



## Features

Extensive range  
High accuracy 0.5%  
Up to 3 analogue outputs in one housing  
Zero and span adjustments  
DIN rail mounting  
Single and 3 phase systems  
Flame retardant cases  
Screw clamp terminals

## Benefits

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

## Applications

Switchgear  
Distribution systems  
Generator sets  
Control panels  
Energy management  
Building management  
Utility power monitoring  
Process control  
Motor control

## Approvals

UL File No: E140758  
CSA File No: LR52592  
BV File No: 3896H-07425-AO PRSO BV

*An extensive range of Class 0.5 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. Transducers offer multiple analogue outputs from one housing, and individual measurement of most electrical parameters.*

## Introduction

Crompton transducers can be used for measuring most electrical parameters. The following transducers can be supplied:

- A.C. and D.C. current and voltage.
- Active, reactive and apparent power.
- Frequency.
- Power Factor and Phase Angle.
- Integrating current for maximum demand indication and Alarm Control.
- Suppressed zero voltage for monitoring a narrow voltage range.
- Tap position on a high voltage transformer.
- Temperature transmitters for thermocouples and resistance thermometer detectors (RTD's).
- Resistance (slidewire) transmitters.

## Safety Features

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 from one another (excluding Resistance transmitters).

## Application

- Measurement of most electrical parameters.
- Conversion to standard d.c. output signals.
- Outputs suitable for indication, PLC's.
- For use in Control Cabinets, Switchboards, Motor Control Centres, Generating Sets, Energy Management & Building Management systems.

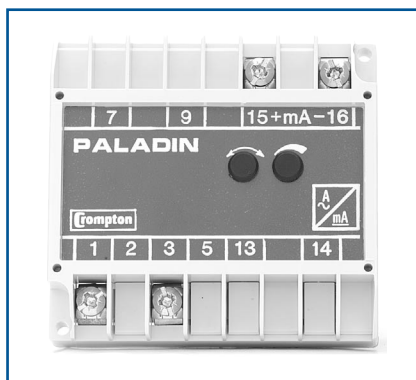
## Ordering Information

When ordering please specify:

1. Product catalogue number.
2. Current and/or voltage.
3. Frequency.
4. Auxiliary voltage A.C. or D.C.
5. Options e.g. calibration at 30°C.
6. For power products:
  - a. V.T. & C.T. ratios.
  - b. System configuration i.e. Single Phase, 3 Phase 3 or 4 Wire, balanced or unbalanced load.
7. For slide wire transmitters quote R1, R2 and R3, see page G9.
8. National Specification:  
Indicated by 7th letter of part number.



|                                |                                                                                                                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Performance                    | Designed to comply with BS6253 part 1, EN60688, IEC688, AS1384 and ANSI. C37.                                                                                                                                                                                     |
| Temperature Range:             | Storage -20°C to +70°C<br>Operating 0°C to +60°C<br>Calibrated at 23°C                                                                                                                                                                                            |
| Temperature Coefficient:       | 0.03%/ per °C                                                                                                                                                                                                                                                     |
| 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 125% (except self powered)                                                                                                                                                                                                                                   |
| Stability:                     | +0.25% per annum (reducing with time)                                                                                                                                                                                                                             |
| Test Voltage:                  | 2kV ms to ANSI, C37                                                                                                                                                                                                                                               |
| Response Time:                 | <400ms from 0 to 99% of rated output, 250 ms to 90%                                                                                                                                                                                                               |
| D.C. outputs (Typical):        | 0/1mA into 0-10kΩ<br>0/5mA into 0-2kΩ<br>0/10mA into 0-1kΩ<br>0/20mA into 0-500Ω (600Ω available on selected models)<br>4/20mA into 0-500Ω (600Ω available on selected models)<br>0/5V 1k ohm minimum load<br>0/10V 1K ohm minimum load - bipolar for some models |
| Current Output Protection:     | Fully protected against open and short circuited output                                                                                                                                                                                                           |
| Voltage Output Protection:     | Fully protected against open circuit output                                                                                                                                                                                                                       |
| Maximum output:                | 20V d.c. when open circuit                                                                                                                                                                                                                                        |
| Output Ripple:                 | <0.5% of full rated output                                                                                                                                                                                                                                        |
| Overload Capacity:             | 2 x rated current continuous<br>1.25 x rated voltage continuous<br>20 x rated current for 1 second<br>1.5 x rated voltage for 10 seconds                                                                                                                          |
| Input Impedance:<br>(d.c. I/P) | d.c. 1000 ohms/volt as standard<br>10k ohms/volt available on request                                                                                                                                                                                             |
| Input Burden:                  | a.c. <2VA                                                                                                                                                                                                                                                         |
| Auxiliary Burden:              | <2VA a.c., <3.5W d.c.<br>auxiliary voltage variation: ±20% a.c., ±15% d.c.,<br>maximum 14% ripple                                                                                                                                                                 |
| Safety:                        | To IEC1010 with terminal cover, basic insulation category                                                                                                                                                                                                         |
| Minimum Test Voltage:          | 2kV rms for 1 minute                                                                                                                                                                                                                                              |
| Flammability:                  | Flame retardant                                                                                                                                                                                                                                                   |
| Isolation:                     | Input/Output/Supply/Case (except TRR, TRP, TRT and TRV with no input/output isolation)                                                                                                                                                                            |
| Interference:                  | Electrical stress surge withstand to IEC 688 part of IEC 801 and ANSI C37 90a                                                                                                                                                                                     |
| Immunity:                      | Impulse test 5kV transient to IEC688 and IEC801                                                                                                                                                                                                                   |
| Enclosure:                     | IP50 to BS5490, IEC529 when the terminal cover is fitted. The case is UL94V0 and the terminal cover is UL94V2                                                                                                                                                     |
| Fixing:                        | EN50022                                                                                                                                                                                                                                                           |
| Approvals:                     | EMC and LVD<br>UL recognised File No: E140758<br>CSA recognised File No: LR52592<br>BV File No: 3896H-07425-AO PRSO BV                                                                                                                                            |



