Paladin Transducers
250 Series Class 0.5 and Class 0.2

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.

252 Paladin Advantage Transducers, Class 0.2
Our premium range of higher specification transducers for voltage current and frequency offering Class 0.2 measurement of up to eight electrical parameters. These products are housed in an industry standard 2" (50mm) wide case. The range offers resistance to EMC protection against high voltage and overload, temperature extremes and resistance to vibration in harsh electrical environments.

256-X Paladin Advantage Transducers, Class 0.2
Complementing the 252 Paladin Advantage range and offering multiple outputs and a wide range of options. The 256-X Paladin Advantage products include Watt, VAr, VA, power factor, phase angle, and 3 in 1 voltage, current, or voltage/current/frequency transducers.

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

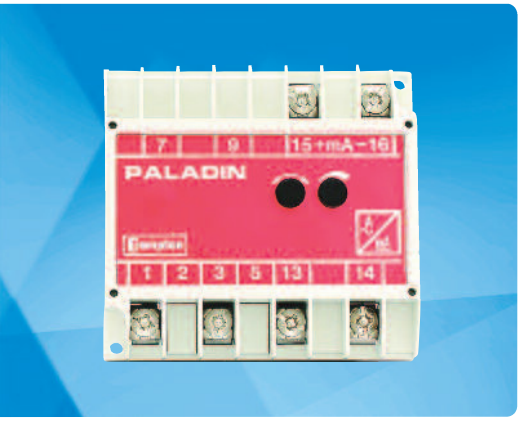
Features
- Measurement of most electrical parameters
- Conversion to standard DC output signals
- Outputs suitable for indication, PLCs
- High accuracy
- Multiple outputs in single housing
- Exceptional waveforms handling
- Zero and span adjustments
- Single and three-phase systems
- Flame retardant 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	Class 0.2 range
Performance:	Designed to comply with BS6253 part 1, EN60688, IEC688, AS1384 and ANSI. C37	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	Storage -55°C to +85°C operating (-20 to +70 for 256-X) -10°C to +60°C, calibrated at 23°C
Temperature coefficient:	0.03%/per °C typical	0.01%/per °C typical
Humidity range:	Up to 95% RH	Up to 95% RH
Zero adjustment:	±2% minimum (except TAA & TVA)	±2% minimum
Span adjustment:	±10% minimum	±10% minimum
Accuracy class:	0.5 unless otherwise specified	0.2 unless otherwise specified
Accuracy range:	0 to 120% (except self powered)	0 to 120% (except self powered)
Stability:	+0.25% per annum typical (reducing with time)	+0.2% per annum typical (reducing with time)
Response time:	<400 ms from 0 to 99% of rated output, 250ms to 90%	<200ms from 0 to 99% of rated output, <400ms to 95% for 253-THZ
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	0/1mA into 0-15kΩ 0/5mA into 0-3kΩ 0/10mA into 0-1.5kΩ 0/20mA into 0-750Ω 4/20mA into 0-750Ω 0/5V 250 ohm minimum load 0/10V 500 ohm minimum load
Current output protection:	Fully protected against open and short circuited output	Fully protected against open and short circuited output
Voltage output protection:	Fully protected against open circuit output	Fully protected against open circuit output
Maximum output:	24V DC when open circuit	24V DC when open circuit
Output ripple:	<0.5% of full rated output	<0.5% of full rated output
Continuous overload capacity:	2 x rated current continuous 1.25 x rated voltage continuous	2 x rated current continuous 1.5 x rated voltage continuous
Short duration overload capacity:	20 x rated current for 1 second 1.5 x rated voltage for 10 seconds	20 x rated current for 1 second 2 x rated voltage for 1 second
Input burden:	AC <2 VA	AC <2 VA
Auxiliary burden:	<2 VA AC <3.5 W DC auxiliary voltage variation	<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)	AC ±20%, DC ±20% including ripple
Safety:	To IEC1010 with terminal cover, basic insulation category	To IEC1010 with terminal cover, basic insulation category
Flammability:	Flame retardant enclosure to UL90-V0 (terminal cover UL90-V2)	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)	Input/output/supply/case
Interference:	In accordance with IEC 61326	In accordance with IEC 61326
Input impedance: (DC I/P)	DC 1000 ohms/volt as standard 10k ohms/volt available on request	DC 1000 ohms/volt as standard 10k ohms/volt available on request



Current Transducers

AC Current Average Sensing - Auxiliary Powered

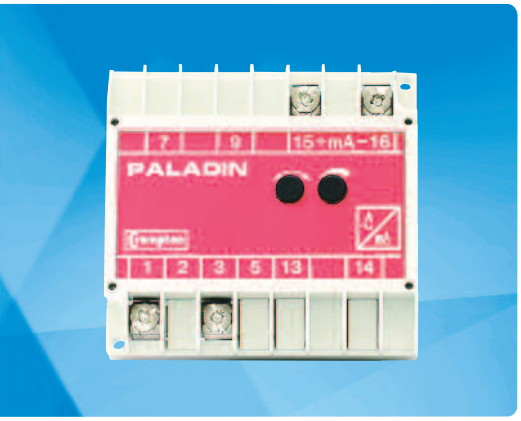
Single or three-phase models offering current measurement down to zero input. Average sensing and calibrated to indicate the RMS value of a sine wave with up to 1% distortion. Input, output and auxiliary are isolated.

