SUBMETERING WATT/WATTHOUR AC TRANSDUCER *MODEL* WL50-

DESCRIPTION

The WL50 series of transducers provides a relay output with a pulse rate proportional to measured energy consumption (kWh). An optional analog output signal proportional to Watts is also available. High-accuracy, split-core, current transformers are supplied with the transducers in current ranges up to 500 Amps. These transformers provide a voltage-limited secondary that eliminates the shock hazard normally associated with open-secondary leads. All transducers are self-powered from the circuit being measured. Voltages up to 480 Volts can be directly connected to appropriately-rated transducers. Rugged metal enclosures, small size, and split-core transformers make the WL50 ideal for retrofit or initial installations in sub-metering or building management applications.

Six diagnostic LED lamps are provided to assist in verification of installation. These LEDs will indicate phase sequence errors, missing phase, CT polarity reversal, etc. An additional LED indicates relay operation. Refer to Installation Diagnostics for more information.

System Configuration	AC Volts Nominal	AC Amps	Model Number WL50-	F.S. Input	kWh/Pulse*
1-Phase 2-Wire (1-element)	120 L-N 240 L-N	0 - 0.1	**123**	24W	0.0001**
		0 - 50	**123-050**	12kW	0.01
		0 - 100	**123-100**	24kW	0.01
		0 - 200	**123-200**	48kW	0.01
		0 - 500	**123-500**	120kW	0.1
1-Phase 3-Wire (2-element)	120 L-N (240 L-L)	0 - 0.1	**133**	24W	0.0001**
		0 - 50	**133-050**	12kW	0.01
		0 - 100	**133-100**	24kW	0.01
		0 - 200	**133-200**	48kW	0.01
		0 - 500	**133-500**	120kW	0.1
3-Phase 3- or 4-Wire (3-element)	120 L-L 240 L-L 120/208	0 - 0.1	**343**	42W	0.0001**
		0 - 50	**343-050**	21kW	0.01
		0 - 100	**343-100**	42kW	0.01
		0 - 200	**343-200**	84kW	0.01
		0 - 500	**343-500**	210kW	0.1
3-Phase 3- or 4-Wire (3-element)	480 L-L 277/480	0 - 0.1	**346**	84W	0.0001**
		0 - 50	**346-050**	42kW	0.01
		0 - 100	**346-100**	84kW	0.01
		0 - 200	**346-200**	168kW	0.1
		0 - 500	**346-500**	420kW	0.1

0.1A models are supplied without CTs. See CTY spec sheet for available types.

Analog Watt Output Options:

0-1mAdc - add suffix "**B**" to model number
0-10Vdc - add suffix "**D**" to model number
0-5Vdc - add suffix "**X5**" to model number
4-20mAdc - add suffix "**E**" to model number

KYZ Relay Option - add suffix "**K**" to model number
10ft CT Leads - add suffix "**L**" to model number

*kWh per each contact operation

** To calculate the pulse scaling with different current transformer ratios, multiply the CT ratio by 0.0001kWh.
Example: To use 100:0.1 ratio CTs
Ratio = 100/0.1 = 1000
1000 X 0.0001kWh = 0.1kWh per pulse

FEATURES

- Low Cost
- Split-Core Current Transformers
- Analog Output Option
- Small Package
- Diagnostic Indicators
- Accuracy - Meets ANSI C12.1

APPLICATIONS

- Sub-metering
- Building Management

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 480V L-L, 200A, 3Φ3W with 10ft. CT Leads
WL50-346-200L

SPECIFICATIONS

INPUT

Voltage ..... See Table
Measurement Range ..... ±20% of nominal input
Over-range ..... 150V, 300V, or 600V depending on model
Current ..... See Table
Over-range ..... 150% of range
Frequency 50/60Hz
Power Factor ..... 0.5 Lead to 0.5 Lag
Burden
Voltage ..... 0.4VA max.
Instrument Power ..... 2.5VA max.

DIELECTRIC TEST

Input/Output/Case 1500Vac

TEMPERATURE

Temperature Effect ..... (0 - +50°C) ..... ±0.03%/°C

OUTPUT

kWh Pulse ..... Type ..... Form A, Solid-State Contact 120V, 0.3A, 10VA max.
Scaling ..... See Table
Contact Closure Duration 200ms
Optional Analog Watt Output:
Loading
0-1mAdc models ..... ≤10kΩ
0-5Vdc, 0-10Vdc models ..... ≥2kΩ
4-20mAdc models ..... ≤500Ω
Response (to 99%) ..... ≤350mS

ACCURACY ..... ±0.5% F.S.

Includes linearity, setpoint, power factor & current sensor.

PHYSICAL

Net Weight ..... 2.0 lbs
Termination ..... 14 AWG max.