## A.C. Current Average Sensing - Self Powered

Current measuring applications to 0.5% accuracy. 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. Input and output are isolated.

### Specification

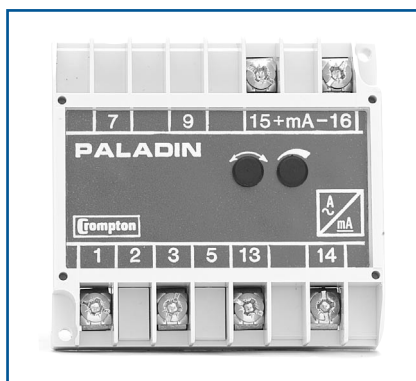
|                  |                                 |
|------------------|---------------------------------|
| Inputs:          | 1, 5 or 10A A.C. 50 or 60 Hz    |
| Auxiliary Power: | Self Powered                    |
| Output:          | 0/1mA, 0/5mA, 0/10mA and 0/20mA |

### Product Code – Single Phase Current Transducer - 1 D.C. Output

| Input A.C. | Aux Power | O/P D.C. | Catalogue No.    | Connection Diag. |
|------------|-----------|----------|------------------|------------------|
| 5A 60Hz    | Self      | 0/1mA    | 253-TAA*-LSFA-C6 | 1                |

### Product Code – 3 Phase Current Transducer - 3 D.C. Output

| Input A.C. | Aux Power | O/P D.C. | Catalogue No.    | Connection Diag. |
|------------|-----------|----------|------------------|------------------|
| 5A 60Hz    | Self      | 0/1mA    | 256-TAA*-LSFA-C6 | 47               |



## A.C. Current Average Sensing - Auxiliary Powered

Single or three phase models offering current measurement down to zero input. Model TAL provides a current output with a live zero (4-20mA). Average sensing and calibrated to indicate the RMS value of a sinewave with up to 1% distortion, isolation is provided between input, output and auxiliary.

### Specification

|                  |                                                                                                                     |
|------------------|---------------------------------------------------------------------------------------------------------------------|
| Inputs:          | 1, 5 or 10A A.C. 50 or 60 Hz                                                                                        |
| Output:          | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA                                                                                |
| Auxiliary Power: | A.C.: 63.5, 100, 110, 120, 220, 240, 250, 380, 400, 415, 440 and 480V<br>D.C.: 12, 24, 48, 110, 120 or 135V nominal |

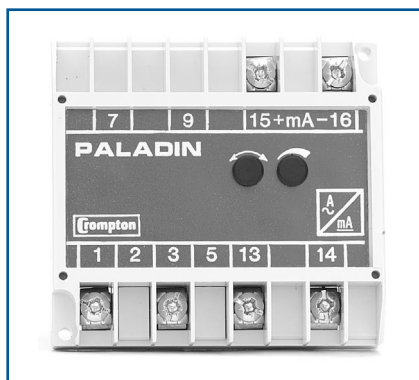
### Product Code – Single Phase Current Transducer - 1 D.C. Output

| Input A.C. | A.C. Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|----------------|----------|---------------------|------------------|
| 5A 60Hz    | 120V           | 4/20mA   | 253-TAL*-LSHG-C6-DG | 6                |

### Product Code – 3 Phase Current Transducers - 3 D.C. Outputs

| Input A.C. | A.C. Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|----------------|----------|---------------------|------------------|
| 5A 60 Hz   | 120V           | 0/1mA    | 256-TAS*-LSFA-C6-DG | 2                |
| 5A 60 Hz   | 120V           | 4/20mA   | 256-TAL*-LSHG-C6-DG | 2                |

With multiple analogue outputs, do not common the -ve terminals.



