

# Paladin Transducers

## 250 Series Class 0.5

An extensive range of transducers providing measurement, isolation and conversion of electrical parameters into industry standard DC output signals. The range offers protection against high voltage and overload, and resistance to vibration in harsh electrical environments. The transducer range also offers multiple analogue outputs in a single housing and individual measurement of most electrical parameters.

### Advantages

- Convert high voltage signals to a low voltage DC output
- Limit voltage levels to the attached equipment and minimise the possibility of overloads or transients being passed on
- Provide a signal that can be transmitted from the measuring location to a remote point

### Safety

Crompton transducers and transmitters are designed for use in harsh electrical environments and feature:

- High protection against overload - 20 x rated current for 1 second
- High degree of mechanical shock and vibration resistance
- Protection against high voltage
- Inputs, outputs and power supply are galvanically isolated (excluding resistance transmitters)

### Ordering Information

When ordering please specify:

1. Product catalogue number
2. Current and/or voltage
3. Frequency
4. Auxiliary voltage AC or DC
5. For power products:
  - a. VT & CT ratios
  - b. System configuration i.e. single-phase, three-phase, three or four-wire, balanced or unbalanced load
  - c. required primary power level for DC full output
6. National specification indicated by 7th digit in the product number

### 253 Paladin Transducers, Class 0.5

The workhorse of the industry, thoroughly proven and installed in thousands of locations across the world. This range offers a very wide range of functions to complement the 256 Paladin range of power transducers. Functions include Voltage, current, frequency, tap position and resistance.

### 256 Paladin Transducers, Class 0.5

The industry standard power transducer, incredibly popular and available in a huge range of metering options. Power transducers are also available to special order with calibration at non standard frequencies. Alongside the Watt, VAr and VA transducers, the range also includes 3 in one current or voltage transducers and a DC to DC transducer.

### 250 Signal Isolator

Offers DC isolation of 0-20mA or 4-20mA signals.



### Measured Parameters

- AC and DC current and voltage
- Active (Watts), reactive (VAr) and apparent (VA) power
- Frequency
- Power factor and phase angle
- Suppressed zero voltage for a narrow voltage range
- Tap position on a high voltage transformer
- Temperature transmitters for resistance thermometer detectors (RTD's)
- Resistance transmitters

### Features

- Measurement of most electrical parameters
- Conversion to standard DC output signals
- Outputs suitable for indication, PLCs
- High accuracy
- Multiple outputs in single housing
- Exceptional waveforms handling
- Zero and span adjustments
- Single and three-phase systems
- Flame retardant cases
- Screw clamp terminals
- DIN-rail mounting

### Benefits

- Cost savings remote metering
- Reduction of signal levels for ease of metering
- Isolated output for safety
- Protection against high voltage and overload

### Applications

- Switchgear motor control centres, generating sets, energy management and building management systems

## General Specifications

	Class 0.5 range	
Performance:	Designed to comply with BS6253 part 1, EN60688, IEC688, AS1384 and ANSI. C37	
Temperature range:	Storage -20°C to +70°C operating 0°C to +60°C calibrated at 23°C	
Temperature coefficient:	0.03%/per °C typical	
Humidity range:	Up to 95% RH	
Zero adjustment:	±2% minimum (except TAA & TVA)	
Span adjustment:	±10% minimum	
Accuracy class:	0.5 unless otherwise specified	
Accuracy range:	0 to 120% (except self powered)	
Stability:	+0.25% per annum typical (reducing with time)	
Response time:	<400 ms from 0 to 99% of rated output, 250ms to 90%	
DC outputs (varies by model bipolar for some models):	0/1mA into 0-10kΩ 0/5mA into 0-2kΩ 0/10mA into 0-1kΩ 0/20mA into 0-500Ω 4/20mA into 0-500Ω 0/5V 1k ohm minimum load 0/10V 1K ohm minimum load	
Current output protection:	Fully protected against open and short circuited output	
Voltage output protection:	Fully protected against open circuit output	
Maximum output:	24V DC when open circuit	
Output ripple:	<0.5% of full rated output	
Continuous overload capacity:	2 x rated current continuous 1.25 x rated voltage continuous	
Short duration overload capacity:	20 x rated current for 1 second 1.5 x rated voltage for 10 seconds	
Input burden:	AC <2 VA	
Auxiliary burden:	<2 VA AC <3.5 W DC auxiliary voltage variation	
Auxiliary permissible variation:	AC ±20%, DC ±15% including ripple, except wide range auxiliary A2: 12-48V DC, +25%, -15% (10.2V absolute minimum to 60V absolute maximum) A5: 100 to 250V AC ±15% 85V AC absolute minimum to 287V AC absolute maximum, 100V DC to 250V DC +25%, -15% (85V DC absolute minimum to 312V DC absolute maximum)	
Safety:	To IEC1010 with terminal cover, basic insulation category	
Flammability:	Flame retardant enclosure to UL90-V0 (terminal cover UL90-V2)	
Isolation:	Input/output/supply/case (except TRR, TRP, TRT and TRV with no input/output isolation)	
Interference:	In accordance with IEC 61326	
Input impedance: (DC I/P)	DC 1000 ohms/volt as standard 10k ohms/volt available on request	