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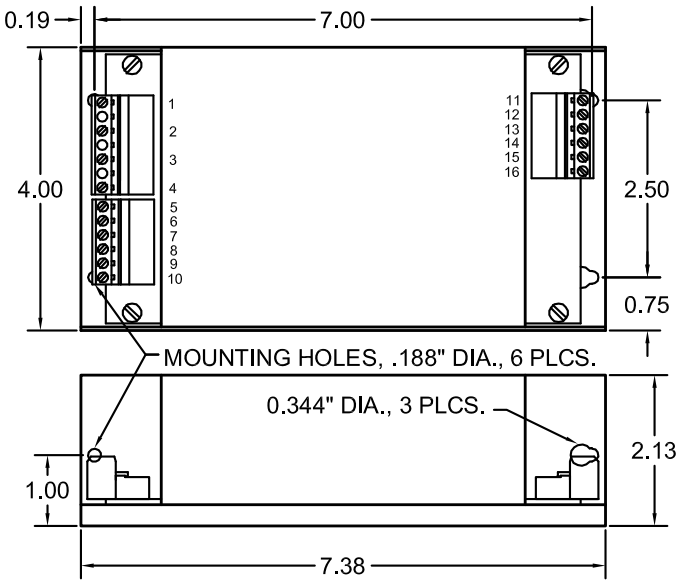
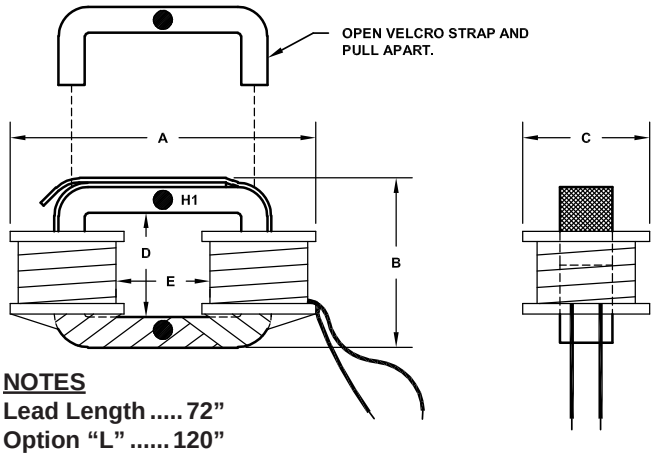
DIMENSIONS & DIAGNOSTICS — MODEL WL50-

CASE DIMENSIONS



All dimensions in inches

TRANSFORMER DIMENSIONS



NOTES
Lead Length ..... 72”
Option “L” ..... 120”

CURRENT RATING	DIMENSIONS (inches)					WT. (lbs.)
	A	B	C	D	E	
50A thru 100A	2.80	2.00	1.12	0.90	0.85	0.4
200A thru 500A	3.85	3.80	1.30	2.40	1.25	0.8

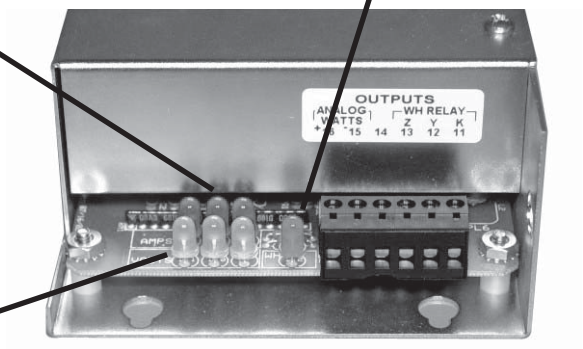
INSTALLATION DIAGNOSTICS

The WL50 has a set of 7 Light Emitting Diodes (LEDs) to aid in diagnosing problems with connections. There are 3 green LEDs for voltage, 3 red LEDs for current, and one red LED for load rate indication. LED indications are as follows:

CURRENT DIAGNOSTICS (assuming proper operating voltage)

CURRENT (RED LED)	Good CT Connection	CT Reversed	No Load Current
Φ 1	On	Off Blink On	Off
Φ 2	On	Off Blink On	Off
Φ 3	On	Off Blink On	Off

LOAD RATE INDICATOR:
Red LED will light for duration of contact closure (200 milliseconds standard) and at the same rate as described in model number chart.



