECTRIC TEST

Input to Output/Instrument Power 2500Vac
Instrument Power to Output 500Vac

TEMPERATURE & ENVIRONMENTAL

Operating Range ..... -30°C to +60°C
Temperature Effect ..... ±1% Rdg., ±0.1% F.S.
Relative Humidity ..... 0-95%, non-condensing

PHYSICAL

Mounts on standard 35mm "Top Hat" rail, per EN50052/EN60715.
Termination Wire Size 12-30AWG
IP Rating IP20

SWITCH POSITIONS

To select the desired input range, set the switches "ON" as indicated in the chart below.

INPUT RANGE		SWITCH POSITIONS					
		SW1	SW2	SW3	SW4	SW5	SW6
High-Voltage Input (Vdc)	1000*	ON	ON	ON	off	off	ON
	600	off	off	ON	ON	ON	off
	500	off	ON	ON	ON	ON	off
	250	ON	off	off	ON	ON	off
	150	ON	ON	off	ON	ON	off
	100	ON	ON	ON	off	ON	off
	50	ON	ON	ON	ON	ON	off
Low-Voltage Input (Vdc)	50	off	ON	ON	ON	off	ON
	25	ON	off	off	ON	off	ON
	15	ON	ON	off	ON	off	ON
	10	ON	ON	ON	off	off	ON
	5	ON	ON	ON	ON	off	ON
Millivolt Input (mVdc)	500	off	ON	ON	ON	off	off
	250	ON	off	off	ON	off	off
	150	ON	ON	off	ON	off	off
	100	ON	ON	ON	off	off	off
	50	ON	ON	ON	ON	off	off

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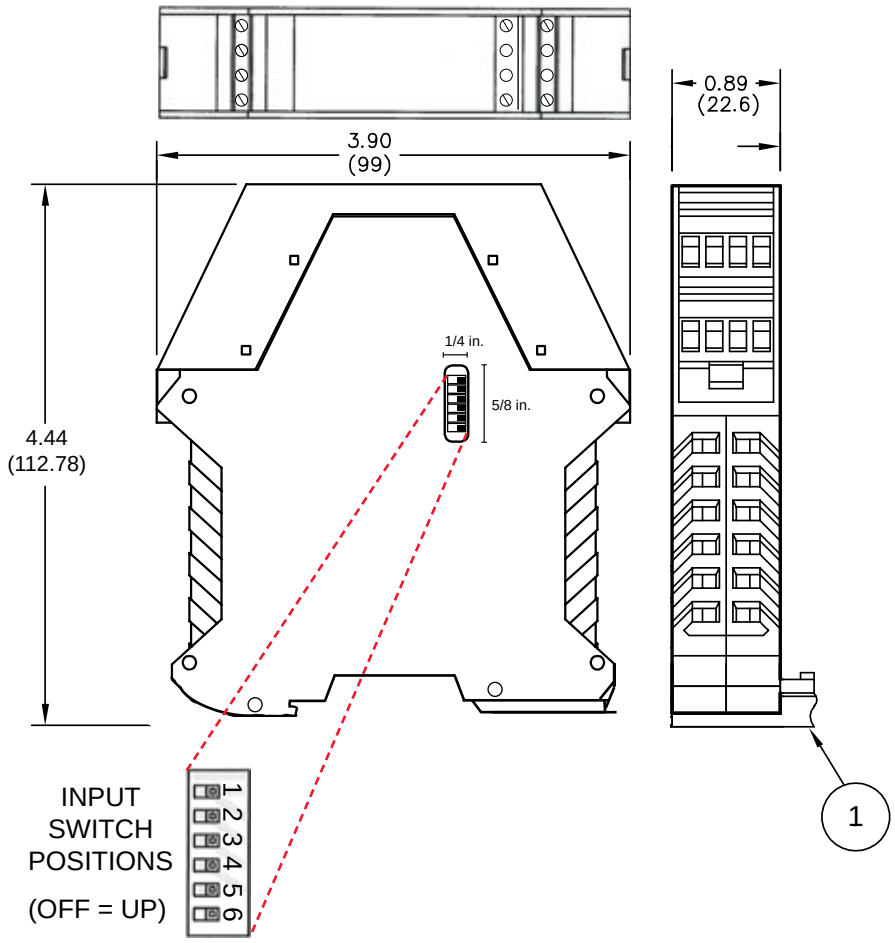
DIMENSIONS



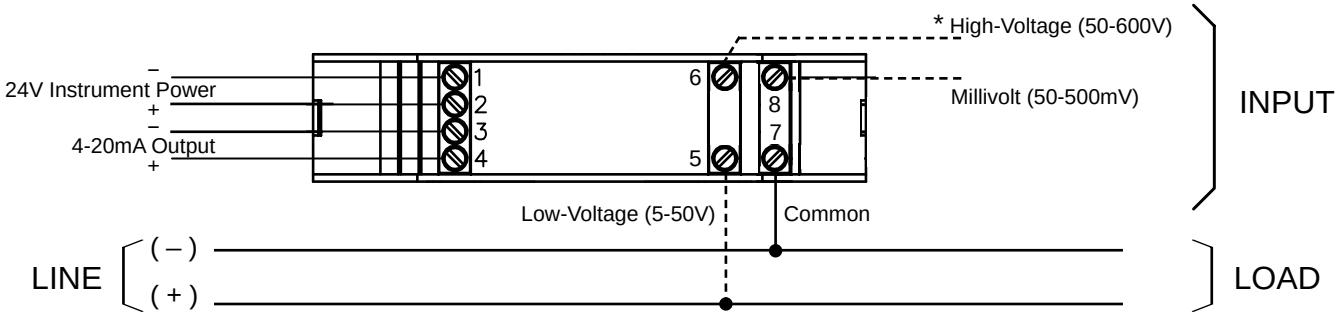
1) DIN Rail 35mm x 7.5mm x 2 meter, slotted (OSI P/N 18066)

ALL DIMENSIONS IN INCHES (mm)

TOLERANCE: ±0.03 IN. (0.76mm)

Dwg# 0902-00740-B Rev -- (mod.)

CONNECTION DIAGRAM



Dwg# 0902-00847-B Rev -- (mod.)

UNIDIRECTIONAL DC VOLTAGE ISOLATOR *MODEL* VTU-

LOW COST

FEATURES

- Output is electrically isolated from the input and is directly proportional to the input.
- Unidirectional signals only.
- Provides 1500V dielectric protection.

APPLICATIONS

- Monitoring of substation or electric circuit performance.
- Isolation and amplification of shunt output.
- Electric generator or solar field monitoring.

5 YEAR WARRANTY

MODEL SELECTION

INPUT DC VOLTS	STANDARD OUTPUTS MODEL VTU-		
	0-1mAdc	4-20mAdc	0-5Vdc
0 - 0.05	015B	015E	015X5
0 - 0.10	016B	016E	016X5
0 - 10	001B	001E	001X5
0 - 25	002B	002E	002X5
0 - 50	003B	003E	003X5
0 - 100	004B	004E	004X5
0 - 150	005B	005E	005X5
0 - 250	006B	006E	006X5
0 - 300	007B	007E	007X5
0 - 400	008B	008E	008X5
0 - 500	009B	009E	009X5
0 - 600	010B	010E	010X5
0 - 700	011B	011E	011X5
0 - 800	012B	012E	012X5
0 - 900	013B	013E	013X5
0 - 1000	014B	014E	014X5

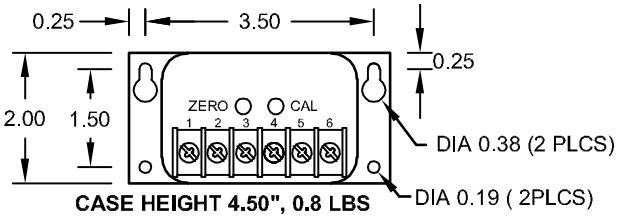
700-1000V models are supplied with an external divider box.
50mV and 100mV models can be used for shunt isolation.

ORDERING INFORMATION

Example: 150Vdc Input with 4-20mAdc Output.

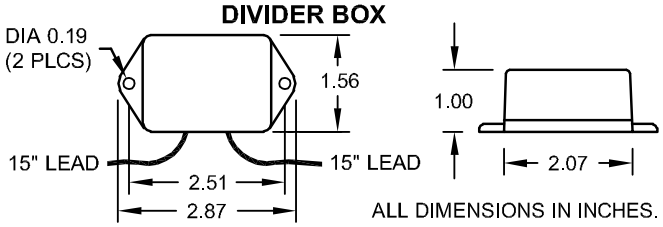
VTU-005E

CASE DIMENSIONS



CASE HEIGHT 4.50", 0.8 LBS

DIVIDER BOX



ALL DIMENSIONS IN INCHES.

SPECIFICATIONS

INPUT

Voltage ..... See Table
Frequency Range ..... dc to 1000Hz.
Burden
0.05 & 0.10mV Input models ..... >500Ω
All other models ..... >100kΩ
Overload
0.05-600V ..... 2 X F.S. or 850Vdc max.
700-1000V ..... (w/external divider box) ..... 1500Vdc max.

DIELECTRIC TEST (direct input/output/case) 1500Vac

INSTRUMENT POWER

Standard ..... 115Vac ±15%, 50/60Hz, 4VA
"**-22**" option ..... 230Vac ±15%, 50/60Hz, 4VA

OUTPUT

Response Time ..... (to 90%) 500µs
Loading
"B" models ..... (0-1mAdc output) 0-5kΩ
"E" models ..... (4-20mAdc output) 0-300Ω
"X5" models ..... (0-5Vdc output) ..... ≥2kΩ
Field Adjustable Cal. ..... ±10%

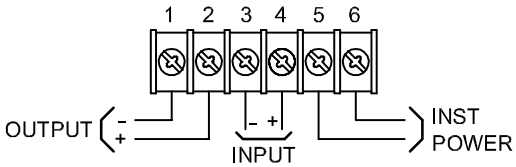
ACCURACY ..... ±0.25% Rdg., ±0.1% F.S.@dc
includes effects of linearity and repeatability

TEMPERATURE

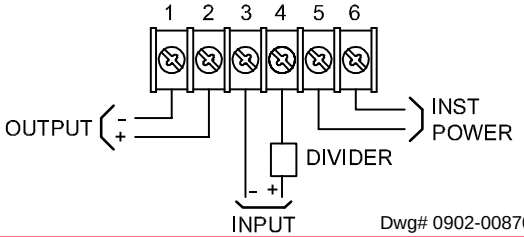
Effect ..... (-5ºC to +40ºC) .... ±1.0% Rdg., ±0.1% F.S.

CONNECTION DIAGRAMS

50mV-600V MODELS



700V-1000V MODELS



Dwg# 0902-00870-B Rev A

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UNIDIRECTIONAL DC HIGH-VOLTAGE ISOLATOR *MODEL* VTH-

10kV DIELECTRIC TEST

FEATURES

- Output is electrically isolated from the input and is directly proportional to the input amplitude.
- Input/output dielectric test of 10kV.

APPLICATIONS

- Monitoring of substation or electric circuit performance.
- Isolation and amplification of shunt output.

INPUT DC VOLTS	STANDARD OUTPUTS MODEL VTH-			
	0-1mAdc	4-20mAdc	0-10Vdc	0-5Vdc
0 - 0.050 0 - 0.100	015B 016B	015E 016E	015D 016D	015X5 016X5
0 - 100 0 - 250 0 - 400	004B 006B 008B	004E 006E 008E	004D 006D 008D	004X5 006X5 008X5
0 - 1000 0 - 2500 0 - 4000	014B 020B 022B	014E 020E 022E	014D 020D 022D	014X5 020X5 022X5

Standard models have 3-ft. input leads.
For optional 15-ft. input leads, add suffix "**L**" to model number

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 1000Vdc Input with a 4-20mA Output.
VTH-014E

SPECIFICATIONS

INPUT

Voltage Range ..... See Table
Over-range w/o damage ..... 120% of Rating
Burden ..... ≤1mA

DIELECTRIC TEST

Input to Output/Instrument Power 10kVac
Instrument Power to Output 2200Vac

INSTRUMENT POWER

Standard 115Vac, 50/60Hz, 3VA

ACCURACY ..... ±0.5% F.S.

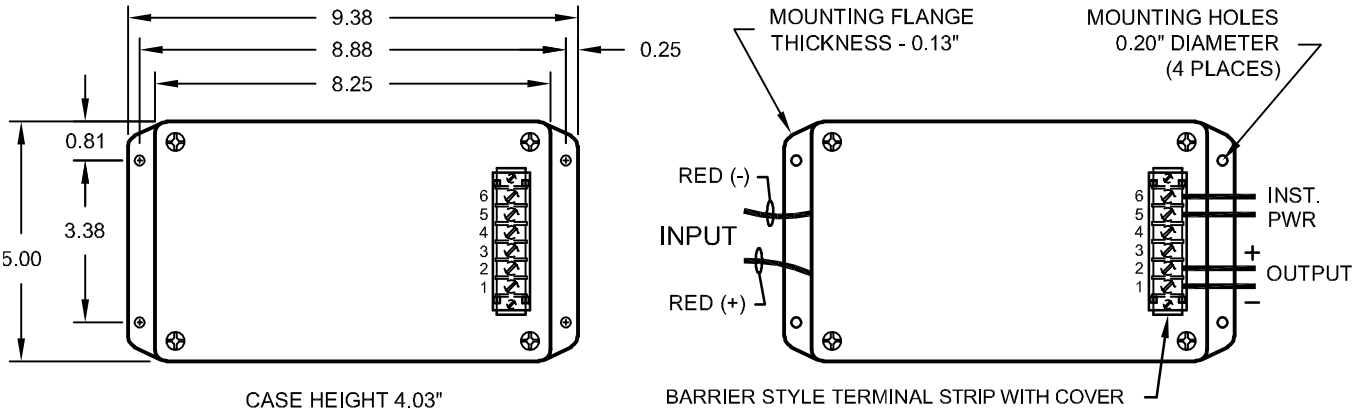
OUTPUT

Response ..... (to 90%) 100ms
Loading
"**B**" models ..... (0-1mAdc output) ..... ≤10kΩ
"**X5**", "**D**" models ... (5V, 10Vdc output) ..... ≥2kΩ
"**E**" models ..... (4-20mAdc output) ..... ≤500Ω

TEMPERATURE & PHYSICAL

Temperature Effect (-10ºC to +60ºC) ....±1.0% Rdg., ±0.1% F.S.
Net Weight ..... 3.0 lb
Input Leads
Wire Size 22AWG
Length ..... Standard ..... 3ft.
with option "**L**" ..... 15ft.

DIMENSIONS & CONNECTIONS



ALL DIMENSIONS IN INCHES
TOLERANCE - 2 DECIMAL - 0.03"

0902-00813-B

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OSI AC WATT TRANSDUCER — MODEL PC5-/PC4-

INCLUDES PHASE-FIRED & ZERO-CROSSING MEASUREMENTS

DESCRIPTION

The PC5 Series Watt transducers utilize Hall-effect multipliers to provide continuous multiplication of voltage and current to accurately measure real power delivered to a load. Full-scale current ranges up to 1000A and full-scale voltage ranges up to 600V are available in one-, two-, 2½- or three-element transducers.

These highly-reliable units have been used for many years in industrial monitoring and control applications by thousands of customers. They are widely used in applications with chopped or distorted waveforms where they have advantages over pulse-width modulated units.

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Output is proportional to true power delivered to a load; P = EI(COS Φ).
- Accuracy maintained when supplied with internal or external current sensors. **Factory calibrated.**

APPLICATIONS

- Equipment power consumption.
- For use with SCR controls, chopped waveforms, or where harmonic components exist.
- Standard outputs provide signal for interface with meters, recorders, or data acquisition equipment.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: Three-Phase, Three-Wire, Self-Powered, 120V, 5A Input with 0-1000 Watts = 0-10Vdc Output.

PC5-004C

Split-core external CT option is available - consult factory.

400Hz Models: To order for use on 400Hz applications, substitute **"PC4-"** for **"PC5-"** in model number.

MODEL SELECTION

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSOR

INPUTS		F.S. (WATTS)	STANDARD DC OUTPUT MODEL PC5- OR PC4-								
AC VOLTS	AC AMPS		0-±1mA*	0-±1mA	0-±10V*	0-±10V	4-20mA	4-12-20mA	4-20mA**	0-±5V*	0-±5V
0-150	0 - 1	100	103A	103B	103C	103D	103E	103EM	103E2	103CX5	103X5
	0 - 2.5	250	106A	106B	106C	106D	106E	106EM	106E2	106CX5	106X5
	0 - 5	500	001A	001B	001C	001D	001E	001EM	001E2	001CX5	001X5
	0 - 10	1k	010A	010B	010C	010D	010E	010EM	010E2	010CX5	010X5
	0 - 15	1.5k	019A	019B	019C	019D	019E	019EM	019E2	019CX5	019X5
	0 - 20	2k	117A	117B	117C	117D	117E	117EM	117E2	117CX5	117X5
	0 - 25	2.5k	118A	118B	118C	118D	118E	118EM	118E2	118CX5	118X5
0-300	0 - 1	200	104A	104B	104C	104D	104E	104EM	104E2	104CX5	104X5
	0 - 2.5	500	107A	107B	107C	107D	107E	107EM	107E2	107CX5	107X5
	0 - 5	1k	002A	002B	002C	002D	002E	002EM	002E2	002CX5	002X5
	0 - 10	2k	011A	011B	011C	011D	011E	011EM	011E2	011CX5	011X5
	0 - 15	3k	020A	020B	020C	020D	020E	020EM	020E2	020CX5	020X5
	0 - 20	4k	110A	110B	110C	110D	110E	110EM	110E2	110CX5	110X5
	0 - 25	5k	119A	119B	119C	119D	119E	119EM	119E2	119CX5	119X5
0-600	0 - 1	500	105A	105B	105C	105D	105E	105EM	105E2	105CX5	105X5
	0 - 2.5	1k	108A	108B	108C	108D	108E	108EM	108E2	108CX5	108X5
	0 - 5	2k	003A	003B	003C	003D	003E	003EM	003E2	003CX5	003X5
	0 - 10	4k	012A	012B	012C	012D	012E	012EM	012E2	012CX5	012X5
	0 - 15	6k	021A	021B	021C	021D	021E	021EM	021E2	021CX5	021X5
	0 - 20	8k	111A	111B	111C	111D	111E	111EM	111E2	111CX5	111X5

*** "A", "C" and "CX5" models are self-powered. Input voltage range is limited to:**

85-135V for 150V models
200-280V for 300V models
380-550V for 600V models

**** "E2" models require only 15-40Vdc loop power.**

"B", "D" and "X5" models require 85-135Vac instrument power.

"E" and "EM" models require 105-135Vac instrument power.

Add suffix **"-22"** for optional 230Vac instrument power.

NOTE: **"A"**, **"B"**, **"C"**, **"CX5"**, **"D"**, **"X5" and "EM"** models operate bi-directionally. Positive (+) output at terminal 2 (greater than 12mA for **"EM"** models) indicates forward/consumed power. Negative (-) output at terminal 2 (less than 12mA for **"EM"** models) indicates reverse/generated power.

"E" and **"E2"** models are unidirectional only. Reverse power conditions may cause the output to drop below 4mA but not below 0mA.

Add suffix **"Y25"** for use on zero-crossing SCR controllers. NOTE: This option is not available for self-powered models.

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L

OSI AC WATT TRANSDUCER — MODEL PC5-/PC4-

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSOR

INPUTS		F.S. (WATTS)	SENSOR SIZE	STANDARD DC OUTPUT MODEL PC5- OR PC4-								
AC VOLTS	AC AMPS			0-±1mA*	0-±1mA	0-±10V*	0-±10V	4-20mA	4-12-20mA	4-20mA**	0-±5V*	0-±5V
0-150	0 - 100	10k	W	058A	058B	058C	058D	058E	058EM	058E2	058CX5	058X5
	0 - 200	20k	W	067A	067B	067C	067D	067E	067EM	067E2	067CX5	067X5
	0 - 400	40k	X	076A	076B	076C	076D	076E	076EM	076E2	076CX5	076X5
	0 - 600	60k	X	085A	085B	085C	085D	085E	085EM	085E2	085CX5	085X5
	0 - 1000	100k	Y	094A	094B	094C	094D	094E	094EM	094E2	094CX5	094X5
0-300	0 - 100	20k	W	059A	059B	059C	059D	059E	059EM	059E2	059CX5	059X5
	0 - 200	40k	W	068A	068B	068C	068D	068E	068EM	068E2	068CX5	068X5
	0 - 400	80k	X	077A	077B	077C	077D	077E	077EM	077E2	077CX5	077X5
	0 - 600	120k	X	086A	086B	086C	086D	086E	086EM	086E2	086CX5	086X5
	0 - 1000	200k	Y	095A	095B	095C	095D	095E	095EM	095E2	095CX5	095X5
0-600	0 - 100	40k	W	060A	060B	060C	060D	060E	060EM	060E2	060CX5	060X5
	0 - 200	80k	W	069A	069B	069C	069D	069E	069EM	069E2	069CX5	069X5
	0 - 400	160k	X	078A	078B	078C	078D	078E	078EM	078E2	078CX5	078X5
	0 - 600	240k	X	087A	087B	087C	087D	087E	087EM	087E2	087CX5	087X5
	0 - 1000	400k	Y	096A	096B	096C	096D	096E	096EM	096E2	096CX5	096X5

Note: Current Transformer is supplied as part of the model. Refer also to notes below table on first page.

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS

INPUTS		F.S. (WATTS)	STANDARD DC OUTPUT MODEL PC5- OR PC4-								
AC VOLTS	AC AMPS		0-±1mA*	0-±1mA	0-±10V*	0-±10V	4-20mA	4-12-20mA	4-20mA**	0-±5V*	0-±5V
0-150	0 - 1	200	120A	120B	120C	120D	120E	120EM	120E2	120CX5	120X5
	0 - 2.5	500	129A	129B	129C	129D	129E	129EM	129E2	129CX5	129X5
	0 - 5	1k	004A	004B	004C	004D	004E	004EM	004E2	004CX5	004X5
	0 - 10	2k	013A	013B	013C	013D	013E	013EM	013E2	013CX5	013X5
	0 - 15	3k	022A	022B	022C	022D	022E	022EM	022E2	022CX5	022X5
	0 - 20	4k	112A	112B	112C	112D	112E	112EM	112E2	112CX5	112X5
	0 - 25	5k	123A	123B	123C	123D	123E	123EM	123E2	123CX5	123X5
0-300	0 - 1	400	121A	121B	121C	121D	121E	121EM	121E2	121CX5	121X5
	0 - 2.5	1k	130A	130B	130C	130D	130E	130EM	130E2	130CX5	130X5
	0 - 5	2k	005A	005B	005C	005D	005E	005EM	005E2	005CX5	005X5
	0 - 10	4k	014A	014B	014C	014D	014E	014EM	014E2	014CX5	014X5
	0 - 15	6k	023A	023B	023C	023D	023E	023EM	023E2	023CX5	023X5
	0 - 20	8k	113A	113B	113C	113D	113E	113EM	113E2	113CX5	113X5
	0 - 25	10k	124A	124B	124C	124D	124E	124EM	124E2	124CX5	124X5
0-600	0 - 1	800	122A	122B	122C	122D	122E	122EM	122E2	122CX5	122X5
	0 - 2.5	2k	131A	131B	131C	131D	131E	131EM	131E2	131CX5	131X5
	0 - 5	4k	006A	006B	006C	006D	006E	006EM	006E2	006CX5	006X5
	0 - 10	8k	015A	015B	015C	015D	015E	015EM	015E2	015CX5	015X5
	0 - 15	12k	024A	024B	024C	024D	024E	024EM	024E2	024CX5	024X5
	0 - 20	16k	114A	114B	114C	114D	114E	114EM	114E2	114CX5	114X5

Note: Refer to notes below table on first page.

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS

INPUTS		F.S. (WATTS)	SENSOR SIZE	STANDARD DC OUTPUT MODEL PC5- OR PC4-								
AC VOLTS	AC AMPS			0-±1mA*	0-±1mA	0-±10V*	0-±10V	4-20mA	4-12-20mA	4-20mA**	0-±5V*	0-±5V
0-150	0 - 100	20k	W	061A	061B	061C	061D	061E	061EM	061E2	061CX5	061X5
	0 - 200	40k	W	070A	070B	070C	070D	070E	070EM	070E2	070CX5	070X5
	0 - 400	80k	X	079A	079B	079C	079D	079E	079EM	079E2	079CX5	079X5
	0 - 600	120k	X	088A	088B	088C	088D	088E	088EM	088E2	088CX5	088X5
	0 - 1000	200k	Y	097A	097B	097C	097D	097E	097EM	097E2	097CX5	097X5
0-300	0 - 100	40k	W	062A	062B	062C	062D	062E	062EM	062E2	062CX5	062X5
	0 - 200	80k	W	071A	071B	071C	071D	071E	071EM	071E2	071CX5	071X5
	0 - 400	160k	X	080A	080B	080C	080D	080E	080EM	080E2	080CX5	080X5
	0 - 600	240k	X	089A	089B	089C	089D	089E	089EM	089E2	089CX5	089X5
	0 - 1000	400k	Y	098A	098B	098C	098D	098E	098EM	098E2	098CX5	098X5
0-600	0 - 100	80k	W	063A	063B	063C	063D	063E	063EM	063E2	063CX5	063X5
	0 - 200	160k	W	072A	072B	072C	072D	072E	072EM	072E2	072CX5	072X5
	0 - 400	320k	X	081A	081B	081C	081D	081E	081EM	081E2	081CX5	081X5
	0 - 600	480k	X	090A	090B	090C	090D	090E	090EM	090E2	090CX5	090X5
	0 - 1000	800k	Y	099A	099B	099C	099D	099E	099EM	099E2	099CX5	099X5

Note: Current Transformer is supplied as part of the model. Refer also to notes below table on first page.

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L

OSI AC WATT TRANSDUCER — MODEL PC5-/PC4-

THREE-PHASE, FOUR-WIRE (THREE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS

INPUTS		F.S. (WATTS)	STANDARD DC OUTPUT MODEL PC5- OR PC4-								
AC VOLTS	AC AMPS		0-±1mA*	0-±1mA	0-±10V*	0-±10V	4-20mA	4-12-20mA	4-20mA**	0-±5V*	0-±5V
0-150 L-N	0 - 1	300	125A	125B	125C	125D	125E	125EM	125E2	125CX5	125X5
	0 - 2.5	750	132A	132B	132C	132D	132E	132EM	132E2	132CX5	132X5
	0 - 5	1.5k	007A	007B	007C	007D	007E	007EM	007E2	007CX5	007X5
	0 - 5	1.5k	7.5A	7.5B	7.5C	7.5D	7.5E	7.5EM	7.5E2	7.5CX5	7.5X5
	0 - 10	3k	016A	016B	016C	016D	016E	016EM	016E2	016CX5	016X5
	0 - 15	4.5	025A	025B	025C	025D	025E	025EM	025E2	025CX5	025X5
	0 - 20	6k	115A	115B	115C	115D	115E	115EM	115E2	115CX5	115X5
	0 - 25	7.5k	127A	127B	127C	127D	127E	127EM	127E2	127CX5	127X5
0-300 L-N	0 - 1	600	126A	126B	126C	126D	126E	126EM	126E2	126CX5	126X5
	0 - 2.5	1.5k	133A	133B	133C	133D	133E	133EM	133E2	133CX5	133X5
	0 - 5	3k	008A	008B	008C	008D	008E	008EM	008E2	008CX5	008X5
	0 - 5	3k	8.5A	8.5B	8.5C	8.5D	8.5E	8.5EM	8.5E2	8.5CX5	8.5X5
	0 - 10	6k	017A	017B	017C	017D	017E	017EM	017E2	017CX5	017X5
	0 - 15	9k	026A	026B	026C	026D	026E	026EM	026E2	026CX5	026X5
	0 - 20	12k	116A	116B	116C	116D	116E	116EM	116E2	116CX5	116X5
	0 - 25	15k	128A	128B	128C	128D	128E	128EM	128E2	128CX5	128X5

Note: Part Numbers 7.5 and 8.5 denote 2½-element units. Refer also to notes below table on first page.

THREE-PHASE, FOUR-WIRE (THREE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS

INPUTS		F.S. (WATTS)	SENSOR SIZE	STANDARD DC OUTPUT MODEL PC5- OR PC4-								
AC VOLTS	AC AMPS			0-±1mA*	0-±1mA	0-±10V*	0-±10V	4-20mA	4-12-20mA	4-20mA**	0-±5V*	0-±5V
0-150 L-N	0 - 100	30k	W	064A	064B	064C	064D	064E	064EM	064E2	064CX5	064X5
	0 - 200	60k	W	073A	073B	073C	073D	073E	073EM	073E2	073CX5	073X5
	0 - 400	120k	X	082A	082B	082C	082D	082E	082EM	082E2	082CX5	082X5
	0 - 600	180k	X	091A	091B	091C	091D	091E	091EM	091E2	091CX5	091X5
	0 - 1000	300k	Y	100A	100B	100C	100D	100E	100EM	100E2	100CX5	100X5
0-300 L-N	0 - 100	60k	W	065A	065B	065C	065D	065E	065EM	065E2	065CX5	065X5
	0 - 200	120k	W	074A	074B	074C	074D	074E	074EM	074E2	074CX5	074X5
	0 - 400	240k	X	083A	083B	083C	083D	083E	083EM	083E2	083CX5	083X5
	0 - 600	360k	X	092A	092B	092C	092D	092E	092EM	092E2	092CX5	092X5
	0 - 1000	600k	Y	101A	101B	101C	101D	101E	101EM	101E2	101CX5	101X5

Note: Current Transformers are supplied as part of the model. Refer also to notes below table on first page.

SPECIFICATIONS

INPUT

Voltage, Current ..... See Tables
Frequency Range ..... PC5- models 48-70Hz
PC4- models 400Hz
Power Factor ..... Any
Response (Transient, to 90% F.S.)
With Internal Sensors ..... <100µs
With Current Transformers 1ms
Burden
Voltage and Current 1.25VA/phase
Output Amplifier 2W
Current Overload (Continuous) .... 1-10A models ..... 2 X F.S.
15A, 20A, and 25A models ..... F.S.
Transient (all models) ..... 6 X F.S. (10 seconds)

DIELECTRIC TEST

Input/Output/Case ..... 1500Vac (RMS)
Surge ..... Withstands IEEE SWC test

INSTRUMENT POWER

"**A**", "**C**", "**CX5**" models ..... not required
"**B**", "**D**", "**X5**" models 85-135Vac, 50-400Hz, 5VA
"**E**", "**EM**" models 105-135Vac, 50-400Hz, 5VA
"**E2**" models ..... 15-40Vdc loop power only
"**-22**" option ..... 230Vac, ±10%, 50/60Hz, 5VA

OUTPUT

Type ..... See Tables
Watt Output, Loading
"**A**" & "**B**" models ..... (0-±1mAdc) 0-10kΩ
"**C**" & "**D**" models ..... (0-±10Vdc) ..... 2kΩ min.
"**CX5**" & "**X5**" models ... (0-±5Vdc) ..... 2kΩ min.
"**E**", **"EM"** models..... (4-20mAdc) 0-1500Ω
"**E2**" models..... (loop powered)... @24Vdc 0-600Ω
@40Vdc ... 0-1400Ω
Response Time (to 90% F.S.)...standard 250ms
Suffix **"Y25"** (for use on zero-crossing SCR controllers) 5s
NOTE: This option is not available for self-powered models.
Field Adjustable Calibration ..... ±10%

ACCURACY ..... ±0.5% F.S.

Includes combined effects of power factor, repeatability, linearity, and current sensor.
Output Ripple ..... <1% F.S.

TEMPERATURE

Operating Range ..... -10ºC to +60ºC
Effect ..... ±1.0% of Rdg, ±0.1% F.S. output

Split-core external CT option is available - consult factory.

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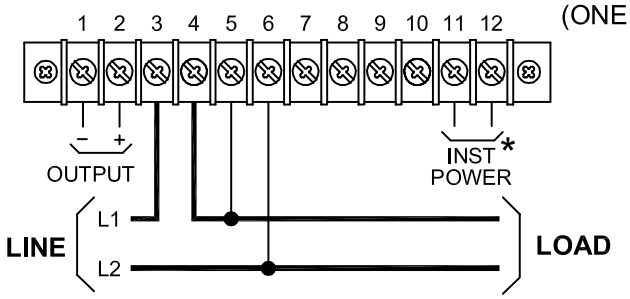
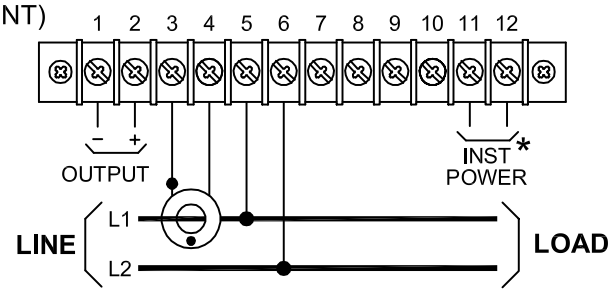
CONNECTION DIAGRAMS — MODEL PC5-/PC4-

SINGLE-PHASE, TWO-WIRE CONNECTIONS (ONE ELEMENT)

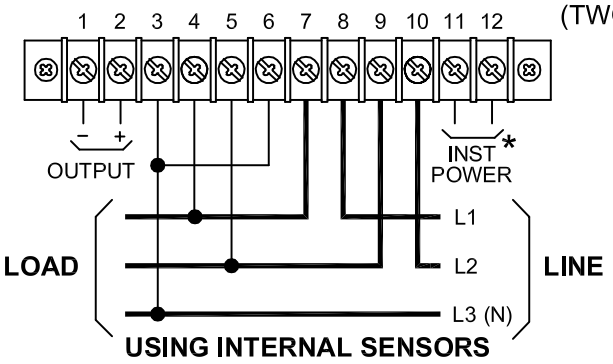


USING INTERNAL SENSOR

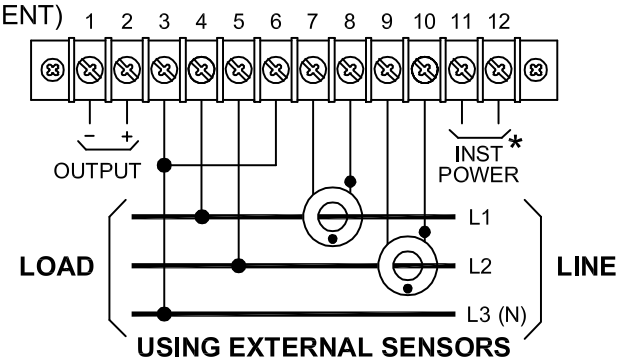


USING EXTERNAL SENSOR

THREE-PHASE, THREE-WIRE CONNECTIONS (TWO ELEMENT)



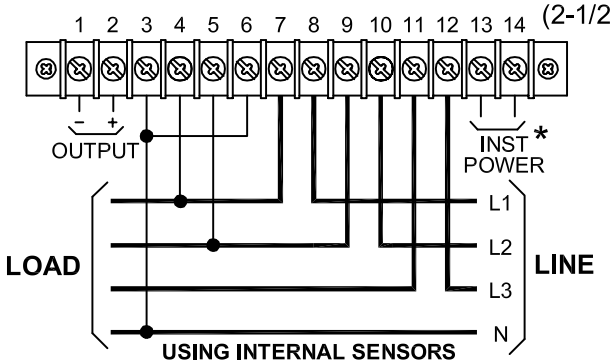
USING INTERNAL SENSORS



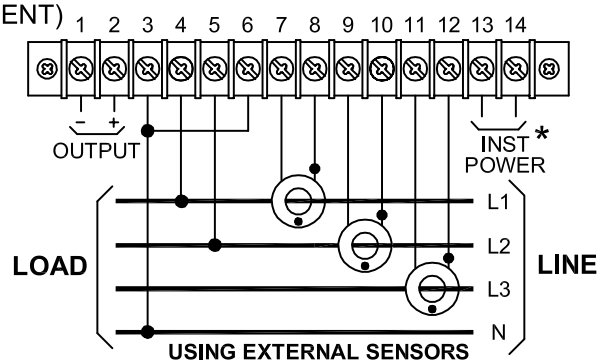
USING EXTERNAL SENSORS

N IS NEUTRAL FOR 1PH-3W EDISON SYSTEM CONNECTIONS.

THREE-PHASE, FOUR-WIRE CONNECTIONS (2-1/2 ELEMENT)

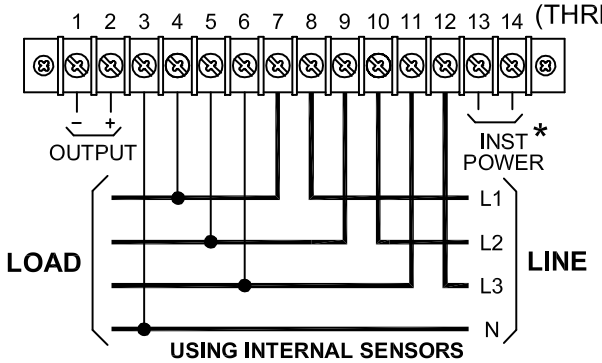


USING INTERNAL SENSORS

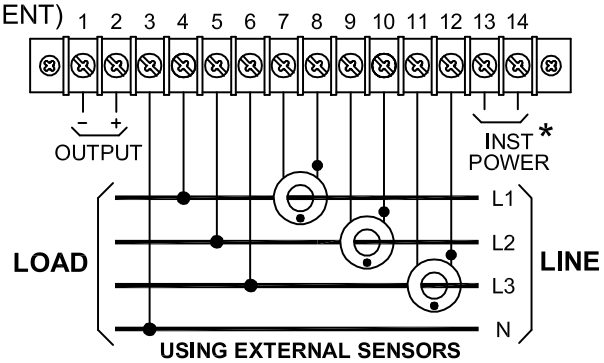


USING EXTERNAL SENSORS

THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE ELEMENT)



USING INTERNAL SENSORS



USING EXTERNAL SENSORS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
* 230Vac ON MODELS WITH -22 SUFFIX.
* NOT REQUIRED ON MODELS WITH A, C, E2 OR CX5 SUFFIX.

Dwg# 0902-00871-B Rev --

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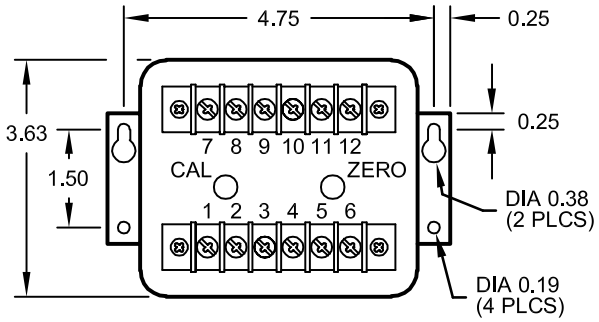
DIMENSIONS & CONNECTIONS — MODEL PC5-/PC4-

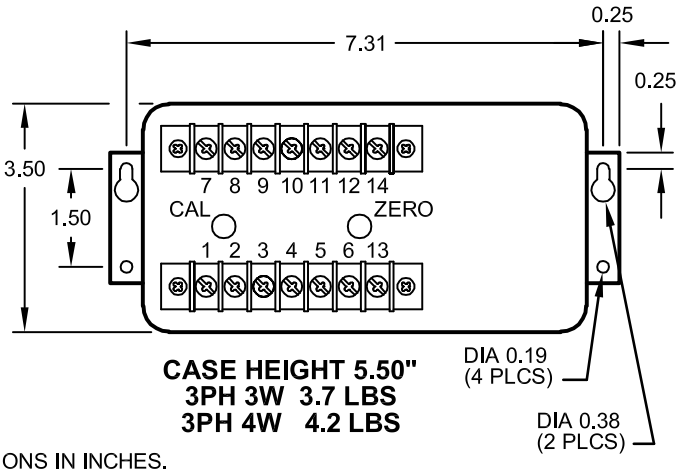
CASE DIMENSIONS

SINGLE-PHASE & THREE-PHASE, THREE-WIRE
(EXCEPT THREE-PHASE, THREE-WIRE "E" MODELS)



CASE HEIGHT 5.75"
1PH 2.2 LBS
3PH 3.7 LBS

THREE-PHASE, FOUR-WIRE
(ALSO USED ON THREE-PHASE, THREE-WIRE "E" MODELS)

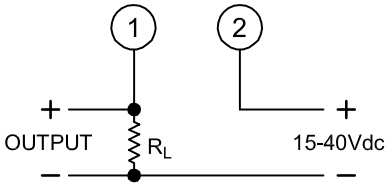


CASE HEIGHT 5.50"
3PH 3W 3.7 LBS
3PH 4W 4.2 LBS

ALL DIMENSIONS IN INCHES.