## True RMS Current

True RMS measurement of the input current, measuring non standard and distorted waveforms. Calibration is correct for sine waves having up to 30% of 3rd harmonic distortion. Isolation is provided between input, output and auxiliary.

### Specification

|                  |                                                                                                            |
|------------------|------------------------------------------------------------------------------------------------------------|
| Inputs:          | 1.5 or 10A A.C., 50 or 60 Hz<br>Refer to factory for other inputs                                          |
| Output:          | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA                                                                       |
| Auxiliary Power: | A.C. 63.5, 100, 110, 120, 220, 240, 250, 380, 400, 415, 440 and 480V<br>D.C. 12, 24, 48, 110, 120, or 135V |

### Product Code – Single Phase Current Transducer

Auxiliary Powered - 1 D.C. output.

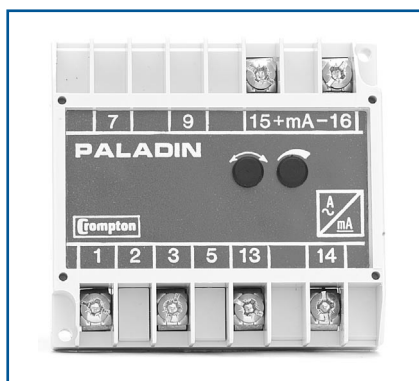
| Input A.C. | A.C. Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|----------------|----------|---------------------|------------------|
| 5A 60HZ    | 120V           | 0/1mA    | 253-TAR*-LSFA-C6-DG | 6                |

### Product Code – 3 Phase Current Transducers

Auxiliary Powered - 3 D.C. outputs.

| Input A.C. | A.C. Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|----------------|----------|---------------------|------------------|
| 5A 60HZ    | 120V           | 0/1mA    | 256-TAR*-LSFA-C6-DG | 2                |

With multiple analogue outputs, do not common the -ve terminals.



## Integrating Demand

RMS calibration, conveniently averages fluctuating input signals into a steady signal. The A.C. input model can provide a maximum demand monitor with 8, 15 or 30 minute integration periods. The D.C. input model can accept the output from other transducers e.g. Watt for indicating integrated power, or RTD for average temperature.

### Specification

|                  |                                                                                             |
|------------------|---------------------------------------------------------------------------------------------|
| Inputs:          | 1 or 5A a.c., 50 or 60 Hz<br>0/1mA, 0/20mA, d.c.<br>0/5mA, 0/10mA, 0/20mA, 0/1V, 0/10V d.c. |
| Auxiliary Power: | 63.5, 110, 120, 220, 240, 280, 415, 440, 480V a.c.                                          |

### Product Code – Single Phase A.C. Integrating Demand Current Transducer

Auxiliary Powered - 1 D.C. Output.

| Input A.C. | Time Constant | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|---------------|----------|---------------------|------------------|
| 5A 60Hz    | 8 Minutes     | 0/1mA    | 253-TAP*-LSFA-C6-DG | 8                |
| 5A 60Hz    | 15 Minutes    | 0/1mA    | 253-TAN*-LSFA-C6-DG | 8                |
| 5A 60Hz    | 30 Minutes    | 0/1mA    | 253-TAM*-LSFA-C6-DG | 8                |

### Product Code – D.C. Integrating Demand Transducer

Auxiliary Powered - 1 D.C. Output.

| Input D.C. | Time Constant | O/P D.C. | Catalogue No.    | Connection Diag. |
|------------|---------------|----------|------------------|------------------|
| 1mA        | 8 Minutes     | 0/1mA    | 253-TDP*-FAFA-DG | 4                |
| 1mA        | 15 Minutes    | 0/1mA    | 253-TDN*-FAFA-DG | 4                |
| 1mA        | 30 Minutes    | 0/1mA    | 253-TDM*-FAFA-DG | 4                |



## A.C. Current Bi-Directional

*This transducer shows the magnitude and direction of an A.C. input current.*

### Specification

|                  |                                                                                                                        |
|------------------|------------------------------------------------------------------------------------------------------------------------|
| Inputs:          | Voltage: 63.5, 100, 110, 120, 220, 240, 250, 380, 400, 415 and 480V a.c., 50 or 60 Hz<br>Current: 1 or 5A, 50 or 60 Hz |
| Auxiliary Power: | Self powered                                                                                                           |
| Outputs:         | ±1mA/5mA/10mA/20mA                                                                                                     |