Model	Accuracy	Function	Connection diagram
253-TAL	Class 0.5	AC current average sensing, 75mm(3") case	6
256-TAL	Class 0.5	AC current average sensing, 3-phase 3 DC outputs, 150mm(6") case	2
252-XAL	Class 0.2	AC current average sensing, 50mm(2") case	6

Specifications

Input:	1A, 5A or 10A 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 Aux on 256-TAL is 300V



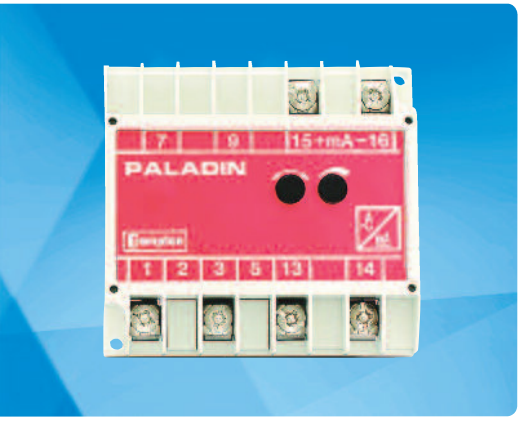
AC Current Average Sensing - Self Powered

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 to 20% of full scale or less. Input and output are isolated.

Model	Accuracy	Function	Connection diagram
253-TAA	Class 0.5	AC current average sensing, 75mm(3") case	1
252-XAA	Class 0.2	AC current average sensing, 50mm(2") case	1

Specifications

Input:	1A, 5A or 10A 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 Current – Auxiliary Powered

Single or three-phase models offering current measurement down to zero input. True RMS measurement of the input current, 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.

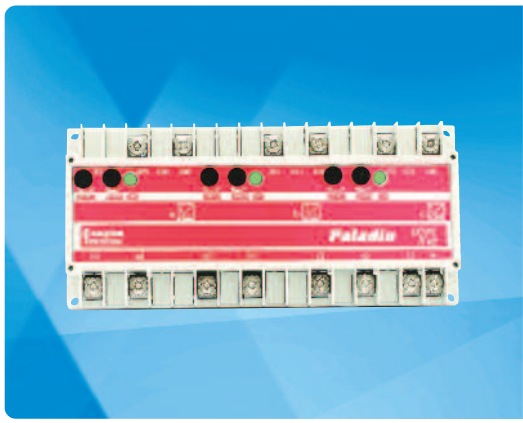
Model	Accuracy	Function	Connection diagram
253-TAR	Class 0.5	AC current RMS sensing, 75mm(3") case	6
256-TAR	Class 0.5	AC current RMS sensing, 3-phase, 3 DC outputs, 150mm(6") case	2
252-XAR	Class 0.2	AC current RMS sensing, 50mm(2") case	6
256-XAR	Class 0.2	AC current RMS sensing, 3-phase, 3 DC outputs, 150mm(6") case	2

Specifications

Input:	1A, 5A or 10A 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 Aux on 256-TAR is 300V

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
252-XVL	Class 0.2	AC voltage average sensing, 50mm(2") 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-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
252-XVA	Class 0.2	AC voltage average sensing, 50mm(2") 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

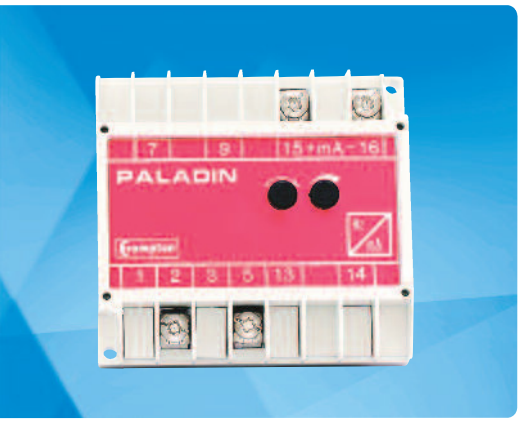
AC Voltage Suppressed Zero – Auxiliary or Self Powered

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
256-XVZ	Class 0.2	AC voltage RMS sensing suppressed zero, 3-phase 4-wire, 3 DC outputs, 150mm(6") case - auxiliary 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



Frequency Transducers

Frequency Sensing - Self Powered

Provides a DC output which is directly proportional to input frequency. Internal power is derived from the input signal and will maintain accuracy between 80% and 120% or better of nominal input voltage. Input and output are isolated.

Model	Accuracy	Function	Connection diagram
253-THZ	Class 0.5	Frequency sensing, 75mm(3") case	10
252-XHA	Class 0.2	Frequency sensing, 50mm(2") case	10

Specifications

Input:	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:	45/55Hz, 55/65Hz, 45/65Hz & 360/440Hz

Frequency Sensing - Auxiliary Powered

Provides a DC output which is directly proportional to input frequency. Internal power is derived from the input signal and will maintain accuracy whist the auxiliary input is within specification limits. 253-THZ offers AC auxiliary and 252-THL/Z caters for both AC and DC auxiliary. Isolation is provided between input, output and auxiliary.

Model	Accuracy	Function	Connection diagram
252-THL	Class 0.2	Frequency sensing, live zero 50mm(2") case	15
252-THS	Class 0.2	Frequency sensing, true zero 50mm(2") case	15

Specifications

Input:	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:	45/55Hz, 55/65Hz, 45/65Hz
Auxiliary:	100-480V AC 12V, 24V, 48V, 110V or 125V DC

Power Transducers

Watt Transducers – Auxiliary or Self Powered

A range of Watt transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. Class 0.5 products utilise the well established 'time division multiplication' method of measuring power while the class 0.2 products are microprocessor based and offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-TWK	Class 0.5	1-phase, 150mm(6") case	14
256-TWL	Class 0.5	3-phase 3-wire balanced load, 150mm(6") case	19
256-TWH	Class 0.5	3-phase 4-wire balanced load, 150mm(6") case	24
256-TWM	Class 0.5	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-TWN	Class 0.5	3-phase 4-wire unbalanced load, 150mm(6") case	35
256-TWS	Class 0.5	3-phase 3-wire balanced load (2 voltage connections), 150mm(6") case	38
256-XWK	Class 0.2	1-phase, 150mm(6") case	14
256-XWL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	41
256-XWH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XWM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XWW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional Auxiliary:	100-480V AC 12V, 24V, 48V, 110V or 125V DC