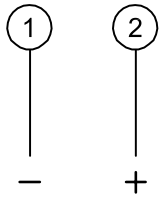
OUTPUT CONNECTIONS

"E2" MODELS



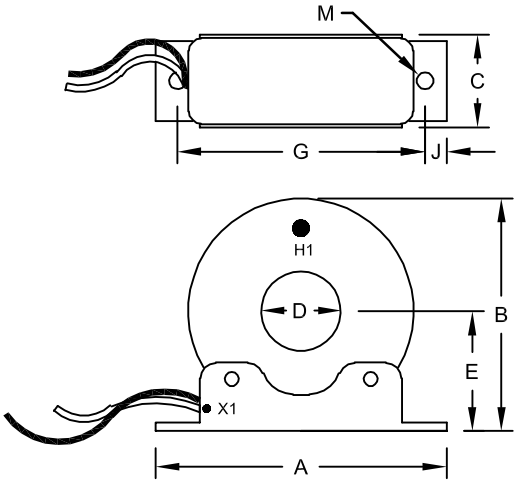
4-20mAdc LOOP POWERED

ALL OTHER MODELS



0-5Vdc, 0-10Vdc, 0-1mAdc, 4-20mAdc

SENSOR DIMENSIONS



LEAD LENGTH IS 24 INCHES.
WHITE LEAD IS X1.

SENS. SIZE	SENSOR DIMENSIONS (in inches)								WT. LBS.
	A	B	C	D	E	G	J	M	
W	4.50	3.7	1.25	1.25	1.94	3.88	0.34	0.27 x 0.44	1.43
X	6.50	4.7	1.25	2.50	2.46	5.75	0.39	0.28	1.61
Y	6.50	4.7	1.25	3.00	2.46	5.75	0.39	0.28	1.10

Split-core external CT option is available - consult factory.

Dwg# 0902-00871-B Rev --

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AC WATT/WATTHOUR TRANSDUCER *MODEL* W-/W4-

INCLUDES PHASE-FIRED & ZERO-CROSSING MEASUREMENTS

DESCRIPTION

Model W transducers are available in many models covering 0-600 Volts and 0-1000 Amperes. One-, two- & three-element transducers are available for all single-phase and three-phase power systems.

All models provide an isolated analog output signal related to the average power consumed in the load and/or relay closure (or pulse output) related to the Watthours of energy consumed in the load.

Computers or auxiliary equipment can be used to calculate demand, monitor or control processes, and to accumulate energy consumption for billing purposes.

FEATURES

- Analog output for instantaneous Watts and relay closure or pulse output for Watthour consumption.
- Maintains accuracy with chopped or distorted wave-forms through use of real-time multiplier.
- Accuracy maintained when factory-calibrated with external current sensors.
- Rugged metal enclosures for harsh environments.

APPLICATIONS

- Building energy management systems
- Manufacturing process control
- Pump motor power consumption.
- Welding and soldering process monitoring.
- Battery charger monitoring.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V, 5A Input with 0-5Vdc Output Proportional to 0-1500 Watts, TTL Pulse Output for Watthours, each Pulse Proportional to 1.0 Watthour

W-007CX5-T

Split-core external CT option is available - consult factory.

400Hz Models: To order for use on 400Hz applications, substitute **"W4-"** for **"W-"** in model number.

MODEL SELECTION

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSOR

INPUTS		F.S. WATTS	F.S. COUNTS PER HOUR	WH PER COUNT	STANDARD OUTPUT MODEL W- OR W4-						
AC VOLTS	AC AMPS				0-±1mA*	0-±1mA	0-±10V*	0-±10V	0-±5V*	0-±5V	4-20mA
0-150	0 - 1	100	100	1	103A	103B	103C	103D	103CX5	103X5	103E
	0 - 2.5	250	250	1	106A	106B	106C	106D	106CX5	106X5	106E
	0 - 5	500	5000	1	001A	001B	001C	001D	001CX5	001X5	001E
	0 - 10	1000	1000	1	010A	010B	010C	010D	010CX5	010X5	010E
	0 - 15	1500	1500	1	019A	019B	019C	019D	019CX5	019X5	019E
	0 - 20	2000	2000	1	117A	117B	117C	117D	117CX5	117X5	117E
	0 - 25	2500	2500	1	118A	118B	118C	118D	118CX5	118X5	118E
0-300	0 - 1	200	200	1	104A	104B	104C	104D	104CX5	104X5	104E
	0 - 2.5	500	500	1	107A	107B	107C	107D	107CX5	107X5	107E
	0 - 5	1000	1000	1	002A	002B	002C	002D	002CX5	002X5	002E
	0 - 10	2000	2000	1	011A	011B	011C	011D	011CX5	011X5	011E
	0 - 15	3000	3000	1	020A	020B	020C	020D	020CX5	020X5	020E
	0 - 20	4000	4000	1	110A	110B	110C	110D	110CX5	110X5	110E
	0 - 25	5000	5000	1	119A	119B	119C	119D	119CX5	119X5	119E
0-600	0 - 1	500	500	1	105A	105B	105C	105D	105CX5	105X5	105E
	0 - 2.5	1000	1000	1	108A	108B	108C	108D	108CX5	108X5	108E
	0 - 5	2000	2000	1	003A	003B	003C	003D	003CX5	003X5	003E
	0 - 10	4000	4000	1	012A	012B	012C	012D	012CX5	012X5	012E
	0 - 15	6000	6000	1	021A	021B	021C	021D	021CX5	021X5	021E
	0 - 20	8000	8000	1	111A	111B	111C	111D	111CX5	111X5	111E

*** "A", "C" and "CX5" models are self-powered. Input voltage range is limited to:**

103-135V for 150V models
215-280V for 300V models
395-550V for 600V models

All others require 103-135Vac instrument power, 50-400Hz.

Add suffix **"-22"** for optional 230Vac instrument power.

For custom Wh count rates, order desired model with added suffix "/xxxx", where "xxxx" = F.S. counts/hr.

Example: 0-300V, 0-100A input, 0-10Vdc output (for Watts) and TTL output (for Wh) with 5000 counts/hr at F.S.:

order model: **W-059D-T/5000**

Add suffix **"Y27"** for use on zero-crossing SCR controllers. NOTE: This option is not available for self-powered models.

NOTE: Watt outputs for **"A"**, **"B"**, **"C"**, **"CX5"**, **"D"** and **"X5"** models operate bi-directionally. Positive (+) output at terminal 2a indicates forward/consumed power; negative (-) output indicates reverse/generated power. **"E"** models and all Wh relay outputs are unidirectional and operate in the forward/consumed direction only. For **"E"** models, reverse power conditions may cause the Watt output to drop below 4mA but not below 0mA.

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OSI AC WATT/WATTHOUR TRANSDUCER *MODEL* W-/W4-

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSOR

INPUTS		F.S. WATTS	F.S. CTS PER HR	WH PER COUNT	SENSOR SIZE	STANDARD OUTPUT MODEL W- OR W4-						
AC VOLTS	AC AMPS					0-±1mA*	0-±1mA	0-±10V*	0-±10V	0-±5V*	0-±5V	4-20mA
0-150	0 - 100	10k	10000	1	W	058A	058B	058C	058D	058CX5	058X5	058E
	0 - 200	20k	2000	10	W	067A	067B	067C	067D	067CX5	067X5	067E
	0 - 400	40k	4000	10	X	076A	076B	076C	076D	076CX5	076X5	076E
	0 - 600	60k	6000	10	X	085A	085B	085C	085D	085CX5	085X5	085E
	0 - 1000	100k	1000	100	Y	094A	094B	094C	094D	094CX5	094X5	094E
0-300	0 - 100	20k	2000	10	W	059A	059B	059C	059D	059CX5	059X5	059E
	0 - 200	40k	4000	10	W	068A	068B	068C	068D	068CX5	068X5	068E
	0 - 400	80k	8000	10	X	077A	077B	077C	077D	077CX5	077X5	077E
	0 - 600	120k	1200	100	X	086A	086B	086C	086D	086CX5	086X5	086E
	0 - 1000	200k	2000	100	Y	095A	095B	095C	095D	095CX5	095X5	095E
0-600	0 - 100	40k	4000	10	W	060A	060B	060C	060D	060CX5	060X5	060E
	0 - 200	80k	8000	10	W	069A	069B	069C	069D	069CX5	069X5	069E
	0 - 400	160k	1600	100	X	078A	078B	078C	078D	078CX5	078X5	078E
	0 - 600	240k	2400	100	X	087A	087B	087C	087D	087CX5	087X5	087E
	0 - 1000	400k	4000	100	Y	096A	096B	096C	096D	096CX5	096X5	096E

Note: Current Transformer is supplied as part of the model. Refer also to notes below table on page first page.

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS

INPUTS		F.S. WATTS	F.S. COUNTS PER HOUR	WH PER COUNT	STANDARD OUTPUT MODEL W- OR W4-						
AC VOLTS	AC AMPS				0-±1mA*	0-±1mA	0-±10V*	0-±10V	0-±5V*	0-±5V	4-20mA
0-150	0 - 1	200	200	1	120A	120B	120C	120D	120CX5	120X5	120E
	0 - 2.5	500	500	1	129A	129B	129C	129D	129CX5	129X5	129E
	0 - 5	1k	1000	1	004A	004B	004C	004D	004CX5	004X5	004E
	0 - 10	2k	2000	1	013A	013B	013C	013D	013CX5	013X5	013E
	0 - 15	3k	3000	1	022A	022B	022C	022D	022CX5	022X5	022E
	0 - 20	4k	4000	1	112A	112B	112C	112D	112CX5	112X5	112E
	0 - 25	5k	5000	1	123A	123B	123C	123D	123CX5	123X5	123E
0-300	0 - 1	400	400	1	121A	121B	121C	121D	121CX5	121X5	121E
	0 - 2.5	1k	1000	1	130A	130B	130C	130D	130CX5	130X5	130E
	0 - 5	2k	2000	1	005A	005B	005C	005D	005CX5	005X5	005E
	0 - 10	4k	4000	1	014A	014B	014C	014D	014CX5	014X5	014E
	0 - 15	6k	6000	1	023A	023B	023C	023D	023CX5	023X5	023E
	0 - 20	8k	8000	1	113A	113B	113C	113D	113CX5	113X5	113E
	0 - 25	10k	10000	1	124A	124B	124C	124D	124CX5	124X5	124E
0-600	0 - 1	800	800	1	122A	122B	122C	122D	122CX5	122X5	122E
	0 - 2.5	2k	2000	1	131A	131B	131C	131D	131CX5	131X5	131E
	0 - 5	4k	4000	1	006A	006B	006C	006D	006CX5	006X5	006E
	0 - 10	8k	8000	1	015A	015B	015C	015D	015CX5	015X5	015E
	0 - 15	12k	12000	1	024A	024B	024C	024D	024CX5	024X5	024E
	0 - 20	16k	1600	10	114A	114B	114C	114D	114CX5	114X5	114E

Note: Refer to notes below table on page first page.

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS

INPUTS		F.S. WATTS	F.S. CTS PER HOUR	WH PER COUNT	SENSOR SIZE	STANDARD OUTPUT MODEL W- OR W4-						
AC VOLTS	AC AMPS					0-±1mA*	0-±1mA	0-±10V*	0-±10V	0-±5V*	0-±5V	4-20mA
0-150	0 - 100	20k	2000	10	W	061A	061B	061C	061D	061CX5	061X5	061E
	0 - 200	40k	4000	10	W	070A	070B	070C	070D	070CX5	070X5	070E
	0 - 400	80k	8000	10	X	079A	079B	079C	079D	079CX5	079X5	079E
	0 - 600	120k	12000	10	X	088A	088B	088C	088D	088CX5	088X5	088E
	0 - 1000	200k	2000	100	Y	097A	097B	097C	097D	097CX5	097X5	097E
0-300	0 - 100	40k	4000	10	W	062A	062B	062C	062D	062CX5	062X5	062E
	0 - 200	80k	8000	10	W	071A	071B	071C	071D	071CX5	071X5	071E
	0 - 400	160k	1600	100	X	080A	080B	080C	080D	080CX5	080X5	080E
	0 - 600	240k	2400	100	X	089A	089B	089C	089D	089CX5	089X5	089E
	0 - 1000	400k	4000	100	Y	098A	098B	098C	098D	098CX5	098X5	098E
0-600	0 - 100	80k	8000	10	W	063A	063B	063C	063D	063CX5	063X5	063E
	0 - 200	160k	1600	100	W	072A	072B	072C	072D	072CX5	072X5	072E
	0 - 400	320k	3200	100	X	081A	081B	081C	081D	081CX5	081X5	081E
	0 - 600	480k	4800	100	X	090A	090B	090C	090D	090CX5	090X5	090E
	0 - 1000	800k	8000	100	Y	099A	099B	099C	099D	099CX5	099X5	099E

Note: Current Transformers are supplied as part of the model. Refer also to notes below table on first page.

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OSI AC WATT/WATTHOUR TRANSDUCER *MODEL* W-/W4-

THREE-PHASE, FOUR-WIRE (THREE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS

INPUTS		F.S. WATTS	F.S. COUNTS PER HOUR	WH PER COUNT	STANDARD OUTPUT MODEL W- OR W4-						
AC VOLTS	AC AMPS				0-±1mA*	0-±1mA	0-±10V*	0-±10V	0-±5V*	0-±5V	4-20mA
0-150 L-N	0 - 1	300	300	1	125A	125B	125C	125D	125CX5	125X5	125E
	0 - 2.5	750	750	1	132A	132B	132C	132D	132CX5	132X5	132E
	0 - 5	1.5k	1500	1	007A	007B	007C	007D	007CX5	007X5	007E
	0 - 5	1.5k	1500	1	7.5A	7.5B	7.5C	7.5D	7.5CX5	7.5X5	7.5E
	0 - 10	3k	3000	1	016A	016B	016C	016D	016CX5	016X5	016E
	0 - 15	4.5k	4500	1	025A	025B	025C	025D	025CX5	025X5	025E
	0 - 20	6k	6000	1	115A	115B	115C	115D	115CX5	115X5	115E
	0 - 25	7.5k	7500	1	127A	127B	127C	127D	127CX5	127X5	127E
0-300 L-N	0 - 1	600	600	1	126A	126B	126C	126D	126CX5	126X5	126E
	0 - 2.5	1.5k	1500	1	133A	133B	133C	133D	133CX5	133X5	133E
	0 - 5	3k	3000	1	008A	008B	008C	008D	008CX5	008X5	008E
	0 - 5	3k	3000	1	8.5A	8.5B	8.5C	8.5D	8.5CX5	8.5X5	8.5E
	0 - 10	6k	6000	1	017A	017B	017C	017D	017CX5	017X5	017E
	0 - 15	9k	9000	1	026A	026B	026C	026D	026CX5	026X5	026E
	0 - 20	12k	12000	1	116A	116B	116C	116D	116CX5	116X5	116E
	0 - 25	15k	1500	10	128A	128B	128C	128D	128CX5	128X5	128E

Note: Part Numbers 7.5 and 8.5 denote 2½-element units. Refer also to notes below table on first page.

THREE-PHASE, FOUR-WIRE (THREE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS

INPUTS		F.S. WATTS	F.S. CTS PER HOUR	WH PER COUNT	SENSOR SIZE	STANDARD OUTPUT MODEL W- OR W4-						
AC VOLTS	AC AMPS					0-±1mA*	0-±1mA	0-±10V*	0-±10V	0-±5V*	0-±5V	4-20mA
0-150 L-N	0 - 100	30k	3000	10	W	064A	064B	064C	064D	064CX5	064X5	064E
	0 - 200	60k	6000	10	W	073A	073B	073C	073D	073CX5	073X5	073E
	0 - 400	120k	1200	100	X	082A	082B	082C	082D	082CX5	082X5	082E
	0 - 600	180k	1800	100	X	091A	091B	091C	091D	091CX5	091X5	091E
	0 - 1000	300k	3000	100	Y	100A	100B	100C	100D	100CX5	100X5	100E
0-300 L-N	0 - 100	60k	6000	10	W	065A	065B	065C	065D	065CX5	065X5	065E
	0 - 200	120k	12000	10	W	074A	074B	074C	074D	074CX5	074X5	074E
	0 - 400	240k	2400	100	X	083A	083B	083C	083D	083CX5	083X5	083E
	0 - 600	360k	3600	100	X	092A	092B	092C	092D	092CX5	092X5	092E
	0 - 1000	600k	6000	100	Y	101A	101B	101C	101D	101CX5	101X5	101E

Note: Current Transformers are supplied as part of the model. Refer also to notes under table on first page.

SPECIFICATIONS

INPUT

Voltage ..... See Tables
Current ..... See Tables
Frequency Range ..... W- models 48-70Hz
W4- models 400Hz
Power Factor ..... Any
Response (Transient, to 90% F.S.)
With Internal Sensors ..... <100µs
With Current Transformers 1ms
Burden
Voltage and Current 1.25VA/phase
Output Amplifier 2W
Current Overload (Continuous) ... 1-10A models ..... 2 X F.S.
15A, 20A, 25A models ..... F.S.
Transient (all models) ..... 6 X F.S. (10 seconds)

DIELECTRIC TEST

Input/Output/Case ..... 1500Vac (RMS)
Surge ..... Withstands IEEE SWC test

INSTRUMENT POWER

"**A**", "**C**", "**CX5**" models ..... not required
"**B**", "**D**", "**X5**" & **"E"** models 103-135Vac, 50-400Hz, 5VA
"**-22**" Option ..... 230Vac ±10%, 50/60Hz, ±10%

OUTPUT

Wh Relay (Wh output is forward/consumed direction only)
Standard....N/O SPST relay contact; 150Vac, 0.5A Rated
Contact Closure Period 200ms
"**-T**" Option ..... TTL output for Watthours, 5Vdc pulse
Watt Output, Loading
"A" & **"B"** models ..... (0-±1mAdc) 0-10kΩ
"C" & **"D"** models ..... (0-±10Vdc) ..... 2kΩ min.
"CX5" & **"X5"** models ..... (0-±5Vdc) ..... 2kΩ min.
"E" models ..... (4-20mAdc) 0-500Ω
(±1mA, ±5V and ±10V unit Watt outputs are bidirectional)
Response Time (to 90% F.S.) ... standard 250ms
Suffix **"Y27"** (for use on zero-crossing SCR controllers) 5s
NOTE: This option is not available for self-powered models.
Field Adjustable Calibration ..... ±10%

ACCURACY ..... ±0.5% F.S.

Includes combined effects of power factor, repeatability, linearity, and current sensor.
Analog Output Ripple ..... <1% F.S.

TEMPERATURE

Operating Range ..... -10ºC to +60ºC
Effect ..... ±1.0% of Rdg., ±0.1% F.S. Output

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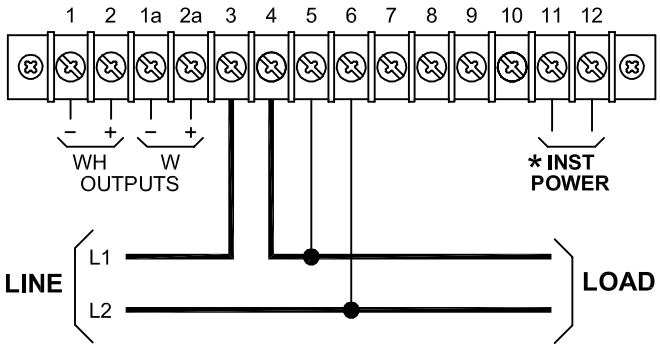
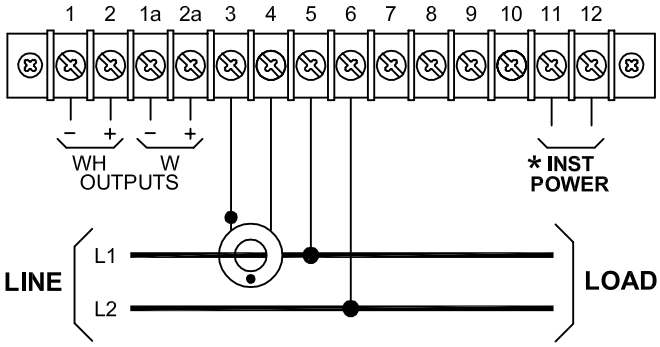
CONNECTION DIAGRAMS — MODEL W-/W4-

SINGLE-PHASE CONNECTIONS

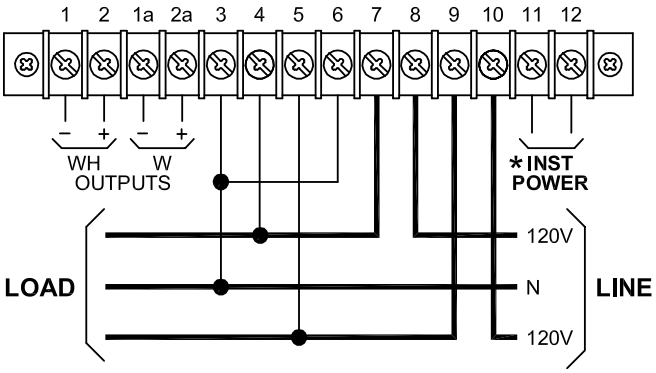


USING INTERNAL SENSOR

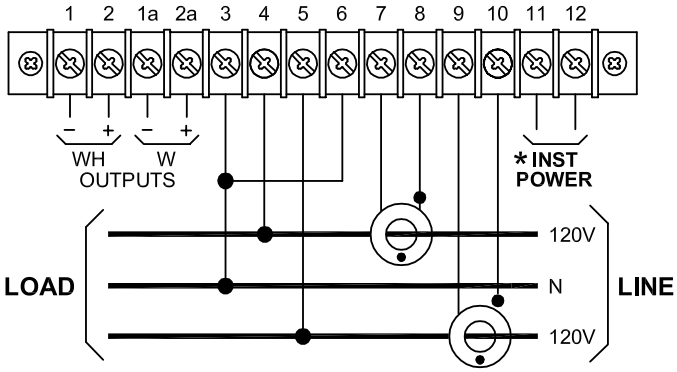


USING EXTERNAL SENSORS

SINGLE-PHASE, THREE-WIRE CONNECTIONS

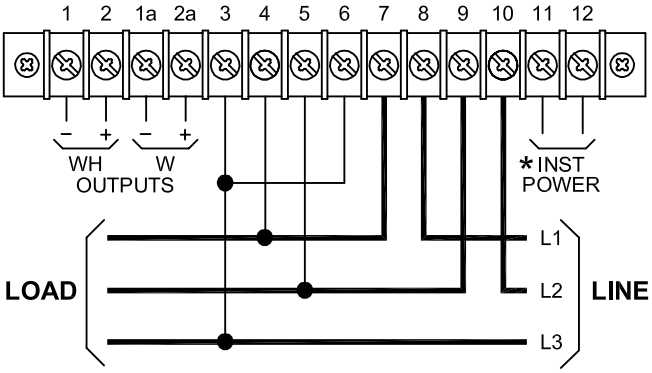


EDISON SYSTEM
USING INTERNAL SENSOR

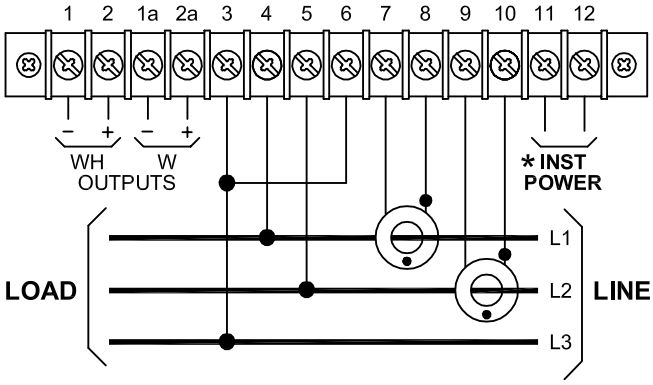


EDISON SYSTEM
USING EXTERNAL SENSORS

THREE-PHASE, THREE-WIRE CONNECTIONS



USING INTERNAL SENSOR



USING EXTERNAL SENSORS

* 115Vac on models with B, D, E or X5 suffix.
* 230Vac on models with -22 suffix.
* Not required on models with A, C or CX5 suffix.

Dwg# 0902-00872-B Rev --

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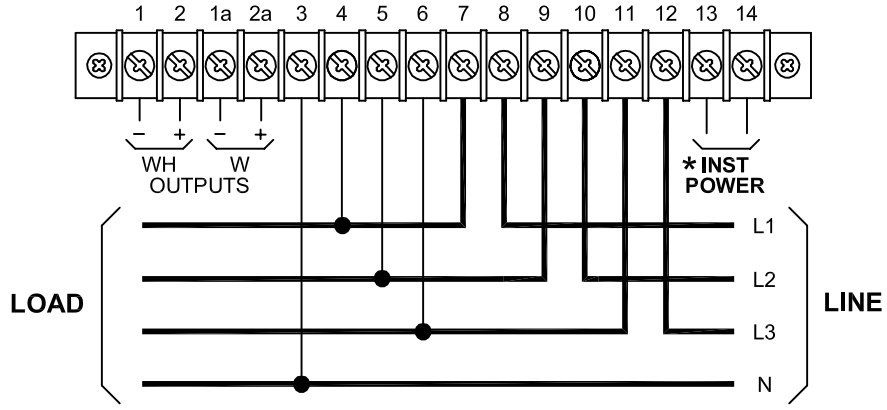
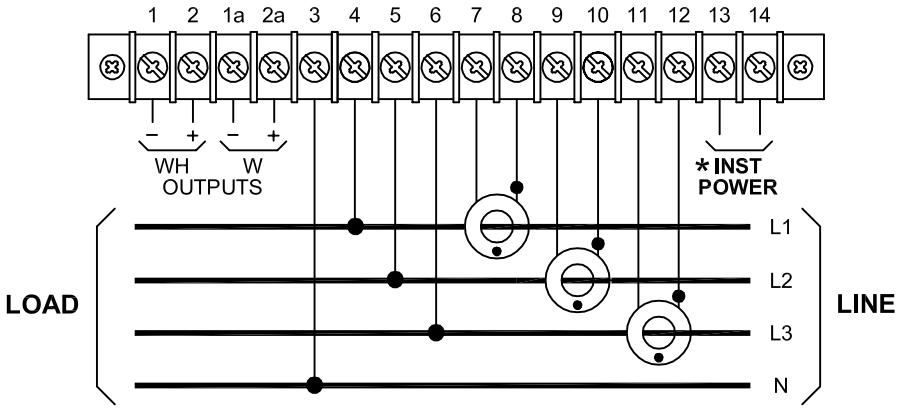
CONNECTIONS & DIMENSIONS — MODEL W-/W4-

THREE-PHASE, FOUR-WIRE CONNECTIONS



USING INTERNAL SENSORS

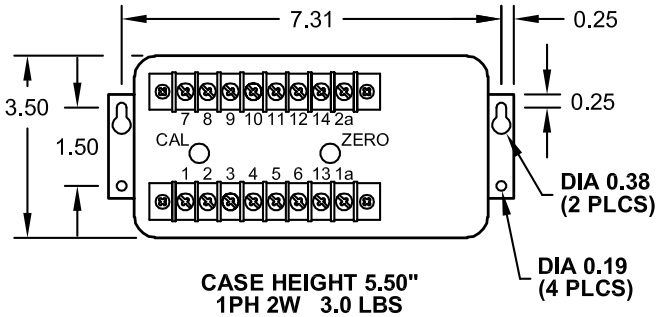


USING EXTERNAL SENSORS

* 115Vac on models with B, D, E or X5 suffix.
* 230Vac on models with -22 suffix.
* Not required on models with A, C or CX5 suffix.

Dwg# 0902-00872-B Rev --

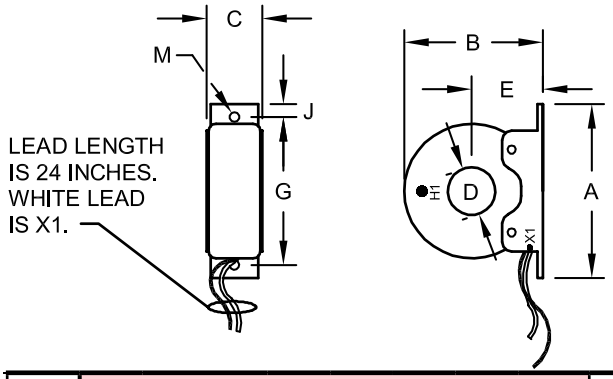
CASE DIMENSIONS



CASE HEIGHT 5.50"
1PH 2W 3.0 LBS
3PH 3W 3.7 LBS
3PH 4W 4.5 LBS

ALL DIMENSIONS IN INCHES.

SENSOR DIMENSIONS



SENS. SIZE	SENSOR DIMENSIONS (inches)								WT. (lbs.)
	A	B	C	D	E	G	J	M	
W	4.50	3.70	1.25	1.25	1.94	3.88	0.34	0.27 X 0.44	1.43
X	6.50	4.70	1.25	2.50	2.46	5.75	0.39	0.28	1.61
Y	6.50	4.70	1.25	3.00	2.46	5.75	0.39	0.28	1.10

Lead Length: 24 inches White Lead is X1

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PRECISION AC WATT TRANSDUCER MODEL AGW-

ACCURATE TO 0.2% OF READING

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1-, 2-, 2½-, or 3-element configurations.
- Provides bidirectional operation.
- Accuracy maintained over wide temperature range, calibration traceable to **NIST**.

5 YEAR WARRANTY

c UL us LISTED

Energy Management Equipment Accessory 87X9

APPLICATIONS

- Equipment monitoring for process control.
- Integration into energy management systems, or a variety of sub-metering applications.
- Measurement using direct-connection, current and/or potential transformers.

INPUTS		F.S. WATTS	PHASE	NO. OF ELEMENTS	STANDARD OUTPUTS MODEL AGW-		
AC VOLTS	AC AMPS				0-±1mAdc	0-±10Vdc	4-20mAdc
0 - 150	0 - 5	500	1Ph - 2W	1	001B	001D	001E
0 - 300	0 - 5	1000	1Ph - 2W	1	002B	002D	002E
0 - 600	0 - 5	2000	1Ph - 2W	1	003B	003D	003E
0 - 150	0 - 5	1000	3Ph - 3W	2	004B	004D	004E
0 - 300	0 - 5	2000	3Ph - 3W	2	005B	005D	005E
0 - 600	0 - 5	4000	3Ph - 3W	2	006B	006D	006E
0 - 150 L-N	0 - 5	1500	3Ph - 4W	3	007B	007D	007E
0 - 300 L-N	0 - 5	3000	3Ph - 4W	3	008B	008D	008E
0 - 150 L-N	0 - 5	1500	3Ph - 4W	$2^1/_2$	007.5B	007.5D	007.5E
0 - 300 L-N	0 - 5	3000	3Ph - 4W	$2^1/_2$	008.5B	008.5D	008.5E

To calculate full-scale Watts when using potential and/or current transformers:

a = initial transducer calibration (from table above in F.S. WATTS column)
b = current transformer ratio (e.g. 100:5, or 20)
c = potential transformer ratio (e.g. 600:120, or 5)
F.S. WATTS = a x b x c

NOTE: UL-recognized current transformers available from factory.

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current 0-5Aac
Frequency Range 58-62Hz
Power Factor ..... Any
Burden
  Voltage ..... <0.1VA
  Current ..... <0.25VA
Overload Voltage (continuous)
  150Vac Range 175Vac
  300Vac Range 350Vac
  600Vac Range 600Vac
Overload Current (continuous) ..... 2XF.S.
  50Aac transient ..... (10s/hr)
  250Aac transient ..... (1s/hr)

DIELECTRIC TEST

Input/Output/Case (150V & 300V) 1800Vac
  (600V) 2200Vac
Surge ..... Withstands IEEE SWC test

OUTPUT

Loading
  "B" models ..... (0-±1mAdc output) 0-10kΩ
  "D" models ..... (0-±10Vdc output) ..... 2kΩ min.
  "E" models ..... (4-20mAdc output) 0-500Ω
Response Time (to 99%) ..... <400ms
Field Adjustable Cal. ..... ±2% min.

ACCURACY

(Includes combined effects of voltage, current, load & power factor.)
All models ..... ±0.2% Rdg./PF, ±0.04% F.S.
Output Ripple ..... Less than 0.5% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect (-20ºC to 60ºC) ..... ±0.005%/ºC
Operating Humidity ..... 0-95% non-condensing
Net Weight ..... 3.3 lbs.

INSTRUMENT POWER

Standard 85-135Vac, 60Hz, 7VA

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PRECISION AC WATT OR VAR TRANSDUCER *MODELS* GW5- & GV5-

ACCURATE TO 0.2% OF READING

DESCRIPTION

The model GW5 Watt transducer provides power measurements to within ±0.2% of reading accuracy in single- or polyphase systems. The Model GV5 VAR transducer provides reactive power measurements to within ±0.2% of reading accuracy in single- or polyphase systems. The electrically-isolated dc output is proportional to the instantaneous power averaged over several cycles.

Currents up to 20A and voltages up to 600Vac can be directly connected to the GW5 and GV5, thus eliminating the additional cost and additive errors of current and voltage transformers for these ranges. The GW5 and GV5 can be used with OSI metering class current transformers for measurements up to 10 kiloamperes.

Specific outputs can be selected to interface with any data acquisition system from a simple recorder to a computer-, SCADA-, or PLC-based system.

The GW5 is widely used in a variety of applications, including hydroelectric generator output measurement, end-of-line appliance testing for energy consumption, building automation, energy management, and cogeneration systems.

5 YEAR WARRANTY

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available in 1-, 1½-, 2-, 2½-, or 3-element configurations.
- Provides Leading/Lagging VAR indication.
- Accuracy maintained over wide temperature range, calibration traceable to **NIST**.
- For UL Listed precision Watt transducers, see AGW Series

APPLICATIONS

- Equipment monitoring for process control.
- Integration into energy management systems, or a variety of sub-metering applications.
- Measurement using direct-connection, current transformers and/or potential transformers.

SINGLE-PHASE, TWO-WIRE MODELS, INTERNAL SENSOR (ONE-ELEMENT)

AC INPUTS		F.S. WATTS or VARS	STANDARD OUTPUTS MODEL GW5- OR GV5-									
VOLTS	AMPS		0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mAdc	4-20mA*	4-12-20mA	4-12-20mA*	0-±5Vdc*	0-±5Vdc
0-150	0 - 1	100	103A	103B	103C	103D	103E	103EG	103EM	103EMG	103CX5	103X5
	0 - 2.5	250	106A	106B	106C	106D	106E	106EG	106EM	106EMG	106CX5	106X5
	0 - 5	500	001A	001B	001C	001D	001E	001EG	001EM	001EMG	001CX5	001X5
	0 - 10	1k	010A	010B	010C	010D	010E	010EG	010EM	010EMG	010CX5	010X5
	0 - 20	2k	019A	019B	019C	019D	019E	019EG	019EM	019EMG	019CX5	019X5
0-300	0 - 1	200	104A	104B	104C	104D	104E	104EG	104EM	104EMG	104CX5	104X5
	0 - 2.5	500	107A	107B	107C	107D	107E	107EG	107EM	107EMG	107CX5	107X5
	0 - 5	1k	002A	002B	002C	002D	002E	002EG	002EM	002EMG	002CX5	002X5
	0 - 10	2k	011A	011B	011C	011D	011E	011EG	011EM	011EMG	011CX5	011X5
	0 - 20	4k	020A	020B	020C	020D	020E	020EG	020EM	020EMG	020CX5	020X5
0-600	0 - 1	500	105A	105B	105C	105D	105E	105EG	105EM	105EMG	105CX5	105X5
	0 - 2.5	1k	108A	108B	108C	108D	108E	108EG	108EM	108EMG	108CX5	108X5
	0 - 5	2k	003A	003B	003C	003D	003E	003EG	003EM	003EMG	003CX5	003X5
	0 - 10	4k	012A	012B	012C	012D	012E	012EG	012EM	012EMG	012CX5	012X5
	0 - 20	8k	021A	021B	021C	021D	021E	021EG	021EM	021EMG	021CX5	021X5

THREE-PHASE, THREE-WIRE MODELS, INTERNAL SENSOR (TWO-ELEMENT)

AC INPUTS		F.S. WATTS or VARS	STANDARD OUTPUTS MODEL GW5- OR GV5-									
VOLTS	AMPS		0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mAdc	4-20mA*	4-12-20mA	4-12-20mA*	0-±5Vdc*	0-±5Vdc
0-150	0 - 1	200	120A	120B	120C	120D	120E	120EG	120EM	120EMG	120CX5	120X5
	0 - 2.5	500	129A	129B	129C	129D	129E	129EG	129EM	129EMG	129CX5	129X5
	0 - 5	1k	004A	004B	004C	004D	004E	004EG	004EM	004EMG	004CX5	004X5
	0 - 5	1k	4.5A	4.5B	4.5C	4.5D	4.5E	4.5EG	4.5EM	4.5EMG	4.5CX5	4.5X5
	0 - 10	2k	013A	013B	013C	013D	013E	013EG	013EM	013 EMG	013CX5	013X5
	0 - 20	4k	022A	022B	022C	022D	022E	022EG	022EM	022EMG	022CX5	022X5
0-300	0 - 1	400	121A	121B	121C	121D	121E	121EG	121EM	121EMG	121CX5	121X5
	0 - 2.5	1k	130A	130B	130C	130D	130E	130EG	130EM	130EMG	130CX5	130X5
	0 - 5	2k	005A	005B	005C	005D	005E	005EG	005EM	005EMG	005CX5	005X5
	0 - 10	4k	014A	014B	014C	014D	014E	014EG	014EM	014EMG	014CX5	014X5
	0 - 20	8k	023A	023B	023C	023D	023E	023EG	023EM	023EMG	023CX5	023X5
0-600	0 - 1	800	122A	122B	122C	122D	122E	122EG	122EM	122EMG	122CX5	122X5
	0 - 2.5	2k	131A	131B	131C	131D	131E	131EG	131EM	131EMG	131CX5	131X5
	0 - 5	4k	006A	006B	006C	006D	006E	006EG	006EM	006EMG	006CX5	006X5
	0 - 10	8k	015A	015B	015C	015D	015E	015EG	015EM	015EMG	015CX5	015X5
	0 - 20	16k	024A	024B	024C	024D	024E	024EG	024EM	024EMG	024CX5	024X5

NOTE: PART NUMBER 4.5 DENOTES 1½-ELEMENT UNIT.

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OSI PRECISION AC WATT OR VAR TRANSDUCER *MODELS* GW5- & GV5-

ACCURATE TO 0.2% OF READING

THREE-PHASE, FOUR-WIRE MODELS, INTERNAL SENSOR (THREE-ELEMENT)

AC INPUTS		F.S. WATTS or VARS	STANDARD OUTPUTS MODEL GW5- OR GV5-									
VOLTS	AMPS		0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mAdc	4-20mA*	4-12-20mA	4-12-20mA*	0-±5Vdc*	0-±5Vdc
0-150 L-N**	0 - 1	300	125A	125B	125C	125D	125E	125EG	125EM	125EMG	125CX5	125X5
	0 - 2.5	750	132A	132B	132C	132D	132E	132EG	132EM	132EMG	132CX5	132X5
	0 - 5	1.5k	007A	007B	007C	007D	007E	007EG	007EM	007EMG	007CX5	007X5
	0 - 5	1.5k	7.5A	7.5B	7.5C	7.5D	7.5E	7.5EG	7.5EM	7.5EMG	7.5CX5	7.5X5
	0 - 10	3k	016A	016B	016C	016D	016E	016EG	016EM	016EMG	016CX5	016X5
	0 - 20	6k	025A	025B	025C	025D	025E	025EG	025EM	025EMG	025CX5	025X5
0-300 L-N**	0 - 1	600	126A	126B	126C	126D	126E	126EG	126EM	126EMG	126CX5	126X5
	0 - 2.5	1.5k	133A	133B	133C	133D	133E	133EG	133EM	133EMG	133CX5	133X5
	0 - 5	3k	008A	008B	008C	008D	008E	008EG	008EM	008EMG	008CX5	008X5
	0 - 5	3k	8.5A	8.5B	8.5C	8.5D	8.5E	8.5EG	8.5EM	8.5EMG	8.5CX5	8.5X5
	0 - 10	6k	017A	017B	017C	017D	017E	017EG	017EM	017EMG	017CX5	017X5
	0 - 20	12k	026A	026B	026C	026D	026E	026EG	026EM	026EMG	026CX5	026X5

NOTE: PART NUMBERS 7.5 & 8.5 DENOTE 2½-ELEMENT UNITS.