### Product Code – Single or 3 Phase System, Self Powered, 1 D.C. Output

| Input A.C.     | A.C. Aux Power | O/P D.C. | Catalogue No.          | Connection Diag. |
|----------------|----------------|----------|------------------------|------------------|
| 120V, 5A, 60Hz | Self           | +/-1mA   | 256-TAB*-LSM1-C6-PQ-T3 | 3                |



## A.C. Voltage Average Sensing - Self Powered

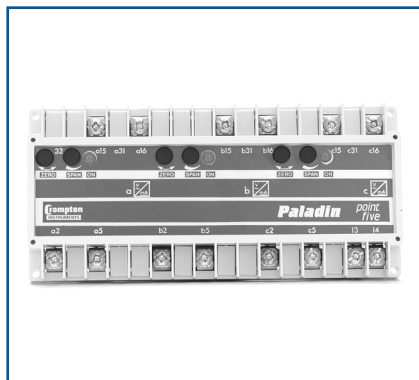
*Standard version for use in all voltage measuring applications. Average sensing for normal sinewave voltages, RMS calibrated for sinewave with up to 1% of 3rd harmonic distortion. Will allow measurement down to 20% of full input. The input signal provides operational power, thus avoiding the need for a separate supply. The input is isolated from the output.*

### Specification

|                  |                                                                                   |
|------------------|-----------------------------------------------------------------------------------|
| Inputs:          | 63.5, 100, 110, 120, 220, 240, 250, 380, 400, 415, 440V and 480V a.c. 50 or 60 Hz |
| Range:           | 20 to 125%                                                                        |
| Auxiliary Power: | Self Powered                                                                      |
| Outputs:         | 0/1mA, 0/5mA, 0/10mA and 0/20mA                                                   |

### Product Code – Single Phase, Self Powered, 1 D.C. Output

| Input A.C. | Aux Power | O/P D.C. | Catalogue No.    | Connection Diag. |
|------------|-----------|----------|------------------|------------------|
| 120V 60Hz  | Self      | 0/1mA    | 253-TVA*-PQFA-C6 | 10               |



## A.C. Voltage Average Sensing - Auxiliary Powered

Auxiliary power allows measurement of voltages down to zero. Average sensing and calibrated to indicate the RMS value of a sinewave with up to 1% distortion. Model TVL provides a voltage input with a live zero (4-20mA). All models have input and output isolation.

### Specification

|                  |                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------------|
| Inputs:          | 63.5, 100, 110, 120, 220, 240, 250, 380, 400, 415, 440 and 480V a.c., 50 or 60 Hz                |
| Output:          | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA                                                             |
| Auxiliary Power: | A.C. 100, 110, 120, 220, 240, 250, 380, 400, 415, 480V<br>D.C. 12V, 24V, 48V, 110V, 120V or 135V |

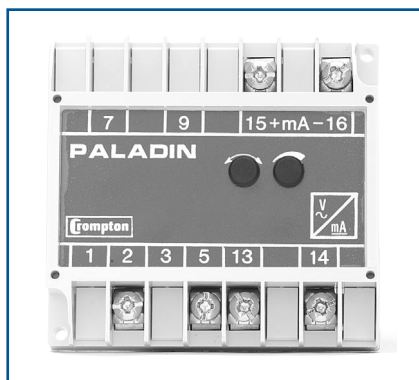
### Product Code – Single Phase - Live Zero - A.C. Voltage Transducer, Auxiliary Powered - 1 D.C. Output

| Input A.C. | A.C. Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|----------------|----------|---------------------|------------------|
| 120V       | 120V           | 4/20mA   | 253-TVL*-PQHG-C6-DG | 15               |

### Product Code – 3 Phase - Live Zero - A.C. Voltage Transducer, Auxiliary Powered - 3 D.C. Outputs

| Input A.C. | System         | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|----------------|----------|---------------------|------------------|
| 120V       | 3 Phase 3 wire | 4/20mA   | 256-TVL*-PQHG-C6-DG | 11               |
| 120V       | 3 Phase 4 wire | 0/1mA    | 256-TVS*-PQFA-C6-DG | 11               |

With multiple analogue outputs, do not common the -ve terminals.



## A.C. Voltage Suppressed Zero - Expanded Scale

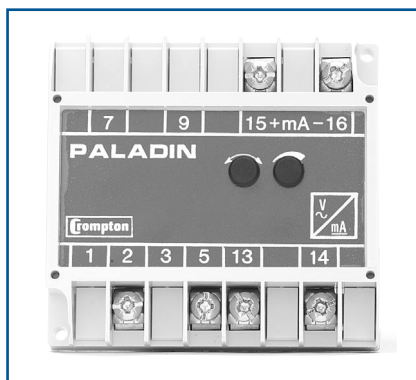
Allows 'expanded scale' measurements at critical voltage levels, indicating small changes within a large voltage span. Average sensing and RMS calibrated, isolation is provided between input and output.

