ConLAB

WWH-3 / VVH-3

Combined Watt/Watt-Hour or Var/Var-Hour Transducer

Operator's Manual

Contents:

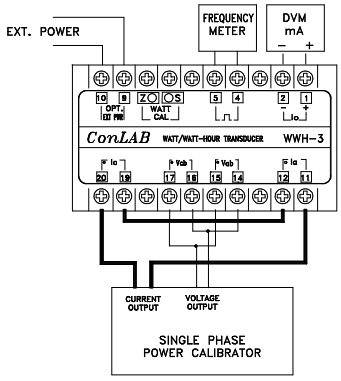
1. CALIBRATION INSTRUCTIONS

The WWH-3 is a precision instrument and was carefully and accurately calibrated.

Please do not change the internal potentiometers' setting.

In order to change slightly the calibration setting, please use the external Zero & Span potentiometers on the unit's panel

Please connect the unit to the calibrator according to the following:



For single-phase unit, the calibrator power setting is: Pmax.
For three-phase unit, the calibrator power setting is: Pmax/2.

Please follow the following instructions:

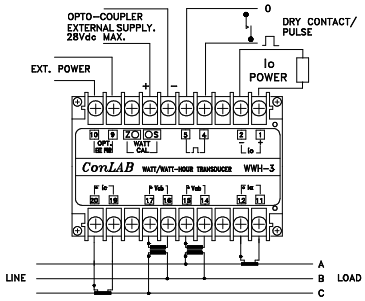
a. Set the calibrator to the desired maximum input voltage.
Set the output power. Set Power Factor (P.F) = 1.0

b. With no power delivered into the WWH-3 unit, set the Zero potentiometer for 4mA reading in the DVM current meters.

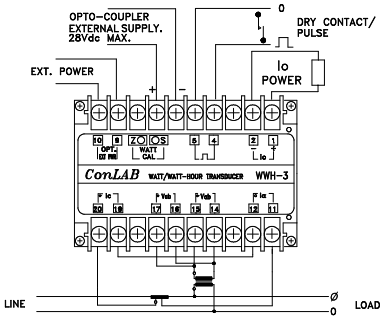
c. Turn on the calibrator for full power. Tune the Span potentiometer to 20.000mA.

2. CONNECTION DIAGRAMS

The transducer is phase sensitive. The voltage/current phases should be kept according to the following diagrams.

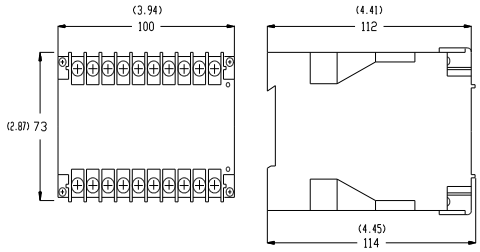


Three-Phase Connection



Single Phase Connection

3. DIMENSIONS mm (inch)



4. SPECIFICATIONS

POWER SUPPLY

SUPPLY RANGES: 115, 230 Vac -15/+25%
and Self-powered (when the measured voltage is 115 or 230Vac)
POWER OVERLOAD: Withstand 1.45 x [nom. rating] continuous

INPUT BURDEN

CURRENT: 0.26 VA @ 5 Aac
VOLTAGE: 0.15 VA @ 150 Vac, 0.3 VA @ 300 Vac
VOLTAGE (Vab) (at Self-power configuration): 2.6 VA @ 150 Vac
SUPPLY: 2.4 - 2.6 VA @ 150/300 Vac at 20 mA output
ISOLATION:
Current Inputs: 2.5 KV RMS /1 minute
Voltage and power Inputs: 4KV RMS /1 minute

FREQUENCY RANGES: 50, 60, 400 Hz (Factory set)
FREQUENCY VARIATION EFFECT: < 0.02%/Hz for Watt output
< 0.1%/Hz for Var output

OUTPUTS (Watt or Var)

OUTPUT SPANS: 0..1 to 0/4..20 mA
MAXIMUM OUTPUT LOAD: Rload(KΩ) = 16/Io (mA)
LOAD VARIATION EFFECT: < ±0.03% (for full change)
RESPONSE TIME: < 200 msec (10-90% of span)

INPUTS

CONNECTION: 1 or 3 phase, 3 wire, unrestricted
POWER FACTOR: Unity - to lead or lag zero
POWER CALIBRATION SPAN: 170 to 8500 Watt/Var
OVER RANGE: +42% (at full accuracy)

CURRENT

CURRENT RANGES: 0 - 1 to 0 - 5 Aac RMS
CURRENT OVER RANGE: +20% (at full accuracy)
PEAK OVERLOAD:
40 Aac RMS, for 5 sec. every 10 min.

VOLTAGE

VOLTAGE RANGES: 0 - 85 to 0 - 500 Vac
VOLTAGE OVER-RANGE: +20% (at full accuracy)
VOLTAGE OVERLOAD (maximum 600 Vac):
Withstand 1.6 x [nom. rating] continuous, limited to 600Vac

PULSE OUTPUT (ENERGY)

DRY CONTACT: Reed relay SPST, N.O
Contact rating: 10W max. (max. voltage 200V, max. current 0.5A)
MAX. PULSE RATE: 3600 PPH

OPTO-COUPLER:
NPN OPEN COLLECTOR ISOLATION: 2500Vdc or peak AC
MAX. PULSE CURRENT: 20Ma
MAX. PULSE RATE: 96000 PPH

ACCURACY

±0.1% of span (typical), ±0.25% of span (max)

ENVIRONMENTAL

TEMPERATURE:
Operating: -5 to +65°C
Storage: -35 to +85°C

TEMPERATURE STABILITY: Better than ±0.01/1°C

HUMIDITY: 5 - 95% relative, non-condensed

HOUSING: Plastic Polycarbonate

PROTECTION LEVEL:
Box: According to IP-40
Terminals: According to IP-20

WEIGHT: 0.6 Kg