Voltage specifications are **line-to-neutral voltage.
***Denotes self-powered unit, limiting input voltage ranges to:
85-135 for 150Vac models
200-280 for 300Vac models
380-550 for 600Vac models
All others require 85-135Vac instrument power, 60Hz.

Optional 50ms output response to 90% - Add suffix **"W"**
Optional 230Vac instrument power - Add suffix **"-22"**
For UL Listed precision Watt transducers, see AGW Series.

50 HERTZ MODELS:
Add suffix "**-50**" to part number.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V, 5A Input with 0-±5Vdc Output, Proportional to 0-±1500Watts.
GW5-007CX5

ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V, 5A Input with 0-±1mAdc Output, Proportional to 0-±1500VAR.
GV5-007A

SPECIFICATIONS

INPUT

Voltage ..... See Tables
Current ..... See Tables
Frequency Range
GW5 ..... standard 58-62Hz
with "**-50**" option 48-52Hz
GV5 ..... standard 60Hz
with "**-50**" option 50Hz
Power Factor ..... Any
Burden
Voltage ..... ≤0.1VA/element
Current ..... ≤0.28VA/element
Overload
Voltage .. continuous ... 0-150Vac Range 175Vac
0-300Vac Range 350Vac
0-600Vac Range 600Vac
Current .. continuous ... 0-1, 2.5, 5, 10Aac Ranges .. 2 X F.S.
0-20Aac Range 20A
transient ..... 0-1, 2.5Aac Ranges... 20A...10s/hr
0-5,10, 20A Ranges... 50A...10s/hr
0-1, 2.5Aac Ranges... 100A...1s/hr
0-5,10, 20A Ranges... 250A...1s/hr

INSTRUMENT POWER

"**B**", "**D**", "**E**", "**EM**", "**X5**" models 85-135Vac, 60Hz, 7VA
"**-22**" option ..... 230Vac, 50/60Hz, ±15%
"**A**", "**C**", "**CX5**", "**EG**" or "**EMG**" models ..... Not required

OUTPUT

GV5 ..... + = Lagging/ - = Leading
Loading
"**A**" & "**B**" models ..... (0-1mA output) 0-10kΩ
"**C**" & "**D**" models ..... (0-10Vdc output) ..... 2kΩ min.
"**E**", "**EG**", "**EM**", "**EMG**" models (4-20mAdc output) 0-500Ω
"**CX5**" & "**X5**" models ... (0-5Vdc output) ..... 2kΩ min.
Response ..... standard (to 99%) ..... ≤400ms
with "**W**" option (to 90%) ... ≤50ms
Field Adjustable Cal. ..... ±2%

DIELECTRIC TEST

Input/Output/Case ..... 1800Vac (RMS)
Surge ..... Withstands IEEE SWC test

TEMPERATURE & PHYSICAL

Operating Range ..... -20ºC to 65ºC
Temperature Effect (-20ºC to 65ºC) ..... ±0.005%/ºC
Storage Range ..... -40ºC to 70ºC
Operating Humidity ..... 0-95% non-condensing

ACCURACY

Includes combined effects of voltage, current, load and power factor.
GW5 ..... ±0.2% Rdg./PF, ±0.04% F.S.
GV5 ..... ±0.2% Rdg./sinθ, ±0.04% F.S.
Output Ripple ..... <0.5% F.S.

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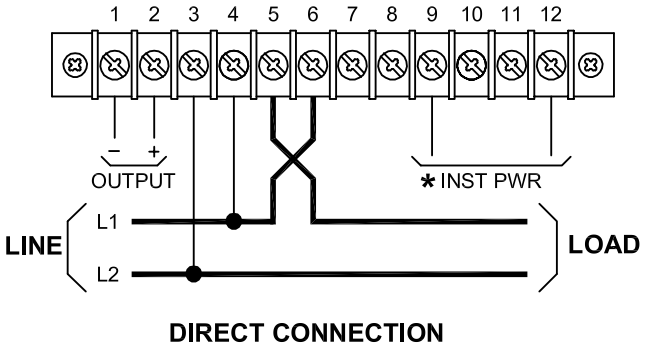
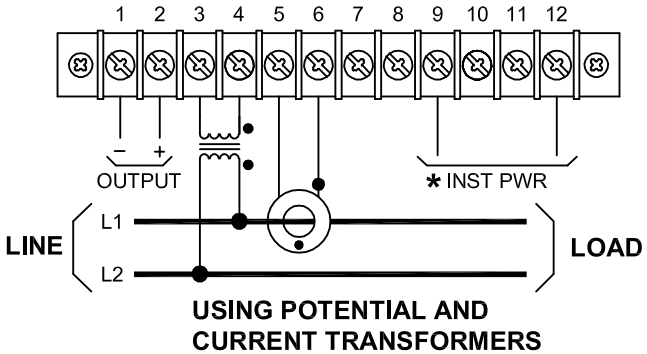
CONNECTION DIAGRAMS MODEL AGW, GW5 & GV5-

SINGLE-PHASE CONNECTIONS
(1 ELEMENT)

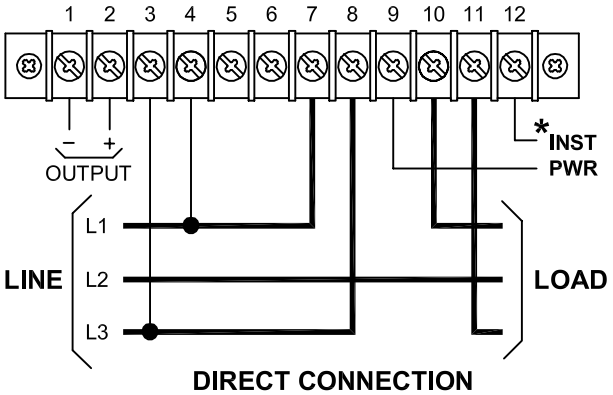


DIRECT CONNECTION

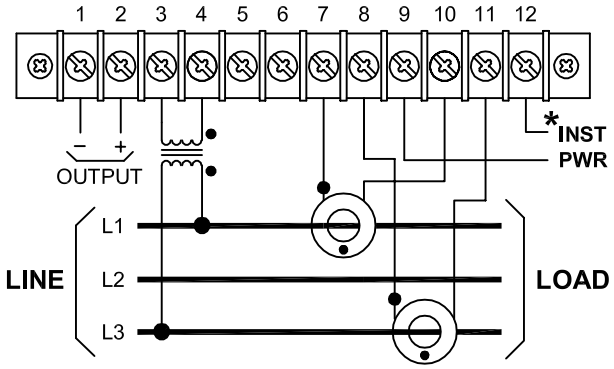


USING POTENTIAL AND CURRENT TRANSFORMERS

THREE-PHASE, THREE-WIRE CONNECTIONS
(1-1/2 ELEMENT)

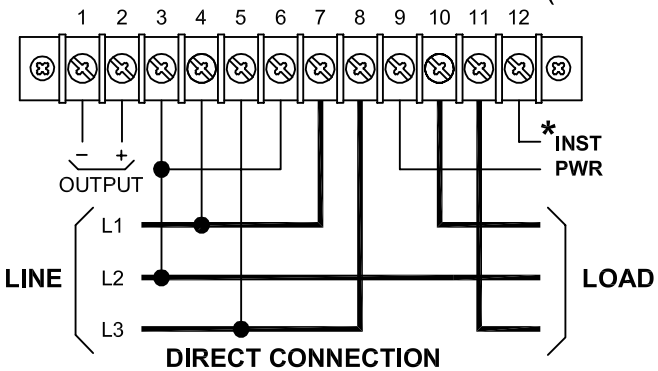


DIRECT CONNECTION

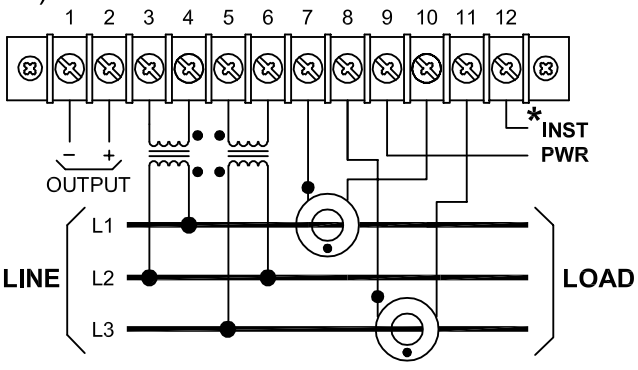


USING POTENTIAL AND CURRENT TRANSFORMERS

THREE-PHASE, THREE-WIRE CONNECTIONS
(2 ELEMENT)



DIRECT CONNECTION



USING POTENTIAL AND CURRENT TRANSFORMERS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
* 230Vac ON MODELS WITH -22 SUFFIX.
* NOT REQUIRED ON MODELS WITH A, C, CX5, EG OR EMG SUFFIX.

Dwg# 0902-00873-B Rev A

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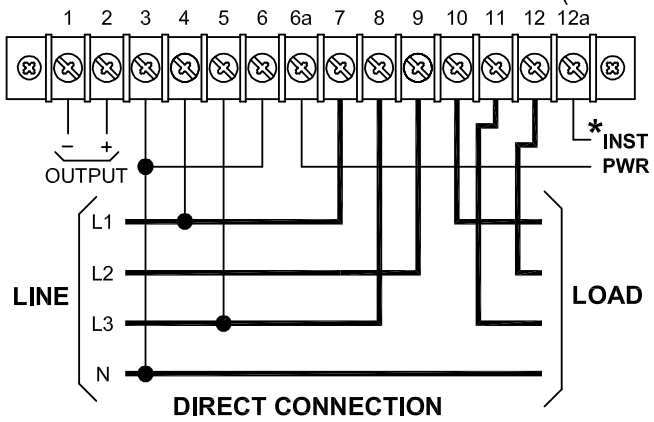
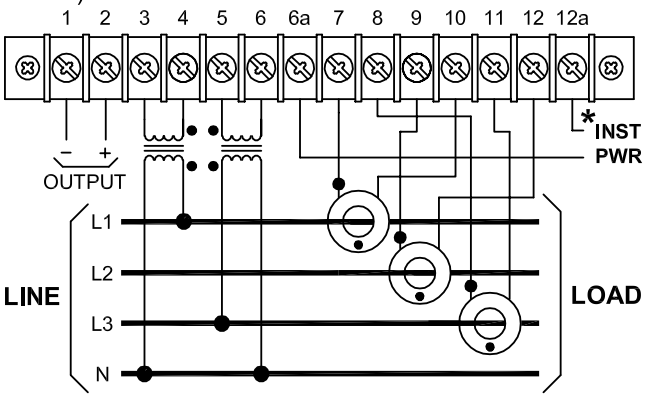
CONNECTIONS & DIMENSIONS *MODEL* AGW, GW5 & GV5-

THREE-PHASE, FOUR-WIRE CONNECTIONS
(2-1/2 ELEMENT)

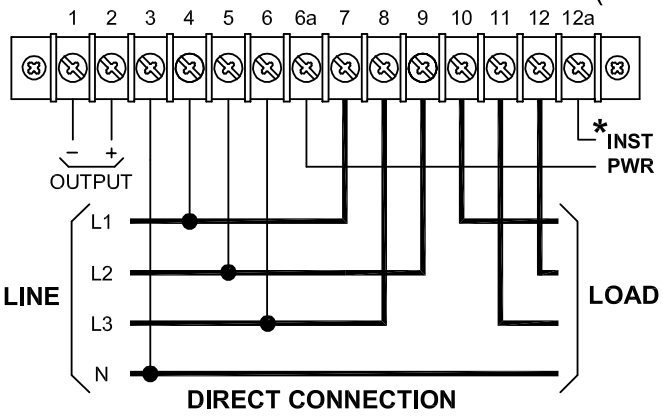


DIRECT CONNECTION

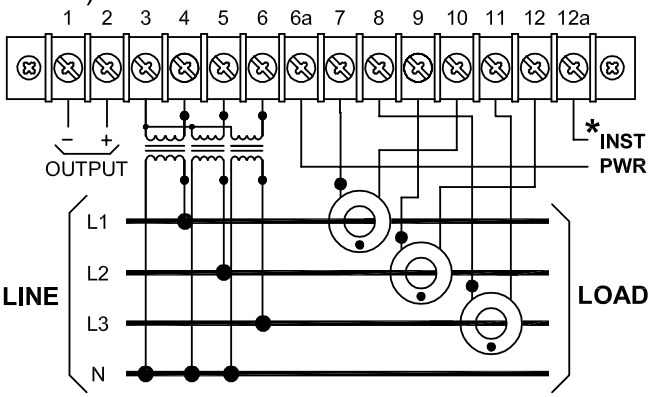


USING POTENTIAL AND CURRENT TRANSFORMERS

THREE-PHASE, FOUR-WIRE CONNECTIONS
(3 ELEMENT)



DIRECT CONNECTION

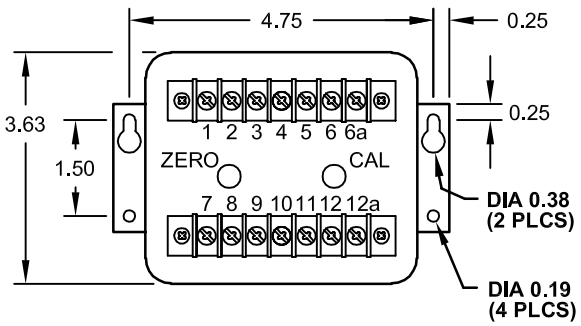


USING POTENTIAL AND CURRENT TRANSFORMERS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
* 230Vac ON MODELS WITH -22 SUFFIX.
* NOT REQUIRED ON MODELS WITH A, C, CX5, EG OR EMG SUFFIX.

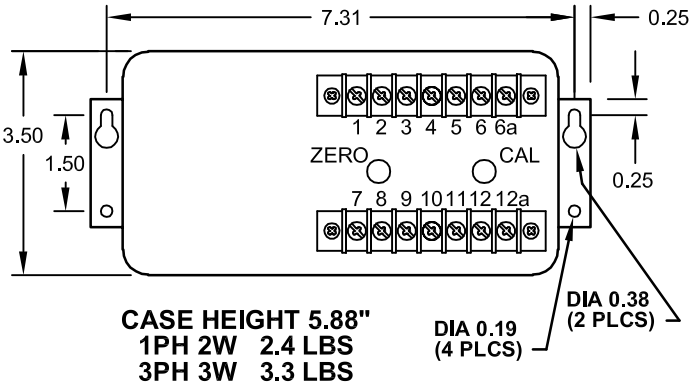
CASE DIMENSIONS

GW5/GV5 MODELS WITH 1mA, 5V, OR 10V OUTPUTS



CASE HEIGHT 5.38"
1PH 2W 2.3 LBS
3PH 3W 2.7 LBS
3PH 4W 3.1 LBS

GW5/GV5 MODELS WITH 4-20mA OUTPUTS AND ALL AGW MODELS



CASE HEIGHT 5.88"
1PH 2W 2.4 LBS
3PH 3W 3.3 LBS
3PH 4W 4.4 LBS

ALL DIMENSIONS IN INCHES.

Dwg# 0902-00873-B Rev A

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OSI PRECISION AC WATT/VAR TRANSDUCER *MODEL* GWV5-

COMBINATION WATT & VAR MEASUREMENTS

FEATURES

- Available in 1-, 2-, or 3-element configurations.
- Some models provide bidirectional outputs.
- 0.2% of reading accuracy
- Accuracy maintained over wide temperature range, calibration traceable to **NIST**.

APPLICATIONS

- Integration into energy management systems and sub-metering applications.
- Measurement using direct connection, current transformers, and/or potential transformers.
- Sinusoidal waveforms.

5 YEAR WARRANTY

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

INPUTS		F.S. WATT/ VAR	PHASE	NO. OF ELE.	STANDARD OUTPUTS MODEL GWV5-								
AC VOLTS	AC AMPS				0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mA	4-20mA*	4-12-20mA	0-±5Vdc*	0-±5Vdc
0-150	0-2.5	250	1P-2W	1	106A	106B	106C	106D	106E	106EG	106EM	106CX5	106X5
0-150	0-5	500	1P-2W	1	001A	001B	001C	001D	001E	001EG	001EM	001CX5	001X5
0-300	0-2.5	500	1P-2W	1	107A	107B	107C	107D	107E	107EG	107EM	107CX5	107X5
0-300	0-5	1000	1P-2W	1	002A	002B	002C	002D	002E	002EG	002EM	002CX5	002X5
0-600	0-2.5	1000	1P-2W	1	108A	108B	108C	108D	108E	108EG	108EM	108CX5	108X5
0-600	0-5	2000	1P-2W	1	003A	003B	003C	003D	003E	003EG	003EM	003CX5	003X5
0-150	0-2.5	500	3P-3W	2	129A	129B	129C	129D	129E	129EG	129EM	129CX5	129X5
0-150	0-5	1000	3P-3W	2	004A	004B	004C	004D	004E	004EG	004EM	004CX5	004X5
0-300	0-2.5	1000	3P-3W	2	130A	130B	130C	130D	130E	130EG	130EM	130CX5	130X5
0-300	0-5	2000	3P-3W	2	005A	005B	005C	005D	005E	005EG	005EM	005CX5	005X5
0-600	0-2.5	2000	3P-3W	2	131A	131B	131C	131D	131E	131EG	131EM	131CX5	131X5
0-600	0-5	4000	3P-3W	2	006A	006B	006C	006D	006E	006EG	006EM	006CX5	006X5
0-150 L-N	0-2.5	750	3P-4W	3	132A	132B	132C	132D	132E	132EG	132EM	132CX5	132X5
0-150 L-N	0-5	1500	3P-4W	3	007A	007B	007C	007D	007E	007EG	007EM	007CX5	007X5
0-300 L-N	0-2.5	1500	3P-4W	3	133A	133B	133C	133D	133E	133EG	133EM	133CX5	133X5
0-300 L-N	0-5	3000	3P-4W	3	008A	008B	008C	008D	008E	008EG	008EM	008CX5	008X5

* Denotes self-powered unit, voltage range limited to:
85-135V For 150V Models
200-280V For 300V Models
380-550V For 600V Models

All units other than self-powered require 85-135Vac inst. power.
Optional 230Vac Instrument Power - Add suffix **"-22"**

50 HERTZ MODELS - Add suffix **"-50"** to part number.

50ms output response to 90% - Add suffix **"W"**

CTs & additional current ranges available - Consult Factory

ORDERING INFORMATION

Example: Three-Phase, Three-Wire 120Vac,
5A Input with 0-±1mA Output
Equals 1000W & VARs.
GWV5-004B

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current 0-5Aac
Frequency ..... 60Hz standard; 50Hz optional
Power Factor ..... Any
Burden
  Voltage ..... <0.1VA/phase
  Current ..... <0.28VA/phase
Overload
  Voltage (continuous) 175V, 350V, 600V
  Current (continuous) 10A

DIELECTRIC TEST

Input/Output/Case 1800Vac
Surge ..... Withstands IEEE SWC test

INSTRUMENT POWER

Standard 85-135Vac, 60Hz, 7.5VA
"**-22**" option ..... 230Vac, 50/60Hz, ±15%
"A", "C", "CX5" and "EG" models ..... not required

OUTPUT

VARs ..... + = Lagging/ - = Leading
Output Watts, VARs ..... See Table
Loading
  "A" models ..... (0-±1mAdc output) ... 0-10kΩ
  "C", "D", "CX5", "X5" models (0-±10, 0-±5Vdc) ..... >2kΩ
  "E", "EG", "EM" models ..... (4-20mAdc output) ... 0-500Ω
Response Time to 99% ..... <400ms
  50ms Response to 90% ..... Add suffix **"W"**
Field Adjustable Cal. ..... ±2% min.

ACCURACY (Includes combined effects of voltage, current, load , PF)

Watts ..... ±0.2% Rdg./PF, ±0.05% F.S.
VARs ..... ±0.2% Rdg./sinθ, ±0.05% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect (-20ºC to 60ºC)
  Watts ..... ±0.005%/ºC
  VARs ..... ±0.009%/ºC
Operating Humidity ..... 0-95% non-condensing

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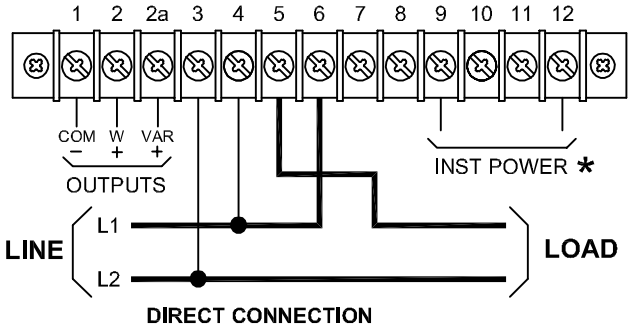
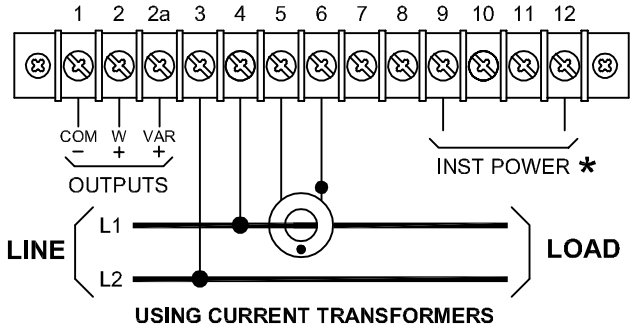
CONNECTIONS AND DIMENSIONS — MODEL GWV5-

CONNECTION DIAGRAMS

SINGLE-PHASE, TWO-WIRE CONNECTIONS

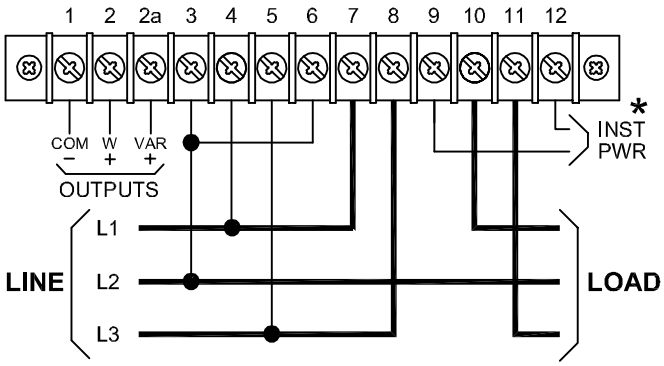


DIRECT CONNECTION

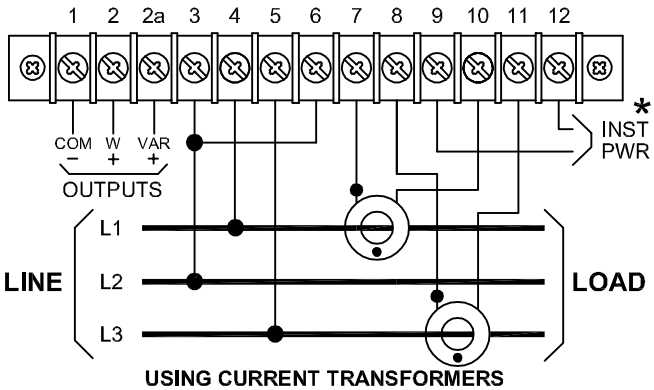


USING CURRENT TRANSFORMERS

THREE-PHASE, THREE-WIRE CONNECTIONS

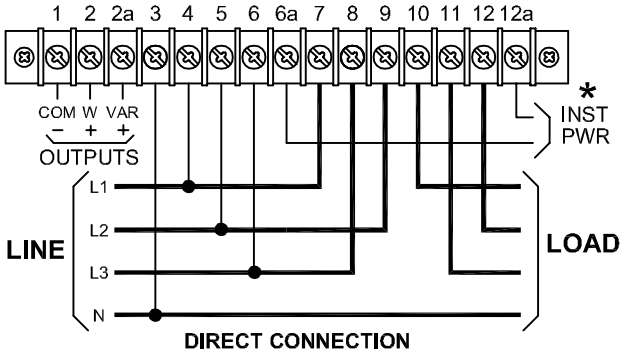


DIRECT CONNECTION

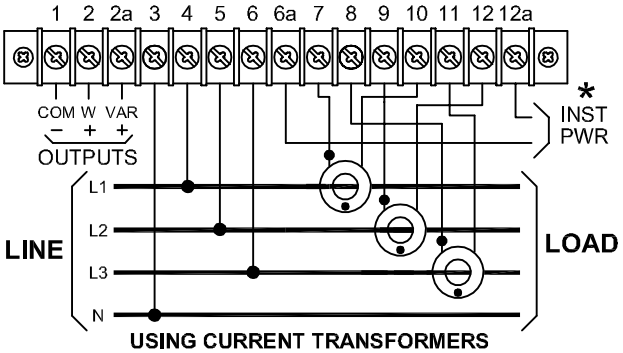


USING CURRENT TRANSFORMERS

THREE-PHASE, FOUR-WIRE CONNECTIONS



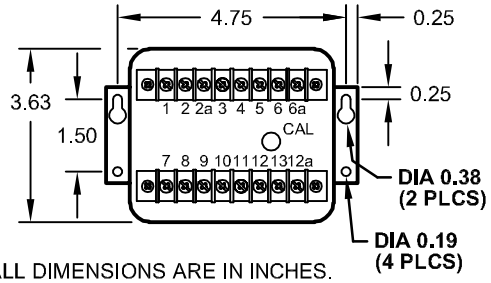
DIRECT CONNECTION



USING CURRENT TRANSFORMERS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX
* 230Vac ON MODELS WITH -22 SUFFIX
* NOT REQUIRED ON MODELS WITH A, C, CX5 OR EG SUFFIX.

CASE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES.

CASE HEIGHT 6.50"
1PH 2W 2.6 LBS
3PH 3W 3.0 LBS
3PH 4W 3.5 LBS

Dwg# 0902-00874-B Rev --

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AC WATT TRANSDUCER — MODEL DW5-

DIN-RAIL-MOUNTED AC WATT TRANSDUCER

DESCRIPTION

The Model DW5 provides power measurement to within ±0.5% of full-scale accuracy in single- or polyphase systems. The electrically-isolated dc output is proportional to the instantaneous power averaged over several cycles. The DW5 is packaged in a DIN-Rail case for easy installation.

Currents up to 5 Amperes and voltages up to 600Vac can be directly connected to the DW5. The DW5 can be used with OSI metering class current transformers for measurements up to 10 kiloamperes.

Specific outputs can be selected to interface with any data acquisition system from a simple recorder to computer-, SCADA-, or PLC-based system.

The DW5 is widely used in a variety of applications, including hydroelectric generator output measurement, end-of-line appliance testing for energy consumption, building automation, energy management, and cogeneration systems. It comes with CE and CSA approvals and is manufactured and tested in accordance with ISO-9001.

5 YEAR WARRANTY

C US

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1-, 2-, or 3-element configurations.
- Some models provide bidirectional operation.
- Accuracy maintained over wide temperature range.

APPLICATIONS

- Equipment monitoring for process control.
- Integration into energy management systems or a variety of sub-metering applications.
- Measurement using direct-connection, current transformers, and/or potential transformers.
- Best applied to sinusoidal waveforms.

MODEL SELECTION

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

INPUTS		F.S.	PHASE	NO. OF	STANDARD OUTPUTS MODEL DW5-			
AC VOLTS	AC AMPS	WATTS		ELEMENTS	0-±1mAdc	0-±10Vdc	4-20mAdc	0-±5Vdc
0 - 150	0 - 5	500	1P-2W	1	001B	001D	001E	001X5
0 - 300	0 - 5	1000	1P-2W	1	002B	002D	002E	002X5
0 - 150	0 - 5	1000	3P-3W	2	004B	004D	004E	004X5
0 - 300	0 - 5	2000	3P-3W	2	005B	005D	005E	005X5
0 - 600	0 - 5	4000	3P-3W	2	006B	006D	006E	006X5
0 - 150 L-N	0 - 5	1500	3P-4W	3	007B	007D	007E	007X5
0 - 300 L-N	0 - 5	3000	3P-4W	3	008B	008D	008E	008X5

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current ..... See Table
Frequency .... Nominal 60Hz
Option **"-50"** 50Hz
Power Factor ..... Any
Burden
Voltage 400kΩ/phase
Current 0.01Ω/phase
Overload
Voltage ..... 120% continuous
Current ..... 120% continuous

DIELECTRIC TEST

Input to Instrument Power/Output/Case 5550Vac
Input to Input 3250Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 4.5VA

OUTPUT

Loading
"B" models ..... (0-1mAdc output) 0-15kΩ
"X5" & "D" models... (0-5, 0-10Vdc) ..... 2.5kΩ min.
"E" models ..... (4-20mAdc) 0-750Ω
Response Time (to 99%) 300ms
Open Circuit Voltage ..... <40Vdc

ACCURACY ..... ±0.5% F.S.

Output Ripple ..... <1% pk-pk

TEMPERATURE

Temperature Range ..... -10ºC to 55ºC

PHYSICAL

Mean Annual Humidity ..... <75%
Net Weight ..... 0.9 lbs.
Termination ..... 10 AWG max.

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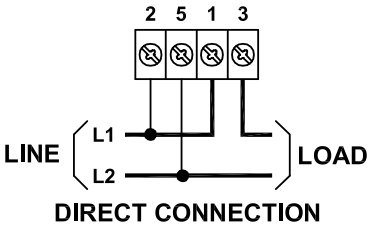
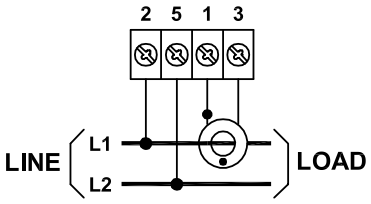
CONNECTIONS AND CASE DIMENSIONS MODEL DW5-

SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)

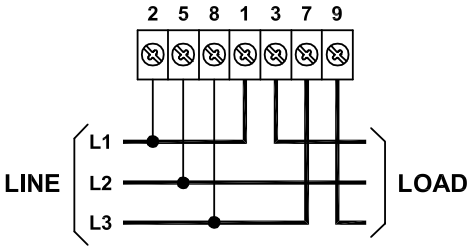


DIRECT CONNECTION

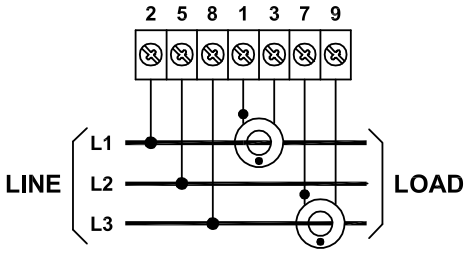


USING CURRENT TRANSFORMER

THREE-PHASE, THREE-WIRE CONNECTIONS (TWO-ELEMENT)

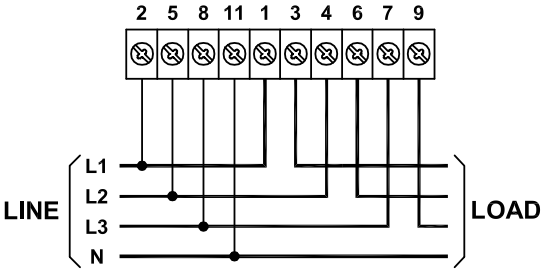


DIRECT CONNECTION

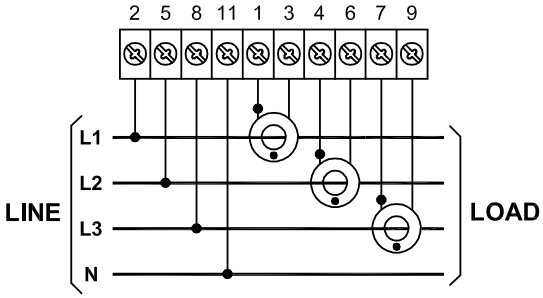


USING CURRENT TRANSFORMERS

THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE-ELEMENT)



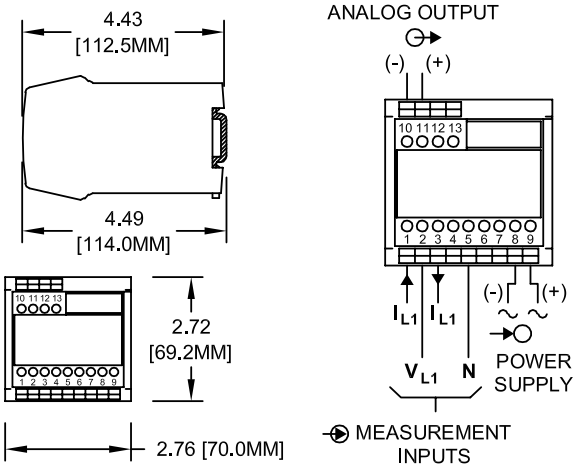
DIRECT CONNECTION



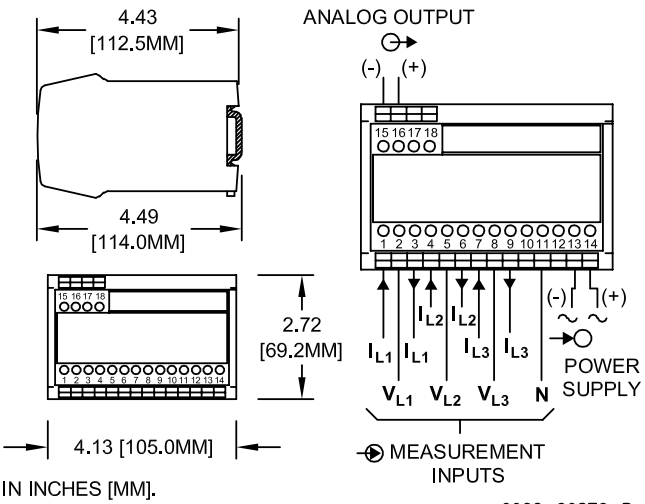
USING CURRENT TRANSFORMERS

CASE DIMENSIONS

SINGLE-PHASE MODELS



THREE-PHASE MODELS



1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

0902-00876-B
Dwg # 0902-00876-B Rev --

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AC WATT/VAR TRANSDUCER — MODEL DWV-

DIN-RAIL-MOUNTED AC WATT/VAR TRANSDUCER

FEATURES

- Available with 1-, 2-, or 3-element configurations.
- Some models provide bidirectional outputs.
- Compact DIN-Rail package, CE and CSA approvals.

APPLICATIONS

- Integration into energy management systems or a variety of sub-metering applications.
- Measurement using direct-connection, current transformers, and/or potential transformers.
- Sinusoidal Waveforms.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: Three-Phase, Three-Wire 120Vac, 5A Input with 0-1mAdc Output.

DWV-004B

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

INPUTS		F.S.	PHASE	NO. OF	STANDARD OUTPUTS MODEL DWV-			
AC VOLTS	AC AMPS	WATT/VAR		ELEMENTS	0-±1mAdc	0-±10Vdc	4-20mAdc	0-±5Vdc
0 - 150	0 - 5	500	1P-2W	1	001B	001D	001E	001X5
0 - 300	0 - 5	1000	1P-2W	1	002B	002D	002E	002X5
0 - 600	0 - 5	2000	1P-2W	1	003B	003D	003E	003X5
0 - 150	0 - 5	1000	3P-3W	2	004B	004D	004E	004X5
0 - 300	0 - 5	2000	3P-3W	2	005B	005D	005E	005X5
0 - 600	0 - 5	4000	3P-3W	2	006B	006D	006E	006X5
0 - 150 L-N	0 - 5	1500	3P-4W	3	007B	007D	007E	007X5
0 - 300 L-N	0 - 5	3000	3P-4W	3	008B	008D	008E	008X5

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current 0-5Aac
Frequency ..... Standard 60Hz
Option "**-50**" 50Hz
Power Factor ..... any
Burden
Voltage 400kΩ/phase
Current 0.01Ω/phase
Overload
Voltage (continuous) ..... 120% of F.S. Voltage
Current (continuous) ..... 120% of F.S. Current

DIELECTRIC TEST

Input/Instrument Power to Output/Case 3700Vac
Input to Input 2200Vac
Output to Case 490Vac

OUTPUT

Loading
"**B**" models ..... (0-1mAdc) 0-15kΩ
"**E**" models ..... (4-20mAdc) 0-750Ω
"**X5**", "**D**" models ..... (0-5, 0-10Vdc) ..... 2.5kΩ min.
Response Time ..... (to 99% F.S.) ..... <300ms

ACCURACY ..... ±0.5% F.S.

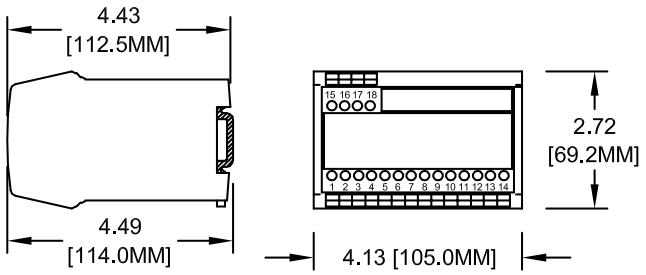
INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 7.0VA

TEMPERATURE & PHYSICAL

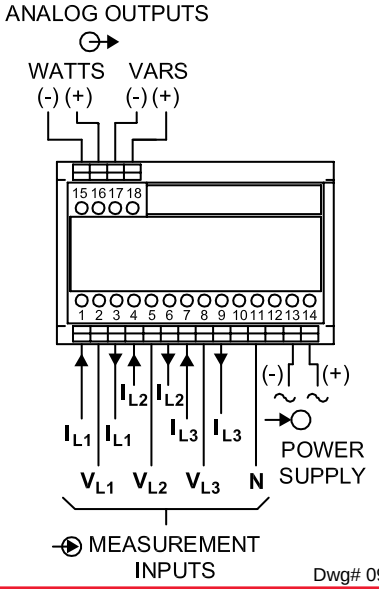
Temperature Range ..... -10ºC to 55ºC
Annual Mean Humidity ..... <75%
Net Weight ..... 1 lb
Termination ..... 10 AWG max.

DIMENSIONS



1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

CONNECTIONS



Dwg# 0902-00875-B Rev --

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D

PRECISION AC WATT/WATTHOUR TRANSDUCER *MODEL* AGH-

ACCURATE TO 0.2% OF READING

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Dual outputs, analog signal proportional to instantaneous watts. Relay closure proportional to Watthours.
- Calibrated with standards traceable to **NIST.**

5 YEAR WARRANTY

c UL us LISTED

APPLICATIONS

- Designed for applications which require UL-listed devices.
- Integration into energy management systems or a variety of sub-metering applications.
- Measurement using direct-connection, current transformers and/or potential transformers.

Energy Management Equipment Accessory 87X9

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

INPUTS		F.S. WATTS	PHASE	NO. OF ELEMENTS	STANDARD OUTPUTS MODEL AGH-			F.S. Wh COUNTS/ HOUR	Wh/ COUNT
AC VOLTS	AC AMPS				0-±1mAdc	0-±10Vdc	4-20mAdc		
0 - 150	0 - 5	500	1P - 2W	1	001B	001D	001E	500	1
0 - 300	0 - 5	1000	1P - 2W	1	002B	002D	002E	1000	1
0 - 600	0 - 5	2000	1P - 2W	1	003B	003D	003E	2000	1
0 - 150	0 - 5	1000	3P - 3W	2	004B	004D	004E	1000	1
0 - 300	0 - 5	2000	3P - 3W	2	005B	005D	005E	2000	1
0 - 600	0 - 5	4000	3P - 3W	2	006B	006D	006E	4000	1
0 - 150 L-N	0 - 5	1500	3P - 4W	3	007B	007D	007E	1500	1
0 - 300 L-N	0 - 5	3000	3P - 4W	3	008B	008D	008E	3000	1
0 - 150 L-N	0 - 5	1500	3P - 4W	$2^1/_2$	007.5B	007.5D	007.5E	1500	1
0 - 300 L-N	0 - 5	3000	3P - 4W	$2^1/_2$	008.5B	008.5D	008.5E	3000	1

To calculate full-scale Watts when using potential and/or current transformers:
a = initial transducer calibration (F.S. Watts from table above)
b = current transformer ratio (e.g. 100:5, or 20)
c = potential transformer ratio (e.g. 600:120, or 5)
F.S. Watts = a x b x c

NOTE: UL-recognized current transformers available from factory

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current 0-5Aac
Frequency Range 58-62Hz
Power Factor ..... Any
Burden
Voltage ..... <0.1VA
Current ..... <0.25VA
Overload
Voltage, continuous ....150Vac range 175Vac
300Vac range 350Vac
600Vac range 600Vac
Current, continuous ..... 2 X F.S.
transient 50Aac (10sec./hr)
250Aac (1sec./hr)

DIELECTRIC TEST (Input/Output/Case)

150Vac & 300Vac models 1800Vac
600Vac models 2200Vac
Surge ..... Withstands IEEE SWC test

INSTRUMENT POWER

Standard 90-135Vac, 60Hz, 7.5VA

OUTPUT

Wh Relay ..... N/O SPST; 120Vac, 0.5A Rated
contact closure duration 200ms
Closure Calibration (Std.) ..... 1 Watthour/closure
Analog Output Loading
"B" models... (0-1mAdc output) 0-10kΩ
"D" models... (0-10Vdc output) ..... 2kΩ min.
"E" models... (4-20mAdc output) ..... 0 to 500Ω
Response Time (to 99%) ..... <400ms

ACCURACY ..... ±0.2% Rdg. ±0.05% F.S.