### Specification

|          |                                                                                                                                                  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Inputs:  | Between $\pm 10\%$ and $\pm 30\%$ of nominal<br>63.5, 100, 110, 120, 139, 208, 220, 240, 250, 277, 380, 400, 415, 440V and 480V a.c. 50 or 60 Hz |
| Outputs: | 0/1mA, 0/5mA,<br>0/10mA, 0/20mA d.c.                                                                                                             |

### Product Code – Single Phase - Suppressed Zero - A.C. Voltage Transducer, Self Powered - 1 D.C. Output

| Input A.C. | A.C. Aux Power | O/P D.C. | Catalogue No.    | Connection Diag. |
|------------|----------------|----------|------------------|------------------|
| 108 - 132V | Self           | 0/1mA    | 253-TVZ*-A9FA-C6 | 15               |



## True RMS A.C. Voltage

Single or 3 phase true RMS voltage measurement down to zero. Calibration is maintained for sinewaves having up to 30% of 3rd harmonic distortion. Isolation is provided between input and output.

### Specification

|                  |                                                                                                   |
|------------------|---------------------------------------------------------------------------------------------------|
| Inputs:          | 63.5, 100, 110, 120, 220, 240, 250, 380, 400, 415, 440V and 480V A.C., 50 or 60 Hz                |
| D.C. Outputs:    | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA                                                              |
| Auxiliary Power: | A.C.: 100, 110, 120, 220, 250, 380, 400, 415 and 480V.<br>D.C.: 12V, 24V, 48V, 110V, 120V or 135V |

### Product Code – Single Phase. Voltage Transducer, Auxiliary Powered - 1 D.C. Output

| Input A.C. | A.C.Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|---------------|----------|---------------------|------------------|
| 120V 60Hz  | 120V          | 0/1mA    | 253-TRV*-PQFA-C6-DG | 15               |

### Product Code – 3 Phase. Voltage Transducers

Auxiliary Powered - 3 D.C. outputs.

| Input A.C. | A.C.Aux Power | O/P D.C. | Catalogue No.       | Connection Diag. |
|------------|---------------|----------|---------------------|------------------|
| 120V 60Hz  | 120V          | 0/1mA    | 256-TRV*-PQFA-C6-DG | 11               |

With multiple analogue outputs, do not common -ve terminals.



## Frequency Transducer

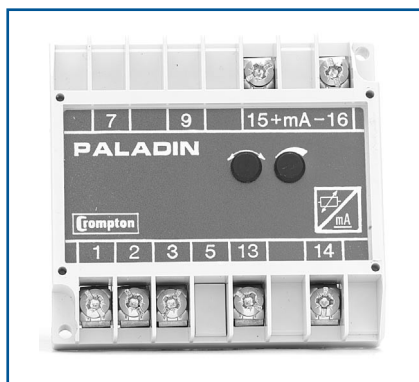
A simple reliable transducer for the measurement of AC power frequencies, and to provide a DC output which is directly proportional to the change of input within a specified span. Isolation is provided between input and output. Ideally suited for process control monitoring, data acquisition, mains and genset applications.

### Specification

|                    |                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------|
| Frequency:         | 45-55Hz, 55-65Hz, 45-65Hz, 360-440Hz                                                                            |
| Inputs:            | 63.5, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, and 480V 50 or 60 Hz. Refer to factory for other inputs |
| Outputs:           | 0/1mA, 4/20mA, 0/5mA, 0/10mA, 0/20mA                                                                            |
| Auxiliary Powered: | Self Powered                                                                                                    |
| Accuracy:          | 0.1% of mid Frequency                                                                                           |

### Product Codes – Single Frequency Transducer, Self Powered - 1 D.C. Output

| Input A.C. | Frequency | O/P D.C. | Catalogue No.    | Connection Diag. |
|------------|-----------|----------|------------------|------------------|
| 120V       | 45/55Hz   | 0/1mA    | 253-THZ*-PQFA-AG | 10               |
| 120V       | 55/65Hz   | 0/1mA    | 253-THZ*-PQFA-AN | 10               |
| 120V       | 45/65Hz   | 0/1mA    | 253-THZ*-PQFA-AJ | 10               |
| 120V       | 360/440Hz | 0/1mA    | 253-THZ*-PQFA-BI | 10               |



## Tap Position Transmitter

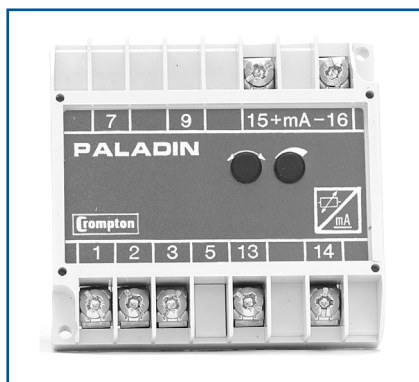
For accurate remote indication of tap position selection on a high voltage transformer. The variable tap position voltage is monitored, a D.C. output produced which is proportional to the tap position.