# Voltage Transducers

## AC Voltage Average Sensing - Auxiliary Powered

Single or three-phase models offering voltage measurement down to zero input. Average sensing and calibrated to indicate the RMS value of a sine wave with up to 1% distortion. Input, output and auxiliary are isolated.

Model	Accuracy	Function	Connection diagram
253-TVL	Class 0.5	AC voltage average sensing, 75mm(3") case	15
256-TVL	Class 0.5	AC voltage average sensing, 3-phase 3 DC outputs, 150mm(6") case	11

### Specifications

Input*:	63.5V, 100V, 110V, 120V, 150V, 220V, 230V, 240V, 300V, 380V, 400V, 415V, 440V, 480V, 500V & 600V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 0/1V, 0/5V or 0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Auxiliary*:	100-480V AC 12V, 24V, 48V, 110V or 125V DC

\*Max AC input & Aux on 256-TVL is 300V

## AC Voltage Average Sensing - Self Powered

Average sensing and calibrated to indicate the RMS value of a sine wave with less than 1% distortion. Internal power is derived from the input signal and will maintain accuracy down to 20% of full scale. Input and output are isolated.

Model	Accuracy	Function	Connection diagram
253-TVA	Class 0.5	AC voltage average sensing, 75mm(3") case	10

### Specifications

Input:	63.5V, 100V, 110V, 120V, 150V, 220V, 230V, 240V, 300V, 380V, 400V, 415V, 440V, 480V, 500V & 600V AC
Output:	0/1mA, 0/5mA, 0/10mA or 0/20mA DC 0/1V, 0/5V or 0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz

## True RMS Voltage - Auxiliary Powered

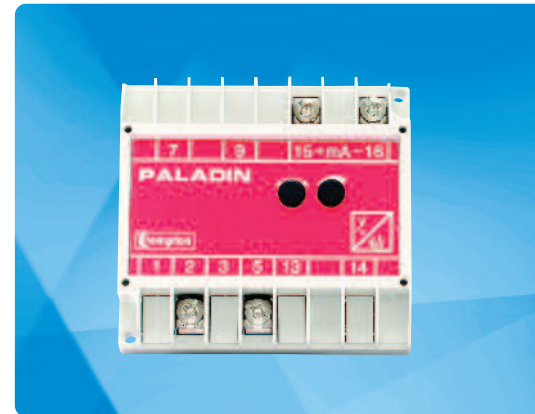
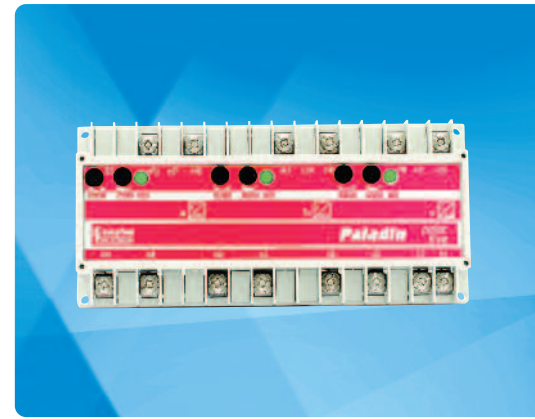
Single or three-phase models offering voltage measurement down to zero input. True RMS measurement of the input voltage, measuring non standard and distorted waveforms. Calibrated for sine waves with up to 30% of 3rd harmonic distortion. Isolation is provided between input, output and auxiliary.

