

## Combined Watt/VAR Transducer Single or Three Phase WVT-3

**Function:** The WVT-3 combines Watt and VAR transducers in one compact housing. The instrument provides two simultaneous proportional, linear and highly accurate dc current outputs extracted from the voltage and current inputs and their relative phase angle. The polarity of the Watt output is positive for unity power factor; polarity for the VAR output is positive for a lagging power factor. The instrument has isolation between the inputs, output and power supply, and with the high common mode rejection ratio and a high degree of filtering provides a low ripple output current. The output section of the instrument is an interchangeable module. This module offers a wide range of output formats without having to recalibrate the instrument. Advanced circuit design gives the WVT-3 true 0.1% accuracy for both Watt and VAR measurement. The WVT-3 is housed in a polycarbonate plastic enclosure suitable for DIN rail or Bulkhead mounting.

### SPECIFICATIONS

#### INPUTS:

##### Connection

1 Phase 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% for full accuracy

##### AC Current

Minimum Span: 1 Amp AC  
Maximum Span: 5 Amp AC  
Optional Span: 10 Amp AC

##### Peak Over Load

40 Amp AC RMS for 5 seconds  
every 10 minutes  
Option: 50 Amp AC RMS for 30  
seconds every 1 hour

##### Input Power Consumption

0.26VA @ 5 Amp AC input

#### INPUTS:

##### AC Voltage

(factory set)  
Minimum Span: 85 Volts AC  
Maximum Span: 500 Volts AC

##### Over Load

1.6 x (nominal rating)  
continuous limited to 600 Volt AC

##### Input Power Consumption

0.15VA @ 150 Volts AC input  
0.3VA @ 300 Volts AC input

#### AC Current and Voltage

##### Over Range

+20% of span for full  
accuracy

##### Frequency Range

45 to 440 Hz

##### Frequency Variation Effect

< ±0.02% / Hz (for Watt output)

#### OUTPUTS:

(Watt & VAR)

##### Output Configuration

Uni/Bipolar Current or Voltage

##### DC Current

Between 0 and ±20mA  
Minimum span 1mA

##### DC Volts

Between 0 and ±10 Volts  
Minimum span 1 Volt

##### Output Load/Impedance

$R_L \text{ max} = (16/I_o(\text{mA}))_{\text{MAX}} \times 1000$   
i.e.  $I_o \text{ MAX} = 20\text{mA}$   $R_L \text{ max} = 800$   
 $Z_{\text{MIN}} (\text{k}\Omega) = 0.1 \times V_o (\text{Volt DC})$   
i.e.  $V_o = 10 \text{ Volt}$   $Z_{\text{MIN}} = 1\text{K ohms}$

##### Load Variation Effect

< ±0.03% for full change

#### SUPPLY:

##### Power Supply Voltage

Self Powered from inputs or  
115 Volt AC -15/+25%  
230 Volt AC -15/+25%  
Option: 380 Volt AC -15/+20%

##### Power Over Load

Withstand 1.45 x (nominal rating)  
continuous

##### Supply Burden

2.4 to 2.6VA @ 150/300 Volts  
AC for a 20mA output

#### GENERAL:

##### Isolation

4000 Volts RMS / 1 minute  
(Voltage and Power Inputs)  
2000 Volts RMS / 1 minute  
(Current Input)

##### Accuracy (for 5 to 140% of Input)

±0.1% of span typical

##### Response Time

< 200mS (10 to 90% of span)

##### Temperature Coefficient

Better than ±0.1% of span/°C 10°C

##### Operating Temperature Range

-5 to +65°C

##### Storage Temperature Range

-35 to +85°C

##### Operating/Storage Humidity Range

5 to 95% RH non-condensing

##### Mounting

Standard 35mm DIN rail or Bulkhead

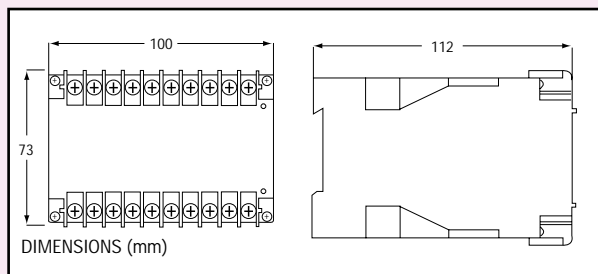
##### Protection Level

Box to IP40  
Terminals to IP20

##### Weight

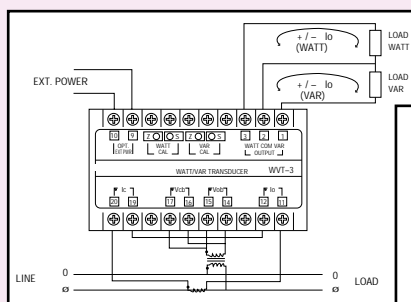
WVT-3 600 gms

### MECHANICAL DETAILS

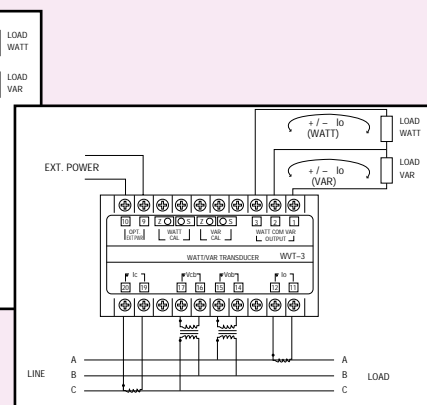


### TERMINATION DETAILS

#### Single Phase Connection



#### 3 Phase 3 Wire Connection



### ORDERING DETAILS

- Give identification code, i.e. WVT-3
- Specify if Single or Three Phase, i.e. 3 Phase
- Give details of Power Supply, i.e. 230 Volt AC
- Give details of frequency range, i.e. 60 Hz
- Give details of input voltage, i.e. 380 Volt AC
- Give details of input current, i.e. 0 to 5 Amp AC
- Specify which output is/are required, i.e. Watts only

- Specify if output is to be Uni or Bi-polar, i.e. Uni-polar
- Give details of output type and range, i.e. 0 to 20mA