### Specification

|                  |                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------|
| Input Span:      | 1-20k<br>5-50 taps at 400Ω each<br>10-50 taps at 30Ω each                                          |
| Outputs:         | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA                                                               |
| Auxiliary Power: | A.C. 110, 120, 220, 240, 380, 415V<br>63.5, 139, 208, 277, 440, 480V<br>D.C. 12, 24, 48, 120, 135V |

### Product Codes – Tap Position Transmitter, Auxiliary Powered

| Taps  | Ohm | O/P D.C. | Catalogue No.    | Connection Diag. |
|-------|-----|----------|------------------|------------------|
| 10-50 | 30  | 0/1mA    | 253-TRT*-TIFA-DG | 12               |
| 5-50  | 400 | 0/1mA    | 253-TRT*-T5FA-DG | 12               |



## Slide Wire Transmitter

Designed for accurate measurements and transmission of resistance ratio of a 3 wire potentiometer. A stabilised voltage is applied to the potentiometer and the voltage measured from the zero to the end of the wiper. This is amplified and the D.C. output produced is proportional to the resistance value.

### Specification

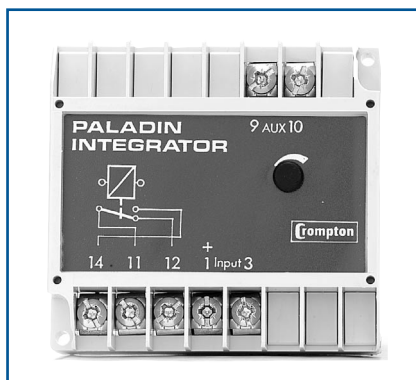
|                  |                                                                                                                                                                                                                 |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Span:      | Minimum 1kΩ Max 50kΩ Specify values of R1, R2, R3<br>Example for 1k Potentiometer: R1 = 1k, R2 = 0, R3 = 1k<br>Example for 5k Potentiometer using only 4k;<br>R1 = 5k, R2 = 1k, R3 = 4k (Remember R1 = R2 + R3) |
| Outputs:         | 0/1mA, 0/5mA, 0/10mA, 0/20mA or 4-20mA,<br>0/1, 0/5, 0/10V D.C.                                                                                                                                                 |
| Auxiliary Power: | A.C. 110, 120, 220, 240, 380, 415V,<br>63.5, 139, 208, 277, 440, 480V<br>D.C. 12, 24, 48, 110, 120 or 135V                                                                                                      |

#### Note:

Not all applications provide for the slider to mechanically travel the full distance along the resistor track. Normally the first resistor step is inside the transducer and its value should be stated when ordering, as well as the total track resistance. End of track or connecting lead resistance, if significant, should also be considered. For satisfactory operation, the change in resistance should be greater than 20% of the total resistance.

### Product Code – Side Wire Transmitter (3 wire), Auxiliary Powered

| Input (Specify) | A.C. Aux Power | O/P D.C. | Catalogue No.    | Connection Diag. |
|-----------------|----------------|----------|------------------|------------------|
| R1, R2, R3      | 120V           | 0/1mA    | 253-TRP*-TRFA-DG | 12               |



## Linear Integrator Pulsed Output Transducer

Typical applications result in pulses proportional to kilowatt-hours, ampere hours, litre-hours etc., depending on the transducer or transmitter used. Accepts inputs in the form of a process signal derived from transducers or transmitters and integrates them with respect to time, to produce a pulsed output via volt free relay contacts. Converts a D.C. input into a pulsed kilowatt hour and ampere hour measurement output.