VAr Transducers – Auxiliary or Self Powered

A range of VAr transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. Class 0.5 products utilise the well established 'time division multiplication' method of measuring power while the class 0.2 products are microprocessor based and offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-TXK	Class 0.5	1-phase, 150mm(6") case	14
256-TXG	Class 0.5	3-phase 3-wire balanced load, 150mm(6") case	41
256-TXH	Class 0.5	3-phase 4-wire balanced load, 150mm(6") case	42
256-TXM	Class 0.5	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-TXN	Class 0.5	3-phase 4-wire unbalanced load, 150mm(6") case	40
256-XXK	Class 0.2	1-phase, 150mm(6") case	14
256-XXL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	41
256-XXH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XXM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XXW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

VA Transducers - Auxiliary or Self Powered

A range of VA transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. Class 0.5 products utilise the well established 'time division multiplication' method of measuring power while the class 0.2 products are microprocessor based and offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-TYK	Class 0.5	1-phase, 150mm(6") case	14
256-TYG	Class 0.5	3-phase 3-wire balanced load, 150mm(6") case	41
256-TYH	Class 0.5	3-phase 4-wire balanced load, 150mm(6") case	42
256-TYM	Class 0.5	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-TYN	Class 0.5	3-phase 4-wire unbalanced load, 150mm(6") case	35
256-XYK	Class 0.2	1-phase, 150mm(6") case	14
256-XYL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	41
256-XYH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XYM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XYW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 1/0/1V, 5/0/5V or 10/0/10V DC 0/1V, 0/5V or 0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Power Factor (2 Quadrant) Transducers - Auxiliary or Self Powered

A range of Power Factor (2 Quadrant) transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XFS	Class 0.2	1-phase, 150mm(6") case	14
256-XFW	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	19
256-XFV	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XFU	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XFT	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

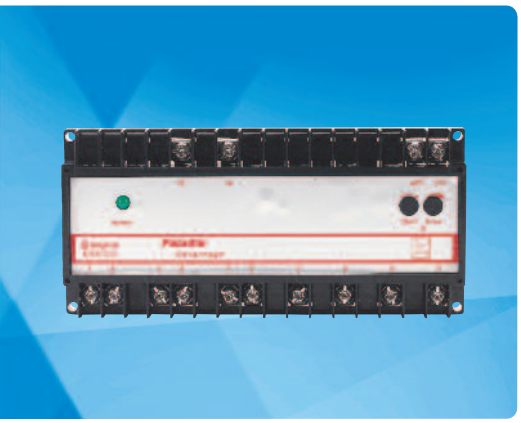
Power Factor (4 Quadrant) Transducers - Auxiliary or Self Powered

A range of Power Factor (4 Quadrant) transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XFA	Class 0.2	1-phase, 150mm(6") case	14
256-XFG	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	19
256-XFD	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XFC	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XFB	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC



Phase Angle (2 Quadrant) Transducers - Auxiliary or Self Powered

A range of Phase Angle (2 Quadrant) transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XPS	Class 0.2	1-phase, 150mm(6") case	14
256-XPW	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	19
256-XPV	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XPU	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XPT	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Phase Angle (4 Quadrant) Transducers - Auxiliary or Self Powered

A range of Phase Angle (4 Quadrant) transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XPA	Class 0.2	1-phase, 150mm(6") case	14
256-XPG	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	19
256-XPD	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	24
256-XPC	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	20
256-XPB	Class 0.2	3-phase 4-wire unbalanced load,	21

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Combined Power Transducers

Combined Watt & VAr Transducers - Auxiliary or Self Powered

A range of combined Watt & VAr transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XDK	Class 0.2	1-phase, 150mm(6") case	14
256-XDL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	25
256-XDH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	26
256-XDM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	22
256-XDW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	23

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Combined Watt, VAr & VA Transducers - Auxiliary or Self Powered

A range of combined Watt, VAr & VA transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XEK	Class 0.2	1-phase, 150mm(6") case	14
256-XRL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	27
256-XRH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	28
256-XRM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	31
256-XRW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	32

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Combined Watt, VAr & Power Factor (2 Quadrant) Transducers - Auxiliary or Self Powered

A range of combined Watt, VAr & Power Factor (2 Quadrant) transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XGK	Class 0.2	1-phase, 150mm(6") case	14
256-XSL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	27
256-XSH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	28
256-XSM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	31
256-XSW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	32

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Combined Watt, VAr & Power Factor (4 Quadrant) Transducers - Auxiliary or Self Powered

A range of combined Watt, VAr & Power Factor (4 Quadrant) transducers in single or three-phase, balanced or unbalanced, 3 or 4-wire systems. All are class 0.2 accurate and microprocessor based to offer exceptional waveform handling on distorted waveforms. In the self powered products the system voltage provides both power supply and input to the measurements circuit but for systems with large voltage variations auxiliary powered products should be used. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-XJL	Class 0.2	3-phase 3-wire balanced load, 150mm(6") case	27
256-XJH	Class 0.2	3-phase 4-wire balanced load, 150mm(6") case	28
256-XJM	Class 0.2	3-phase 3-wire unbalanced load, 150mm(6") case	31
256-XJW	Class 0.2	3-phase 4-wire unbalanced load, 150mm(6") case	32

Specifications

Input:	57.7V, 63.5V, 100V, 110V, 120V, 139V, 208V, 220V, 240V, 250V, 277V, 380V, 400V, 415V, 440V, & 480V AC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Frequency:	50Hz, 60Hz
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