Model	Accuracy	Function	Connection diagram
253-TVR	Class 0.5	AC voltage RMS sensing, 75mm(3") case	15
256-TVR	Class 0.5	AC voltage RMS sensing, 3-phase, 3 DC outputs, 150mm(6") case	11
252-XVR	Class 0.2	AC voltage RMS sensing, 50mm(2") case	15
256-XVR	Class 0.2	AC voltage RMS sensing, 3-phase 4-wire, 3 DC outputs, 150mm(6") case	15

### Specifications

Input*:	63.5V, 100V, 110V, 120V, 150V, 220V, 230V, 240V, 300V, 380V, 400V, 415V, 440V, 480V, 500V & 600V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 0/1V, 0/5V or 0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Auxiliary*:	100-480V AC 12V, 24V, 48V, 110V or 125V DC

\*Max AC input & Aux on 256-TVR is 300V





### AC Voltage Suppressed Zero - Auxiliary or Self Powered

Single or three-phase models offering 'expanded scale' measurements at critical voltage levels, indicating small changes within a large voltage span. Average sensing and calibrated to indicate the RMS value of a sine wave less than 1% distortion. Isolation is provided between input, output and auxiliary.

Model	Accuracy	Function	Connection diagram
253-TVZ	Class 0.5	AC voltage RMS sensing suppressed zero, 50mm(2") case - self powered	15

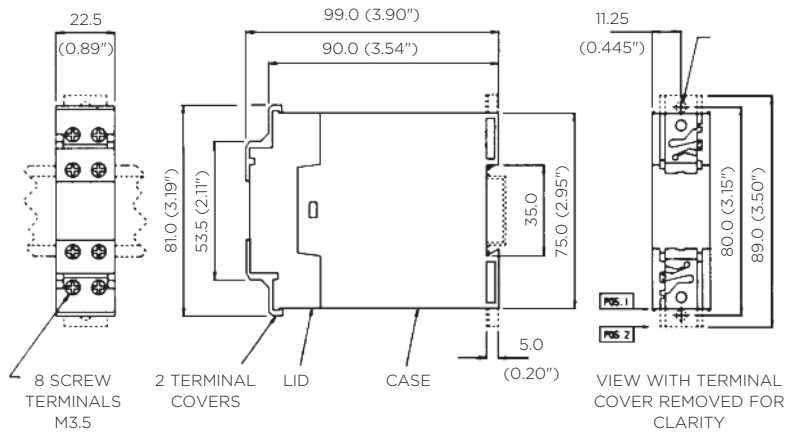
### Specifications

Input*:	Between +/-10% and +/-30% of nominal 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA or 0/20mA DC 0/1V, 0/5V or 0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Auxiliary:	100-480V AC 12V, 24V, 48V, 110V or 125V DC