VOLTAGE DIAGNOSTICS:

VOLTAGE (GREEN LED)	Voltage > 266V L-N (460V L-L)	265 L-N > Volts > 177 L-N (459V L-L) (306V L-L)	176 L-N > Volts > 85 L-N (305V L-L) (147V L-L)	Low or Missing Voltage Volts < 85 L-N (145V L-L)
Φ 1	On	On Blink Off	Off Blink On	Off
Φ 2	On	On Blink Off	Off Blink On	Off
Φ 3	On	On Blink Off	Off Blink On	Off

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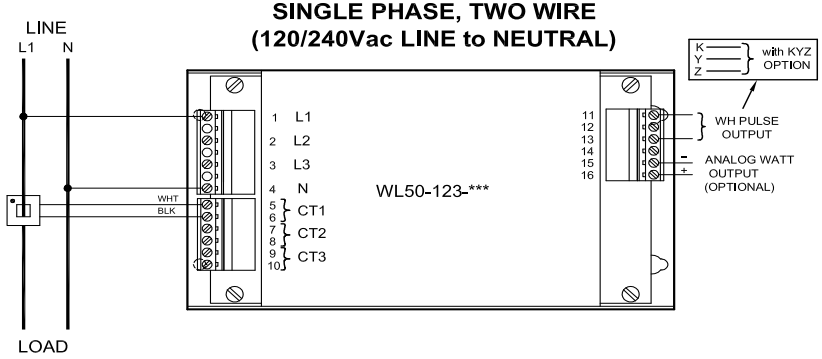
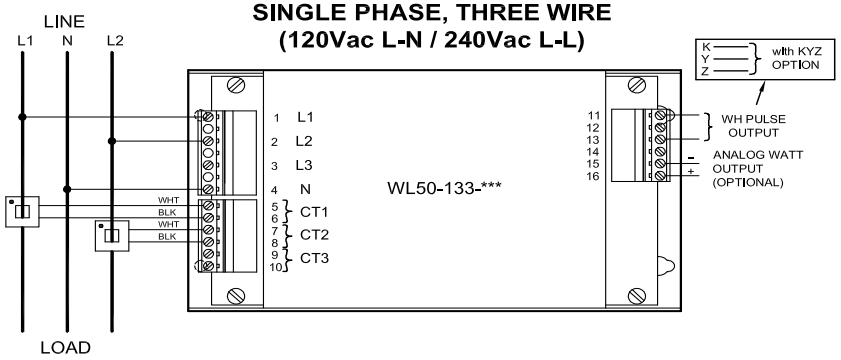
MODEL WL50-

CONNECTION DIAGRAMS

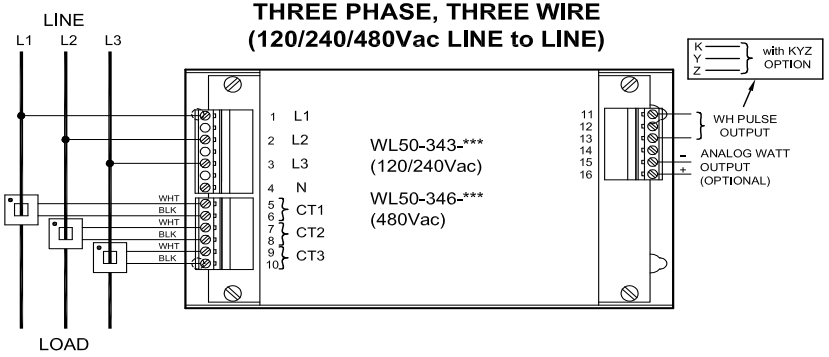
SINGLE PHASE, TWO WIRE (120/240Vac LINE to NEUTRAL)



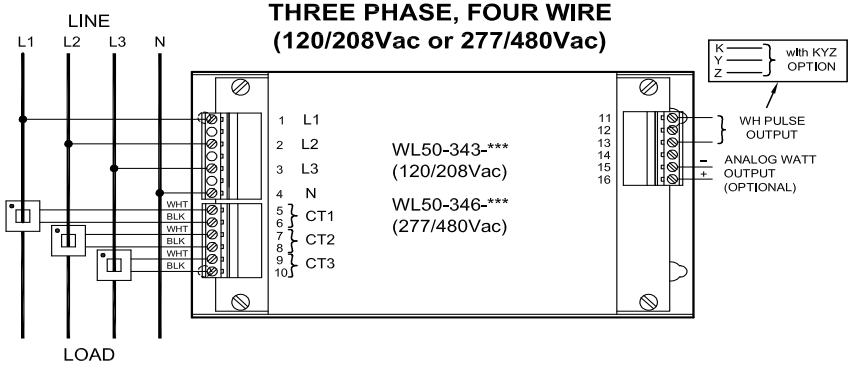
SINGLE PHASE, THREE WIRE (120Vac L-N / 240Vac L-L)



THREE PHASE, THREE WIRE (120/240/480Vac LINE to LINE)



THREE PHASE, FOUR WIRE (120/208Vac or 277/480Vac)



NOTES

CAUTION

To prevent damage to power lines, transducer, or personnel, **NEVER** connect current inputs directly to the line.

Use CTY-xxxx-.1 current transformers, which may be supplied with the unit or purchased separately. (See CTY spec sheet for additional imformation.)

DO NOT unplug the CT1, CT2, CT3 terminal block while CTs are connected to a live circuit.

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