DC/DC Transducers

DC/DC Transducers - Auxiliary Powered

A range of DC/DC transducers that provide an output directly proportional to the input. Suitable for data acquisition and data control monitoring. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-TTA	Class 0.5	DC current, 150mm(6") case	18
256-TTM	Class 0.5	DC millivolts, 150mm(6") case	18
256-TTV	Class 0.5	DC voltage, 150mm(6") case	18

Specifications

Input:	DC current: 200µA to 10A DC DC millivolts: 10mV to 2V DC DC voltage: 2V to 600V DC
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Optional Auxiliary:	100-480V AC 12V, 24V, 48V, 110V or 125V DC

Thermocouple Transducers

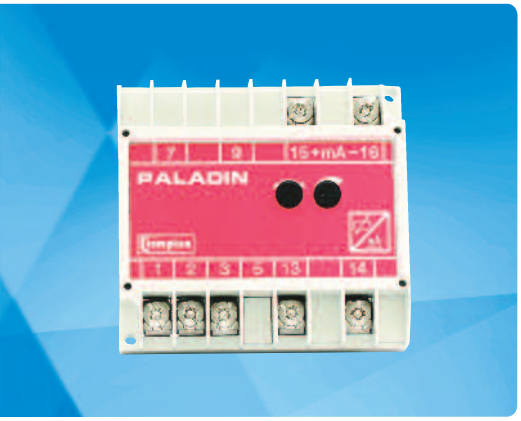
Thermocouple (Temperature) Transducers - Auxiliary Powered

A range of transducers for Type T, J & K Thermocouples that provide an output directly proportional to the input. All models incorporate cold junction compensation for all base metal thermocouples and thermocouple break protection. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
256-TTC	Class 0.5	Type T thermocouple, 150mm(6") case	18
256-TTF	Class 0.5	Type J thermocouple, 150mm(6") case	18
256-TTN	Class 0.5	Type K thermocouple, 150mm(6") case	18

Specifications

Input:	Type T: 0°C to 400°C Type J: 0°C to 700°C Type K: 0°C to 1200°C
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC 1/0/1mA, 5/0/5mA, 10/0/10mA or 20/0/20mA DC 0/1V, 0/5V or 0/10V DC 1/0/1V, 5/0/5V or 10/0/10V DC
Current:	1 or 5A AC
Optional Auxiliary:	100-480V AC 12V, 24V, 48V, 110V or 125V DC



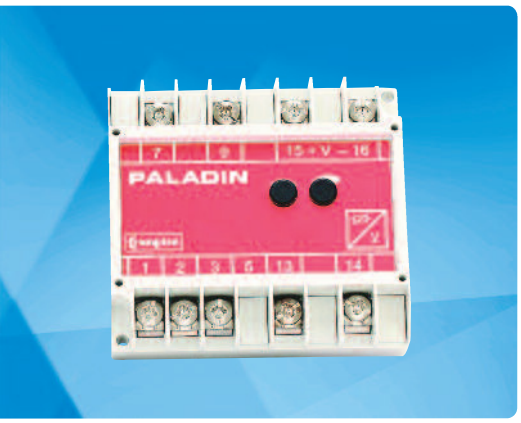
Tap Position Transducers

Tap Position Transducer - Auxiliary Powered
For accurate remote indication of tap position selection on a high voltage transformer. The variable tap position voltage is monitored, and a DC output produced which is proportional to the tap position. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
253-TRT	Class 0.5	Tap position, 75mm(3") case	12

Specifications

Input:	1K□ to 20K□ 5-50 taps at 400□ each 10-50 taps at 30□ each
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC
Current:	1 or 5A AC
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC



Resistance Transducers

Resistance Transducer - Auxiliary Powered
A simple and convenient way of measuring and transmitting temperature values in the form of a load independent DC signal. Transmitters detect varying resistance due to temperature change at the RTD (Resistance Temperature Detector). Designed for platinum (Pt.100), copper (Cu 10) or nickel (Ni100) RTDs. Input, output and auxiliaries are isolated.

Model	Accuracy	Function	Connection diagram
253-TRR	Class 0.5	Resistance, 75mm(3") case	17

Specifications

Input:	100□ Platinum (Pt 100) 10□ Copper (Cu 10) 100□ Nickel (Ni 100)
Output:	0/1mA, 0/5mA, 0/10mA, 0/20mA or 4/20mA DC
Current:	1 or 5A AC
Optional	100-480V AC
Auxiliary:	12V, 24V, 48V, 110V or 125V DC

Single Isolator

Single Frequency Transducers - Self Powered, 1 DC
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.

Model	Accuracy	Function	Connection diagram
250-ISA	Class 0.2	Signal Isolator	5

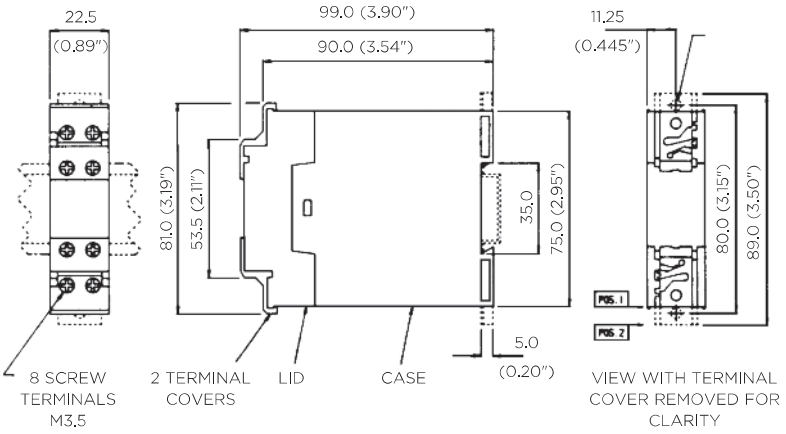
Specifications

Input/output ratio:	1 to 1
Max Input/output:	20mA DC
Isolation:	660V AC, 930V DC continuos
Load range:	0-500 ohms @ 20mA DC
Output voltage:	1 out x R Load limited to 15V
Input voltage:	Typically 1 x (load + 200□) limited to 18V