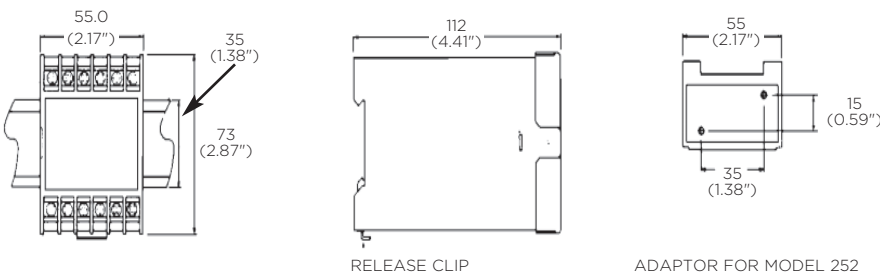
# Paladin Transducers 250 Series

## Dimensions

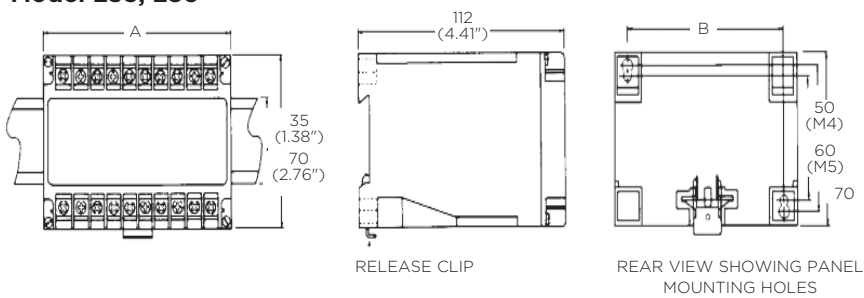
### Model 250



### Model 252

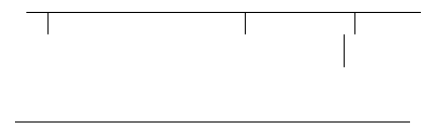
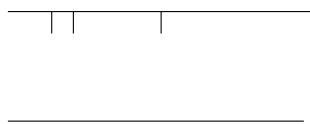


### Model 253, 256



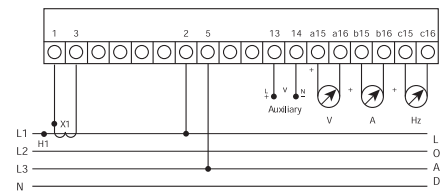
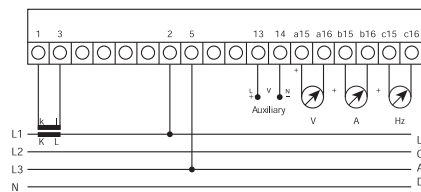
Model	A mm	A inches	B mm	B inches
250	22.5	0.88	-	-
252	55	2.17	-	-
253	75	2.96	60	2.36
256	150	5.90	135	5.31

The signal isolator is designed for use in signal transmission and processing applications to prevent noise and interference caused by ground loops between signal source and the measuring device. The isolator provides galvanic high voltage isolation between the source and measuring device.



**Type 256-XLK**

Voltage, Current and Frequency,  
3 Outputs - Diagram 9

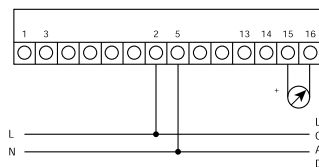


**Type 252-XVA & Type 253-TVA**

Single-phase Voltage Self Powered

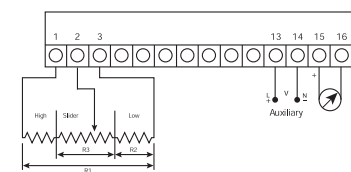
**Type 252-XHA, 253-THZ**

Frequency - Diagram 10



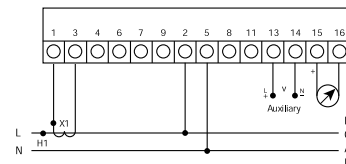
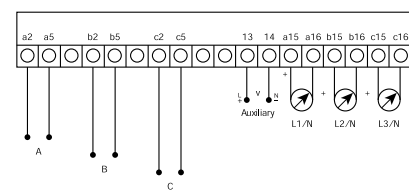
**Type 253-TRT**

Tap Position Diagram 12



**Type 256-TVL, TVR, TVS, TVW**

3 x 1Ø Voltages 3 Outputs - Diagram 11



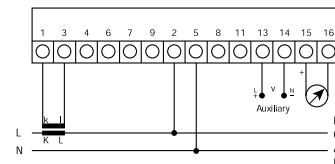
**Type 256-XWK/XXK/XYK/XDK**

Single-phase, Watts or VARs or VA or

**Type 256-TWK/TXK/TYK**

Phase Angle or Power Factor, Watt  
and VAR: Watt, VAR and VA: Watt,  
VAR and Power Factor.

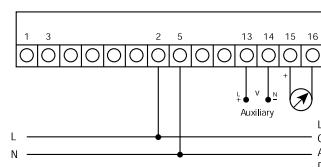
One Output - Diagram 14



**Type 252-XVS, XVZ, XVR, XVL,  
XHL, XHS**

**Type 253-TVL, TVR, TVZ**

Single-phase Voltage - Diagram 15



**Type 256-XVS/XVR/XVZ/XVL**

3 Ø 4W Voltage, 3 Outputs - Diagram 16