### Specification

|                  |                                                                   |
|------------------|-------------------------------------------------------------------|
| Inputs:          | 0/1mA, 4/20mA, 0/5mA, 0/10mA, 0/20mA, 0/1V D.C., 0/10V D.C.       |
| Output:          | Volt free relay contacts.                                         |
| Pulse rate:      | Minimum 100/hour maximum 10,000/hour, specify.                    |
| Auxiliary Power: | 63.5, 110, 120, 139, 208, 220, 240, 277, 380, 415, 440, 480V A.C. |

### Product Code – Linear Integrator

| Input | Pulses per hour | A.C. Aux Power | Catalogue No.    | Connection Diag. |
|-------|-----------------|----------------|------------------|------------------|
| 0/1mA | Specify         | 120V           | 253-TIK*-FAPO-DG | 13               |



## Signal Isolator

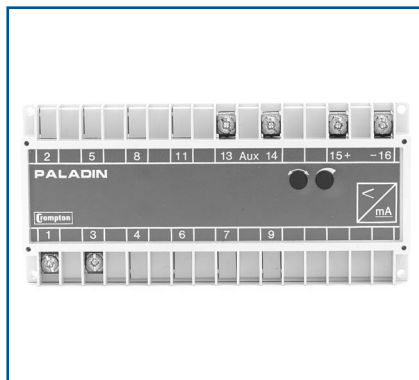
The signal isolator is designed for use in signal transmission and processing applications to prevent noise and interference caused by ground loops between signal source and the measuring device. The isolator provides galvanic high voltage isolation between source and measuring device.

### Specification

|                     |                                            |
|---------------------|--------------------------------------------|
| Input/Output Ratio: | 1 to 1                                     |
| Max Input/Output:   | 20mA D.C.                                  |
| Accuracy:           | 0.2% at 250 ohms                           |
| Isolation:          | 660V A.C., 930V D.C. continuous            |
| Test Voltage:       | 1.5kV at 50Hz for 1 minute                 |
| Load Range:         | 0-500 ohms @ 20mA D.C.                     |
| Output Voltage:     | I out x R Load limited to 15V              |
| Input Voltage:      | Typically I x (load + 200Ω) limited to 18V |
| UL File Number:     | E149713N                                   |
| CSA File Number:    | LR52592                                    |

### Product Code – Signal Isolator

| Input D.C. |  | O/P D.C. | Catalogue No. | Connection Diag. |
|------------|--|----------|---------------|------------------|
| 20mA       |  | 0/20mA   | 250-ISA*-HF   | 5                |



## D.C./D.C. & Temperature

D.C. input versions accept signals over a wide range providing galvanic isolation between the input and output signal. Output is directly proportional to the input. Thermocouple models also incorporate cold junction compensation for all base metal Thermocouples, and Thermocouple break protection. Suitable for data acquisition and data control monitoring.

### Specification

|                      |                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------|
| Inputs:              | D.C. Voltage: Any value between 10mV to 600V<br>D.C. Current: Any value between 100µA to 10A |
| Thermocouple Models: | A range of temperature transmitters suitable for use with a variety of thermocouples.        |
| Inputs:              | The most popular types are:<br>J-Fe/Const 0-700°C<br>K-NiCr/NiA 0-1200°C<br>T-Cu/Cn0-200°C   |
| Auxiliary Power:     | A.C.: 63.5, 110, 120, 220, 240, 380, 415, 440 and 480V<br>D.C.: 12, 24, 48, 110, 120 or 135V |

### Product Codes – D.C./D.C. and Temperature Transducer

| Input               | O/P D.C. | A.C. Aux Power | Catalogue No.    | Connection Diag. |
|---------------------|----------|----------------|------------------|------------------|
| D.C. Current        | 0/1mA    | 120V           | 256-TTA*-**FA-DG | 18               |
| D.C. Millivolts     | 0/1mA    | 120V           | 256-TTM*-**FA-DG | 18               |
| D.C. Voltage        | 0/1mA    | 120V           | 256-TTV*-**FA-DG | 18               |
| <b>Thermocouple</b> |          |                |                  |                  |
| Type K              | 0/1mA    | 120V           | 256-TTN*-KTFA-DG | 18               |
| Type T              | 0/1mA    | 120V           | 256-TTC*-TTFA-DG | 18               |
| Type J              | 0/1mA    | 120V           | 256-TTF*-JTFA-DG | 18               |



## Resistance Transmitter

A simple and convenient way of measuring and transmitting values of temperature in the form of a load independent D.C. signal. They detect varying resistance due to temperature change at the RTD (Resistance Temperature Detector). Designed for platinum (Vt.100), Copper (Cu 10) or Nickel (Ni100) RTDs.