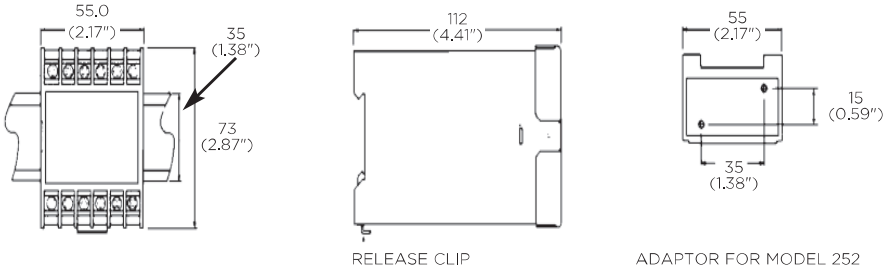
Paladin Transducers 250 Series

Dimensions

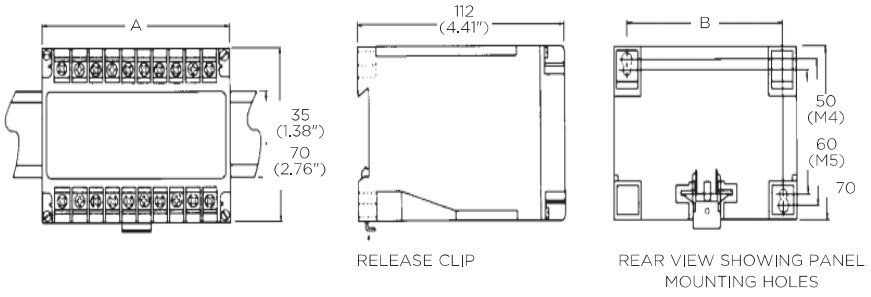
Model 250



Model 252



Model 253, 256

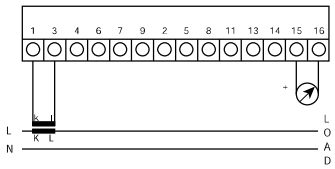


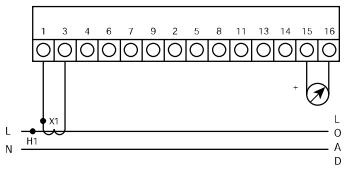
Model	A mm	A inches	B mm	B inches
250	22.5	0.88	-	-
252	55	2.17	-	-
253	75	2.96	60	2.36
256	150	5.90	135	5.31

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.

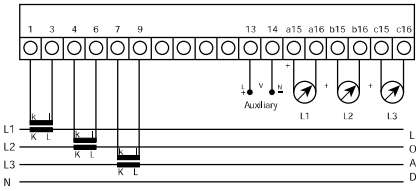
Connection Diagrams

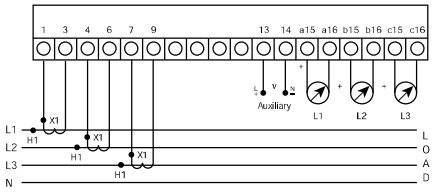
Type 252-XAA, Type 253-TAA
Single-phase Current, Self Powered – Diagram 1





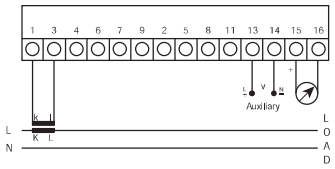
Type 256-XAS/XAR,
Type 256-TAS, TAL, TAR
3 Ø Current, 3 Outputs – Diagram 2

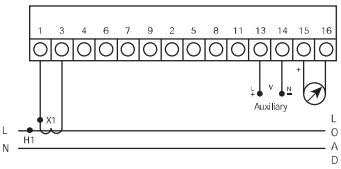




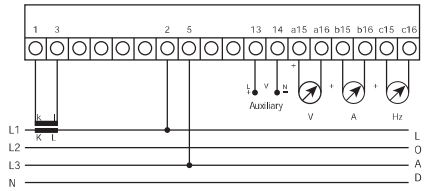
Type 250-ISA
Signal Isolator – Diagram 5

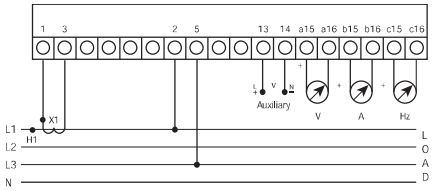
Type 252-XAS/XAR/XAL,
Type 253-TAL/TAR
Single-phase Current – Diagram 6



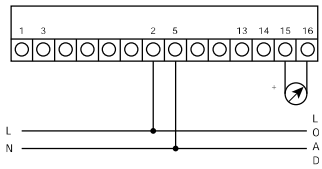


Type 256-XLK
Voltage, Current and Frequency,
3 Outputs – Diagram 9

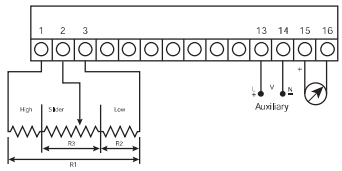




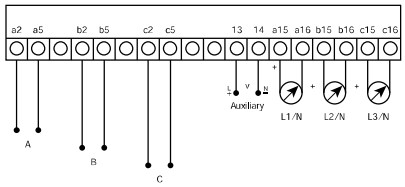
Type 252-XVA & Type 253-TVA
Single-phase Voltage Self Powered
Type 252-XHA, 253-THZ
Frequency – Diagram 10