Includes combined effects of voltage, current, load and power factor.
Analog Output Ripple ..... <0.5% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect (-20º to 60ºC) ..... ±0.005%/ºC
Net Weight ..... 3 lbs.

CONNECTION DIAGRAMS AND DIMENSIONS SHOWN ON PAGES 106-107

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OSI AC WATT/WATTHOUR & VAR/VARHOUR TRANSDUCERS *MODELS* GH- VGH-

ACCURATE TO 0.2% OF READING

DESCRIPTION

The GH Watt/Watthour Transducer provides an analog output proportional to time-averaged instantaneous true power and a relay closure or TTL pulse output calibrated in terms of Watthours of energy consumption by the load. Accuracy is ±0.2% of reading.

A Model VGH VAR/VARhour transducer provides an analog output proportional to time-averaged instantaneous reactive power and a relay closure or TTL pulse output calibrated in terms of VARhours for reactive energy. Accuracy is ±0.2% of reading.

In addition, they are used extensively for sub-metering, generation control and appliance testing to verify compliance with federal standards.

Models are available in 1-, 2-, 2½-, or 3-element configuration. Bidirectional Watt and Watthour or VAR and VARhour outputs are available.

5 YEAR WARRANTY

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1-, 2-, 2½- or 3-element configurations.
- Bidirectional Watt/Watthours available.
- Leading/Lagging VARs/VARhours available.
- Accuracy maintained over wide temperature range.
- Calibration traceable to **NIST**.

APPLICATIONS

- Equipment monitoring for process control.
- Integration into energy management systems or a variety of sub-metering applications.
- Measurement using direct connections, current and/or potential transformers.

50Hz models available: Add suffix **"-50"** to part number

SINGLE-PHASE, TWO-WIRE MODELS WITH INTERNAL SENSOR (ONE-ELEMENT)

INPUTS		F.S. WATTS or VARS	STANDARD GH- OR VGH-						RELAY OPTIONS (ADD SUFFIX) *			
AC VOLTS	AC AMPS		0-±1mAdc	0-±10Vdc	4-20mAdc	4-12-20mAdc	0-±5Vdc	Wh RELAY *	"-T"	"-R"	"-H"	"-K"
0 to 150	0 to 1	100	103B	103D	103E	103EM	103X5	1Wh/Cnt	Wh relay is replaced with a 5Vdc, TTL-compatible pulse.	A second Wh relay or pulse is provided to allow bidirectional (Forward/Reverse) energy measurement	Wh relay is replaced with a solid-state, Form C (SPDT) relay	Wh relay is replaced with a solid-state, Form C (SPDT) relay operating in "KYZ" format (50% duty cycle)
	0 to 2.5	250	106B	106D	106E	106EM	106X5	1Wh/Cnt				
	0 to 5	500	001B	001D	001E	001EM	001X5	1Wh/Cnt				
	0 to 10	1000	010B	010D	010E	010EM	010X5	1Wh/Cnt				
	0 to 20	2000	019B	019D	019E	019EM	019X5	1Wh/Cnt				
0 to 300	0 to 1	200	104B	104D	104E	104EM	104X5	1Wh/Cnt				
	0 to 2.5	500	107B	107D	107E	107EM	107X5	1Wh/Cnt				
	0 to 5	1000	002B	002D	002E	002EM	002X5	1Wh/Cnt				
	0 to 10	2000	011B	011D	011E	011EM	011X5	1Wh/Cnt				
	0 to 20	4000	020B	020D	020E	020EM	020X5	1Wh/Cnt				
0 to 600	0 to 1	400	105B	105D	105E	105EM	105X5	1Wh/Cnt				
	0 to 2.5	1000	108B	108D	108E	108EM	108X5	1Wh/Cnt				
	0 to 5	2000	003B	003D	003E	003EM	003X5	1Wh/Cnt				
	0 to 10	4000	012B	012D	012E	012EM	012X5	1Wh/Cnt				
	0 to 20	8000	021B	021D	021E	021EM	021X5	1Wh/Cnt				

All standard units require 115Vac instrument power.
Optional 230Vac instrument power - Add suffix **"-22"**
Optional self-powered models - Add suffix **"G"**

For self-powered models, input voltage ranges are limited to: 95-135V for 150V models
200-280V for 300V models
380-550V for 600V models

To calculate unit scaling when using Current and/or Potential Transformers (CTs or PTs), multiply the base unit scaling by the CT and/or PT ratio.
Example: GH-001D used with 100:5 CTs
CT ratio = 100/5 = 20, so F.S. Watt input = 500W x 20 = 10,000W
(0-10kW input = 0-10V output)
Wh Relay scaling = 1Wh/Cnt x 20 = 20Wh/Cnt

*To specify a custom Wh count (pulse) rate, add a "/" suffix to the base model number followed by the desired F.S. counts (pulses) per hour. Range of Available Count (Pulse) Rates:
Min Count (Pulse) Rate ..... All Models 50/hr
Max Count (Pulse) Rate ..... Relay Models ..... 12k Counts/hr
Pulse Models .....12M Pulses/hr

Count (Pulse) rates over 9k/hr will have the contact closure (pulse duration) adjusted for a 50% duty cycle at F.S. input. (maximum count rate).

Example: GH-002D-T/500K indicates a F.S. pulse rate of 500k pulses/hr. F.S. Watt input for this model is 1000W. The new Wh per pulse scaling is 0.002Wh/pulse (1000W/500k cts/hr) and pulse duration is 3.6ms ±10% (500k/3600)/2.

ORDERING INFORMATION

Example: Single-Phase, 120V, 5A Input with ±0-10Vdc Output proportional to ±0-500 Watts, TTL Pulse Output for Watthours, Each Pulse Proportional to 1.0 Watthour.
GH-001D-T

ORDERING INFORMATION

Example: Single-Phase, 120V, 5A Input with ±0-10Vdc Output proportional to ±0-500 VARs, Self-Powered, 1.0 VARhour per Relay Count.
VGH-001DG

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OSI AC WATT/WATTHOUR & VAR/VARHOUR TRANSDUCERS *MODELS* GH-VGH-

THREE-PHASE, THREE-WIRE MODELS WITH INTERNAL SENSOR (TWO-ELEMENT)

INPUTS		F.S. WATTS or VARS	STANDARD GH- OR VGH-						RELAY OPTIONS (ADD SUFFIX) *			
AC VOLTS	AC AMPS		0-±1mAdc	0-±10Vdc	4-20mAdc	4-12-20mAdc	0-±5Vdc	Wh RELAY *	"-T"	"-R"	"-H"	"-K"
0 to 150	0 to 1	200	120B	120D	120E	120EM	120X5	1Wh/Cnt	Wh relay is replaced with a 5Vdc, TTL-compatible pulse.	A second Wh relay or pulse is provided to allow bidirectional (Forward/ Reverse) energy measurement	Wh relay is replaced with a solid-state, Form C (SPDT) relay	Wh relay is replaced with a solid-state, Form C (SPDT) relay operating in "KYZ" format (50% duty cycle)
	0 to 2.5	500	129B	129D	129E	129EM	129X5	1Wh/Cnt				
	0 to 5	1000	004B	004D	004E	004EM	004X5	1Wh/Cnt				
	0 to 10	2000	013B	013D	013E	013EM	013X5	1Wh/Cnt				
	0 to 20	4000	022B	022D	022E	022EM	022X5	1Wh/Cnt				
0 to 300	0 to 1	400	121B	121D	121E	121EM	121X5	1Wh/Cnt				
	0 to 2.5	1000	130B	130D	130E	130EM	130X5	1Wh/Cnt				
	0 to 5	2000	005B	005D	005E	005EM	005X5	1Wh/Cnt				
	0 to 10	4000	014B	014D	014E	014EM	014X5	1Wh/Cnt				
	0 to 20	8000	023B	023D	023E	023EM	023X5	1Wh/Cnt				
0 to 600	0 to 1	800	122B	122D	122E	122EM	122X5	1Wh/Cnt				
	0 to 2.5	2000	131B	131D	131E	131EM	131X5	1Wh/Cnt				
	0 to 5	4000	006B	006D	006E	006EM	006X5	1Wh/Cnt				
	0 to 10	8000	015B	015D	015E	015EM	015X5	1Wh/Cnt				
	0 to 20	16000	024B	024D	024E	024EM	024X5	10Wh/Cnt				

THREE-PHASE, FOUR-WIRE MODELS WITH INTERNAL SENSOR (THREE-ELEMENT)

INPUTS		F.S. WATTS or VARS	STANDARD GH- OR VGH-						RELAY OPTIONS (ADD SUFFIX) *			
AC VOLTS	AC AMPS		0-±1mAdc	0-±10Vdc	4-20mAdc	4-12-20mAdc	0-±5Vdc	Wh RELAY *	"-T"	"-R"	"-H"	"-K"
0 to 150 L-N	0 to 1	300	125B	125D	125E	125EM	125X5	1Wh/Cnt	Wh relay is replaced with a 5Vdc, TTL-compatible pulse.	A second Wh relay or pulse is provided to allow bidirectional (Forward/ Reverse) energy measurement	Wh relay is replaced with a solid-state, Form C (SPDT) relay	Wh relay is replaced with a solid-state, Form C (SPDT) relay operating in "KYZ" format (50% duty cycle)
	0 to 2.5	750	132B	132D	132E	132EM	132X5	1Wh/Cnt				
	0 to 5	1500	007B	007D	007E	007EM	007X5	1Wh/Cnt				
	0 to 5	1500	7.5B	7.5D	7.5E	7.5EM	7.5X5	1Wh/Cnt				
	0 to 10	3000	016B	016D	016E	016EM	016X5	1Wh/Cnt				
	0 to 20	6000	025B	025D	025E	025EM	025X5	1Wh/Cnt				
0 to 300 L-N	0 to 1	600	126B	126D	126E	126EM	126X5	1Wh/Cnt				
	0 to 2.5	1500	133B	133D	133E	133EM	133X5	1Wh/Cnt				
	0 to 5	3000	008B	008D	008E	008EM	008X5	1Wh/Cnt				
	0 to 5	3000	8.5B	8.5D	8.5E	8.5EM	8.5X5	1Wh/Cnt				
	0 to 10	6000	017B	017D	017E	017EM	017X5	1Wh/Cnt				
	0 to 20	12000	026B	026D	026E	026EM	026X5	1Wh/Cnt				
PART NUMBERS 7.5 and 8.5 DENOTE 2½-ELEMENT UNITS.												

*Custom Watthour or VARhour count rates available - See previous page

SPECIFICATIONS

INPUT

Voltage ..... See Tables
Current ..... See Tables
Frequency Range ..... GH (standard) 58-62Hz
VGH (standard) 60Hz
Option "**-50**" ..... GH 48-52Hz
VGH 50Hz
Power Factor ..... Any
Burden
Voltage 0.1VA/phase
Current 0.28VA/phase
Overload
Voltage ...continuous .... 150V Range 175V
300V Range 350V
600V Range 600V
Current ...continuous .... 5A Range ..... 2 X F.S.
10A Range ..... 2 X F.S.
20A Range ..... F.S.
transient..... All Ranges, 50A 10s/hr
All Ranges, 250A 1s/hr

DIELECTRIC TEST

Input/Output/Case ..... 1800Vac (RMS)
Surge ..... Withstands IEEE SWC test

INSTRUMENT POWER

Standard ..... 115Vac ±15%, 50/60Hz, 7.5VA
Option "**-22**" ..... 230Vac ±15%, 50/60Hz, 7.5VA

OUTPUT

VGH ..... + = Lagging/ - = Leading
Wh Relay
Standard ..... Form A (SPST, N.O.) 120Vac, 0.5A
Contact closure duration 200ms
Option "**-T**" ..... Pulse ..... 5V, TTL-compatible pulse
Pulse duration 200ms
Option "**-H**" ..... Solid-state, Form C (SPDT) .. 120Vac, 0.1A
Contact closure duration 200ms
Option "**-K**" ..... Solid-state, Form C (KYZ) .. 120Vac, 0.1A
Contact closure duration ..... 50% duty cycle
For custom count rates, contact closure (or pulse) duration may be adjusted to maintain a duty cycle of approx. 50%.
Loading
"B" models ..... (0-1mAdc) 0-10kΩ
"D", "X5" models ..... (0-10Vdc, 0-5Vdc) ..... 2kΩ min.
"E", "EM" models ..... (4-20mAdc) 0-500Ω
Response Time ... (to 99%) ..... <400ms
Field Adjustable Cal. ..... ±2% min.

ACCURACY (Includes effects of voltage, current, load & PF)

GH ..... ±0.2% Rdg./PF, ±0.05% F.S.
VGH ..... ±0.2% Rdg./sinθ, ±0.05% F.S.
Analog Output Ripple ..... <0.5% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect (-20ºC to 60ºC) ..... +0.005%/ºC
Operating Humidity ..... 0-95% non-condensing

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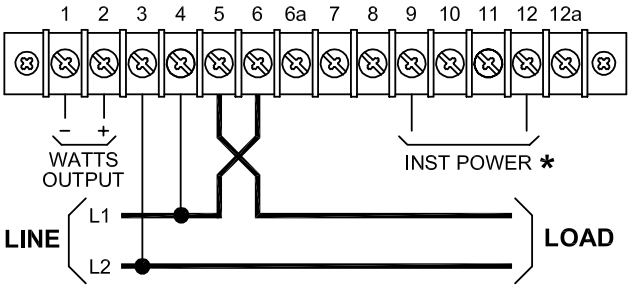
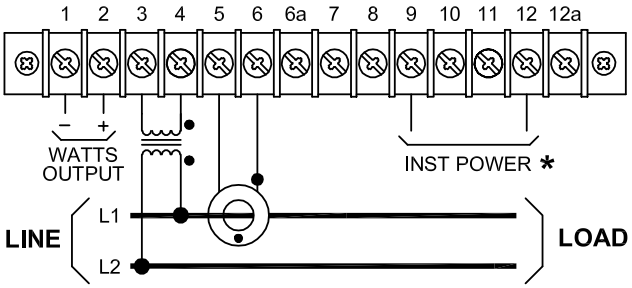
CONNECTION DIAGRAMS *MODEL* AGH, GH &VGH-

SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)

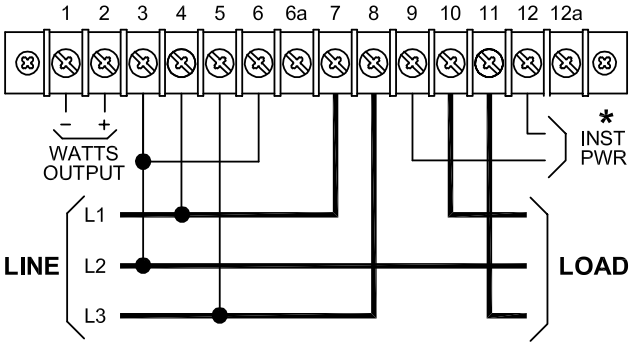


DIRECT CONNECTION

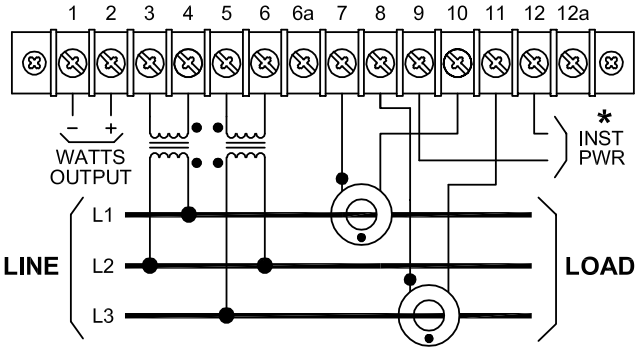


USING POTENTIAL AND CURRENT TRANSFORMERS

THREE-PHASE, THREE-WIRE CONNECTIONS (TWO-ELEMENT)

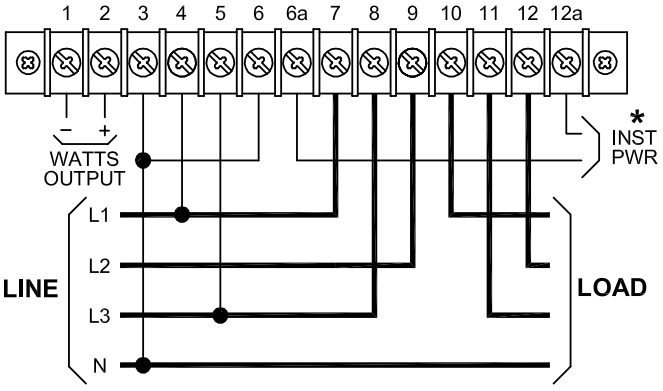


DIRECT CONNECTION

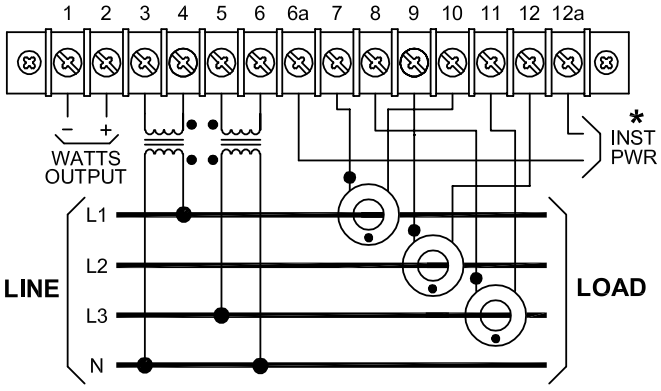


USING POTENTIAL AND CURRENT TRANSFORMERS

THREE-PHASE, FOUR-WIRE CONNECTIONS (2-1/2 ELEMENT)



DIRECT CONNECTION



USING POTENTIAL AND CURRENT TRANSFORMERS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
* 230Vac ON MODELS WITH -22 SUFFIX.
* NOT REQUIRED ON MODELS WITH G SUFFIX.

Dwg# 0902-00877-B Rev --

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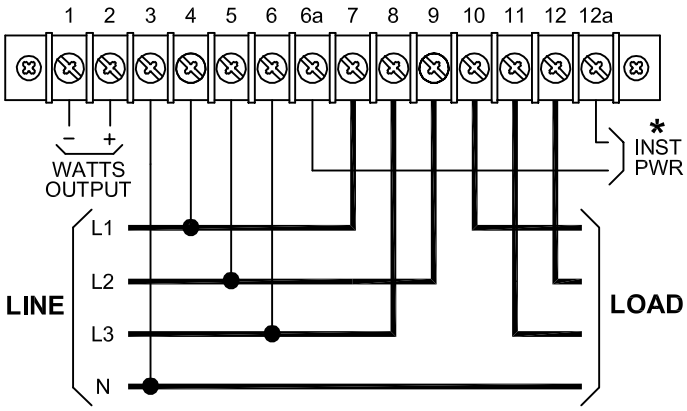
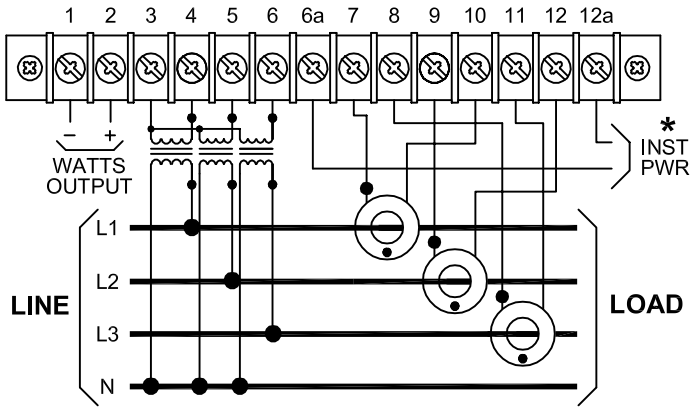
CONNECTIONS & DIMENSIONS MODEL AGH, GH & VGH-

THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE-ELEMENT)



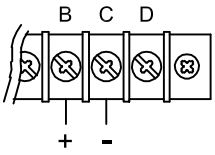
DIRECT CONNECTION



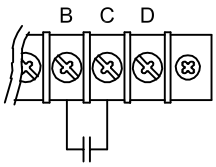
USING POTENTIAL AND CURRENT TRANSFORMERS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
* 230Vac ON MODELS WITH -22 SUFFIX.
* NOT REQUIRED ON MODELS WITH G SUFFIX.

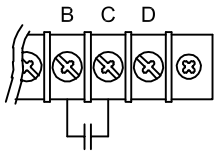
WATTHOUR OR VARHOUR OUTPUT CONNECTIONS

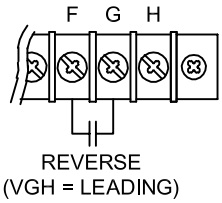


OPTION "-T"
TTL OUTPUT

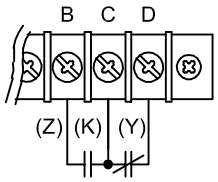


STANDARD OUTPUT
SPST RELAY
(VGH = LAGGING)

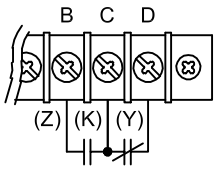


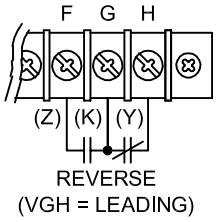


OPTION "R"
BIDIRECTIONAL
SPST RELAY



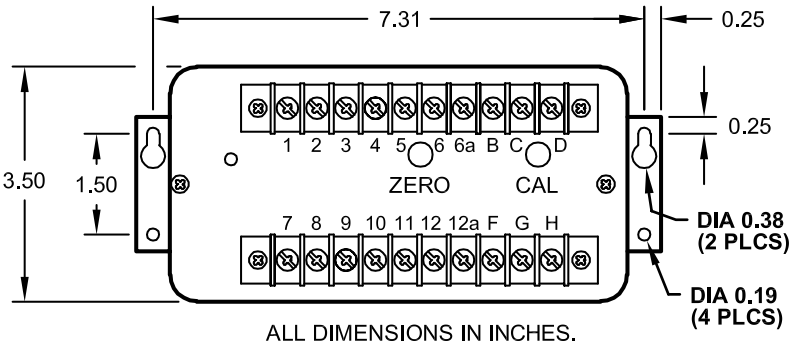
OPTION "H" OR "K"
SPDT RELAY
(VGH = LAGGING)





OPTION "RH" OR "RK"

CASE DIMENSIONS



ALL DIMENSIONS IN INCHES.

CASE HEIGHT 5.88"
1PH 2W 2.9 LBS
3PH 3W 3.3 LBS
3PH 4W 3.8 LBS

Dwg# 0902-00877-B Rev --

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OSI VARIABLE-FREQUENCY AC WATT TRANSDUCER *MODEL* P-

VARIABLE FREQUENCY (5-500 HERTZ)

FEATURES

- Accurate from 5 to 500Hz, factory-calibrated.
- Available in both single-phase and three-phase configurations. Bidirectional output.
- Available with split-core current sensors.

5 YEAR WARRANTY

APPLICATIONS

- Accurate monitoring of power that contains dc and non-sinusoidal ac components.
- Variable-frequency drives.
- Ideal for use in phase-angle-firing circuits or frequency synthesizers.

SINGLE-PHASE (ONE-ELEMENT)

INPUTS		F.S. (WATTS)	SENSOR SIZE	STANDARD OUTPUTS MODEL P-					
AC VOLTS	AC AMPS			0-±1mAdc	0-±10Vdc	4-20mAdc	4-12-20mAdc	0-20mAdc	0-±5Vdc
0-150	0-100	10k	C	121B	121D	121E	121EM	121EA	121X5
	0-200	20k	D	124B	124D	124E	124EM	124EA	124X5
	0-400	40k	D	127B	127D	127E	127EM	127EA	127X5
	0-600	60k	E	130B	130D	130E	130EM	130EA	130X5
	0-1000	100k	E	133B	133D	133E	133EM	133EA	133X5
	0-2000	200k	E	136B	136D	136E	136EM	136EA	136X5
0-300	0-100	20k	C	122B	122D	122E	122EM	122EA	122X5
	0-200	40k	D	125B	125D	125E	125EM	125EA	125X5
	0-400	80k	D	128B	128D	128E	128EM	128EA	128X5
	0-600	120k	E	131B	131D	131E	131EM	131EA	131X5
	0-1000	200k	E	134B	134D	134E	134EM	134EA	134X5
	0-2000	400k	E	137B	137D	137E	137EM	137EA	137X5
0-600	0-100	40k	C	123B	123D	123E	123EM	123EA	123X5
	0-200	80k	D	126B	126D	126E	126EM	126EA	126X5
	0-400	160k	D	129B	129D	129E	129EM	129EA	129X5
	0-600	240k	E	132B	132D	132E	132EM	132EA	132X5
	0-1000	400k	E	135B	135D	135E	135EM	135EA	135X5
	0-2000	800k	E	138B	138D	138E	138EM	138EA	138X5

THREE-PHASE, THREE-WIRE (TWO-ELEMENT)

INPUTS		F.S. (WATTS)	SENSOR SIZE	STANDARD OUTPUTS MODEL P-					
AC VOLTS	AC AMPS			0-±1mAdc	0-±10Vdc	4-20mAdc	4-12-20mAdc	0-20mAdc	0-±5Vdc
0-150	0-100	20k	C	142B	142D	142E	142EM	142EA	142X5
	0-200	40k	D	145B	145D	145E	145EM	145EA	145X5
	0-400	80k	D	148B	148D	148E	148EM	148EA	148X5
	0-600	120k	E	151B	151D	151E	151EM	151EA	151X5
	0-1000	200k	E	154B	154D	154E	154EM	154EA	154X5
	0-2000	400k	E	157B	157D	157E	157EM	157EA	157X5
0-300	0-100	40k	C	143B	143D	143E	143EM	143EA	143X5
	0-200	80k	D	146B	146D	146E	146EM	146EA	146X5
	0-400	160k	D	149B	149D	149E	149EM	149EA	149X5
	0-600	240k	E	152B	152D	152E	152EM	152EA	152X5
	0-1000	400k	E	155B	155D	155E	155EM	155EA	155X5
	0-2000	800k	E	158B	158D	158E	158EM	158EA	158X5
0-600	0-100	80k	C	144B	144D	144E	144EM	144EA	144X5
	0-200	160k	D	147B	147D	147E	147EM	147EA	147X5
	0-400	320k	D	150B	150D	150E	150EM	150EA	150X5
	0-600	480k	E	153B	153D	153E	153EM	153EA	153X5
	0-1000	800k	E	156B	156D	156E	156EM	156EA	156X5
	0-2000	1600k	E	159B	159D	159E	159EM	159EA	159X5

All units require 115Vac instrument power, 50/60Hz.
Optional 230Vac instrument power - add suffix "-22"

FOR OPTIONAL SPLIT-CORE CURRENT SENSOR, ADD SUFFIX "S" TO PART NUMBER.

ADDITIONAL CURRENT RANGES AVAILABLE. CONSULT FACTORY.

SENSOR SIZES SHOWN ON FOLLOWING PAGE.

ORDERING INFORMATION

Example: Three-Phase, Three-Wire, 120V, 100A Input, Split-Core Sensor, with 0-±5Vdc Output, Proportional to 0-±20kW.

P-142X5S

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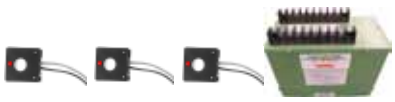
OSI VARIABLE-FREQUENCY AC WATT TRANSDUCER *MODEL* P-

THREE-PHASE, FOUR-WIRE (THREE ELEMENTS)



INPUTS		F.S. (WATTS)	SENSOR SIZE	STANDARD OUTPUTS MODEL P-					
AC VOLTS	AC AMPS			0-±1mAdc	0-±10Vdc	4-20mAdc	4-12-20mAdc	0-20mAdc	0-±5Vdc
0-150 L-N	0-100	30k	C	160B	160D	160E	160EM	160EA	160X5
	0-200	60k	D	162B	162D	162E	162EM	162EA	162X5
	0-400	120k	D	164B	164D	164E	164EM	164EA	164X5
	0-600	180k	E	166B	166D	166E	166EM	166EA	166X5
	0-1000	300k	E	168B	168D	168E	168EM	168EA	168X5
	0-2000	600k	E	170B	170D	170E	170EM	170EA	170X5
0-300 L-N	0-100	60k	C	161B	161D	161E	161EM	161EA	161X5
	0-200	120k	D	163B	163D	163E	163EM	163EA	163X5
	0-400	240k	D	165B	165D	165E	165EM	165EA	165X5
	0-600	360k	E	167B	167D	167E	167EM	167EA	167X5
	0-1000	600k	E	169B	169D	169E	169EM	169EA	169X5
	0-2000	1200k	E	171B	171D	171E	171EM	171EA	171X5

SPECIFICATIONS

INPUT

Voltage ..... See Tables
Current ..... See Tables
Frequency Range 5-500Hz
Power Factor ..... Any
Response (Transient 90%) 50µs
Burden
  Voltage ..... <0.1VA/phase
  Current ..... <0.1VA/phase
Overload
  Voltage ..... 600Vac max.
  Current ..... 50 X F.S.

DIELECTRIC TEST

Input/Output/Case 1500Vac

INSTRUMENT POWER

Standard ..... 115Vac ±15%, 50/60Hz,15VA
"**-22**" Option ..... 230Vac ±15%, 50/60Hz,15VA

OUTPUT

Loading
  "B" models ..... (0-±1mA output) 0-10kΩ
  "D" models ..... (0-±10Vdc output) ..... 2kΩ min.
  "E", "EM", "EA" models 0-500Ω
  "X5" models ..... (0-±5Vdc output) ..... 2kΩ min.
Response Time (to 90%) 500ms
Field Adjustable Cal. ..... ±10%

ACCURACY ..... ±1.0% F.S.

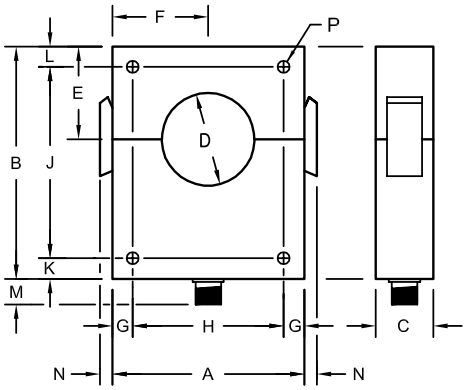
Includes combined effects of linearity, repeatability and frequency.
Output Ripple ..... Less than 1.0% F.S. @ 60Hz

TEMPERATURE

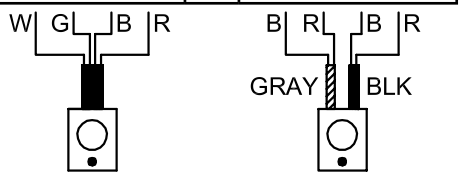
Temperature Range ..... 0ºC to +40ºC
Temperature Effect ..... ±1.0% of Rdg., ±0.1% F.S. Output

Optional split-core current sensor available - Add suffix "**S**"

SENSOR DIMENSIONS & CONNECTION DIAGRAMS



SIGNAL	PIN	1-CABLE	PIN	2-CABLE
OUTPUT (-)	A	WHITE	1	GRAY "B"
OUTPUT (+)	B	GREEN	2	GRAY "R"
EXCITATION (-)	C	BLACK	6	BLACK "B"
EXCITATION (+)	D	RED	8	BLACK "R"



ONE-CABLE CURRENT SENSOR **TWO-CABLE CURRENT SENSOR**

SENS. SIZE	SENSOR DIMENSIONS (inches)														WT. LBS
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
C	2	2	3/4	3/4	7/8	1	1/4	1 1/2	NA	1/4	NA	NA	1/4	5/32	0.28
D	3 1/8	4	3/4	1 1/8	1 1/2	1 9/16	1/2	2 1/8	NA	1/2	NA	1/2	1/4	11/64	0.75
E	4 1/8	5	1 1/4	2	2	2 1/16	7/16	3 1/4	4 1/8	7/16	7/16	5/8	5/16	17/64	2.80

Solid-core models are supplied with 18-inch cables on sensor sizes C & D. All other solid-core models supplied with detachable 8-foot cable. Sensor size C split-core models are supplied with 8-foot attached cable. All other split-core models are supplied with detachable 8-foot cable. Longer cables are available.

Dwg# 0902-00860-B Rev B

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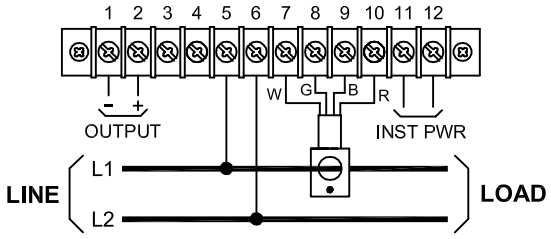
CONNECTION AND DIMENSIONS DIAGRAMS MODEL P-

WARNING! SHOCK HAZARD!

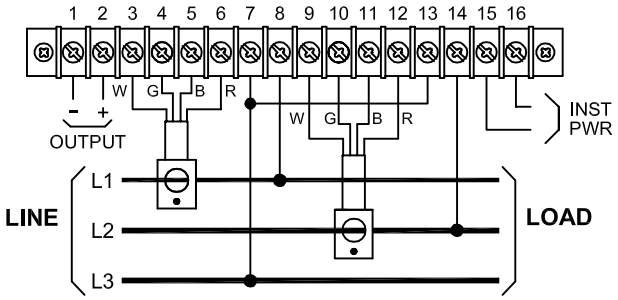
Current Sensor Terminals are at Line Potential.

ONE-CABLE CURRENT SENSORS

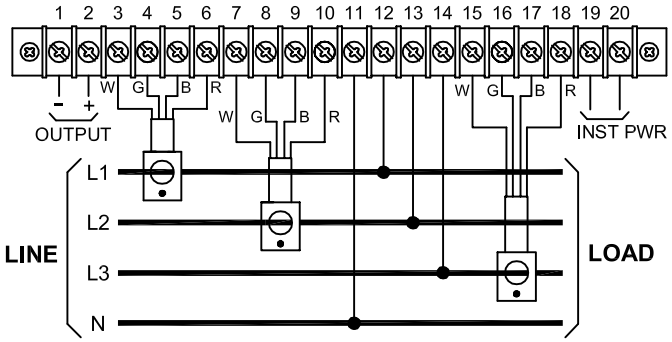
SINGLE-PHASE CONNECTIONS



THREE-PHASE, THREE-WIRE CONNECTIONS

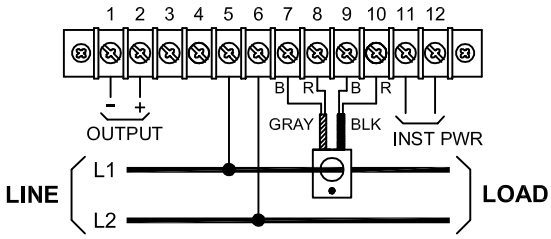


THREE-PHASE, FOUR-WIRE CONNECTIONS

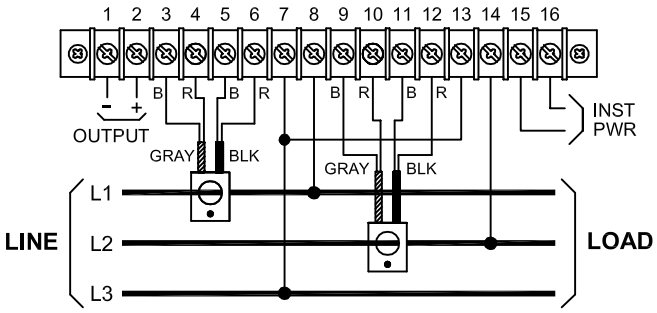


TWO-CABLE CURRENT SENSORS

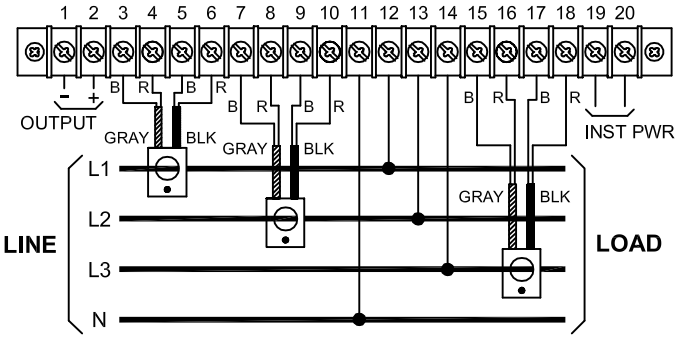
SINGLE-PHASE CONNECTIONS



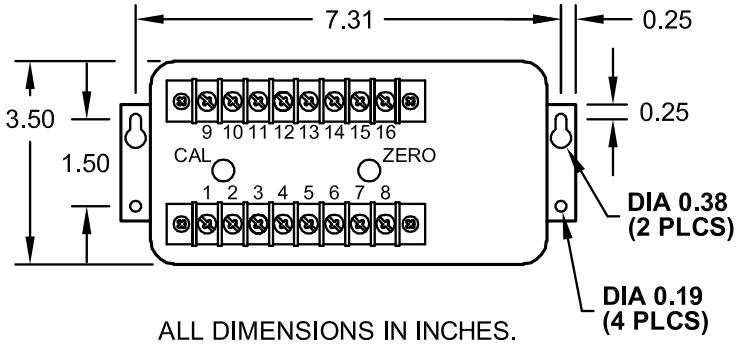
THREE-PHASE, THREE-WIRE CONNECTIONS



THREE-PHASE, FOUR-WIRE CONNECTIONS



CASE DIMENSIONS



ALL DIMENSIONS IN INCHES.

CASE HEIGHT 5.88"
1PH 2W TYP 3.0 LBS
3PH 3W TYP 3.5 LBS
3PH 4W TYP 4.0 LBS

Dwg# 0902-00860-B Rev B

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OSI DC & VARIABLE-FREQUENCY AC WATT TRANSDUCER *MODEL* PC8-

DC WATTS

DESCRIPTION

The PC8 units are designed to provide accurate power measurements on sinusoidal or highly-distorted waveforms. Basic four-quadrant multiplier response of dc to 20 kilohertz provides operation up to at least the fifth harmonic for dc to 400-hertz applications.

Full-scale accuracy of 1% results for dc, sinusoidal ac, chopped or pulsed waveforms. Time-varying waveforms with a dc component are accurately measured.

Most units provide bidirectional output so that power consumption or generation can be measured. All units have input/output/case isolation.

Standard units with input current ranges up to 2000 Amperes and voltage ranges to 600 Volts are available with outputs to interface with most data calibration or control equipment.

FEATURES

5 YEAR WARRANTY

- Accurate from dc to 400 Hz.
- Factory calibration traceable to NIST.
- Input/output/case isolation.
- Real-time indication of power with transient response of less than 50 microseconds.

APPLICATIONS

- Accurate monitoring of power that contains dc and/or harmonics.
- Ideal for use in SCR and other ac or dc switching circuitry.
- Bidirectional output.

MODEL SELECTION

PC8 — ☐ — ☐ (NO DASH) ☐ (S)

INPUT VOLTAGE		INPUT CURRENT		SENSOR SIZE	OUTPUT OPTIONS	
001	0 - 25V	08	0 - 5A	(internal)	B	0 - ±1mAdc
002	0 - 50V	01	0 - 100A	C	D	0 - ±10Vdc
003	0 - 150V	02	0 - 200A	D	E	4 - 20mAdc
004	0 - 300V	03	0 - 300A	D	EM	4/12/20mAdc
005	0 - 400V	04	0 - 400A	D	X5	0 - ±5Vdc
006	0 - 500V	05	0 - 600A	E		
007	0 - 600V	06	0 - 1000A	E		
		07	0 - 2000A	E		

ORDERING INFORMATION

Example:
150V, 100A Input with Split-Core Sensor and 0-±5Vdc Output Proportional to 0-15000Watts

PC8-003-01X5S

All units require 85-135Vac instrument power, 50-400Hz. Optional 230Vac instrument power - add suffix **"-22"**
Full-scale power (Watts) can be determined by the product of full-scale input voltage and full-scale input current.

OPTIONAL SPLIT-CORE CURRENT SENSOR AVAILABLE WITH UNITS OF 100 AMPS OR GREATER - ADD SUFFIX "S".
ADDITIONAL CURRENT RANGES AVAILABLE.- CONSULT FACTORY.