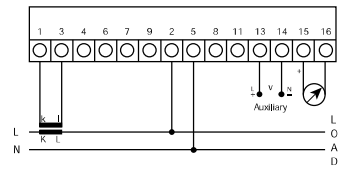
Type 253-TRT
Tap Position Diagram 12

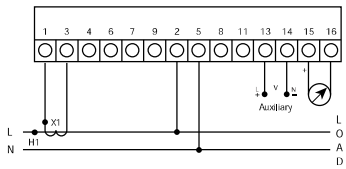


Type 256-TVL, TVR, TVS, TVW
Type 256-XVU, XVW, XVY, XVX
3 x 1Ø Voltages 3 Outputs – Diagram 11



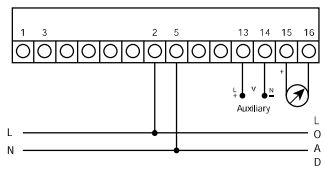
Type 256-XWK/XXK/XYK/XDK
/XEK/XGK/XFS/XFA/XPS/XPA
Type 256-TWK/TXK/TYK
Single-phase, Watts or VArs or VA or Phase Angle or Power Factor, Watt and VAr: Watt, VAr and VA: Watt, VAr and Power Factor.
One Output – Diagram 14

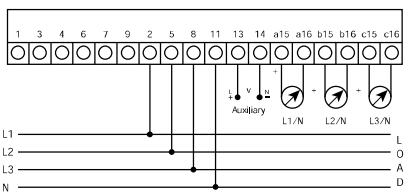




Type 256-XVS/XVR/XVZ/XVL
3 Ø 4W Voltage, 3 Outputs – Diagram 16

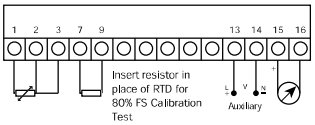
Type 252-XVS, XVZ, XVR, XVL, XHL, XHS
Type 253-TVL, TVR, TVZ
Single-phase Voltage – Diagram 15

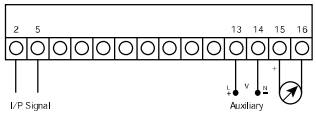




Type 253-TRR

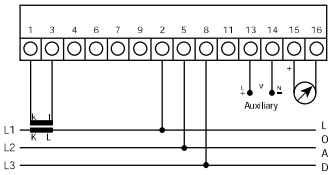
Temperature Transmitter – Diagram 17

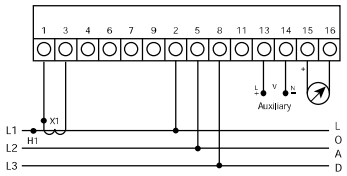




Type 256-TTA/M/V/F/C/N

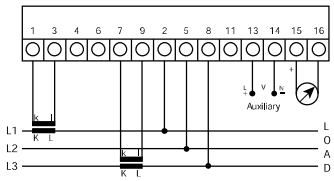
DC/DC Transducer and Temperature Diagram 18

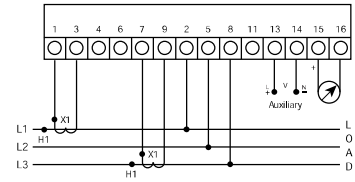




Type 256-XWL/XXL/XYL/XFW/ XPW/XPG/XFG
Type 256-TWL/TPB/TFB/TFE

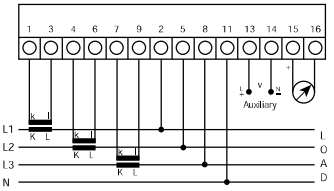
3 Ø 3W Balanced Load, Watts or VArs or VA or Phase Angle or Power Factor. One Output – Diagram 19

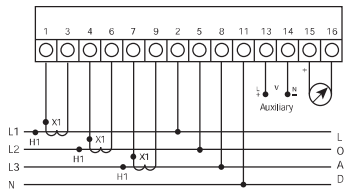




Type 256-XWM/XXM/XYM/XZM/ XFU/XFC/XPU/XPC
Type 256-TWM/TXM/TYM

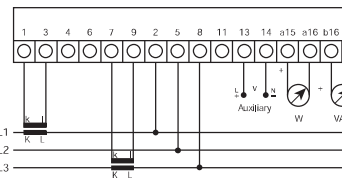
3 Ø 3W Unbalanced Load, Watts or VArs or VA or Phase Angle or Power Factor. One Output – Diagram 20

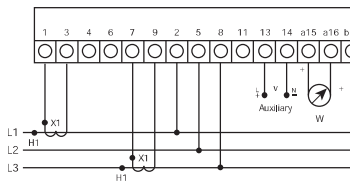




Type 256-XWW/XXW/XYW/XZW/ XFT/XFB/XPT/XPB

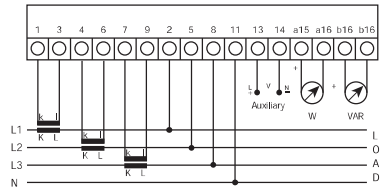
3 Ø 4W Unbalanced Load, 3 Elements, Watts or VArs or VA or Phase Angle or Power Factor. One Output – Diagram 21

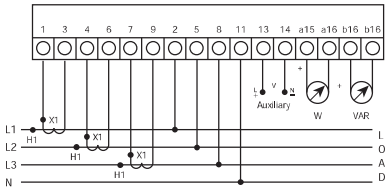




Type 256-XDM

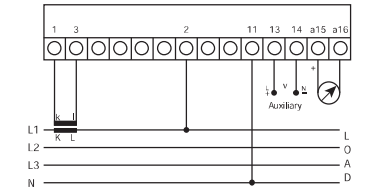
3 Ø 3W Unbalanced Load, Watt and VAr, 2 Outputs – Diagram 22

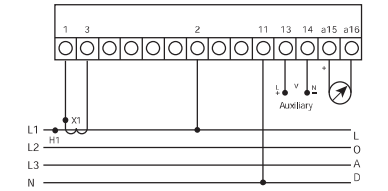




Type 256-XDW

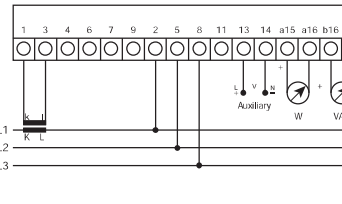
3 Ø 4W Unbalanced Load, 3 Elements, Watt and VAr, 2 Outputs – Diagram 23

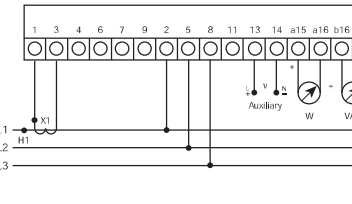




Type 256-XWH/XXH/XYH/XFV /XFD/XPV/XPD
Type 256-TWH/TXH/TYH

3 Ø 4W Balanced Load, Watt, VAr and VA or Phase Angle or Power Factor. 1 Output – Diagram 24



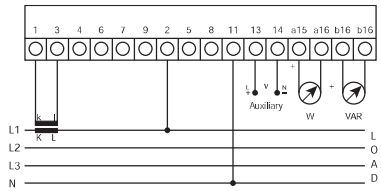


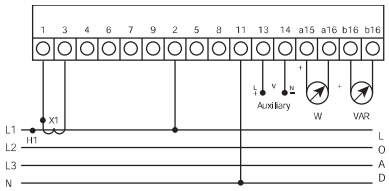
Type 256-XDL

3 Ø 3W Balanced Load, Watt and VAr, 2 Outputs – Diagram 25

Type 256-XDH

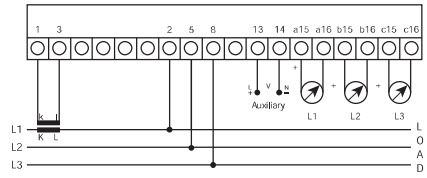
3 Ø 4W Balanced Load, Watt and VAr, 2 Outputs – Diagram 26

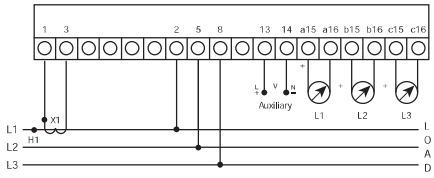




Type 256-XRL/XSL/XJL

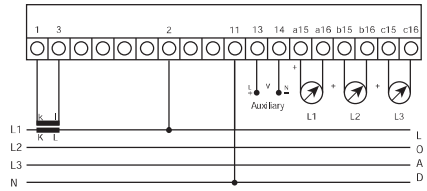
3 Ø 3W Balanced Load, Watt, VAr and VA: Watt, VAr and Power Factor. 3 Outputs – Diagram 27

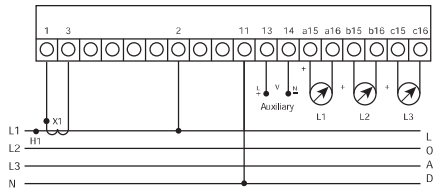




Type 256-XRH/XSH/XJH

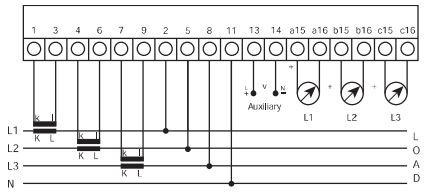
3 Ø 4W Balanced Load, Watt, VAr and VA: Watt, VAr and Power Factor. 3 Outputs – Diagram 28

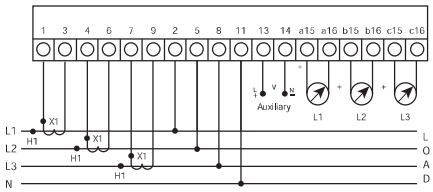




Type 256-XWE/XXE/XYE/XFE/ XFF/XPE/XPF

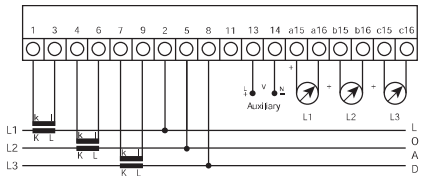
3 Ø 4W Unbalanced Load, Watt, VAr and VA or Phase Angle or Power Factor. 3 Outputs – Diagram 29

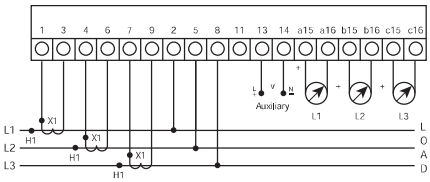




Type 256-XRM/XSM/XJM

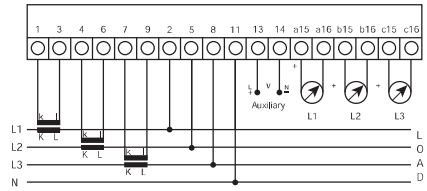
3 Ø 3W Unbalanced Load, Watt, VAr and VA: Watt, VAr and Power Factor. 3 Outputs – Diagram 31

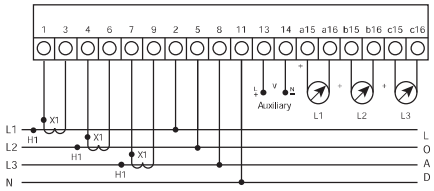




Type 256-XRW/XSW/XJW

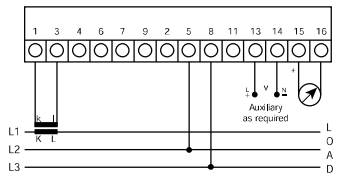
3 Ø 4W Unbalanced Load, 3 Elements, Watt, VAr and VA: Watt, VAr and Power Factor. 3 Outputs – Diagram 32