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current ..... See Table
Frequency Range ..... dc to 400Hz
Power Factor ..... Any
Response (Transient 90%) 50µs
Burden
  Voltage ..... Models under 50V ..... >100kΩ
  Models over 50V ..... >1MΩ
Overload
  Voltage ..... 2 X F.S. or 600Vac/850Vdc max.
  Current ..... Using internal sensor ..... 2 X F.S.
  Using sensors C, D, E ..... 50 X F.S.

DIELECTRIC TEST

Input/Output/Case 1000Vdc
Surge ..... Withstands IEEE SWC test

OUTPUT

Loading
  "B" models ..... (0-±1mAdc output) 0-10kΩ
  "E", "EM" models ... (4-20, 4-12-20mAdc output) ... 0-500Ω
  "X5", "D" models .... (0-±5, 0-±10Vdc output) ..... ≥2kΩ
Response Time ..... (to 90%) ..... <500ms
Field Adjustable Cal. ..... ±10%

ACCURACY ..... ±1.0%F.S.

Includes combined effects of voltage, current, load and power factor
Output Ripple ..... <1.0% F.S.@60Hz

INSTRUMENT POWER

Standard 85-135Vac, 50-400Hz, 10VA
"**-22**" Option ..... 230Vac, 50/60Hz, ±15%

TEMPERATURE

Temperature Range ..... 0ºC to 40ºC
Temperature Effect ..... ±1.0% of Rdg, ±0.1% F.S. Output

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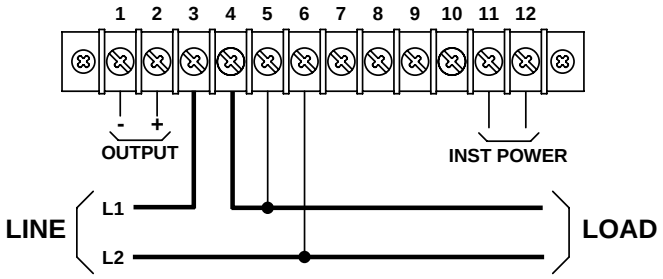
CONNECTIONS & CASE DIMENSIONS — MODEL PC8-

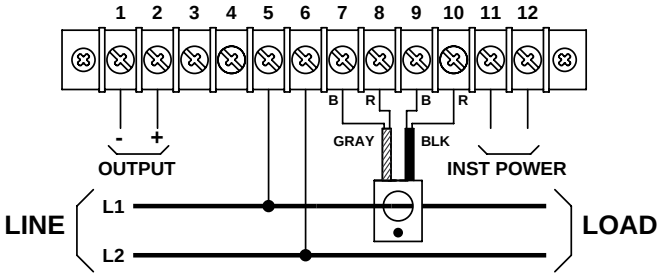
CONNECTION DIAGRAMS

SINGLE-PHASE, VARIABLE-FREQUENCY (ONE-ELEMENT)

DIRECT-CONNECTION USING INTERNAL SENSOR

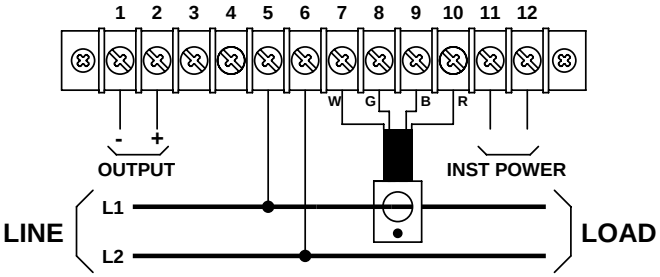


CONNECTION USING EXTERNAL SENSOR WITH TWO CABLES.



SENSOR CABLE SHIELD SHOULD BE CUT OFF.

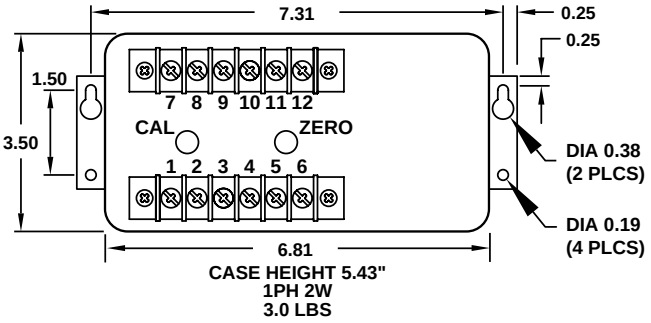
CONNECTION USING EXTERNAL SENSOR WITH ONE CABLE.



Warning! Shock Hazard!

Current Sensor Terminals are at Line Potential.

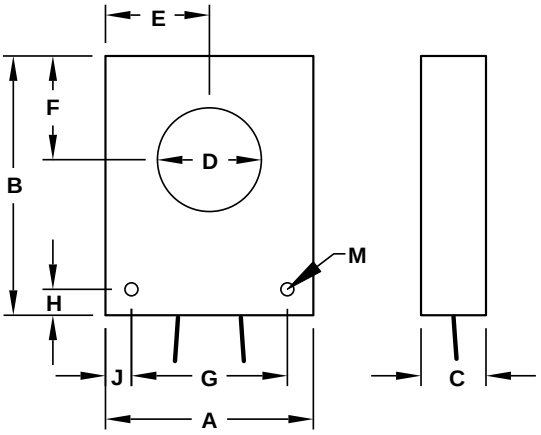
CASE DIMENSIONS



ALL DIMENSIONS IN INCHES

Dwg# 0902-00554-B Rev --

SENSOR DIMENSIONS



SENS. SIZE	SENSOR DIMENSIONS (inches) A	B	C	D	E	F	G	H	J	M	WT. LBS.
C	2	2	3/4	3/4	1	7/8	1 1/2	1/4	1/4	5/32	0.28
D	3 1/8	4	3/4	1 1/8	1 9/16	1 1/2	2 1/8	1/2	1/2	11/64	0.75
E	4 1/8	5	1 1/4	2	2 1/16	2	3 1/4	7/16	7/16	17/64	2.80

Solid-core models are supplied with 18-inch cables on sensor sizes C & D. All other solid-core models supplied with detachable 8-foot cable. Sensor size C split-core models are supplied with 8-foot attached cable. All other split-core models are supplied with detachable 8-foot cable. Longer cables are available.

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OSI AC WATT/POWER FACTOR/VA TRANSDUCER *MODEL* PC20-

ACCURATE TO 0.25% FULL-SCALE

DESCRIPTION

The Model PC20 transducer provides three separate outputs proportional to true power, VA, and power factor in single- or polyphase power systems. These are the most significant parameters in the efficient utilization of electrical energy in manufacturing or building management.

True power (Watts) is accurately measured by a continuous multiplication of instantaneous voltage and current by a four-quadrant multiplier. Average true power is then provided as the output.

The apparent power (VA) is determined by taking the product of RMS voltage and RMS current.

Power factor is derived from the ratio of true power to apparent power. This measurement does not rely on phase-angle measurement and is accurate for sinusoidal or distorted waveforms in the 50-400Hz frequency range.

FEATURES

- True power and VA measurement for sinusoidal and distorted waveforms.
- Power factor is derived from the ratio of true power to apparent power and remains accurate for SCR-controlled or otherwise-distorted waveforms.
- Three separate output signals – one each for Watts, power factor, and VA.

APPLICATIONS

- Equipment monitoring to determine and/or maintain efficiency.
- Process monitoring and/or controlling to maintain consistent product quality.
- For use with SCR-controlled, chopped, or otherwise-distorted waveforms.

5 YEAR WARRANTY

MODEL SELECTION

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT)

INPUTS		F.S.	STANDARD OUTPUTS (W, PF, VA) MODEL PC20-						
AC VOLTS	AC AMPS	(W, VA)	0-1mAdc*	0-1mAdc	0-10Vdc*	0-10Vdc	0-5Vdc*	0-5Vdc	4-20mAdc
0-150 Nominal 115	0-1	100	103A	103B	103C	103D	103CX5	103X5	103E
	0-5	500	001A	001B	001C	001D	001CX5	001X5	001E
	0-10	1000	010A	010B	010C	010D	010CX5	010X5	010E
	0-20	2000	117A	117B	117C	117D	117CX5	117X5	117E
0-300 Nominal 230	0-1	200	104A	104B	104C	104D	104CX5	104X5	104E
	0-5	1000	002A	002B	002C	002D	002CX5	002X5	002E
	0-10	2000	011A	011B	011C	011D	011CX5	011X5	011E
	0-20	4000	110A	110B	110C	110D	110CX5	110X5	110E
0-600 Nominal 480	0-1	400	105A	105B	105C	105D	105CX5	105X5	105E
	0-5	2000	003A	003B	003C	003D	003CX5	003X5	003E
	0-10	4000	012A	012B	012C	012D	012CX5	012X5	012E
	0-20	8000	111A	111B	111C	111D	111CX5	111X5	111E

***** Denotes self-powered units. Input voltage ranges limited to:
85-135V for 150Vac models
200-280V for 300Vac models
380-550V for 600Vac models
All others require a separate 120Vac (85-135V) instrument power.

For optional 230Vac instrument power - Add suffix **"-22"**

ORDERING INFORMATION

Example: Three-Phase, Three-Wire,
230V, 5A, 0-10Vdc Output,
Proportional to 0-2000W (VA),
with Separate 120Vac Instrument Power.
PC20-005D

NOTE: Phase-Angle Transducer Model PF5 provides a DC output which is linearly-proportional to the phase-angle difference between voltage and current on AC power systems. For more details, see model PF5 on page 121.

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AC WATT/POWER FACTOR/VA TRANSDUCER *MODEL* PC20-

THREE-PHASE, THREE-WIRE MODELS (TWO-ELEMENT)

INPUTS		F.S.	STANDARD OUTPUTS (W, PF, VA) MODEL PC20-						
AC VOLTS	AC AMPS	(W, VA)	0-1mAdc*	0-1mAdc	0-10Vdc*	0-10Vdc	0-5Vdc*	0-5Vdc	4-20mAdc
0-150 Nominal 115	0-1	200	118A	118B	118C	118D	118CX5	118X5	118E
	0-5	1000	004A	004B	004C	004D	004CX5	004X5	004E
	0-10	2000	013A	013B	013C	013D	013CX5	013X5	013E
	0-20	4000	112A	112B	112C	112D	112CX5	112X5	112E
0-300 Nominal 230	0-1	400	119A	119B	119C	119D	119CX5	119X5	119E
	0-5	2000	005A	005B	005C	005D	005CX5	005X5	005E
	0-10	4000	014A	014B	014C	014D	014CX5	014X5	014E
	0-20	8000	113A	113B	113C	113D	113CX5	113X5	113E
0-600 Nominal 480	0-1	800	120A	120B	120C	120D	120CX5	120X5	120E
	0-5	4000	006A	006B	006C	006D	006CX5	006X5	006E
	0-10	8000	015A	015B	015C	015D	015CX5	015X5	015E
	0-20	16000	114A	114B	114C	114D	114CX5	114X5	114E

THREE-PHASE, FOUR-WIRE MODELS (THREE-ELEMENT)

INPUTS		F.S.	STANDARD OUTPUTS (W, PF, VA) MODEL PC20-						
AC VOLTS	AC AMPS	(W, VA)	0-1mAdc*	0-1mAdc	0-10Vdc*	0-10Vdc	0-5Vdc*	0-5Vdc	4-20mAdc
0-150 L-N Nominal 115	0-1	300	124A	124B	124C	124D	124CX5	124X5	124E
	0-5	1500	007A	007B	007C	007D	007CX5	007X5	007E
	0-10	3000	016A	016B	016C	016D	016CX5	016X5	016E
	0-20	6000	115A	115B	115C	115D	115CX5	115X5	115E
0-300 L-N Nominal 277	0-1	600	125A	125B	125C	125D	125CX5	125X5	125E
	0-5	3000	008A	008B	008C	008D	008CX5	008X5	008E
	0-10	6000	017A	017B	017C	017D	017CX5	017X5	017E
	0-20	12000	116A	116B	116C	116D	116CX5	116X5	116E

SPECIFICATIONS

INPUT

Voltage ..... See Tables
Current ..... See Tables
Frequency Range ..... 50 to 400Hz
Power Factor ..... Any
Response (to 90%) 1ms
Burden
  Voltage 0.1VA/phase
  Current 0.28VA/phase
Over-range (w/o damage)
  Voltage, continuous .... 150V Range 175V
  300V Range 350V
  600V Range 600V
  Current, continuous .... 1A, 5A, 10A Range ..... 2 X Rated
  20A Range 20A

DIELECTRIC TEST

Input/Output/Case 1500Vac

INSTRUMENT POWER

"**A**", "**C**", "**CX5**" models ..... not required
"**B**", "**D**", "**X5**", "**E**" models 85-135Vac, 50-400Hz, 10VA
"**-22**" Option ..... 230Vac ±15%, 50/60Hz

OUTPUTS

Power Factor ..... F.S. at unity, Zero at lead or lag zero
Loading
  "A", "B" models .... (0-1mAdc) 0-10kΩ
  "E" models ..... (4-20mAdc) 0-500Ω
  All other models... (0-5, 0-10Vdc) ..... 2kΩ min.
  (All except "E" model outputs are bidirectional.)
Response Time ..... (to 90%) 250ms

ACCURACY

Includes effects of linearity, setpoint, repeatability and power factor at nominal voltage input @ ±10%.
W/VA ..... 50-60Hz ..... ±0.25% F.S.
Power Factor ..... 10-100%VA, 50/60Hz ..... ±0.005 PF
W/VA ..... 50-400Hz ..... ±0.5% F.S.
Power Factor ..... 10%-100%VA, 50-400Hz ..... ±0.01 PF
Ripple ..... <1%F.S.

TEMPERATURE

Operating Range ..... -10ºC to +60ºC
Effect ..... ±1.0% of Rdg., ±0.1% F.S.

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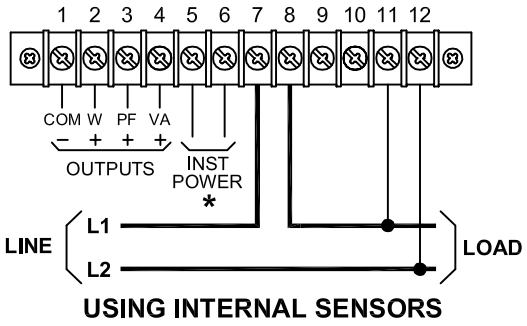
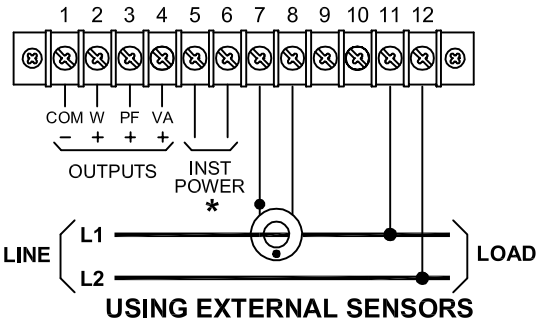
CONNECTION DIAGRAMS & DIMENSIONS MODEL PC20-

SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)

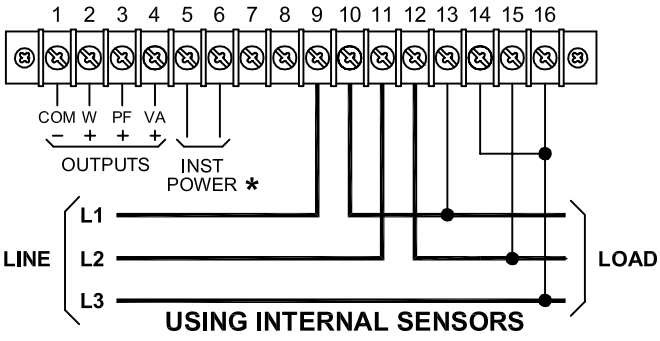


USING INTERNAL SENSORS

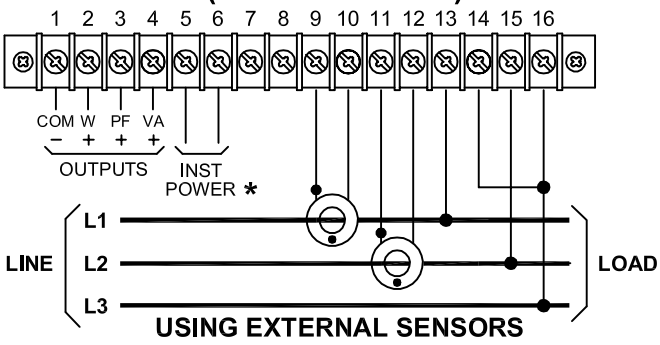


USING EXTERNAL SENSORS

THREE-PHASE, THREE-WIRE CONNECTIONS (TWO-ELEMENT)

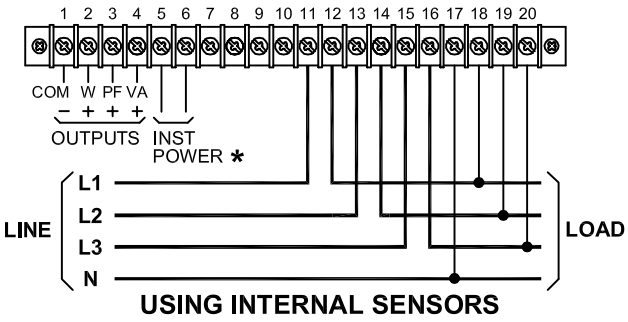


USING INTERNAL SENSORS

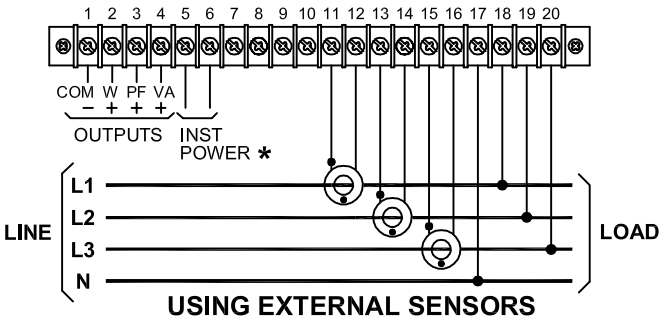


USING EXTERNAL SENSORS

THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE-ELEMENT)



USING INTERNAL SENSORS



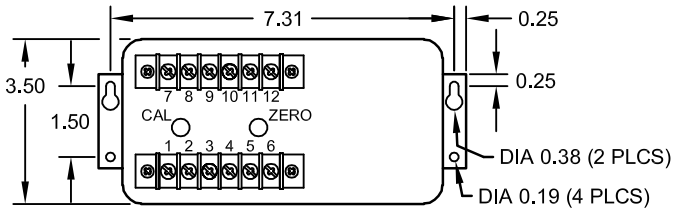
USING EXTERNAL SENSORS

* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
* 230Vac ON MODELS WITH -22 SUFFIX.
* NOT REQUIRED ON MODELS WITH A, C, OR CX5 SUFFIX.

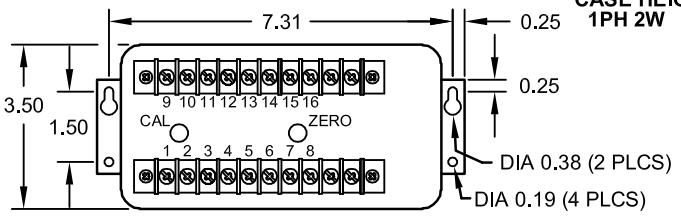
0902-00881-B Rev A

CASE DIMENSIONS

ALL DIMENSIONS IN INCHES.

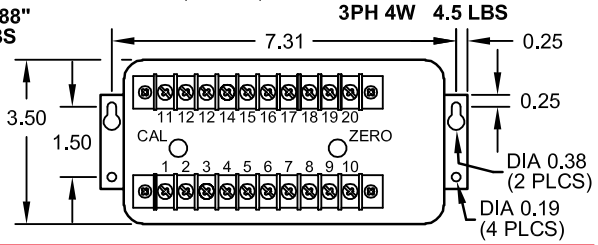


CASE HEIGHT 5.88"
3PH 3W 3.7 LBS



CASE HEIGHT 5.88"
1PH 2W 3.0 LBS

CASE HEIGHT 5.88"
3PH 4W 4.5 LBS



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C

MULTIPLIER (DC OR AC WATT TRANSDUCER) MODEL MT-

SHUNT INPUT

DESCRIPTION

The MT Transducer provides an output signal which is directly proportional to the instantaneous product of two input signals. Each input and the output are isolated from one another up to 1000 Volts dc.
The MT series should be used where two process quantities must be multiplied to obtain a useful quantity. For example, a shunt output may be multiplied with the system voltage to obtain dc power delivered to a load. The multiplier provides full four-quadrant operation so signals that may change polarity during operation may be accurately multiplied.

CALIBRATION

All standard models are calibrated at the factory with the values listed below in the Model Selection Table. For instance, the model MT-1-06B would be calibrated with inputs of 50mV and 100 Volts for a full-scale output of 1mA. To compute the power when using a 50mV shunt, multiply the current value of the shunt times 100V. In the case where the shunt equals 1000A, multiply 1000 times 100 for an output of 1mA which equals 100 kilowatts. EXAMPLE: 50mV (Shunt Value) X 100V = 1mA Full-Scale Output

MODEL SELECTION

MODEL MT — ☐ — ☐ ☐ ☐ ☐ ☐

INPUT 1 (SHUNT)		INPUT 2 (VOLTAGE)		OUTPUT		INSTRUMENT POWER		FREQUENCY	
1	50mV	01	1V	B	1mAdc	Blank	115Vac	Blank	dc
2	100mV	02	5V	D	10Vdc	G	230Vac	AC	60Hz
3	1V	03	10V	E	4-20mAdc				
4	5V	04	25V	EA	0-20mAdc				
5	10V	05	50V						
		06	100V						
		07	150V						
		08	250V						
		09	300V						
		10	400V						
		*11	500V						
		*12	750V						

5 YEAR WARRANTY

* dc only

ORDERING INFORMATION

Example: Input 1 = 0-50mV,
Input 2 = 0-100Vdc,
with 0-10Vdc Output.

MT-1-06D

SPECIFICATIONS

INPUT
- Input One ..... (Shunt) ..... See Table
  - Burden ..... >100kΩ
  - Over-range ..... 2 X Rated Input
- Input Two ..... (Voltage) ..... See Table
  - Burden ..... (to 100V) 100kΩ
  - (150V to 300V) 500kΩ
  - (400V to 750V) 1MΩ
  - Over-range ..... 2 X F.S. or 600Vac/850Vdc max.
- Frequency ..... Standard ..... DC
  - AC Option 50-70Hz

DIELECTRIC TEST
- Inputs to Output 1000Vdc
- Inputs/Output to Instrument Power. 1500Vac

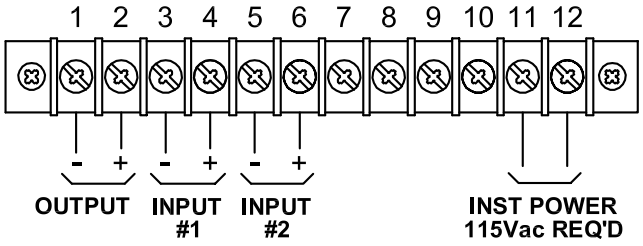
INSTRUMENT POWER
- Standard 90-135Vac, 50-400Hz, 7VA
- **"G"** Option 180-270Vac, 50-400Hz

OUTPUT
- Load on Output ..... 1mA 0-10kΩ
  - 10V ..... ≥2kΩ
  - 20mA 0-500Ω
- Response Time to 90% ..... DC Models 10ms
  - AC Option 200ms

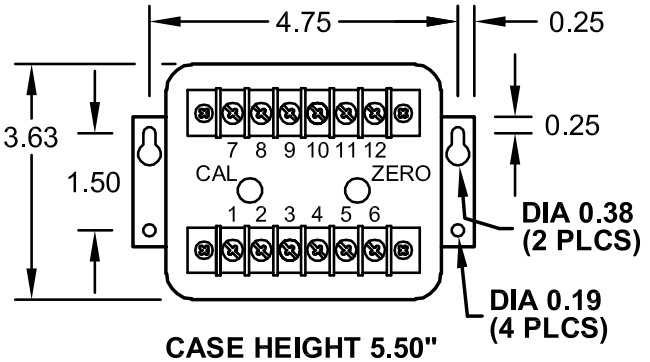
ACCURACY & LINEARITY ..... ±0.5% F.S.
Including Set-point, Repeatability, Voltage & Current Linearity
- Ripple ..... ±1% F.S.

TEMPERATURE & PHYSICAL
- Temperature Effect ..... (-20ºC to 65ºC) ..... ±0.02%/ºC
- Net Weight ..... 2.2 lb

CONNECTION DIAGRAM



CASE DIMENSIONS



CASE HEIGHT 5.50"
All dimensions in inches

Dwg# 0902-00882-B Rev --

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OSI SINGLE-PHASE AC WATTHOUR TRANSDUCER/TRANSFORMER *MODEL* SWH-

SPLIT-CORE

DESCRIPTION

The model SWH is a single-phase bidirectional Watthour transducer with current transformer. The model SWH has a Form A solid-state relay pulse output.

5 YEAR WARRANTY

c UL us LISTED

Measuring Equipment 7N93

AC VOLTS	AC AMPS (through Window)	MODEL
115	0-100	SWH-1100
	0-200	SWH-1200
	0-400	SWH-1400
230*	0-100	SWH-2100
	0-200	SWH-2200
277**	0-100	SWH-3100
	0-200	SWH-3200

* May also be used for 208V and 240V applications.
** Not UL listed.

FEATURES

- Easy-to-install split-core design
- LED indications of proper installation/operation

APPLICATIONS

- Energy Allocations
- Sub Metering
- Revenue Metering
- Process Control

ORDERING INFORMATION

Example: 100Aac Input For Use On 230Vac L-N Voltage

SWH-2100

SPECIFICATIONS

INPUT

Voltage ..... See Table
Current .....(through window) ..... See Table
Frequency Range 48-62Hz
Power Factor ..... Any
Burden
Voltage ..... <0.2VA
Overload
Voltage ..... 120% of Nominal
Current ..... 125% of F.S.

DIELECTRIC TEST

Input/Output 2250Vac

INSTRUMENT POWER

Standard ..... Self-powered

Consult Factory for Custom Pulse Rates

OUTPUT

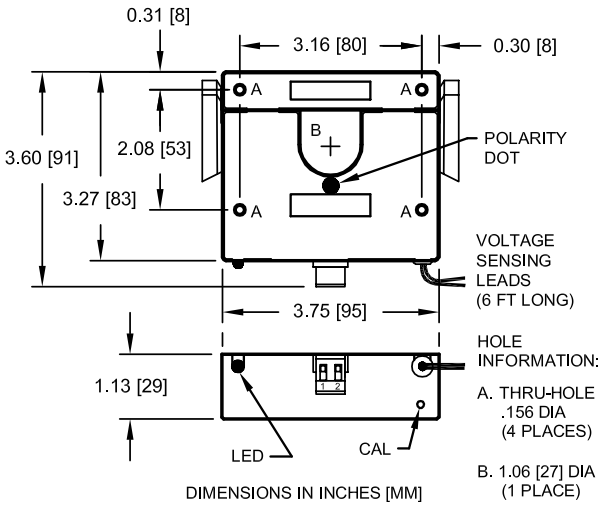
LED ..... Energy Rate and Direction Indicator
Green = Forward Power
Red = Reverse Power
Blinks at same rate as Wh pulse
Wh Pulse
Type .... Form A, Solid-State Relay, 30Vpk, 100mA max.
Scaling ..... 10Wh per pulse
Consult Factory for Custom Pulse Rates
Pulse Duration 200ms
Forward Power ..... Normally Open with contact closing
Reverse Power .. Normally Closed with contact opening

ACCURACY ..... ±1.0% F.S.

TEMPERATURE & PHYSICAL

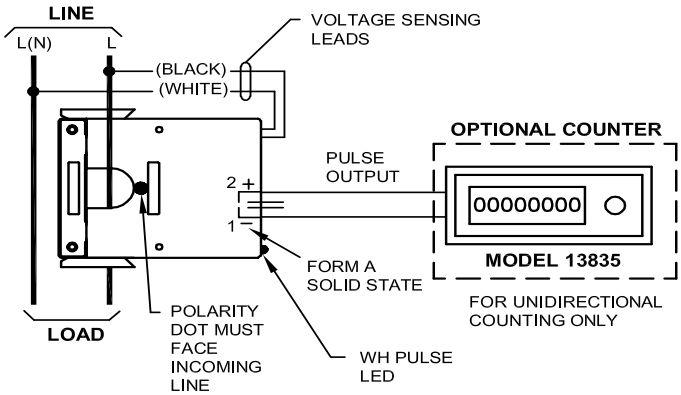
Temperature Effect (-20ºC to 65ºC) ..... ±1.0% F.S.
Weight ..... 1.0 lb

DIMENSIONS



DIMENSIONS IN INCHES [MM]

CONNECTIONS



Dwg# 0902-00383-B Rev C

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NEW!

OSI ENERGY SCOUT+ WATTHOUR METER MODEL ESP3-

LOW-COST

DESCRIPTION

The model ESP3 Watthour meter is used to measure energy at the input to electrical load centers or branch circuits. The unit displays Volts, Amps, Watts and power factor, in addition to import and export energy.

The unit is DIN-rail mounted and has optional indoor and outdoor enclosures. Solid-core or split-core current transformers are available.

FEATURES

- Single model for all 1Φ and 3Φ applications over range of 120-240Vac
- Indoor or outdoor package options
- Optional split-core current transformers

APPLICATIONS

- Input to electrical load centers
- Branch circuits

18 MONTH WARRANTY

CONNECTION OPTIONS

SYSTEM CONFIGURATION	VOLTAGE INPUT (Vac)	MODEL ESP3-
1-Phase 2-Wire*	120	354EDM-N
1-Phase 2-Wire*	240	
1-Phase 3-Wire*	120/240	
1-Phase 3-Wire Network*	120/208	
3-Phase 3-Wire*	208	
3-Phase 4-Wire*	120/208	

*1Φ2W system requires 1 CT, 1Φ3W or 3Φ3W system requires 2 CTs, 3Φ4W system requires 3 CTs. Solid and Split-Core CTs are available separately. See SCCT and BCT on following pages.

ORDERING INFORMATION

Example: 3Φ3W Watthour Meter with 208Vac and 200Aac Input, with Split-core CTs in Outdoor Surface-mount Enclosure

ESP3-354EDM-N with SCCT-013-200 (Qty 2) and ENC-OSM

SPECIFICATIONS

INPUT

Current Range
- With appropriate CTs (I_n) 0-200, 0-400, 0-600Aac
- Over-range without damage ..... 125% F.S.

Voltage ..... Nominal ..... 120, 208, 240V_{L-L}
- Operating Range ..... Nominal ±30%

Power Factor ..... any
Frequency Range 47-63Hz
Power Consumption ..... <1VA

OUTPUT

Pulse Value ..... 1.0kWh/Pulse, polarity sensitive
(NOTE: Unit is factory-programmed for CT ratio.)
- Contact Closure (Low-impedance) ..... low<3Ω, high>1MΩ
- Duration ... 50% duty cycle or 80ms, whichever is greater

Serial ..... RS-485, 9600 baud (E,7,1)

DIELECTRIC TEST

Input/Output/Case 2250Vac

ACCURACY

IEC 62052-11 ..... 0.05(I_n) ..... Class 0.5

DISPLAYED VALUES

		Resolution
Energy (Import and Export)	(kWh)	XXXXXX.X
Volts (Per-Phase)	(Vac)	XXX.X
Amps (Per-Phase)	(Aac)	XXX.X
Power (Per-Phase and Total)	(W)	XXXXXXX
Power Factor (Per-Phase w/Direction)	(C or L)	X.XX

TIME OF USE (Parameters Available via RS-485 Port)

Real-Time Clock Calendar with Battery Back-up
4 Tariff Periods (T_1, T_2, T_3, T_4) Per Day. (Active Taiff Period is shown on display below decimal point in kWh reading.)
Max. Demand for 15-, 30-, or 60-Minute Intervals.
Resettable Demand via RS-485 Port

PHYSICAL & ENVIRONMENTAL

Operating Range ..... 0º to 40ºC
Storage Range ..... -30º to 55ºC
Operating Humidity ..... 0-85% non-condensing
Weight ..... 10.0 oz
Termination (Screw Compression) ..... 20-16 AWG
Enclosure Material ..... ABS

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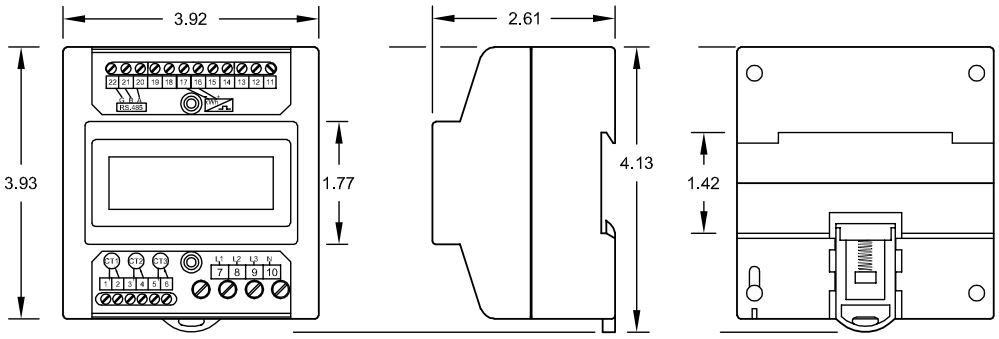
DISPLAY, CONNECTIONS & DIMENSIONS *MODEL* ESP3-

DISPLAY REGISTERS

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Total kWh	Reverse kWh	Volts L1	Volts L2	Volts L3	Amps L1	Amps L2	Amps L3	Watts L1	Watts L2	Watts L3	Total Watts	Cos L1	Cos L2	Cos L3

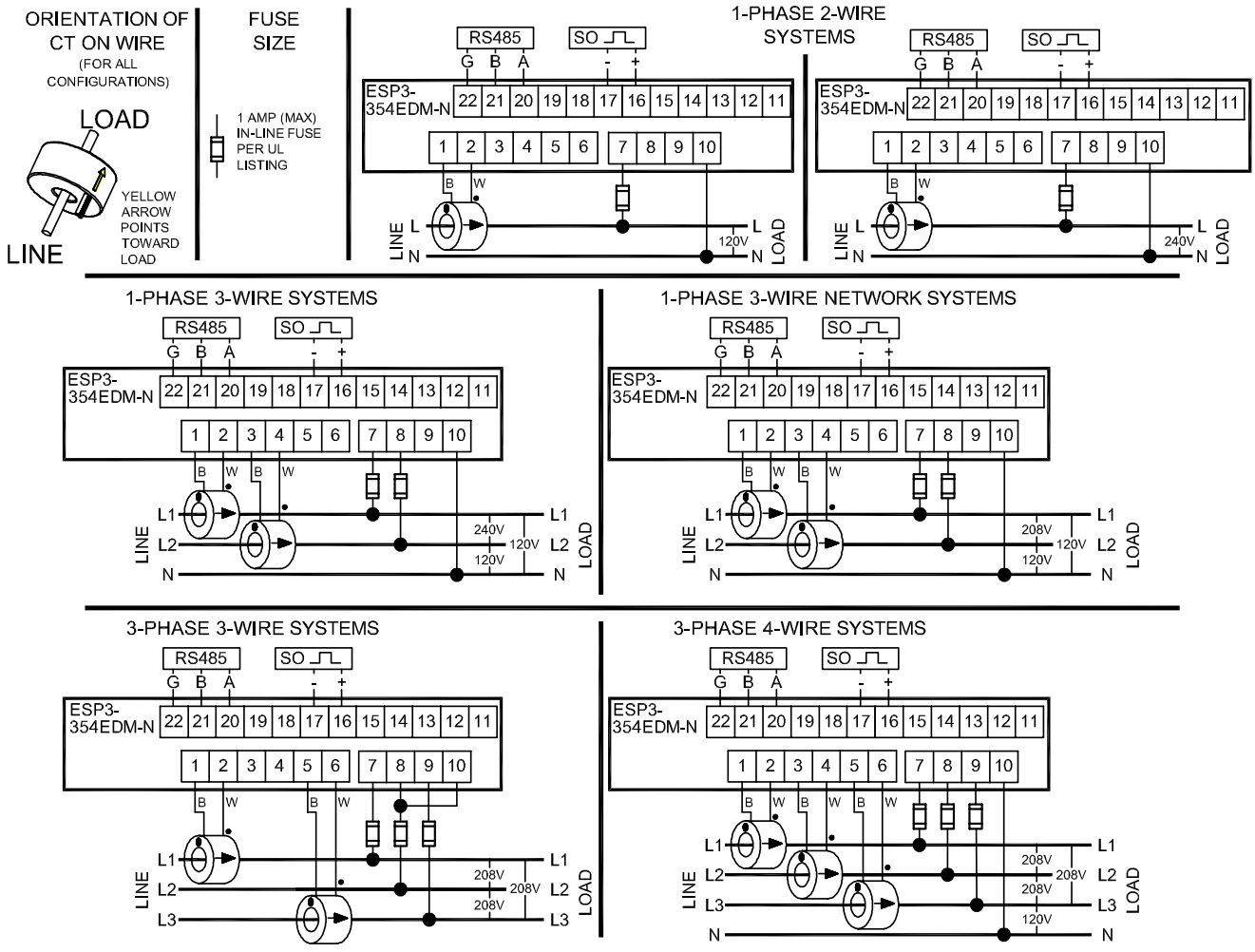
Display scrolls through each register with Total kWh displayed for 2 min. followed by the remaining registers for 3 sec. each.

CASE DIMENSIONS



Dwg# 0902-00949-B Rev A

CONNECTION DIAGRAMS



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NEW!

CT OPTIONS (BCT & SCCT MODELS) MODEL ESP3-

FEATURES

- 0.5% Accuracy
- Split-core SCCT models
- Solid-core BCT models
- AC Output 26.6mA

18 MONTH WARRANTY

APPLICATIONS

- For use with ESP3 series Watt transducers
- Other metering applications

LOW COST

MODEL SELECTION

INPUT AC AMPS	Split-Core: MODEL BCT- 0-26.6mAac OUTPUT
0 - 200	013-200
0 - 200	015-200
0 - 200	025-200
0 - 400	025-400
0 - 600	045-600

INPUT AC AMPS	Solid-Core: MODEL SCCT- 0-26.6mAac OUTPUT
0 - 200	013-200
0 - 400	032-400

Optional inputs and outputs are available for BCT & SCCT. Consult factory.

Intended for use over insulated conductors only!

SPECIFICATIONS

INPUT

Current .....See Model Selection Table
Over-current..... 1.2 X F.S.
Frequency Range..... 50-60Hz

OUTPUT

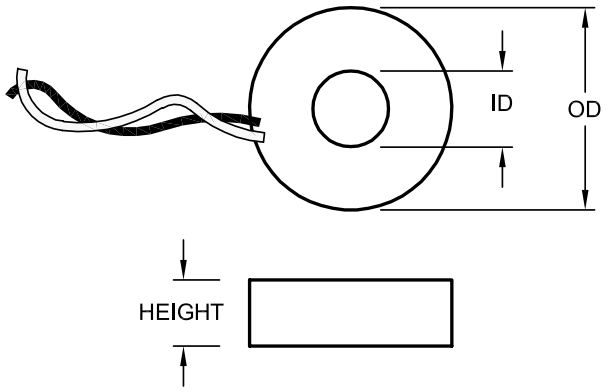
Scaling ..... 0-F.S. Input = 0-26.6mAac Output
Burden.....1VA

ACCURACY .....±0.5% F.S.

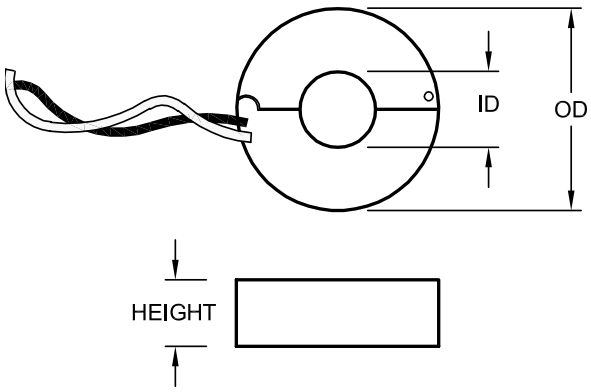
PHYSICAL & ENVIRONMENTAL

Weight ..... See Dimension Table
Lead Length ..... 72”
Lead Type.....22AWG stranded, White (X1) & Black
Operating Temperature .....55ºC Max.