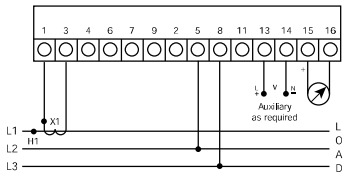




Type 256-TWE/TXG

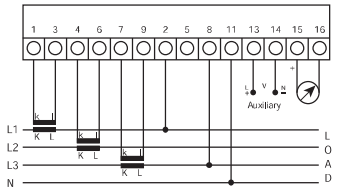
3 Phase 3-wire Balanced Load, Watt, VAr or Phase Angle – Diagram 34

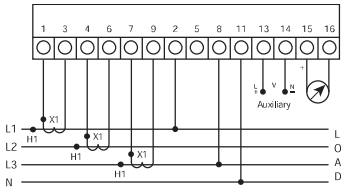


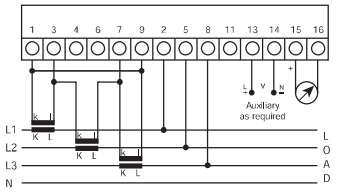


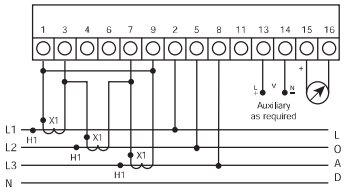
Type 256-TWN/TXP/TYN

3 Ø 4W Unbalanced Load, Watt or VAr, or VA – Diagram 35



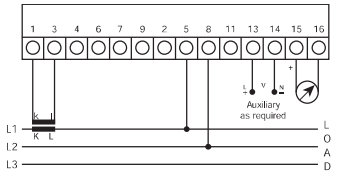


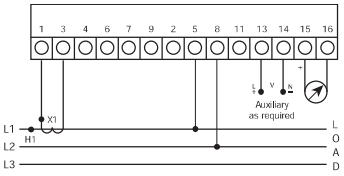




Type 256-TXJ

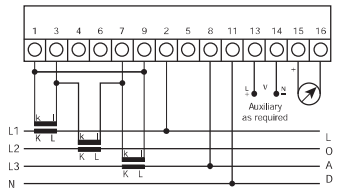
3 Ø 4W Unbalanced Load, VArs, Delta Connected CT's – Diagram 37

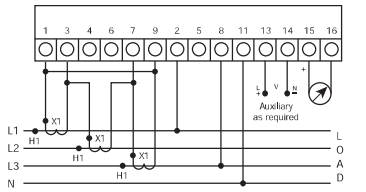




Type 256-TWS

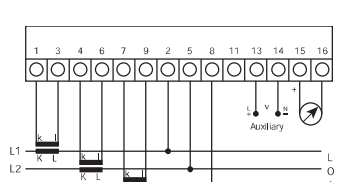
3 Ø 3W Balanced Load, Watts – Diagram 38

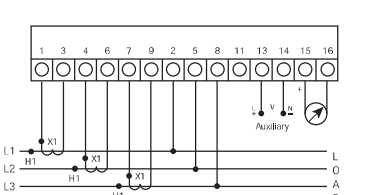




Type 256-TWJ/TYJ

3 Ø 4W Unbalanced Load, Watts or VA Delta Connected CT's – Diagram 39



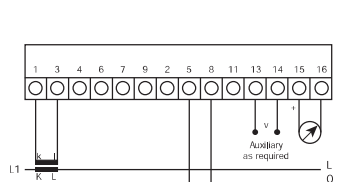


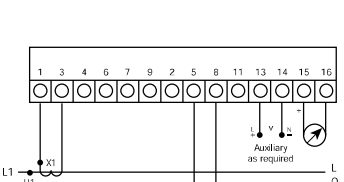
Type 256-TXN

3 Ø 4W, Unbalanced Load, VArs – Diagram 40

25D-ODA

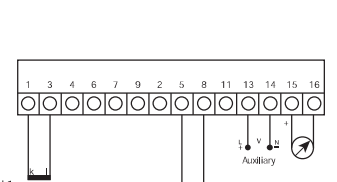
Pin 2 = data, 4 and 5 = power for ODA, 6 and 20 = power for ODA, 7 = ground

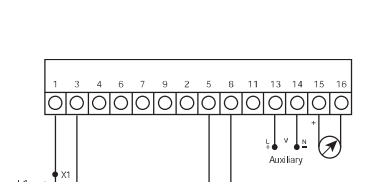




Type 256-TYG, XWL

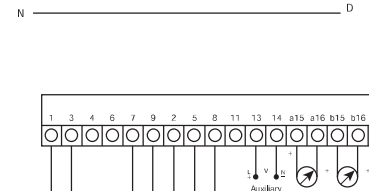
3 Ø 3W Balanced Load, VA, WATT – Diagram 41





Type 256-TXH/TYH

3 Phase 3/4W, Balanced Load, Phase Angle or Power Factor – Diagram 42



Type 256-XVW/XVY/XVX

3 Ø 3W Voltage, 3 Outputs – Diagram 48

Notes on connection diagrams

1. When using more than one item via a current transformer, inputs must be in series.
2. Auxiliary supply applies only if ordered. For maximum performance an AC or DC auxiliary is recommended. Self powering is achievable for a voltage variation of less than 20%.
3. When there is more than one output the outputs are in the sequence listed on the description, i.e. on a Watt, VAr and VA Transducer, output (a) is Watt, (b) is VAr and (c) is VA.
4. Where more than one output is provided there is no isolation between outputs. User may require a signal isolator (Module 250-ISA).

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