SENSOR DIMENSIONS



MODEL BCT-	DIMENSIONS (inches)			WT. (lbs.)
	Height	ID	OD	
013-200	0.8	0.51	1.73	0.2
015-200	0.8	0.59	2.43	0.3
025-200	0.79	0.98	2.13	0.3
025-400	0.79	0.98	2.13	0.3
045-600	0.95	1.77	3.50	0.6



MODEL SCT-	DIMENSIONS (inches)			WT. (lbs.)
	Height	ID	OD	
013-200	0.8	0.53	1.73	0.2
032-400	0.8	1.26	3.11	0.5

Dwg# 0902-00851-B Rev A

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E/D/G

NEW!

PHASE ANGLE TRANSDUCER — MODEL PF5

DESCRIPTION

The model PF5 provides a dc output which is linearly proportional to the phase angle difference between voltage and current of an ac power system. The polarity of the bidirectional output indicates leading or lagging conditions.

Balanced load conditions are necessary in three-phase systems. Deviation from sine wave conditions leads to inaccuracies with all transducers since angle measurement is based on the time difference between zero crossings.

FEATURES

- The bidirectional output of the model PF5 is directly proportional to the 0º to 60º leading or lagging phase angle of the input signal.
- A leading phase angle results in a negative output signal.
- A lagging phase angle results in a positive output signal.

APPLICATIONS

- Provides an accurate means for calculating power factor, PF =COSΦ

5 YEAR WARRANTY

1-PHASE, 2-WIRE MODELS

VOLTAGE INPUT (V_{L-L})	CURRENT INPUT (Aac)	STANDARD OUTPUTS, MODEL PF5-			
		0-1mAdc*	0-10Vdc*	4-20mAdc**	4/12/20mAdc
95 - 135	0.2 to 5.0 0.3 to 10.0 1.0 to 20.0	001A 010A 019A	001C 010C 019C	001E 010E 019E	001EM 010EM 019EM
200 - 300	0.2 to 5.0 0.3 to 10.0 1.0 to 20.0	002A 011A 020A	002C 011C 020C	002E 011E 020E	002EM 011EM 020EM
410 - 550	0.2 to 5.0 0.3 to 10.0 1.0 to 20.0	003A 012A 021A	003C 012C 021C	003E 012E 021E	003EM 012EM 021EM

3-PHASE, 3-WIRE OR 3-PHASE, 4-WIRE MODELS

VOLTAGE INPUT (V_{L-L})	CURRENT INPUT (Aac)	STANDARD OUTPUTS, MODEL PF5-			
		0-1mAdc*	0-10Vdc*	4-20mAdc**	4/12/20mAdc
95 - 135	0.2 to 5.0 0.3 to 10.0 1.0 to 20.0	004A 013A 022A	004C 013C 022C	004E 013E 022E	004EM 013EM 022EM
200 - 300	0.2 to 5.0 0.3 to 10.0 1.0 to 20.0	005A 014A 023A	005C 014C 023C	005E 014E 023E	005EM 014EM 023EM
410 - 550	0.2 to 5.0 0.3 to 10.0 1.0 to 20.0	006A 015A 024A	006C 015C 024C	006E 015E 024E	006EM 015EM 024EM

*Denotes self-powered unit. All other models require 85-135Vac instrument power.
4-20mA models for use **only on lagging power factor. (unidirectional output)
Higher current ranges available - consult factory.

ORDERING INFORMATION

Example:
3Φ4W 208Vac, 10Aac Input with bidirectional 10Vdc Output

PF5-014C

SPECIFICATIONS

INPUT

Current ..... See Tables
Voltage ..... See Tables
Frequency Range 50-60Hz
Burden
Voltage 2.0VA
Current 0.4VA
Overload (Continuous)
Voltage ..... 135Vac Range 175Vac
300Vac Range 350Vac
550Vac Range 600Vac
Current ..... 5Aac Range 10Aac
10Aac Range 20Aac
20Aac Range 30Aac

INSTRUMENT POWER

"**A**" and "**C**" models ..... Self-Powered
"**E**" and "**EM**" models 85-135Vac, 50-400Hz, 3.5VA
"**-22**" Option ..... 230Vac ±15%, 50/60Hz

DIELECTRIC TEST

Input/Output/Case 1500Vac

OUTPUT

Type ..... See Tables
Span ..... (Current In. ref. Volts In.) ..... +60º to 0 to -60º
Current leads Voltage ..... Negative Output
Current lags Voltage ..... Positive Otuput
Loading ..... "**A**" models 0-10kΩ
"**C**" models ..... 2kΩ, min.
"**E**" & "**EM**" models 0-500Ω
Response Time (to 90%) 400ms
Field-adjustable Cal. ..... ±10%

ACCURACY ..... ±0.5% of Span
(includes combined effects of voltage, current & frequency)

TEMPERATURE

Operating Range ..... -20ºC to 60ºC
Effect ..... ±0.5% F.S.

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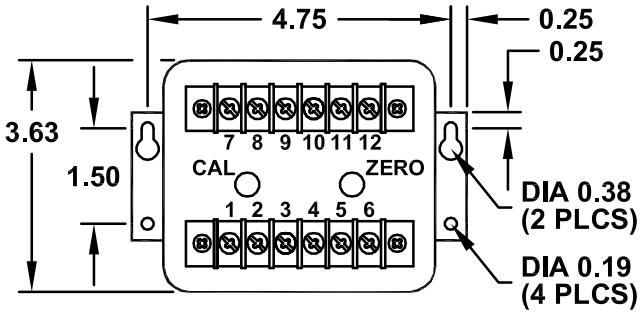
CASE DIMENSIONS & CONNECTIONS — MODEL PF5

CASE DIMENSIONS

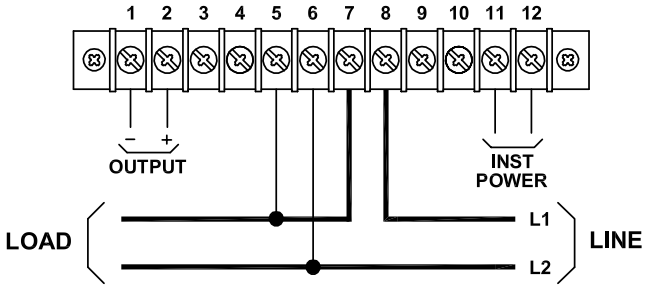


CASE HEIGHT 5.50"
2.5 LBS

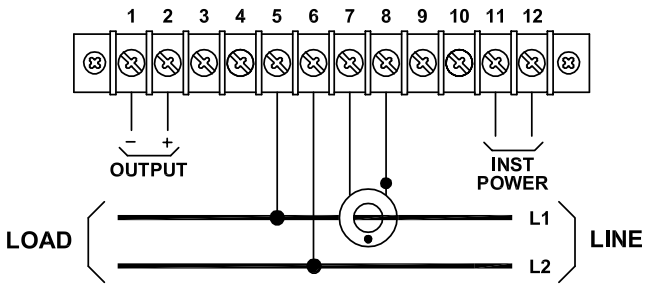
Dwg# 0902-00864-B

CONNECTION DIAGRAMS

SINGLE-PHASE CONNECTIONS

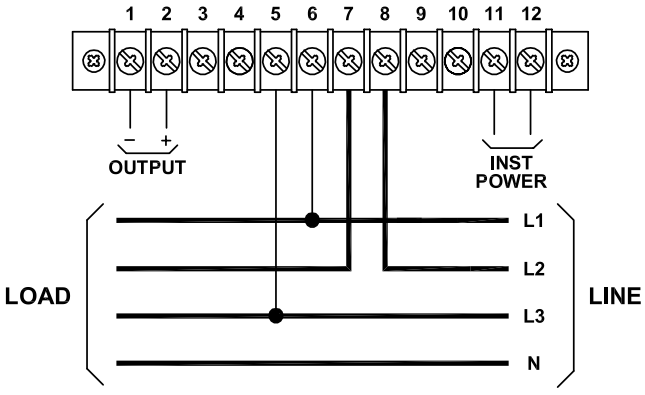


DIRECT CONNECTION

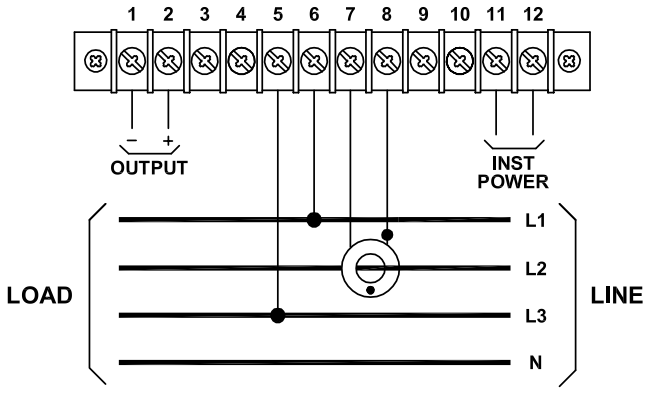


USING CURRENT TRANSFORMERS

THREE-PHASE CONNECTIONS



DIRECT CONNECTION



USING CURRENT TRANSFORMERS

INSTALLATION NOTE: Proper installation of the model PF5 Phase Angle Transducer is critical. *The connection diagrams shown above must be followed precisely*. If the application requires the use of current transformers, insure that polarity is correct. Any deviation from the connections shown will result in a locked full-scale output signal.

FREQUENCY TRANSDUCER — MODEL AFT-

0.05% ACCURACY

DESCRIPTION

The AFT Frequency Transducer combines wide frequency range capability with high-accuracy measurement in a UL & CUL listed package. The AFT can accurately measure frequencies up to 1000Hz with some models measuring from dc to full-scale.

For applications requiring better resolution, the AFT has standard models with narrower frequency ranges. A wide input range means that all standard models accept voltages from 3V to 575V. The AFT comes with standard outputs of 0-1mA, 4-20mA, 0-20mA as well as 0-5V and 0-10V.

FEATURES

- High accuracy over wide frequency ranges.
- Each model covers all input voltages from 3V to 575V.
- UL & CUL approvals.

APPLICATION

- Where instantaneous indication of frequency is required.

INPUT FREQUENCY (Hz)	STANDARD OUTPUTS MODEL AFT-					
	0-1mAdc	0-10Vdc	0-5Vdc	4-20mAdc	4-20mAdc*	0-20mAdc
45-55	050-10B	050-10D	050-10X5	050-10E	050-10E2	050-10EA
55-65	060-10B	060-10D	060-10X5	060-10E	060-10E2	060-10EA
375-425	400-50B	400-50D	400-50X5	400-50E	400-50E2	400-50EA
0-10	010B	010D	010X5	010E	010E2	010EA
0-55	055B	055D	055X5	055E	055E2	055EA
0-65	065B	065D	065X5	065E	065E2	065EA
0-100	100B	100D	100X5	100E	100E2	100EA
0-425	425B	425D	425X5	425E	425E2	425EA
0-1000	1000B	1000D	1000X5	1000E	1000E2	1000EA

c UL us LISTED
Measuring Equipment 7N93

115Vac, 50/60Hz instrument power is required on all units.
Optional 230Vac Instrument Power - Add suffix "-22"

*** Output is loop-powered from 15-24Vdc (also requires instrument power)**
Consult factory for special frequency ranges.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 55-65Hz Input with 0-5Vdc Output.
AFT-060-10X5

FREQUENCY TRANSDUCERS

SPECIFICATIONS

INPUT

Frequency Range ..... See Table
Voltage Range 3-575V
Burden 1.25VA
Overload 575V

DIELECTRIC TEST

Input to Output/Instrument Power 3250Vac
Instrument Power to Output 2200Vac
Case to Input/Output/Instrument Power 2200Vac

INSTRUMENT POWER

Standard ..... 115Vac, 50/60Hz, ±15%, 15VA max.
"-22" Option ..... 230Vac, 50/60Hz, ±15%, 15VA max.

OUTPUT

Loading
"B" models ..... (0-1mAdc) 0-10kΩ
"D" & "X5" models ..... (0-10, 0-5Vdc) ..... 2kΩ min.
"E", "E2" & "EA" models .. (4-20 & 0-20mAdc) 0-500Ω
Response Time ..... <200ms

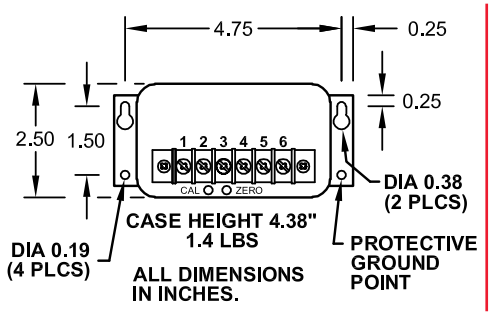
ACCURACY ..... ±0.05% Rdg. ±0.05% Span

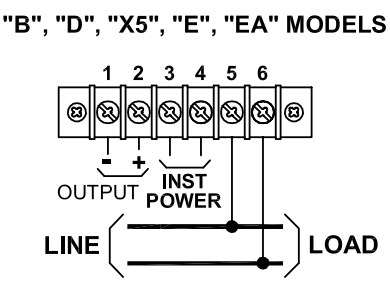
Output Ripple ..... ±1.0% F.S.

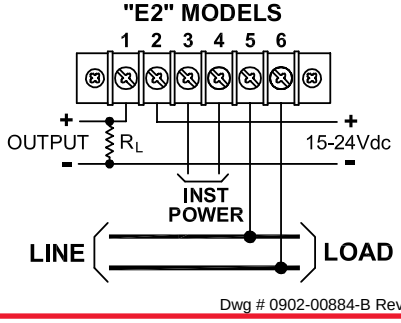
TEMPERATURE

Operating Range ..... -20ºC to 60ºC
Effect ..... ±0.005%/ºC

CONNECTION DIAGRAMS AND CASE DIMENSIONS







Dwg # 0902-00884-B Rev --

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FREQUENCY TRANSDUCER — MODEL DFT-

DIN-RAIL-MOUNTED FREQUENCY TRANSDUCER

FEATURES

- Frequency measurement of sinusoidal and distorted waveforms.
- Digital period measurement.
- Analog output.

5 YEAR WARRANTY

APPLICATIONS

- For use on any application that requires indication of instantaneous frequency.
- Where CE or CSA is required.

MODEL SELECTION

INPUT FREQUENCY (Hz)	STANDARD OUTPUTS MODEL DFT-				
	0-1mAdc	0-10Vdc	0-5Vdc	4-20mAdc	0-20mAdc
45-55	050B	050D	050X5	050E	050EA
55-65	060B	060D	060X5	060E	060EA
375-425	400B	400D	400X5	400E	400EA

All standard models require instrument power.
Additional frequency and voltage ranges available - Consult factory
Wide-range Frequency Transducers also Available - Consult factory

ORDERING INFORMATION

Example: 55-65Hz Input with 0-5Vdc Output.

DFT-060X5

DIN Rail lengths available - Consult factory

SPECIFICATIONS

INPUT

Frequency Range .....See Table
Voltage Range 10-230Vac
Burden ..... <1.0VA
Overload ..... 120% F.S. voltage continuous
200% F.S. voltage for 1 second

OUTPUT

Loading
"B" models.....(0-1mAdc).....0-15kΩ
"D", "X5" models .....(0-10, 0-5Vdc) ..... 2.5kΩ min.
"E" & "EA" models .....(4-20, 0-20mAdc) 0-750Ω
Response Time..... 4 Periods of Input Frequency

INSTRUMENT POWER

Standard 85-230Vdc/ac, 50/60Hz, 3.5VA

DIELECTRIC TEST

Input to Instrument Power/Output/Case.....3700Vac
Instrument Power to Output/Case.....3700Vac
Output to Case.....490Vac

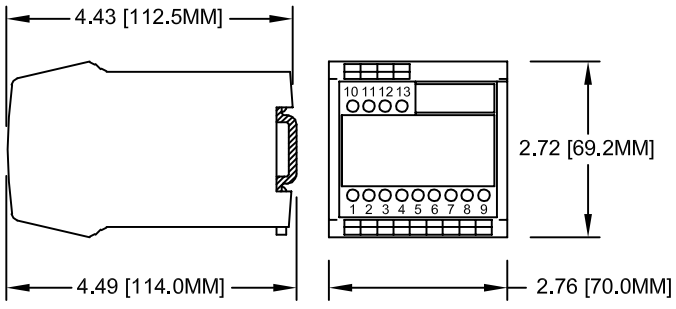
ACCURACY

50Hz, 60Hz Models..... ±0.02Hz
400Hz Model..... ±0.1Hz
Output Ripple..... <0.5% p.p.

TEMPERATURE & PHYSICAL

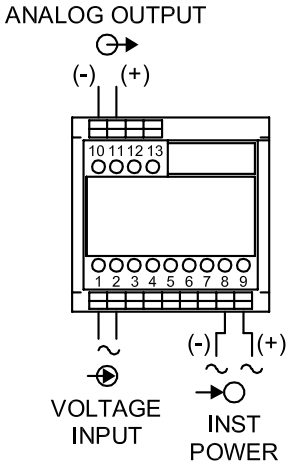
Temperature Range .....-10ºC to 55ºC
Termination .....#10 AWG max.
Net Weight .....0.7 Lbs.

CASE DIMENSIONS AND CONNECTION DIAGRAM



NOTES
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00869-B Rev --



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WIDE-RANGE FREQUENCY TRANSDUCER *MODEL* DFTA-

FEATURES

- Provides analog output which is proportional to the input frequency over wide ranges.
- Digital period measurement delivers accurate frequency measurement.

APPLICATIONS

- For use on any application that requires measurement for generation or energy management.
- Applications that require compact DIN packaging or CE & CSA approvals.

5 YEAR WARRANTY

MODEL SELECTION

INPUT FREQUENCY (Hz)	STANDARD OUTPUTS MODEL DFTA-				
	0-1mAdc	0-10Vdc	0-5Vdc	4-20mAdc	0-20mAdc
10-55	005B	005D	005X5	005E	005EA
10-65	004B	004D	004X5	004E	004EA
10-100	002B	002D	002X5	002E	002EA
10-425	006B	006D	006X5	006E	006EA
10-1000	003B	003D	003X5	003E	003EA

All standard models require instrument power.

Additional frequency and voltage ranges available - Consult factory

Differential Frequency Transducers also Available - Consult Factory

ORDERING INFORMATION

Example: 10-100Hz, 10-100V Input, 0-5Vdc Output proportional to 10-100Hz.

DFTA-002X5

DIN Rail lengths available - Consult factory

SPECIFICATIONS

INPUT

Frequency Range ..... See Table
Voltage Range 10-230V
AC Waveforms ..... Sine, square or triangle
Burden ..... <1.0VA
Overload ..... 120% F.S. Voltage

OUTPUT

Loading
"B" models ..... (0-1mAdc) 0-15kΩ
"D" & "X5" models .... (0-10Vdc, 0-5Vdc) ..... 2.5kΩ min.
"E" & "EA" models .... (4-20mAdc, 0-20mAdc) 0-750Ω
Response Time ..... 4 Periods of Input Frequency

INSTRUMENT POWER

Standard 85-230Vdc/ac, 50/60Hz, 3.0VA

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

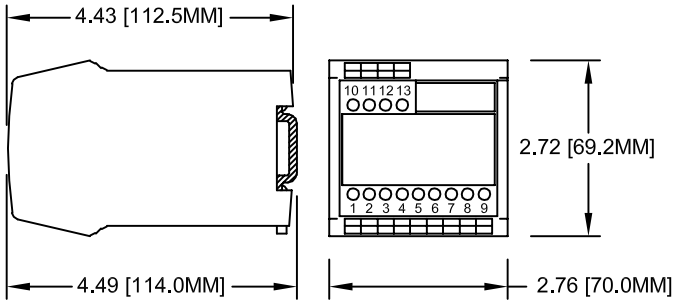
ACCURACY ..... ±0.2% of Span

Output Ripple ..... <0.5% p.p.

TEMPERATURE & PHYSICAL

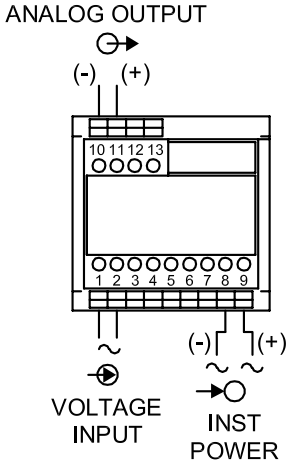
Temperature Range ..... -10ºC to 55ºC
Termination ..... #10 AWG max.
Net Weight ..... 0.7 lbs

CASE DIMENSIONS AND CONNECTION DIAGRAM



NOTES
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00869-B Rev --



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PROCESS SIGNAL CONDITIONERS — MODEL SG-

FEATURES

- Isolated linear output from a standard or non-standard input process signal.
- Factory calibrated for various input and output signals.

5 YEAR WARRANTY

APPLICATIONS

- Process control
- Signal isolation
- Signal conversion

MODEL SELECTION

SG – ☐ – ☐ – ☐ (no dash) ☐

RATED INPUT		RATED OUTPUT		INSTRUMENT POWER		ADJUSTMENT OPTION	
1	0-1mAdc	01	0-1mAdc	H	115Vac	(Blank)	±10% Output Span Adj. ±1% Zero Adj.
2	0-10Vdc	02	0-10Vdc	G	230Vac	1	50% Output Span Adj.
3	0-5Vdc	03	0-5Vdc			2	+10% Output Span Adj. 50% Zero Adj.
4	1-5Vdc	04	1-5Vdc			3	50% Output Span Adj. 50% Zero Adj.
5	0-20mAdc	05	0-20mAdc				
6	4-20mAdc	06	4-20mAdc				
7	20-4mAdc	07	0-5mAdc				
8	10-50mAdc	08	4-20mA loop powered				
		09	4-12-20mAdc				

ORDERING INFORMATION

Example: 4-20mAdc Input and 0-1mAdc Output, 115Vac Instrument Power, Adj. Option1

SG-6-01-H1

SPECIFICATIONS

INPUT

Type ..... See Table
Burden
- 0-1mA models 1kΩ
- 0-5V, 0-10V and 1-5V models ..... min. 100kΩ
- 0-20mA, 4-20mA and 20-4mA models 250Ω
- 10-50mA models 100Ω

Over-range ..... 2 X rated input.
Response Time 1ms

DIELECTRIC TEST

Input to Output 1000Vdc
Input/Output to Instrument Power. 1500Vdc

INSTRUMENT POWER

Standard (option H) 95-135Vac, 50-400Hz, 3.5VA
Option G 230Vac, 50-60Hz
Optional DC instrument power ..... Consult Factory

OUTPUT

Loading
- 0-1mA models 0-10kΩ
- 0-5mA models 0-2.4kΩ
- 0-5V, 0-10V models ..... >2kΩ
- 1-5V models ..... >2kΩ
- 0-20mA, 4-20mA & 4-12-20mA models 0-600Ω

Response Time 10ms

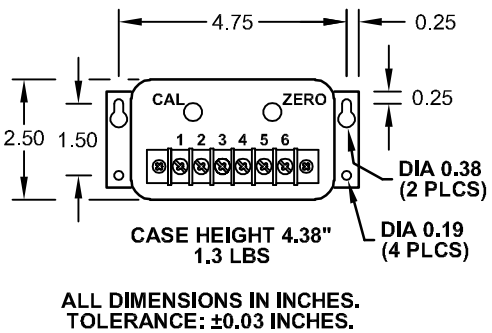
ACCURACY

Set Point ..... ±0.25% F.S.
Linearity ..... ±0.1% F.S.
Output Ripple ..... <±0.5% F.S.

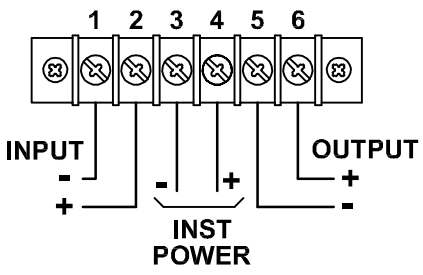
TEMPERATURE & PHYSICAL

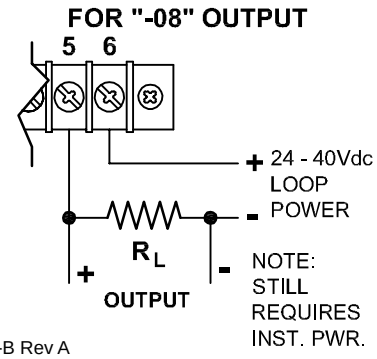
Temperature Operating Range ..... -20ºC to 65ºC
Temperature Effect ..... ±0.01%/ºC
Termination ..... #14 AWG max.

CASE DIMENSIONS AND CONNECTION DIAGRAMS



ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.





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PROCESS SIGNAL CONDITIONERS — MODEL MSG-

DIN-RAIL MOUNTING

FEATURES

- Isolated linear output from a standard or non-standard input process signal.
- Factory calibrated for various input and output signals.
- DIN-style case

APPLICATIONS

- Process control
- Signal isolation
- Signal conversion

MODEL SELECTION

MSG – ☐ – ☐ – ☐

RATED INPUT		RATED OUTPUT		INSTRUMENT POWER	
1	0-1mAdc	01	0-1mAdc	H	115Vac
2	0-10Vdc	02	0-10Vdc	5	5Vdc
3	0-5Vdc	03	0-5Vdc	12	12Vdc
4	1-5Vdc	04	1-5Vdc	15	15Vdc
5	0-20mAdc	05	0-20mAdc	24	24Vdc
6	4-20mAdc	06	4-20mAdc		
7	20-4mAdc	07	0-5mAdc		
8	10-50mAdc				
9	0-50mVdc				
10	0-100mVdc				

ORDERING INFORMATION

Example:
4-20mAdc Input and 0-1mAdc Output, 115Vac Instrument Power.

MSG-6-01-H

5 YEAR WARRANTY

SPECIFICATIONS

INPUT

Current, Voltage ..... See Table
Burden
- 0-1mA models 1kΩ
- 5V, 10V, 1-5V, 50mV and 100mV models..... min. 100kΩ
- 0-20mA, 4-20mA and 20-4mA models 100Ω
- 10-50mA models 40Ω

Over-range ..... 2 X rated input.
Response Time 1ms

DIELECTRIC TEST

Input to Output 1000Vdc
Input/Output to Instrument Power. 1500Vdc

INSTRUMENT POWER

Standard 95-135Vac, 50-400Hz, 3.5VA
Optional ..... See Table

OUTPUT

Current, Voltage ..... See Table
Loading
- 0-1mA models 0-10kΩ
- 0-5mA models 0-2kΩ
- 0-5V and 0-10V models..... >2kΩ
- 1-5V models ..... >1MΩ
- 0-20mA and 4-20mA models..... 0-500Ω

Response Time 10ms
Field-Adjustable Cal..... Span ..... ±10%
Zero ..... ±1%

ACCURACY ..... Set Point ..... ±0.25% F.S.

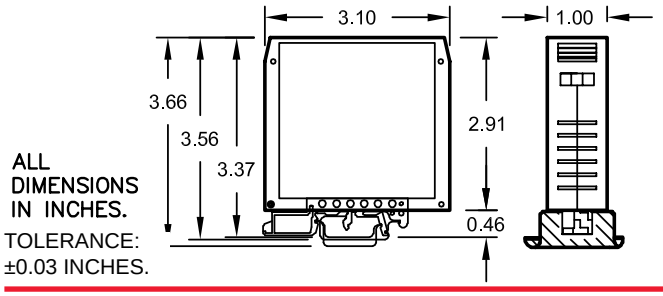
Linearity ..... ±0.1% F.S.
Ripple ..... <±0.5% F.S.

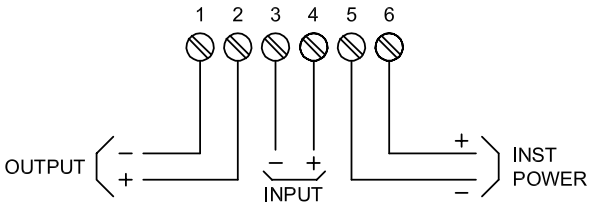
TEMPERATURE & PHYSICAL

Operating Temperature Range ..... -20ºC to 65ºC
Temperature Effect..... ±0.01%/ºC
Termination ..... #14 AWG max.
Net Weight ..... 0.24 lb

CASE DIMENSIONS AND CONNECTION DIAGRAMS

MOUNTS ON STANDARD 35MM TOP-HAT DIN-RAIL
PER EN50022 OR 32MM "G" RAIL PER EN50035.





Dwg# 0902-00865-B Rev --

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PRECISION INTEGRATOR — MODEL VFC-

CONVERTS DC INPUT TO TIME-INTEGRATED PULSE

FEATURES

- Provides relay closure rate which is proportional to the time integral of the input signal.

APPLICATIONS

- Designed for use with DC, pulsating DC, or DC with AC components.

5 YEAR WARRANTY

MODEL SELECTION

INPUT RANGE	CLOSURE RATE (COUNTS/HR)	STANDARD MODELS
0-50mVdc	0-10000	VFC-010
0-100mVdc	0-10000	VFC-020
0-150mVdc	0-10000	VFC-030
0-250mVdc	0-10000	VFC-040
0-1mAdc	0-10000	VFC-050
0-10Vdc	0-10000	VFC-060
4-20mAdc	0-10000	VFC-070
0-5Vdc	0-10000	VFC-080

Custom count rates available - Consult factory
Optional 230Vac Instrument Power - Add suffix "-22"

ORDERING INFORMATION

Example: 0-150mV Input, 10,000Cts/hr at F.S., 230Vac Inst. Pwr.

VFC-030-22

SPECIFICATIONS

INPUT

Type ..... See Table
Overload ..... 10Vdc max.
Impedance
Voltage input models ..... >1MΩ
Current input models ..... <200Ω
Frequency ..... dc with up to 100% ripple @ ≥120Hz

INSTRUMENT POWER

Standard 85-135Vac, 50-400Hz, 3.5VA
"-22" Option ..... 230Vac, 50/60Hz, ±15%

OUTPUT

Relay ..... N/O SPST, 120V, 0.5A contact rating
Relay closure period 200ms

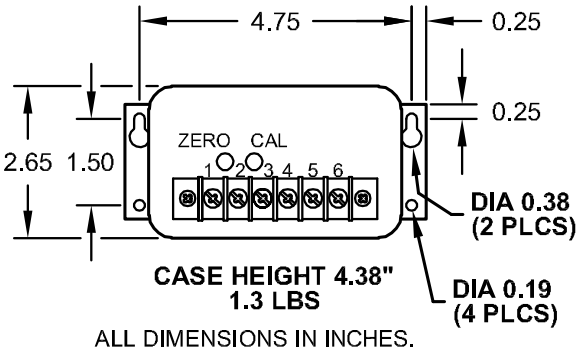
ACCURACY ..... ±0.25% F.S.

Linearity ..... ±0.1% F.S.

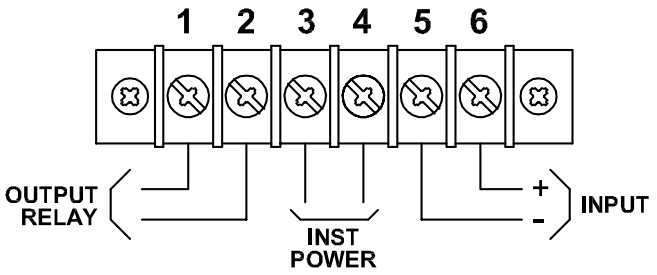
TEMPERATURE

Operating Range ..... -10ºC to 60ºC
Effect ..... ±0.5%

CASE DIMENSIONS & CONNECTION DIAGRAM



ALL DIMENSIONS IN INCHES.



Dwg# 0902-00889-B Rev A

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DIGITAL AC POWER MONITOR — MODEL DSP-

DESCRIPTION

The DSP is a three-phase, three-element multifunction digital transducer with outputs for voltage, current, and power via serial communication. Applications include 4-wire and 3-wire circuits with external current transformers where needed. Voltage and current ratings are programmable to obtain primary scaling.

Measurements include: 3 line-to-line and 3 line-to-neutral voltages, 3 currents, 3 per-phase power, total power and frequency. All measurements are true RMS values. Data is available via a serial RS-422 port using a simple ASCII protocol. (See below for RS-232C option.)

A PC data system and LabVIEW™ driver are available for programming and reading the DSP. Consult factory for free application software.

5 YEAR WARRANTY

SPECIFICATIONS

INPUTS	MODEL DSP-007	MODEL DSP-008
Voltage (Line-Line/Line-Neutral)	300/175Vac	600/345Vac
Current (secondary)	0-5 Amps	0-5 Amps
Power measurement range	1-1000 W/element	2-2000 W/element
Frequency	48-62Hz	48-62Hz
Power Factor	1.0-0.1 Lag and Lead	1.0-0.1 Lag and Lead

SERIAL COMMUNICATION

Hardware..... RS-422, 9-Pin D connector
Parameters... 9600 Baud, 8 data bits, 1 stop bit, no parity

DIELECTRIC TEST

Input/Instrument Power to Output 1000Vac
Input/Instrument Power/Output to Case.....1500Vac

INSTRUMENT POWER

Standard..... 115Vac, ±10%, 50/60Hz, 5VA
"-22" Option ..... 230Vac, 50/60Hz, ±10%

TEMPERATURE & PHYSICAL

Temperature Effect...(-10ºC to 60ºC).....±0.005%/ºC
Weight ..... 3.4 lbs.

ORDERING INFORMATION

Example: Three-Phase, Four-Wire, 480/277V, 5A, 60Hz with 230V Instrument Power.

DSP-008-22

ACCURACY

Volts, Amps ..... ±0.1% F.S.
Power ..(10%-100%) .....±0.1% Rdg., ±0.05% F.S.
Frequency ..... ±0.1%, ±0.1Hz
Power Factor ..... ±0.01 PF

FUNCTION	RESOLUTION	UNIT OF MEASURE
Line-to-neutral RMS Volts, 3 phases	4 digits (XXX.X)	Volts
Line-to-line RMS Volts, 3 phases	4 digits (XXX.X)	Volts
Per-Phase Current, 3 phases	4 digits (XXXX)	mA or Amps *
Per-Phase Power	6 digits (XXXX.XX)	Watts or kW *
Total Power	6 digits (XXXX.XX)	Watts or kW *
Frequency (measured at L1-N)	4 digits (XXX.X)	Hz
Power Factor	3 digits (X.XX)	PF

*CT Rating is programmable by serial communication from 5 - 5000.
If current units are in Amps, then Watt reading is in kilowatts. If units are in milliamperes, Watt reading is in Watts

ANALOG OUTPUT OPTION

The model D/A-4653 is a 24Vdc-powered serial converter providing 8 channels of 4-20mAdc analog output. The converter connects to the serial port of a model DSP and converts the serial data to 4-20mAdc analog signals. Consult factory for details and pricing.

RS-232C DATA CONVERTER OPTION

The model IFC-4498 is a full-duplex RS-232C and RS-422 data converter. It connects to the serial RS-422 port of the DSP and the provides a standard 9-pin D connector for attaching to a PC. Consult factory for details and pricing.

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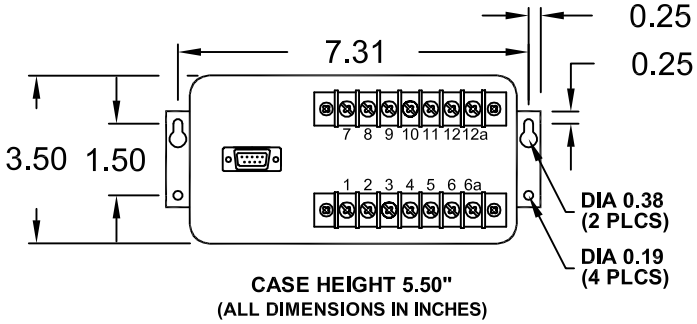
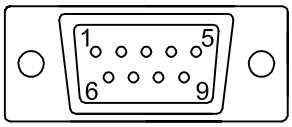
DIGITAL AC POWER MONITOR — MODEL DSP-

CASE DIMENSIONS



CASE HEIGHT 5.50"
(ALL DIMENSIONS IN INCHES)

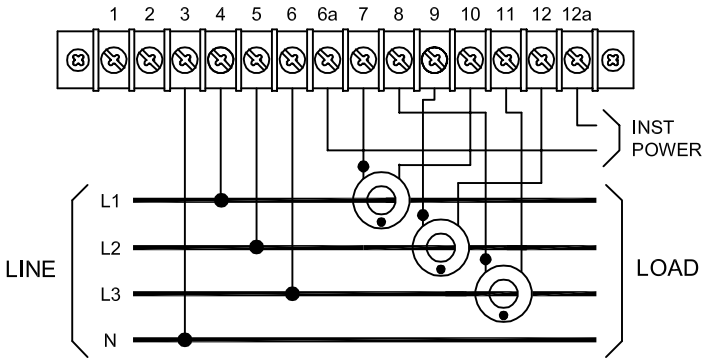
COMMUNICATIONS



SIG	PIN
+5V	2
COM	1
TX+	4
TX-	5
RX+	8
RX-	9

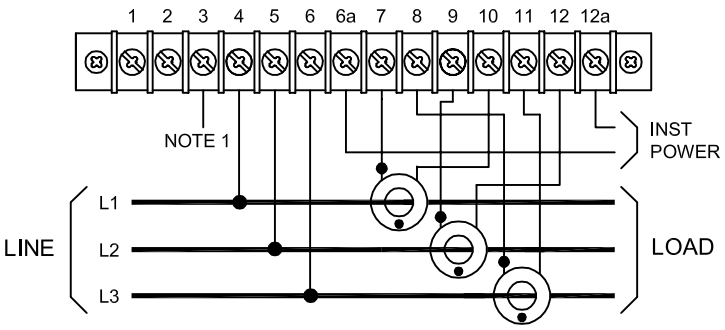
CONNECTION DIAGRAMS

THREE-PHASE, FOUR-WIRE SYSTEM



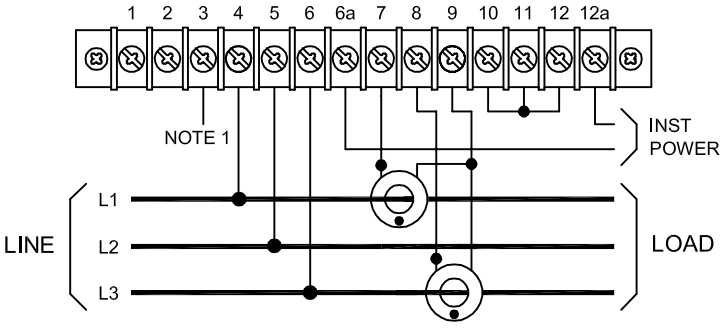
THREE-PHASE, THREE-WIRE SYSTEM
(THREE CURRENT TRANSFORMERS)

NOTE: Connection of device voltage neutral to system neutral is recommended but not required. In this configuration, all three phase currents are measured. Individual phase power is dependent on system voltage balance if neutral is not connected. Total power accuracy is not dependent on voltage balance.



THREE-PHASE, THREE-WIRE SYSTEM
(TWO CURRENT TRANSFORMERS)

NOTE: Connection of device voltage neutral to system neutral is recommended but not required. In this configuration, all three phase currents are measured. Individual phase power is dependent on system voltage balance if neutral is not connected. Total power accuracy is not dependent on voltage balance. L2 current is derived for this connection as L2 = -(L1+L3)



Dwg # 0902-00883-B Rev --

MULTIFUNCTION POWER TEST BOARD *MODEL* PTB-

VOLTS, AMPS, WATTS, WATTHOURS, POWER FACTOR & VA

DESCRIPTION

The PTB board-level system monitor is designed to measure and provide analog output signals for all parameters of voltage, current, and total power in an electrical system. Optional outputs are available for power factor, apparent power, and Watthours as plug-in "daughter" boards.

The PTB comes standard with seven analog outputs for voltage, current, and power. As options, 0-10Vdc, 0-1mAdc and 4-20mAdc outputs are available.

The 10.75" x 8.9" x 2.5" circuit board is provided with mounting holes to fit a 10" x 12" NEMA case (option C) or the circuit board can be mounted in the user's cabinet with the stand-offs provided. Input and output terminals are located directly on the circuit board.

The electronic circuitry uses solid-state multipliers, RMS converters, and amplifiers. 115Vac or 230Vac instrument power options are available.

PTM Rack-mount models available - Consult factory

FEATURES

- Small Package
- Less Wiring
- High Accuracy
- Up to 9 Analog Outputs
- Circuit Board Design
- Direct Input to 600Vac
- Low Cost
- Calibrated with CTs

5 YEAR WARRANTY

MODEL SELECTION

PTB – □ □ □ □ □ □ □ □

SYSTEM		VOLTS		AMPS		SENSOR SIZE	OUTPUTS		INST. PWR.		OPTION P	OPTION W	OPTION C
1	1Φ2W	1	0 - 150 Vac	1	0 - 5 Aac	(none)	D	0 - 10Vdc	1	115Vac	Apparent Power & Power Factor	Watthours	NEMA Case
2	3Φ3W	2	0 - 300 Vac	2	0 - 100 Aac	W	B	0 - 1mAdc	2	230Vac			
3	*3Φ4W	3	0 - 600 Vac	3	0 - 200 Aac	W	E	4 - 20mAdc					
4	*1Φ3W			4	0 - 400 Aac	X							

*Specify L-N Voltage

NOTE: External current sensors are included with models having an input current range of 100A and above (PTB-xx2xxx, PTB-xx3xxx, and PTB-xx4xxx models). For details, see dimension and connection diagrams.

ORDERING INFORMATION

Example: 3Φ3W, 2-element system, 0-150Vac & 0-100Aac Inputs, 0-10Vdc & Watthour Outputs, 115Vac instrument power, in NEMA case

PTB-212D1WC

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OSI SPECIFICATIONS & DIMENSIONS — MODEL PTB-

SPECIFICATIONS

INPUT

Voltage
- F.S. Linear Range ..... See Table
- Over-voltage ..... 150Vac models 175Vac
  - 300Vac models 350Vac
  - 600Vac models 610Vac
- Burden .....<0.25VA/Phase

Current
- F.S. Linear Range ..... See Table
- Over-current (continuous)
  - 0-5A models..... 10Aac
  - All other models.. 125% of F.S.
- Burden .....<0.25VA/Phase

Frequency Range..... (Linear) 48-70Hz

Power Factor ..... Any

DIELECTRIC TEST..... (Input To Outputs)..... 1500Vac

OPTIONS P, W or C

Apparent Power (VA)..... **Same Formula as Watts

Power Factor .....0-1 Lead or Lag

Watthours
- 0-5A Models ..... 1 Wh/Cnt
- 0-100A Models ..... 20 Wh/Cnt
- 0-200A Models ..... 40 Wh/Cnt
- 0-400A Models ..... 80 Wh/Cnt

Relay Rating..... 120V, 0.5A

Relay Closure Duration 200ms

OUTPUT

(Output range shown for D models. See table for other options.)

Voltage (RMS) (3) ..... 0-F.S. Volts Input = 0-10Vdc Output

Current (RMS) (3) ..... 0-F.S. Amps Input = 0-10Vdc Output

Watts (True Power) ..... 0-F.S. Watts Input = 0-10Vdc Output

**F.S. Watts = F.S. Volts x F.S. Amps x No. of Elements x 0.8

Output Burden ..... 10V models ..... >2kΩ
- 1mA models..... 0-10kΩ
- 20mA models.... 0-500Ω

Ripple ..... <±1% F.S

Response Time 250ms

ACCURACY (Includes linearity, setpoint & power factor at 25°C)

5A Models ..... Voltage ..... ±0.3% F.S.
- Current ..... ±0.3% F.S.
- Power ..... ±0.3% F.S.

100A - 400A Models ..... Voltage ..... ±0.5% F.S.
- Current ..... ±0.5% F.S.
- Power ..... ±0.5% F.S.

Watthours ..... (Option) ..... ±0.5% F.S.

Power Factor(10-100% Input).. (Option) ..... ±0.01 PF

TEMPERATURE

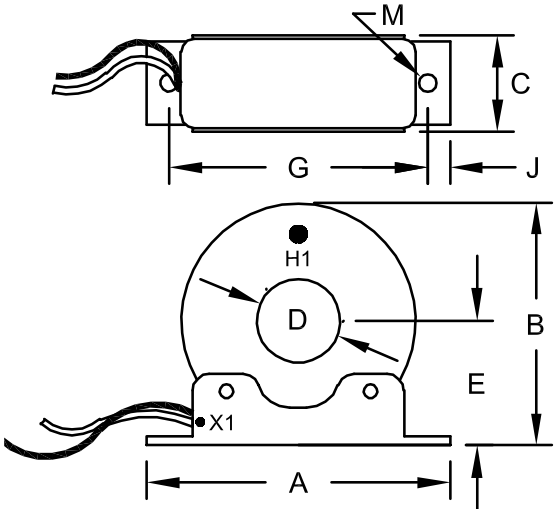
Temperature Effects ..... (10º to 35ºC) .....±0.5%

INSTRUMENT POWER

Option 1..... 115Vac, ±15%, 50-400Hz, 8.5VA

Option 2..... 230Vac, ±15%, 50/60Hz, 8.5VA

CURRENT SENSOR DIMENSIONS



LEAD LENGTH IS 24 INCHES.
WHITE LEAD IS X1.

SENS. SIZE	SENSOR DIMENSIONS (in inches)								WT. LBS.
	A	B	C	D	E	G	J	M	
W	4.50	3.7	1.25	1.25	1.94	3.88	0.34	0.27 x 0.44	1.43
X	6.50	4.7	1.25	2.50	2.46	5.75	0.39	0.28	1.61

Dwg# 0902-00921-B Rev --

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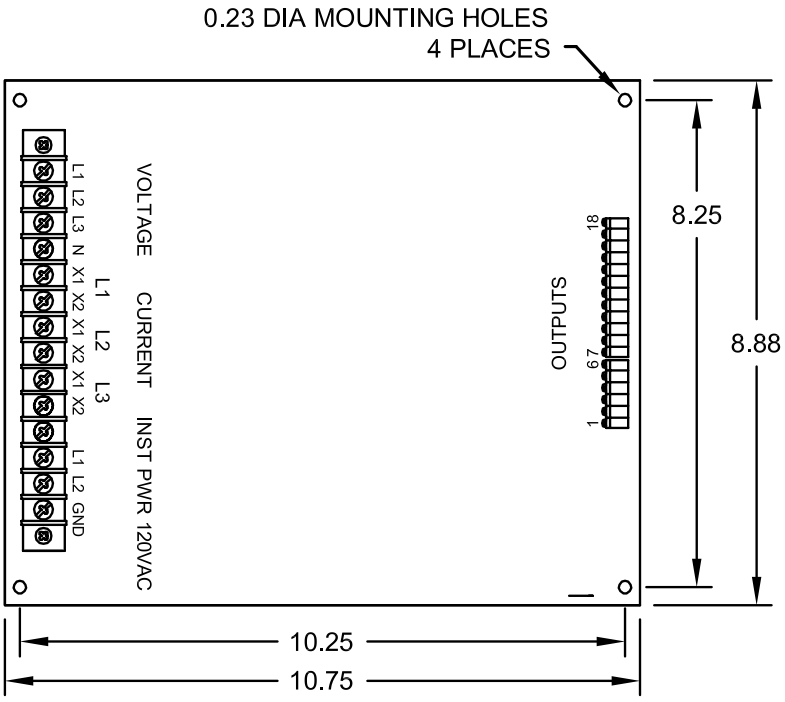
DIMENSIONS & CONNECTIONS

MODEL PTB-



(All dimensions in inches)

OPTIONAL NEMA CASE
Dimensions..... 12" X 10" X 4"
Mounting.... 12.5" X 8.12", 0.22" Dia. Holes
Weight ..... 3.0 lbs.

Dwg# 0902-00890-B Rev --

OUTPUT CONNECTIONS

1Φ2W SYSTEM		3Φ3W SYSTEM			3Φ4W SYSTEM			1Φ3W SYSTEM		
1	Watthour Relay	1	Watthour Relay		1	Watthour Relay		1	Watthour Relay	
2		2			2			2		
3	N/A	3	N/A		3	N/A		3	N/A	
4	N/A	4	N/A		4	N/A		4	N/A	
5	Common	5	Common		5	Common		5	Common	
6	Common	6	Common		6	Common		6	Common	
7	Common	7	Common		7	Common		7	Common	
8	Power Factor	8	Power Factor		8	Power Factor		8	Power Factor	
9	Volt-Amperes	9	Volt-Amperes		9	Volt-Amperes		9	Volt-Amperes	
10	Watts	10	Watts		10	Watts		10	Watts	
11	Common	11	Common		11	Common		11	Common	
12	N/A	12	L3	Current	12	L3	Current	12	N/A	Current
13	N/A	13	L2		13	L2		13	L2	
14	Current	14	L1		14	L1		14	L1	
15	Common	15	Common		15	Common		15	Common	
16	N/A	16	L1-L2	Voltage	16	L3-N	Voltage	16	N/A	Voltage
17	N/A	17	L2-L3		17	L2-N		17	L2-N	
18	Voltage	18	L3-L1		18	L1-N		18	L1-N	

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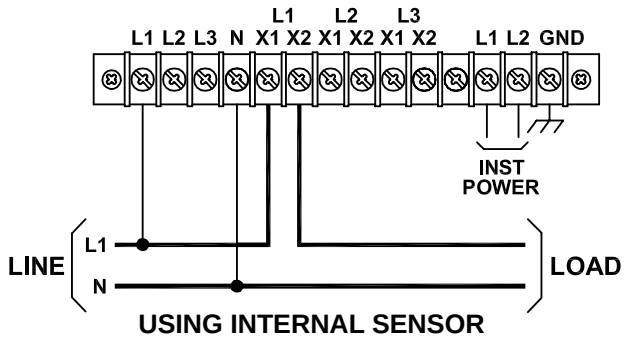
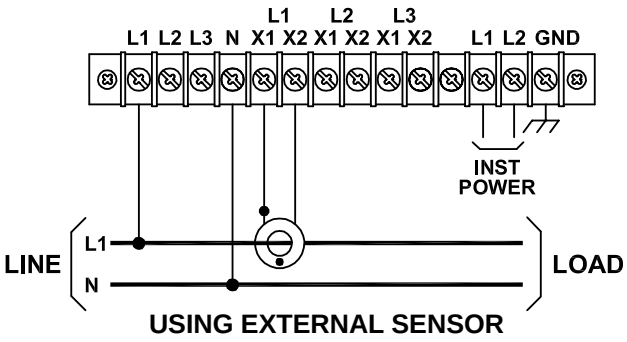
OSI INPUT CONNECTION DIAGRAMS MODEL PTB-

SINGLE-PHASE, TWO-WIRE CONNECTIONS

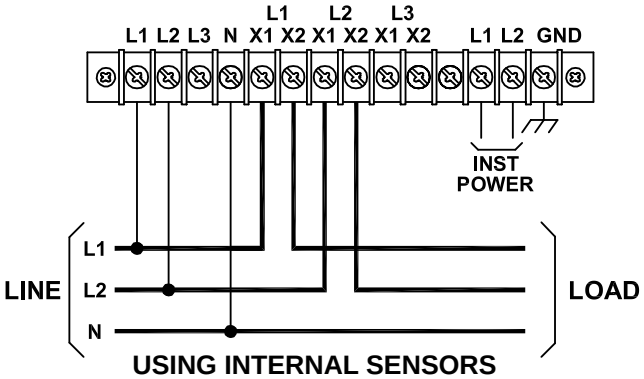


USING INTERNAL SENSOR

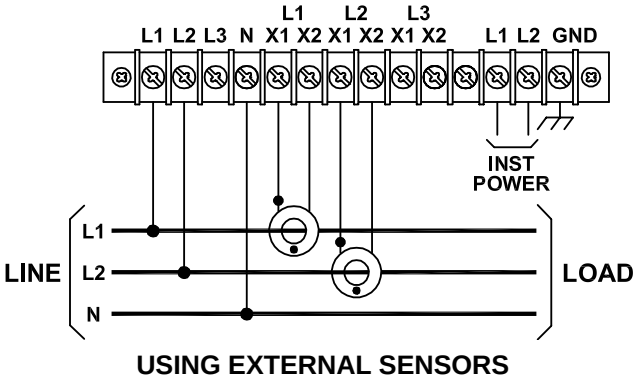


USING EXTERNAL SENSOR

SINGLE-PHASE, THREE-WIRE CONNECTIONS

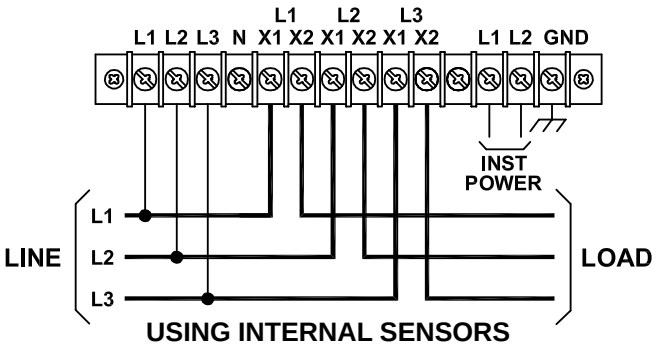


USING INTERNAL SENSORS

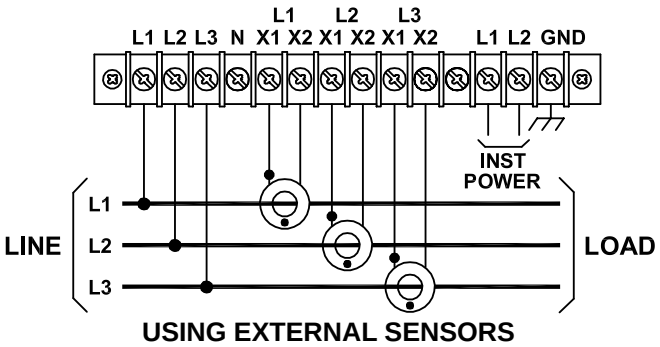


USING EXTERNAL SENSORS

THREE-PHASE, THREE-WIRE CONNECTIONS

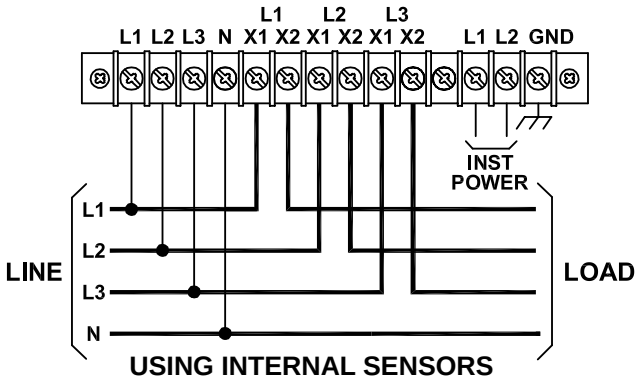


USING INTERNAL SENSORS

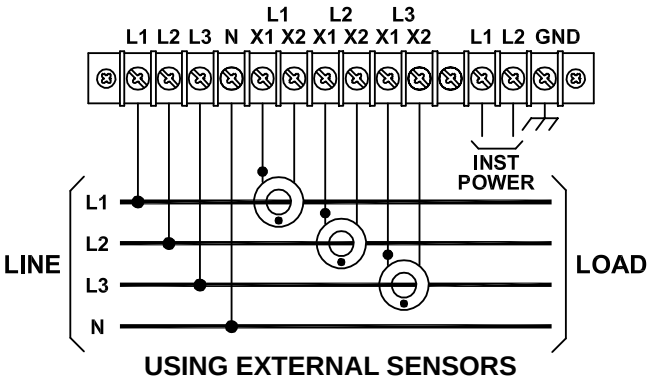


USING EXTERNAL SENSORS

THREE-PHASE, FOUR-WIRE CONNECTIONS



USING INTERNAL SENSORS



USING EXTERNAL SENSORS

Dwg# 0902-00890-B Rev --

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POWER DISPLAY METER — MODEL PDM-

DESCRIPTION

The Model PDM power display meter measures and displays voltage, current, power and energy parameters for single-phase or three-phase systems. Voltages up to 600Vac and currents up to 5Aac are directly connected to the unit. Current Transformers are available in both solid-core (best accuracy) and split-core (most flexible) types to extend the current measurement range.

Local display is provided by three LED displays. Displayable parameters are grouped into four sets of three parameters each with the groups selectable by front panel push-button. Remote display modules may be added as required to provide dedicated display of up to eighteen different parameters.

Analog outputs are provided by adding one or more D/A-4772 converters. Each of these converters provides up to eight output signals which may be assigned to any eight parameters.

Serial communications are provided through either an RS-232C, RS-422, RS-485 or USB interface, using a simple ASCII protocol. (USB is through an external RS-232C-to-USB adapter.)

FEATURES

- High accuracy over a wide range of measurement.
- Suitable for applications with PWM-generated waveforms such as variable-speed motor controls.
- Accommodates a wide variety of current sensors for many applications.
- Serial communication port options: RS-232C, RS-422, RS-485 or USB (through an external RS-232C-to-USB adapter)
- Simultaneous local display of three parameters on 5-digit, red, high-contrast LED displays.
- Measures true RMS voltage and current even with the presence of harmonics (distortion).
- Remote displays available.
- Analog output converters available.

MODEL SELECTION

PDM - □ - □ - □ - □ - □ - □

	VOLTAGE INPUT (Nominal) 3Φ 4W	3Φ 3W	1Φ 3W	1Φ 2W
1	120VL-N/ 208VL-L	120VL-L, 240VL-L	120VL-N/ 240VL-L	120VL-N
2	277VL-N/ 480VL-L	240VL-L, 480VL-L	N/A	240VL-N

	CURRENT INPUT
1	0 - 0.1A
2	0 - 5A

	SERIAL COMM.
1	RS-232C
2	RS-422
3	RS-485
4	External RS-232C to USB adapter

	FREQUENCY
1	50/60Hz, Nominal
2	400Hz, Nominal
*3	25-130Hz Variable Frequency Drives

	INSTRUMENT POWER
1	115Vac
2	230Vac

	OPTIONS (leave blank for standard unit)
A	Without Local (front panel) Displays
B	With Streaming RS-485 Output for Remote Displays or D/A Converter.
**C	Internal Power Supply for up to 8 Remote Displays

* Available with 0.1A Current Input only.

**Using more than 8 remote displays requires an external power supply.

NOTE: 0.1A Current Inputs may be used only with external CTs. 5A Current Inputs may be direct-connected or used with external CTs.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 3Φ3W, 0-120Vac Input, 0-5A Input, USB Serial Communications, 50/60Hz, 230Vac Instrument Power, with Streaming RS-485 analog output and internal power supply for remote displays.

PDM-1-2-4-1-2-BC

Measured parameters, local display arrangement, communication data strings, etc. may be customized by completing a PDM Configuration Worksheet at time of ordering. Consult factory for additional information.

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SPECIFICATIONS & DIMENSIONS — MODEL PDM-

INPUT

Voltage Range
- Type 1 ..... 0-175V_{L-N}/300V_{L-L}
- Type 2 ..... 0-346V_{L-N}/600V_{L-L}
- Over-range (without damage) ..... 120% of Range
- Burden ..... (Nominal at maximum input) 0.5mA

Current Range
- Type 1 ..... (for use with CTs only) 0-0.1Aac
- Type 2 ..... (direct or with CTs) 0-5Aac
- Over-range (without damage) ..... 120% of Range
- Burden ..... (Nominal at maximum input)
  - Type 1 ..... 0.1VA
  - Type 2 ..... 0.5VA

Frequency Range
- Type 1 ..... 50/60Hz ±10%
- Type 2 ..... 400Hz ±10%
- Type 3 ..... 25-130Hz, Variable (Available Only with Current Type 1)

Power Factor ..... Any

INSTRUMENT POWER

- Type 1 ..... 115Vac ±15%, 50/60Hz, 10VA
- Type 2 ..... 230Vac ±15%, 50/60Hz, 10VA

SERIAL COMMUNICATIONS

- Type 1 ..... RS-232C
- Type 2 ..... RS-422
- Type 3 ..... RS-485
- Type 4 ..... USB

NOTE: USB comm. is through an RS-232C-to-USB adapter

OPTIONAL ACCESSORIES (consult factory)

1. Current transformers: solid or split-core
2. Remote display (P/N 21967): 5 digit, LED, up to 18 per unit.
3. Analog output converter (P/N D/A-4772): 8 channels each.

ACCURACY (typical setpoint, linearity and repeatability)

Voltage, Current, Volt-Amps and VARs (10% - 100% of range)
- Frequency Type 1 or 2 ..... ±0.1% F.S.
- Frequency Type 3 ..... ±0.25% F.S.

Power and Energy (Wh)
- Frequency Type 1 or 2 ..... ±0.1% F.S.
- Frequency Type 3 ..... ±0.25% F.S.

Power Factor
- Frequency Type 1 or 2 ..... ±0.01PF
- Frequency Type 3 ..... ±0.02PF

Frequency
- Frequency Type 1 or 2 ..... ±0.1% Rdg., ±0.02% F.S.
- Frequency Type 3 ..... ±0.1% Rdg., ±0.1% F.S.

DIELECTRIC TEST

Input/Output/Instrument Power 1800Vac

TEMPERATURE

Operating Range ..... 0ºC to 50ºC
Effect ..... ±0.005%/ºC, ±0.05% F.S.

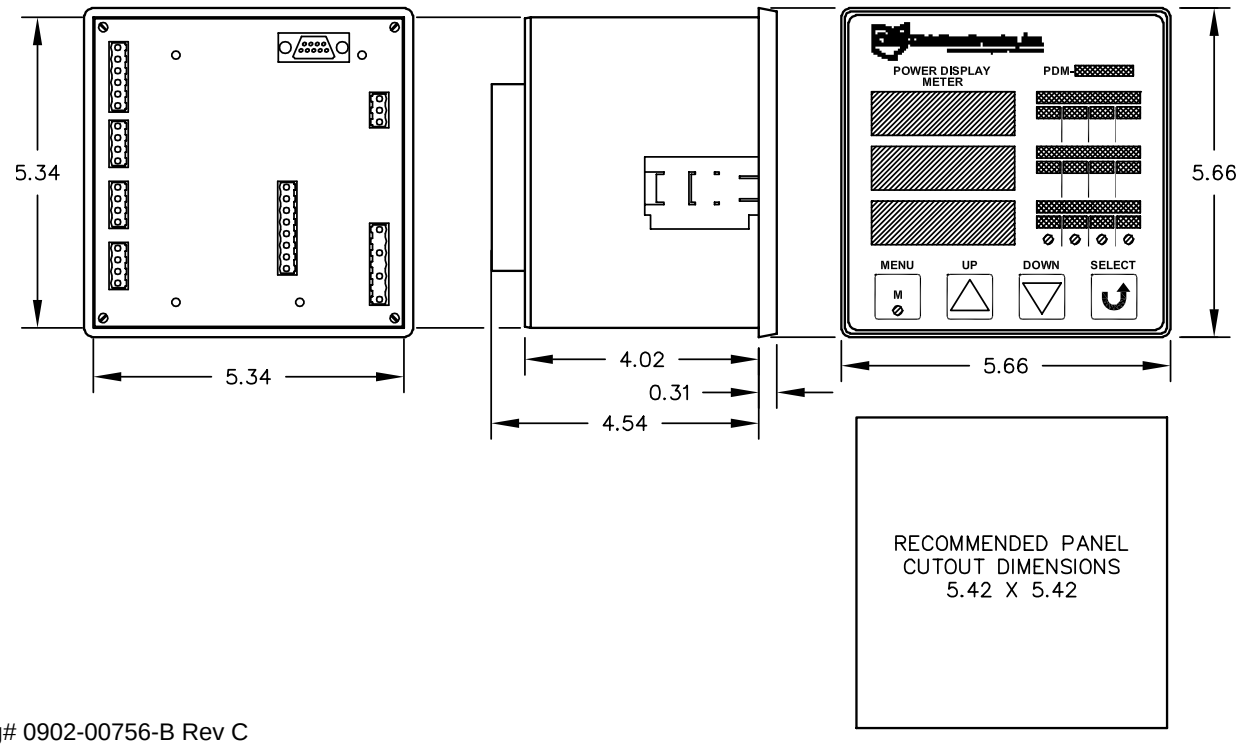
PHYSICAL

Operating Humidity ..... 0-95% non-condensing
Weight ..... 2.75lb.

ENCLOSURE ..... Noryl SE 1, UL94V-1, IP 40, Black

CONFIGURATION

Refer to the Configuration sheet supplied with each unit for specific information regarding the choice of measured parameters, local display arrangement, etc. (sheet is identified by serial number of unit).



Dwg# 0902-00756-B Rev C

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MULTIFUNCTION POWER METER — MODEL A210-

DESCRIPTION

The A210 Power Meter measures and displays voltage, current, power, and energy quantities in single-phase or three-phase power systems. The meter's multifunction capability replaces a large number of analog measurement and display devices.

A high-contrast LED display in a compact, panel-mount package provides low-cost, high-visibility control panel monitoring. The basic instrument provides up to 63 measurements that can be displayed on three 4-digit LED displays.

Two solid-state relay/pulse outputs can be used as high/low limit alarms on selected measurements or as energy pulse outputs. Scaling of inputs for direct reading in primary values is provided.

An extension module is available to extend the A210's function and flexibility. The MM/COM module provides RS-232/485 with MODBUS RTU communication protocol. The module also provides for load profile recording of active and/or reactive power quantities for up to 83 days at 15-minute intervals. Available software provides programming of the instrument, reading and retrieval of the recorded data. A pulse input can be used for synchronizing profile data timing or switching between high/low tariff energy metering with this option.

5 YEAR WARRANTY

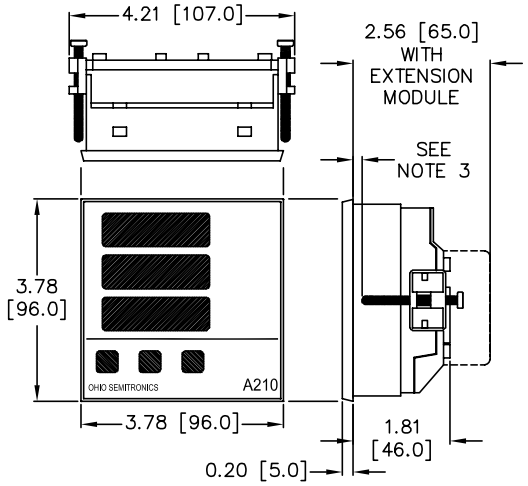
2011/65/EU • RoHS COMPLIANT

CE

FEATURES

- Measurement of current, voltage, active, reactive and apparent power, active and reactive energy, power factor and line frequency
- Single-Phase, Three-Phase Three-Wire or Three-Phase Four-Wire Sinusoidal Measurements.
- Simultaneous display of up to three measurements with 4-digit red high-contrast LED displays
- Installation size of 96mm x 96mm panel, 46mm depth behind panel (65mm with MM/COM module)
- Two pulse/relay outputs can be used for limit alarms or energy pulse outputs
- MM/COM optional extension module can be added for communications and load profile memory

OUTLINE AND DIMENSIONS



NOTES:
1. ALL DIMENSIONS IN INCHES [MM]
2. PANEL CUTOUT -
   INCHES - 3.62 (+0.03/-0.00) X 3.62 (+0.03/-0.00)
   MM - 92 (+0.8/-0.0) X 92 (+0.8/-0.0)
3. PANEL DIMENSIONS (THICKNESS, MIN-MAX) -
   INCHES 0.08-1.00
   MM 2-25.4

Dwg# 0902-00594-B Rev --

SPECIFICATIONS

DISPLAY ..... 7-segment red LED
- Character Height 0.55in/14mm
- Display Range ..... Max. 9999
- Energy ..... Max 99999999

INPUT
- Voltage ..... Nominal 500 V_{LL} 290 V_{LN}
  - Over-range ..... Nominal +20%
- Current ..... (A210-001/002) ..... Nominal 5A
  (A210-003/004) ..... Nominal 1A
  - Over-range ..... Nominal +20%
  - Overload ..... 2X Nominal Continuous
- Frequency 45-65Hz

ACCURACY (% of Nominal)
- Current ..... ±0.5%
- Voltage ..... ±0.5%
- Power ..... ±1.0%
- Power Factor ..... ±1.0%
- Frequency ..... ±0.02 Hz
- Energy ..... ±1.0%
- Response Time 400ms

INSTRUMENT POWER
- A210-001/003 ..... 85-253V, dc or 45-400Hz
- A210-002/004 ..... 20-70V, dc or 45-400Hz
  (3VA without MM/COM module, 4VA with MM/COM module)

OUTPUT
- Pulse/Limit Alarm Outputs ..... (2ea)
- Outputs: passive, opto-isolated common-collector transistors
- Vce ..... 40Vdc maximum
- Vsat ..... 1.2Vdc maximum
- Imax 150mA
- Pulse Duration 100ms

MM/COM MODULE (OPTION)
- Interface RS-232/485
- Protocol ..... MODBUS RTU
- Baud 1200, 2400, 4800, 9600, 19200
- Memory ..... 15936 values
  (records 2 quantities for 83 days at 15-min intervals)
- Digital Input ..... Contact Closure Synchronizing Input or HI/LO rate (tariff) select.

ENVIRONMENTAL
- Operating Temperature ..... -10ºC to +55ºC
- Storage Temperature ..... -25ºC to +70ºC

MECHANICAL
- Dimensions ..... 3.8" x 3.8" x 1.8"
  (2.6" depth behind panel with MM/COM module)
- Panel Cutout ..... 3.6" x 3.6"
- Net Weight 8.8oz

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MULTIFUNCTION POWER METER *MODEL* A230/A230S

FEATURES

5 YEAR WARRANTY

- 134 measurements
- 12 energy meters
- Comprehensive average and min/max value functions
- Total Harmonic Distortion (THD) analysis
- Asymmetric voltage and zero-displacement voltage
- 2 pulse/relay outputs can be used for limit alarms or energy pulse outputs
- MM/COM Extension modules extend the functionality of the A230/230S including options for RS232/RS485 with Modbus and data memory, the addition of analog outputs (2), or Ethernet communication.

These measurements form the basis for the comprehensive analysis and assessment of the electrical system in all 4 quadrants.

DESCRIPTION

The A230 or A230S Power Meter measures and displays the voltage, current, power, and energy quantities in single-phase or three-phase power systems. The meter's multifunction capability replaces a large number of analog measurement and display devices.

A high-contrast LED display in a compact, panel-mount package provides low-cost, high-visibility control panel monitoring. The basic instrument provides up to 266 measurements combinations that can be displayed on three 4-digit LED displays.

MM/COM modules for the A230 and A230S extend the instrument's functionality by adding communication options, analog outputs, and data memory. Add the A200*plus* PC application software for easy meter programming and remote data access at no additional cost.

SPECIFICATIONS

INPUT

Voltage		Nominal 500V$_{LL}$ 290V$_{LN}$
Over-range		Nominal +20%
Current	A230/A230S-001 & 002	Nominal 5A
	A230/A230S-003 & 004	Nominal 1A
Over-range		Nominal +20%
Overload		2X Nominal Continuous
Frequency		45-65 Hz

ACCURACY (% of Nominal)

Current	±0.2%
Voltage	±0.2%
Power	±0.5%
Frequency	±0.02Hz
Energy	±0.5%
Response Time	400ms

MM/COM MODULES (Options)

MM/COM201	Modbus RTU, Data Memory, RS-232/485
MM/COM202	Two Analog Outputs
MM/COM203	Ethernet, Real Time Clock, Data Memory

INSTRUMENT POWER

A230/230S-001& 003	85-253Vac/dc, 45-400Hz
A230/230S-002 & 004	20-70Vac/dc, 45-400Hz

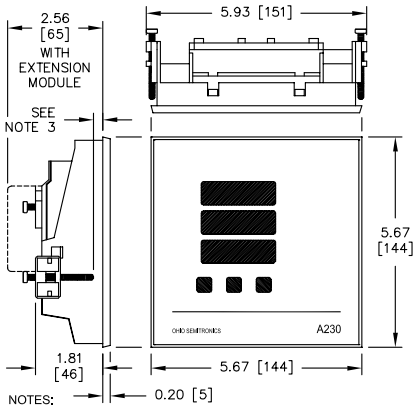
MECHANICAL

Dimensions	A230	5.7" X 5.7" X 1.8"
	A230S	3.8" X 3.8" X 1.8"
Optional MM/COM		extends depth to 2.6"
Panel Cutout	A230	5.4" X 5.4"
	A230S	3.6" X 3.6"
Net Weight	A230	10.6oz
	A230S	7.0oz

ENVIRONMENTAL

Operating Temperature	-10ºC to +55ºC
Storage Temperature	-25ºC to +70ºC

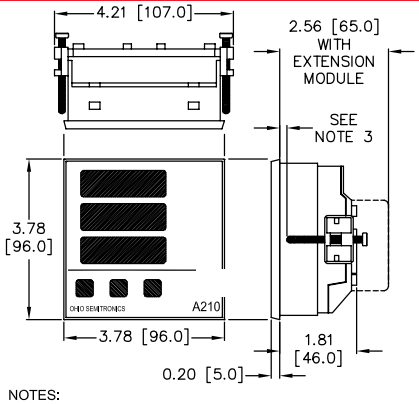
DIMENSIONS A230



NOTES:
1. ALL DIMENSIONS IN INCHES [MM]
2. PANEL CUTOUT -
   INCHES - 5.43 (+0.03/-0.00) X 5.43 (+0.03/-0.00)
   MM - 138 (+0.8/-0.0) X 138 (+0.8/-0.0)
3. PANEL DIMENSIONS (THICKNESS, MIN-MAX) -
   INCHES 0.08-1.00 MM 2-25.4

Dwg# 0902-00661-B Rev --

DIMENSIONS A230S



NOTES:
1. ALL DIMENSIONS IN INCHES [MM]
2. PANEL CUTOUT -
   INCHES - 3.62 (+0.03/-0.00) X 3.62 (+0.03/-0.00)
   MM - 92 (+0.8/-0.0) X 92 (+0.8/-0.0)
3. PANEL DIMENSIONS (THICKNESS, MIN-MAX) -
   INCHES 0.08-1.00
   MM 2-25.4

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OSI EXTENSION MODULES FOR A210-A230S MODEL MM/COM20X

MM/COM201

Modbus, data logger, RS232/485 interface, synchronizing input

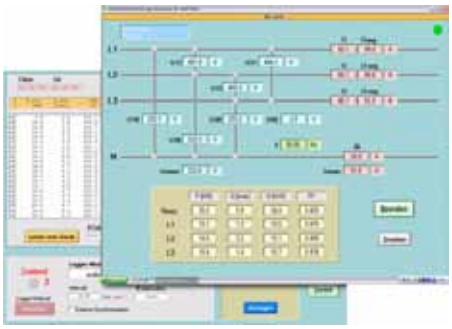
SPECIFICATIONS

Protocol ..... Modbus RTU for SCADA
Interface ..... RS232/485, switchable
Synchronizing input ..... synchronizing interval or tariff switching
Baud rate ... 1200, 2400, 4800, 9600, 19200

Data logger with A210
P_{int} ..... avg. active power values (incoming/outgoing)
Q_{int} ..... avg. active power values (IND/CAP)

Data logger with A230/A230s
P_{int} ..... avg. active power values (incoming/outgoing)
Q_{int} ... avg. reactive power values (incoming/outgoing) or IND/CAP
S_{int} ..... avg. apparent power values and 9 additional free programming average values

Amount of data
1 value ..... 166 days
2 values ..... 83 days
14 values ..... 12 days



For reading & selection of values, optional A200*plus* Software is available at no additional cost. Consult factory.

MM/COM202

2 Analog Outputs

SPECIFICATIONS

Input values
A210 ..... U, I, I_{avg}, I_n, P, Q, S, F, cos Φ
A230 ..... (in addition to above) zero-displacement voltage, asymmetric voltage, THD U, THD I, Voltage, Current Avg. value

Output ..... 0-20mA, 4-20mA, inverting

Limitation ..... min ..... 0/3.7mA, resp. max. 21mA

Burden voltage 8V

Accuracy ..... 0.1% (without A2xx)

Number of channels ..... 2, electrically-isolated

MM/COM203

Ethernet, real-time clock, comprehensive data logger.

SPECIFICATIONS

Protocol ..... Modbus over TCP/IP, HTTP

Real-Time Clock ..... battery backup, synchronization via LAN or external

Data Logger ... up to 1 year with time stamp

Terminals:

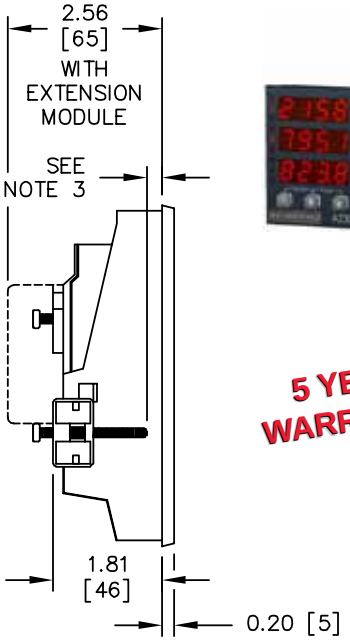
Ethernet RJ45-port, 10/100 Base-Tx

Tariff switching and synchronizing input via pluggable screw terminals

Synchronizing input 5V-300Vac, 1-500Hz

Tariff Switching 5V-300Vac/dc

DIMENSIONS



Dwg# 0902-00661-B Rev --

5 YEAR WARRANTY

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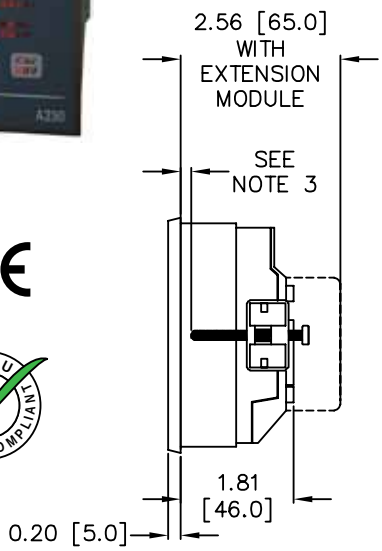

Dwg# 0902-00594-B Rev --

NOTES:
1. All dimensions in inches [mm].
2. Panel cut-out: 5.43 +0.03/-0.00 [138 +0.8/-0.0] x 5.43 +0.03/-0.00 [138 +0.8/-0.0]
3. Panel dimensions (thickness, min/max): 0.08-1.00 [2-25.4]
4. Refer to Operating Instructions manual for details on attaching extension modules.

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NEW!

MULTIFUNCTION POWER METER WITH I/O — MODEL APLUS

DESCRIPTION

The APLUS is a powerful platform for measuring, monitoring and analyzing power systems. This universal measurement device can be easily integrated into the process environment on site by means of the communication interface, digital I/O ports, or analog outputs. The included PC software packages allow for remote configuration and control of multiple units, as well as analyzing acquired data.

2002/95/EG RoHS COMPLIANT · CE · c UL us LISTED

MODEL SELECTION

APLUS- □□□□ □□□

BASIC UNIT		FREQUENCY		INSTRUMENT POWER		COMMUNICATION INTERFACE		I/O EXTENSIONS		TEST CERTIFICATE		DATA LOGGER	
0	no display, top-hat DIN-rail mount	1	50/60Hz	1	24-230Vdc or 100-230Vac	1	RS-485 Modbus/RTU	0	(none)	0	(none)	0	(none)
1	with LED display, panel mount					2	Ethernet Modbus/TCP NTP	1	2 relay outputs, 4 analog outputs (±20mA), and 2 digital I/Os	E	includes Cert.	1*	with data logger
						3*	RS-485 Modbus/RTU + Profibus DP	2	2 relays and 6 digital I/Os				

5 YEAR WARRANTY

*Data logger cannot be combined with Profibus DP interface.

SPECIFICATIONS

INPUT

Current, Nominal ..... 1 to 5Aac, selectable
Maximum 7.5Aac
Overload without damage ..... 10A, continuous
100A, 10 x 1s, at 100s intervals
Burden ..... ≤ I^2 x 0.01 Ω per phase
Voltage, Nominal ..... 57.7 to 400V_{L-N}, 100 to 693V_{L-N}
Maximum ..... 480V_{L-N}, 832V_{L-L} (sinusoidal)
Overload without damage .... 480V_{L-N}, 832V_{L-L} continuous,
600V_{L-N}, 1040V_{L-L}, 10 x 10s, at 10s intervals
800V_{L-N}, 1386V_{L-L}, 10 x 1s, at 10s intervals
Burden ..... ≤ V^2 / 3MΩ per phase
Frequency Range ..... 45...50/60...65Hz
True RMS measurement up to 63rd harmonic
System Configurations Accommodated:
Single-phase .. 2-wire or 3-wire
Three-phase ... 3-wire, balanced load ($1^1/_2$ element)
3-wire, unbalanced load (2 ele., 3 ele.)
4-wire, balanced load (1 ele.)
4-wire, unbalanced load ($2^1/_2$ ele., 3 ele.)

INSTRUMENT POWER

Nominal ... 100-230Vac ±15%, 50-400Hz or 24-230Vdc ±15%
Burden ..... ≤ 7VA

COMMUNICATION INTERFACE

Modbus/RTU ..... RS-485 (max. 32 devices)
Physical ..... max. 4000 ft (1200m), via plug-in terminals
Baud Rate ..... 1.2 to 115.2kBaud
Profibus DP ..... RS-485, (max. 32 devices)
Physical ..... max. 4000 ft (1200m), via 9-pin D-Sub socket
Baud Rate ..... automatically detected (9.6k-12M Bit/s)
Ethernet ..... Ethernet 100Base TX
Physical ..... via RJ45 connector
Mode ..... 10/100 MBit/s, full/half duplex, auto negotiation
Protocol ..... Modbus/TCP, NTP (time synchronization)

I/O INTERFACE

Basic Device ..... 1 relay output, SPDT
1 digital output (fixed)
1 digital input (fixed)
I/O Extension 1 ..... 2 relay outputs, SPDT
4 bidirectional analog outputs
2 digital inputs/outputs
I/O Extension 2 ..... 2 relay outputs, SPDT
6 digital inputs/outputs

DIGITAL INPUTS/OUTPUTS

I/O extensions are individually configurable as inputs or outputs.
Connections ..... via plug-in terminals.
Inputs (according to EN 61 131-2, 24Vdc, Type 3):
Voltage, Nominal ..... 12 / 24Vdc (30V max.)
Logical Zero ..... -3 to +5V
Logical One ..... 8 to 30V
Outputs (partially according to EN 61 131-2):
Voltage, Nominal ..... 12 / 24Vdc (30V max.)
Current, Nominal ..... 50mA (60mA max.)
Load Capability 400Ω-1MΩ

RELAY OUTPUTS

Connections ..... via plug-in terminals
Contacts ..... SPDT, latching
Load Capacity ..... 250Vac, 2A, 500VA or 30Vdc, 2A, 60W

ANALOG OUTPUTS

Connections ..... plug-in terminals, galvanically isolated
Linearization ..... linear, quadratic or knee point
Range ..... ±20mA (24mA max.)
Uncertainty ..... ±0.2% F.S.
Burden ..... ≤ 500Ω
Burden Influence ..... ≤ 0.2%
Residual Ripple ..... ≤ 0.4%

NOTE: Refer to the Device Handbook (Operator's Manual), ModBus (-TCP) Interface, System Booklet and Safety Instructions for additional information.

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MULTIFUNCTION POWER METER WITH I/O *MODEL* APLUS

SPECIFICATIONS (Continued)

MEASUREMENT UNCERTAINTY

Ref. Cond.: 15-30°C, sinusoidal, meas. over 8 cycles, PF=1, 50-60Hz

Voltage, Current ..... ± (0.08% Rdg. + 0.02% F.S.)**
Power ..... ± (0.16% Rdg. + 0.04% F.S.) **
Power Factor ..... ± 0.1° **
**Additional uncertainty for voltage of 0.1% and for PF of 0.1° if neutral wire is not connected. F.S. Power based on F.S. Current x F.S. Voltage
Frequency ..... ± 0.01Hz
Voltage & Current Imbalance ..... ± 0.5%
Harmonics ..... ± 0.5%
THD Voltage, TDD Current ..... ± 0.5%
Active Energy ..... Class 0.5S, EN 62053-22
Reactive Energy ..... Class 2, EN 62053-23

REAL-TIME CLOCK

Uncertainty.. ±2 min./mo. (15-30°C), trimmable via software
Synchronization .....via sync pulse or NTP server
Battery Life .....> 10 years

PHYSICAL AND ENVIRONMENTAL

NOTE: Intended for indoor use only!
Enclosure Material .....Polycarbonate (Makrolon)
Weight .....1.1 lb (500g)
Flammability Class .....UL94V-0, halogen-free
Operating Temperature .....–10 … 15 … 30 … + 55°C
Storage Temperature .....–25 to +70°C
Temperature Effect .....0.5 x basic uncertainty per 10°C
Long-term Drift .....0.2 x basic uncertainty per year
Others ..... Usage group II (EN 60688)
Relative Humidity ..... < 95% non-condensing
Altitude ..... ≤ 2000m max.
Orientation .....Any

APPLIED STANDARDS, REGULATIONS & DIRECTIVES

IEC/EN 61010-1 Safety of electric measuring, control & laboratory equipment

IEC/EN 60688 Transducers for converting AC variables into analog or digital signals

DIN 40110 AC quantities

IEC/EN 60068-2-1/-2/-3/-6/-27 ambient tests: -1 Cold, -2 Dry heat, -3 Damp heat, -6 Vibration, -27 Shock

IEC/EN 60529 Protection type by case

2002/95/EG (RoHS) EC directive on the restriction of the use of certain hazardous substances

IEC/EN 61000-6-2/6-4 Electromagnetic compatibility (EMC) standards for industrial environments

IEC/EN 61131-2 Programmable controllers - equipment, requirements and tests (digital I/O 12/24Vdc)

IEC/EN 61326 EMC requirements for electrical equipment for measurement, control & laboratory use

IEC/EN 62053-31 Pulse output devices for electronic and electromechanical meters (SO output)

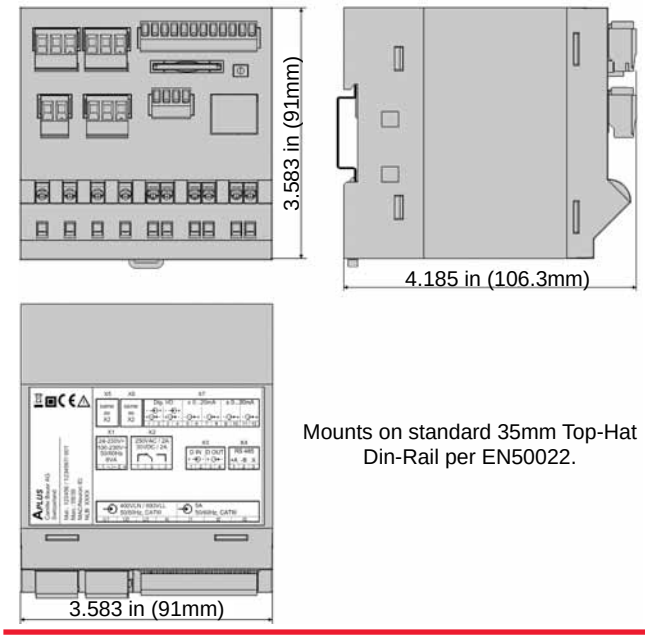
UL94V-0 Test for flammability of plastic materials for parts in devices and appliances

SAFETY & ENVIRONMENTAL

Current inputs are galvanically isolated from each other.
Protection class.....II (protective insulation, voltage inputs via protective impedance)
Pollution degree 2
Protection Rating .....IP64 (front), IP40 (housing), IP20 (terminals)
Measurement Category ..... CAT III, CAT II (relays)

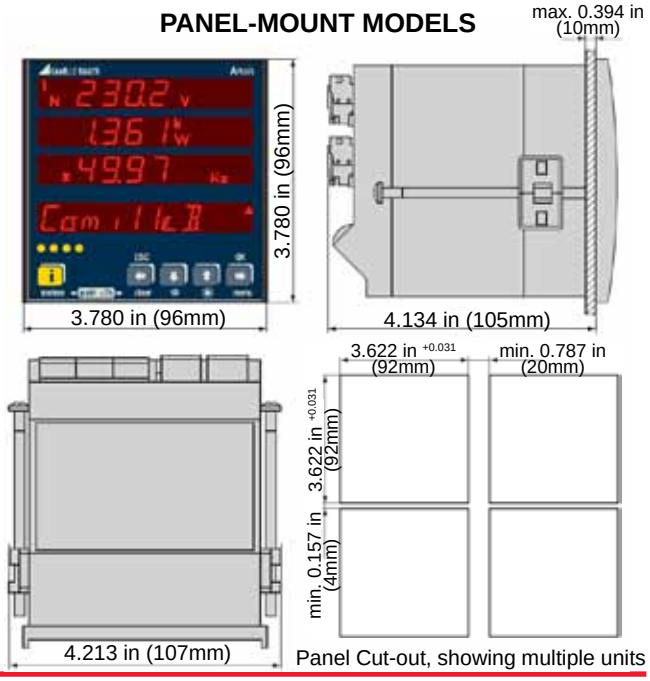
CASE DIMENSIONS & CONNECTIONS

DIN-RAIL MOUNT MODELS (NO DISPLAY)



Mounts on standard 35mm Top-Hat Din-Rail per EN50022.

PANEL-MOUNT MODELS



Panel Cut-out, showing multiple units

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NEW!

PANEL-MOUNT METERS *MODELS* OFC-, OFT-, & OFM-

MICROPROCESSOR-BASED AND LOW-COST OPTIONS

DESCRIPTION & FEATURES

The OFC series meters provide a 4-digit, microprocessor-based, delta-sigma A-to-D converter with 16-bit (65536 counts) resolution.

The OFT series meters are loop-powered, micro-processor-based, 6-digit process meters that convert a 4-20mA signal to a customer-scalable display value.

The OFM series meters offer a low-cost $3^1/_2$-digit display with dual-slope integrating A-to-D conversion.

OFC Meter

OFT Meter

5 YEAR WARRANTY

OFM Meter

FEATURES (OFC & OFT models)

- OFC models offer 5 convenient front-panel buttons for setpoint, peak, valley, tare and set-up menu.
- The OFT control setup and calibration menus are accessed via two rear-panel switches.
- Both models fit 1/8 DIN cut-outs and offer optional set-point relay outputs (2).

FEATURES (Low-cost OFM model)

- Easy mounting with steel bezel in 1/16 DIN cut-out
- Full differential input with chopper-stabilized input buffer.
- Convenient adjustments for scaling and calibration
- A-to-D Reference High-stability 1.25V band gap
- Optional 24Vdc isolated supply for powering external devices (-221 models)

OFC MODEL SELECTION

OFC 1 ☐ ☐ – ☐ ☐ ☐

BASE METER		INSTRUMENT POWER		SIGNAL INPUT	
0	(no setpoint relays)	1	120Vac, 50/60Hz	100	4-20mAdc
1	2 setpoint relays	8	10-30Vdc, isolated*	120	0-10Vdc
				925	AC ammeter, 5A**

* 750V isolation between power supply and signal input.
** 925 models include an external CT.

ORDERING INFORMATION

Example: 4-digit display with setpoint relays, 120Vac instrument power, and 5Aac input.

OFC111-925

NOTE: Optional NEMA 4X gasket available. Consult factory

OFT MODEL SELECTION

OFT ☐ ☐ 0 – 1 0 1

BASE METER		INSTRUMENT POWER		SIGNAL INPUT	
10	6-digit LCD (no relays)	0	self, from input loop	101	4-20mAdc
12	6-digit LCD with 2 relays				

ORDERING INFORMATION

Example: 6-digit display with setpoint relays, 4-20mAdc input, self-powered from input loop.

OFT120-101

OFM MODEL SELECTION

OFM 8 1 ☐ – ☐ ☐ ☐

NOTE: all models have full differential input.

INSTRUMENT POWER		SIGNAL INPUT	
1	120Vac	221	0-10Vdc*
3	220Vac	305	0-20.00Vac
8	10-30Vdc	369	0-5.00Aac**

ORDERING INFORMATION

Example: $3^1/_2$-digit display with 10-30Vdc Power Supply and 0-20.00Vac Input

OFM818-305

NOTE: Optional NEMA 4X gasket available. Order Q400-0109

* -221 models also include an isolated 24Vdc power supply for powering external devices. (20mA max, 1kV isolation)
** -369 models include an external CT.

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SPECIFICATIONS *MODELS* OFC-, OFT-, & OFM-

PHYSICAL

Display
- **OFC** ..... Bright 0.6" tall, high-efficiency red LED
  - Range ..... -1999 to +9999 (4 digits plus negative sign and decimal point)
- **OFT** ..... 0.5" 6-digit, enhanced contrast, extended temperature range, high-humidity sealed LCD
  - Range ..... -99999 to 999999 (6 digits plus negative sign and decimal point)
- **OFM** ..... Bright 0.6" tall, high-efficiency LED
  - Range ..... -1999 to +1999 (3.5 digits plus negative sign and decimal point)

Window ..... Non-glare cast acrylic, ruby red filter
Bezel
- **OFC & OFT**: Black, high-impact ABS plastic, UL 94V0
- **OFM**: 16Ga. steel, black powder coat textured finish

Connections ..... Socketed screw terminal connectors
Mounting Hardware ..... Provided (attached to meter)

INPUT

Type ..... See individual model selection tables
Frequency
- -100, -120 & -221 models & all OFC ..... dc
- -305, -369 & -925 models 50/60Hz

Impedance
- -100 models 10Ω
- -120 & -221 models 1MΩ
- -305 models 2MΩ
- -369 & all OFT models ..... negligible

Over/Under Range Indication:
- **OFC** ..... displays "-ur-" or "-or-" when input exceeds min/max displayable range or min/max input range.
- **OFT & OFM ..** displays polarity, most significant digit and the decimal point when input exceeds min/max range.

Connectors ..... Socketed screw terminals

INSTRUMENT POWER

OFC
- 101 & 111 models ..... 85-140Vac, 47-63Hz, 3VA max.
- 108 & 118 models ..... 10-30Vdc, 150mA max., 500mV max ripple allowed

OFT (all) ..... self-powered, from 4-20mAdc input loop
Loop drop ..... 3.9V max., short-circuit protected

OFM
- 811 models ..... 120Vac, 50/60Hz, 25mA max., 3W
- 813 models ..... 220Vac, 50/60Hz, 14mA max., 3W
- 818 models ..... 10-30Vdc, 110mA max., 750Vdc isolation

DISPLAY

OFC
- Modes ..... Track, Peak, Valley
- Update Rate 1-16 per second (selectable)
- Scaling (Decimal Point Location)
  - Programmable, for 0, 0.0, 0.00 or 0.000 precision.
- Response Time (for F.S. step) 0.5s
- Setpoint Relays (optional) ..... 200Vac/dc, 1A max., independently programmable as NO or NC

DISPLAY (continued)

OFT
- Display Update Rate ..... 7.5 per second
- Display Scaling
  - Decimal Point Location ..... Programmable, for 0, 0.0, 0.00, 0.000,0.0000 or 0.00000 precision
- Setpoint Relays (optional) ..... 300Vac/dc, 130mA max., solid-state, independently programmable NO or NC

OFM
- Display Update Rate ..... 2.5 per second
- Display Scaling
  - Decimal Point Location ..... Jumper-selectable, for 0, 0.0, 0.00 or 0.000 precision
  - -221 models ..... 20-turn pots for scaling & calibration
  - -305, -369 models ..... Fixed zero, 20-turn pot for span adjust.

ACCURACY & RESOLUTION

OFC

Over Full Operating Temperature Range:
- -100 & -120 models ..... <±0.05% F.S.
- -925 models (RMS value of input) ..... <±0.1% F.S.

At Fixed Temperature:
- -100 & -120 models ..... <±0.02% F.S.
- -925 models <±0.05% F.S.

A/D Converter ..... 16-bit: 65536 counts of resolution
A/D Conversion Rate ..... 4000 per second

OFT

Accuracy ..... <±0.05%
A/D Converter ..... 24-bit: 1,000,000 counts of resolution
A/D Conversion rate ..... 7.5 per second

OFM (function of calibration and scaling)

Linearity ..... <±0.02%, typical

TEMPERATURE & ENVIRONMENTAL

OFC
- Operating Range ..... -25ºC to 80ºC
- Storage Range ..... -55ºC to 80ºC
- Drift ..... <0.1% per 20ºC change in ambient temperature

OFT
- Operating and Storage Range ..... -20ºC to +80ºC
- Operating Environment ..... Tested to NEMA 4X

NOTE: Meter will tolerate exposure to most dilute acids and cleaning agents when properly installed

OFM
- Operating Range ..... -25ºC to 70ºC
- Storage Range ..... -40ºC to 85ºC
- Drift ..... <0.1% per 20ºC change in ambient temperature

DIMENSIONS, CONNECTIONS, CALIBRATION & OPERATION

Refer to individual specification sheet for OFC, OFT or OFM
- OFC .. Refer to Operation and Installation Guide for full connection details and menu functions.
- OFT & OFM ..... Refer to manuals for details on set-up and calibration.

VERSATILE DIGITAL PANEL METER — MODEL 15660

DESCRIPTION

The 15660 is a streamlined, low-cost, utility, dc voltage measuring meter. The unit has a standard input range of ±2V. The easy-to-use screw terminals and provision to "Hold" the displayed reading indefinitely make this a cost-effective solution for display of most analog signals.

Ease-of-use and quick installation are facilitated by the unique pinout of the series. The standard meter is provided with screw terminal blocks and insulated quick disconnects.

FEATURES

- 0.56" LED Display
- Screw Terminals for Easy Connection
- Selectable Decimal Point Position

SPECIFICATIONS

INPUT

Voltage Range..... Standard ..... ±2Vdc
Selectable ..... 20Vdc, ±200Vdc
Impedance..... 1MΩ, minimum

INSTRUMENT POWER

Standard.....120/240V, 50/60Hz, 2.5VA

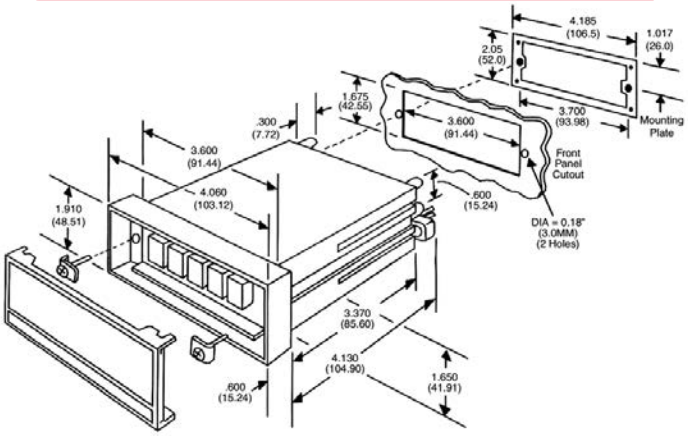
DISPLAY .....0.56" LED Display

ACCURACY .....±0.05% of reading + 3 digits

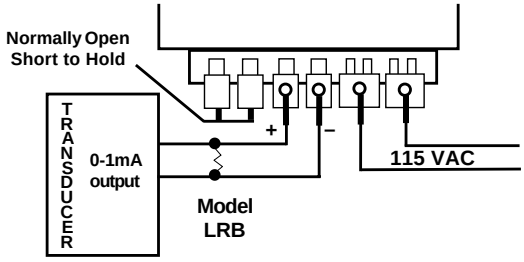
TEMPERATURE

Operating Range ..... -10ºC to +50ºC

CASE DIMENSIONS in inches (mm)



CONNECTION DIAGRAM



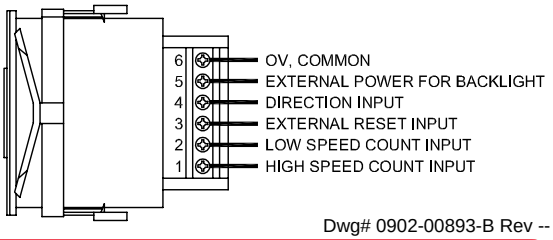
Dwg# 0902-00894-B Rev --

MINIATURE ELECTRONIC COUNTER — MODEL 13835

FEATURES

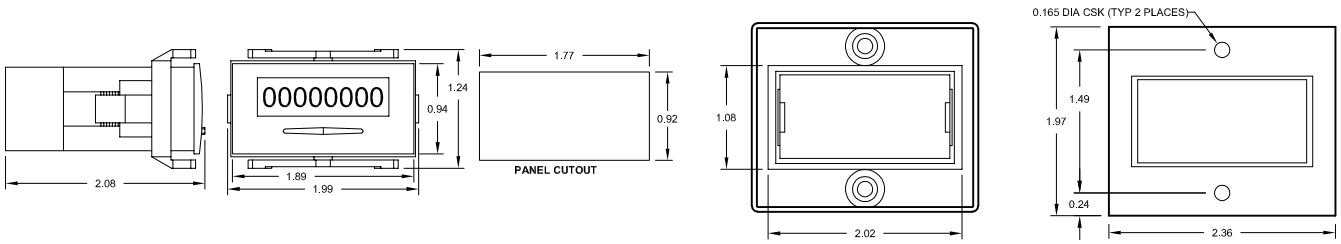
- 8 Digits, 0.354" (9mm) LCD Display
- Reset Front and Remote
- 10-Year Battery
- Relay Contact/Open Collector/5V TTL or CMOS Pulse Input
- Up to 10kHz Count Rate
- NEMA 4X/IP65 RatingKit includes additional mounting adapters.

CONNECTION DIAGRAM



Dwg# 0902-00893-B Rev --

CASE DIMENSIONS (in inches)



Counter can be mounted as shown in drawing, or with included adaptor plate as shown in photo, or with adaptor frame - Consult factory for details.

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C, B

PRECISION HALL-EFFECT PROBES — MODEL HR

HALLTRON MAGNETIC FIELD PROBE

FEATURES

With high accuracy and low noise, the HR series Hall-Effect Probes are designed into end-user applications where a reliable measurement of magnetic field strength is a requirement. When a specified control current is applied to the probe, the listed output reflects a field strength of 10kGauss.

APPLICATIONS

Our HR series probes have been manufactured for 50 years and are used as a key system component in a diverse array of industry projects. Applications include medical devices, cryogenics, and military aerospace, as well as many industry and university research projects with a requirement for measuring a fixed or changing magnetic field.

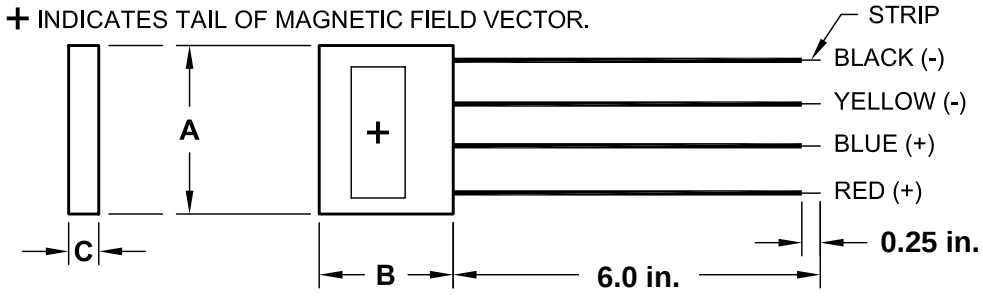
MODEL SELECTION

MODEL NUMBER	OUTPUT B=10kG (mV, ±25%)	CONTROL CURRENT Ic (mA)	OHMIC RESIDUAL (mV)		TEMPERATURE COEFFICIENT (%/°C, typical)	DIMENSIONS (INCHES)			LEAD WIRES (AWG)
			B=0 Ic=10mA	B=0 Ic=100mA		A	B	C	
HR36	1225	350		<±0.15	-0.10	0.375	0.50	0.035	32
HR38	200	25	<±0.15		-0.25	0.375	0.63	0.035	32
HR66	500	200		<±0.50	-0.20	0.250	0.20	0.028	34
HR70	340	200		<±0.50	-0.10	0.250	0.20	0.028	32
HR72	700	100, max		<±2.0	-0.25	0.250	0.20	0.025	34
HR77	550	100	<±0.20		-0.25	0.250	0.20	0.028	34
HR88	400	300		<±1.4	-0.15	0.375	0.34	0.023	30
HR120	75	100		<±0.50	-0.05	0.250	0.20	0.028	34
HR125A	100	100		<±0.50	-0.05	0.250	0.20	0.028	34
HR170	20	200		<±0.03	-0.005	0.250	0.20	0.028	34

B = magnetic field strength, in Gauss Ic = control current (excitation current)

For full specifications on each model, visit our website at www.ohiosemitronics.com
Other sizes and configurations are available. Consult factory for details.

DIMENSIONS



WIRE COLOR	SIGNAL	
Red	+	Control Current
Black	–	
Blue	+	Output
Yellow	–	

Dwg# 0902-00859-B Rev A (mod.)

See model selection table for length, width, and thickness dimensions.

NOTE: For HR36 and HR38 probes, the wire color order is (top to bottom) Blue, Red, Yellow, Black. For HR88, both input leads are red and both output leads are green.

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NEW!

VOLTAGE LIMITER — MODEL LDB-40

OPEN-SECONDARY PROTECTION FOR CURRENT TRANSFORMERS

DESCRIPTION

The LDB-40 is an open-secondary protection device, intended to be used with industry-standard current transformers. When connected across an open secondary, the device will limit voltage to a safe level of approximately 40V.

2011/65/EU • RoHS COMPLIANT

5 YEAR WARRANTY

SPECIFICATIONS

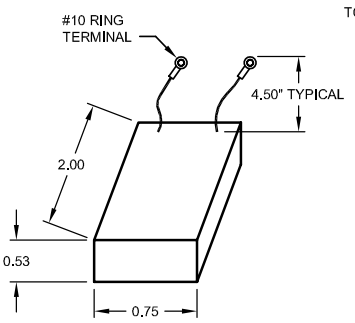
INPUT
- Current ..... 1A or 5A from CT secondary
- Frequency Range ..... 50 to 400Hz
- Leakage Current ..... Typical @ 25°C 0.05mA

PROTECTION
- Breakover Voltage ..... 38Vpk, ±5V
- Clamping Voltage ..... Typical 1V
- Clamping Duration ..... Continuous
- Response 250µs

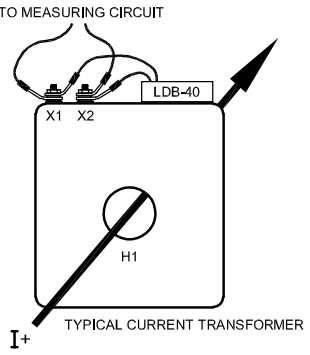
TEMPERATURE
- Operating Range ..... 25°C to 60°C

PHYSICAL
- Lead Length ..... 4.5 in. Typical, 16AWG
- Termination ..... #10 Ring Terminals
- Weight ..... Typical ..... 1 oz.

DIMENSIONS & CONNECTIONS



ALL DIMENSIONS IN INCHES.
TOLERANCE IS ±0.03"



NOTE: CONNECTIONS ARE NOT POLARIZED.

Dwg# 0902-00970-B Rev --

CURRENT-TO-VOLTAGE CONVERTER — MODEL LRB-

CONVERTS 0-1mA INPUT TO VOLTAGE OUTPUT

DESCRIPTION

The LRB series converters provide a precision resistor in a ruggedized enclosure. Standard resistor values from 500Ω to 10000Ω are available. Non-standard values from 200Ω to 10000Ω are also available. Consult factory for non-standard models.

5 YEAR WARRANTY

MODEL SELECTION

DC OUTPUT REQUIRED	LOAD RESISTANCE (Ω)	MODEL
0-500mV	500	LRB-500
0-1V	1000	LRB-1000
0-2V	2000	LRB-2000
0-5V	5000	LRB-5000
0-10V	10000	LRB-10000

Non-standard resistance values available for 200-10000Ω.
Substitute desired load resistance in model number LRB-xxxx

ORDERING INFORMATION

Example: 0-1mAdc Input, 0-2V Output

LRB-2000

SPECIFICATIONS

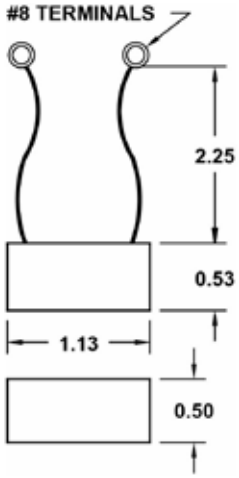
INPUT
- Current 0-1mAdc

OUTPUT
- Voltage ..... See Table
- Load Resistance ..... See Table

ACCURACY
- 500-10000Ω models ..... ±0.1%
- 200-499Ω models ..... ±0.2%

TEMPERATURE
- Operating Range ..... -20ºC to +70ºC
- Effect ..... ±0.005%/ºC

DIMENSIONS & CONNECTIONS



All dimensions in inches

Dwg# 0902-00891-B

ACCESSORIES

VOLTAGE AND CURRENT DISCONNECT SWITCH *MODEL* U3889

3-PHASE SWITCH ASSEMBLY

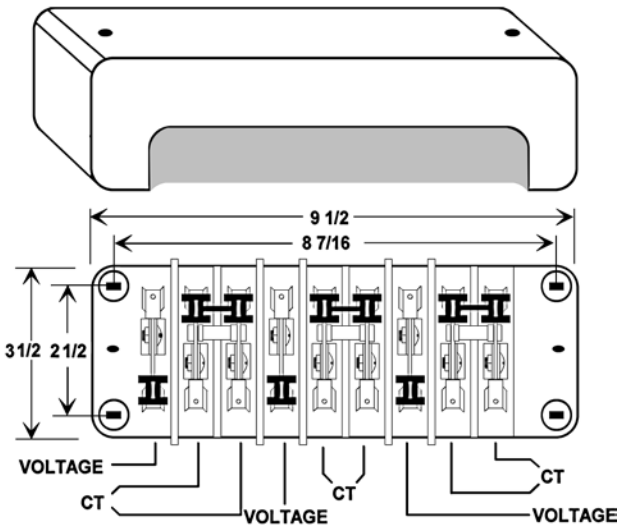
DESCRIPTION

This switch assembly is designed to provide a disconnecting means for your Watt transducer or meter. Not only can this switch assembly provide isolation from line voltages, it also will short out current transformer secondaries to prevent transformer damage which may occur when the circuit is opened under load.

FEATURES

- 3-Phase Switch Assembly
- 30 Amp Rated
- 600Vac
- UL Recognized

DIMENSIONS & CONNECTION DIAGRAM



Dwg# 0902-00892-B

SWITCH DIMENSIONS 9 1/2" X 3 1/2" X 2 3/4"
COVER DIMENSIONS 10 1/8" X 4 5/8" X 3 1/8"

NOTES

- The bottom side of the switch is connected to the circuits being measured.
- The top side of the switch is connected to the Watt transducer or meter.
- The switch handles are color-coded red for voltage and black for current.
- The black plastic cover is constructed so that all switches must be in the closed position before the cover can be sealed.

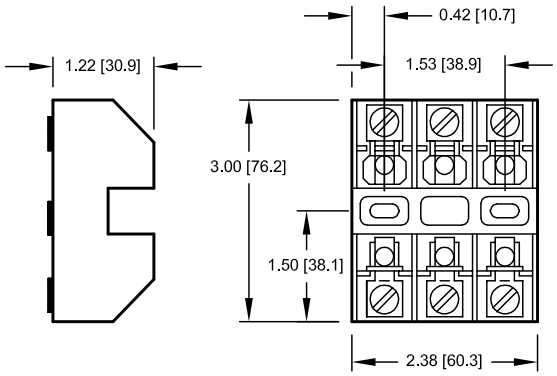
FUSE BLOCK & FUSES *MODEL* FH-6-1/4-3

FEATURES

- 600V - 30A Base
- Fuses Included
- 3 each: 600V, ¼A, Fast Acting

5 YEAR WARRANTY

CASE DIMENSIONS



NOTES:
1. ALL DIMENSIONS ARE IN INCHES [MM].
2. MOUNTING SLOTS ARE .22 [5.5] X .17 [4.3].

Dwg# 0902-00895-B Rev --

SPECIFICATIONS

- Base of high-impact thermoplastic (125ºC)
- Flammability Rating 94V-0
- Clip, Copper Alloy, Tin Plated
- Midget Fuses
- UL Recognized - CSA Certified

ACCESSORIES

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ABS: Acrylonitrile Butadiene Styrene - ABS is an easily-machined, tough, low-cost rigid thermoplastic material with high impact strength, ideal for turning, drilling, milling, sawing, die-cutting, and shearing.

Accuracy: The precision of a transducer or meter that is given as a percent of full scale (or of reading) at 25°C. This does not take temperature into consideration. The effect of temperature is a separate statement for OSI devices.

Active Power (or Real Power) (P): True electrical power; power that is actually doing work. It is measured in Watts.

Apparent Power: Power that is apparently available for use in an AC circuit containing a reactive element. It is the product of effective voltage times effective current expressed in Volt-Amperes (VA). It must be multiplied by the power factor to obtain true power available.

Average Value of AC: The average of instantaneous values for 1/2 cycle of alternating current, or the average of the absolute value of alternating current. (0.636 times the peak waveform for a full sine wave rectification)

Burden (input): The load in either Volt-Amperes (VA) or Ohms by a measuring device on the input circuit.

Burden (output): The maximum load in either Volt-Amperes (VA) or Ohms that a current or voltage transformer can maintain for the rated accuracy of the device.

Cal Adjust: All transducers manufactured by Ohio Semitronics, Inc. are calibrated against standards traceable to NIST. For Ohio Semitronics, Inc., the Cal Adjust refers to available calibration span over which the user may adjust the transducer or device.

Compliance (Voltage): Maximum output voltage that a transducer current output can maintain within the specified load resistance range.

Current Transformer (CT or doughnut): Transformer used to step the current up or down. For transducers and instrumentation, a current transformer steps a high value of current down to 5 or 1 Ampere, which the transducer or instrument can utilize. For any power-measuring device, the polarity markings must be observed. Primary current goes in H1 and out H2. In the secondary winding, usually a toroid, the X1 lead connects to the current “IN” terminal and the X2 lead connects to the current “OUT” terminal of the transducer or instrument.

Delta Circuit: 3-phase, 3-wire system in which the source is connected line-to-line (rather than line-to-neutral).

DIAC (Diode for Alternating Current): Used to protect current transformers against open-secondary conditions.

Dielectric Test: A test in which a voltage higher than the rated voltage is applied for one minute to determine the adequacy of the insulation under normal conditions.

Direct Measurement: Measurement of a waveform in which the output signal replicates the waveform of the input.

Edison System: Often used to describe typical USA home wiring that is a single-phase, three-wire system. This requires a two-element Watt transducer or meter for accurate measurement of active power.

Elements: The number of multipliers in an active or reactive power-measuring device where each multiplier is obtaining the instantaneous product of the measured voltage and current. The number of elements required equals the number of conductors used to connect the load minus one. For example, in the three-phase, three-wire connected load, a two-element device is required.

Excitation Current: This is the current required by OSI Hall-effect devices to produce the rated full-scale output. This applies to both open-loop Hall-effect current transducers and to Hall-effect probes.

External Sensor: This can be either a Hall-effect current transducer or transformer that is supplied and calibrated with a current or power measuring transducer or instrument.

Full-Scale Counts per Hour: The total number of contact closures or pulses generated by an active or reactive energy measuring device in one hour at the rated full-scale of the device.

Grounded Delta: Obsolete but still being used three-phase transformer system in which the secondaries are connected in a delta with one of the transformer windings center-tapped and grounded. This typically supplies a 3-phase, 3-wire system at 240V and a single-phase, three-wire 120/240V source. This system requires a three-element power transducer or meter.

Hall-Effect Voltage: A voltage that results in a conductor from the deflection of electrons perpendicular to a magnetic field and perpendicular to the direction of current flow.

Insertion Loss: For DC, it is the power lost due to the resistance of the measuring device (Zero for Hall-effect transducers). For AC, it is the power lost due to the impedance of the measuring device.

Instrument Power: The voltage supply required to power the transducer or device for operation.

Internal Sensor (Current): The primary current-sensing device is internal to the transducer or meter. Typically these transducers or meters may be connected directly in series with the load. 5A or 1A input models may also be used with 5A or 1A secondary current transformers.

Isolation: Voltage level the transducer or meter is expected to withstand without breakdown among the input circuit, output circuit, power supply input, and the case.

KYZ Output: Form C relay contact closure output in which each toggle (or change of state) represents some amount of integrated power or reactive power. (Energy or Reactive energy)

Linearity: The variation between a known standard across the low and high end of the span of a transducer or instrument.

Loop-Powered 4 to 20: Transducers with a loop-powered output require a voltage source in the external circuit. For OSI devices, this voltage may be between 15 and 40Vdc. The device will regulate the current output from 4 to 20mA proportional to the measured value.

Ohmic Residual: Hall Probes only. (Also referred to as the residual misalignment voltage) The offset voltage that results from the slight misalignment of the voltage pick-up points on the Hall element.

Output Loading: The total resistance of circuits and devices connected to the output of an OSI device.

Output Ripple: An oscillation of small amplitude imposed on top of the signal output of a transducer or instrument. This is expressed as a maximum permitted value as a percentage of the full scale.

Potential (or Voltage) Transformer: A precision shunt-connected transformer used to step voltage from one level to another for the purpose of measurement. These transformer ratios are typically stated as a ratio of the full-scale primary to the full-scale secondary voltage.

Examples are: 69.3:120, 240:120, 600:120, and 4200:120.

Phase Angle: The angular displacement in degrees between the voltage and current in a circuit. (Sinusoidal voltage and current only)

Power Factor: The ratio of active power to apparent power (Watts/VA). For the sine wave case, the power factor is also equal to the cosine of the phase angle displacement between the voltage and current.

Quiescent Current: (Closed-loop type Hall-effect sensors) Power supply current required with zero signal input.

Reactive Power (Q): The unused power which flows back and forth in an AC system due to electric and magnetic fields caused by inductive and capacitive loads. It is the vector difference between the Active (real) Power and the Apparent Power, and is measured in Volt-Amps Reactive (VAR).

Response Time: In the OSI catalog, this refers to the time required for the output signal to reach 90% (or as otherwise stated) of the full-scale output for a step change in the input from zero to full scale.

RMS (Root Mean Square): The equivalent heating value of an alternating current or voltage, as compared to a direct current or voltage. It is 0.707 times the peak value of the same sine wave.

RMS Measurement: Measurement of a waveform that provides the DC equivalent heating value — the RMS value of the current or voltage.

Self-Powered: A transducer that is parasitic for its instrument power. It takes the required power from the circuit being measured.

Split Core: Current transformer or Hall-effect current sensor that can be taken apart and put back together around a current-carrying conductor.

Surge (withstand) Test: Damped oscillatory wave in the megahertz (MHz) range applied to transducer or instrument input circuits to simulate a lightening strike down line. IEEE standards or agency approval standards apply.

VA (Volt-Amperes): Unit of apparent power. (See Apparent Power)

VAR (Volt-Amperes-Reactive): Unit of reactive power. (See Reactive Power)

Watt: Unit of active power — measure of the rate at which work is being done. The unit power (Watt) equals 1 Joule per second; 1 Watt equals the power dissipated by a current of 1 Ampere flowing across a resistance of 1 Ohm.

Watthour: The unit of energy that is equal to the power of one Watt operating for one hour.

Wye: Three-phase, four-wire system in which the three phase lines reference a common neutral.

Zero: In the OSI catalog, "zero" refers to the adjustment potentiometer that allows one to adjust the output signal to the value representing zero or no input.

TEST CERTIFICATE OPTIONS

A-7003-01 Certificate of Compliance (C of C):

Includes Company name, P.O. #, Date, Model, and Serial number(s).

Document states: "It is hereby certified that the above stated models, in the quantities listed, are in full compliance with all applicable requirements and specifications. Configuration, operation and safety characteristics have been tested and inspected to verify compliance with published specifications and any additional requirements as specified by the referenced purchase order. Accuracy of factory test and measurement equipment is established through regular comparisons traceable to recognized national or international standards such as those maintained by the National Institute of Standards and Technology (NIST)."

Signatures: Q.A. personnel, Group Supervisor, Dept. Mgr.

A-7003-02 C of C with Documented Traceability:

Includes all the information and statements listed on above document, plus traceability to NIST provided via equipment and report identification numbers listed on the certificate.

Signature: Quality Assurance Manager.

A-7003-03 C of C with Traceability and Data Points:

Includes all the information and statements listed on above document, traceability to NIST provided via equipment and report identification numbers listed on the certificate, and 10-point calibration data. The format and price of the data points can vary with the type of equipment and/or customer requirements.

Signature: Quality Assurance Manager.

A-7003-04 C of C - ISO 17025

Includes all the information and statements listed on above document, plus information on the calibration services provider who is contracted to provide ISO/IEC 17025:2005 compliance certification for Ohio Semitronics, Inc. products.

Signature: Quality Assurance Manager.

A-7003-06 C of C - ANSI Z540

Includes: Includes all the information and statements listed on above document, plus information on the calibration services provider who is contracted to provide ISO/IEC 17025:2005 compliance certification for Ohio Semitronics, Inc. products.

Signature: Quality Assurance Manager.

To Order: Include the document number and price on your Ohio Semitronics, Inc. purchase order.
Additional C of C options are available. Please consult Ohio Semitronics, Inc. for pricing.

T&C, REACH & WEEE COMPLIANCE & ISO 9000 CERTIFICATION

RoHS-Compliant Models Available! Consult Factory

For Terms and Conditions, refer to our website at: www.ohiosemitronics.com/Terms.pdf
For REACH compliance, refer to our website at: www.ohiosemitronics.com/REACH.pdf
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