### Specification

|            |                                                                           |
|------------|---------------------------------------------------------------------------|
| Input:     | 100Ω Platinum - (Pt100), 10Ω Copper, 100Ω Nickel                          |
| Outputs:   | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA,                                     |
| Auxiliary: | A.C.: 110, 120, 220, 240, 380, 415V<br>D.C.: 12, 24, 48, 110, 120 or 135V |

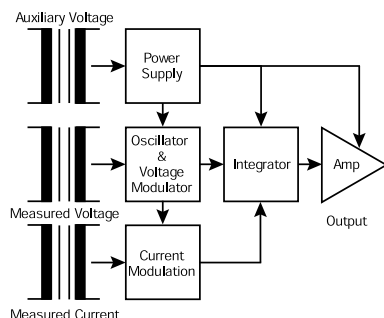
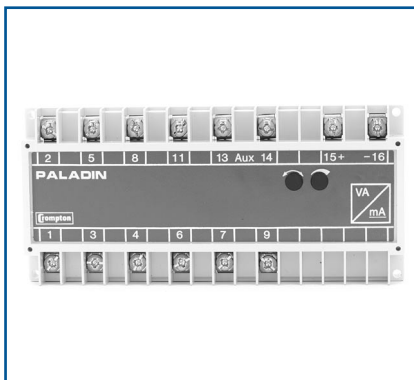
### Product Codes – Resistance Transmitter

| Input              | O/P D.C. | A.C. Aux Power | Catalogue No.    | Connection Diag. |
|--------------------|----------|----------------|------------------|------------------|
| 10 Ohms copper RTD | 0/1mA    | 120V           | 253-TRR*-R1FA-DG | 17               |
| 100 Ohms VT RTD    | 0/1mA    | 120V           | 253-TRR*-R2FA-DG | 17               |

### Ordering Information

Input span can be specified in temperature or resistance. The resistance value between lowest and highest temperature being measured must be within limits stated.

|           |                                     |
|-----------|-------------------------------------|
| Platinum: | 20Ω minimum span, 200Ω maximum span |
| Copper:   | 2Ω minimum span, 20Ω maximum span   |
| Nickel:   | 20Ω minimum span, 200Ω maximum span |



## Power Transducers

A wide range of transducers to measure all forms of power, in single or 3 phase balanced or unbalanced, 3 or 4 wire systems. These Transducers utilise the well proven 'time division multiplication' method of measuring instantaneous power over a wide range of input waveforms. In the self powered version the system voltage provides both power supply and an input to the voltage modulation circuit of an oscillator. Square wave pulses from a multi-vibrator circuit with a mark-space ratio varied by the measured voltage, and amplitude varied by the measured current, are fed to an integrator and an output amplifier circuit. The D.C. milliamp signal produced is therefore directly proportional to the power input. All inputs are isolated by the use of transformers. For large voltage variations use the auxiliary powered versions. Self powered units permit voltage variations up to +20% of the nominal input. Measures both import and export power.

## Specification

|                  |                                                         |
|------------------|---------------------------------------------------------|
| Input Voltage:   | 63.5, 110, 120, 150, 208, 220, 240, 277, 380, 415, 480V |
| Current:         | 1, 5, 10A                                               |
| Frequency:       | 50 or 60 or 400Hz                                       |
| Outputs:         | 0/1mA, 0/5mA, 0/10mA, 0/20mA, 4/20mA                    |
| Auxiliary Power: | Self Powered                                            |
| A.C.:            | 63.5, 110, 120, 150, 208, 220, 240, 277, 380, 415, 480V |
| D.C.:            | 12, 24, 48, 120, 135V                                   |

## Product Codes – Watt Transducer

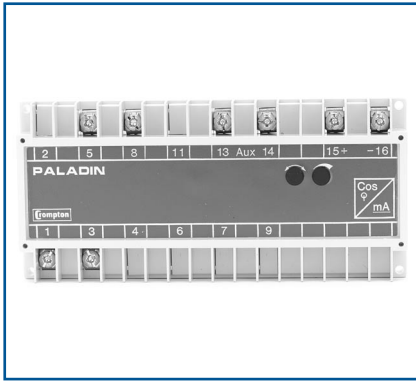
|                                                      | Catalogue No. | Connection Diag. |
|------------------------------------------------------|---------------|------------------|
| Single Phase                                         | 256-TWK       | 14               |
| 3 Phase 3 Wire Balanced Load                         | 256-TWL       | 19               |
| 3 Phase 4 Wire Balanced Load                         | 256-TWH       | 24               |
| 3 Phase 3 Wire Unbalanced Load                       | 256-TWM       | 20               |
| 3 Phase 4 Wire Unbalanced Load                       | 256-TWN       | 35               |
| 3 Phase 3 Wire Balanced Load (2 Voltage connections) | 256-TWS       | 38               |

## Product Codes – VAr Transducer

|                                |         |    |
|--------------------------------|---------|----|
| Single Phase                   | 256-TXK | 14 |
| 3 Phase 3 Wire Balanced Load   | 256-TXG | 34 |
| 3 Phase 4 Wire Balanced Load   | 256-TXH | 42 |
| 3 Phase 3 Wire Unbalanced Load | 256-TXM | 20 |
| 3 Phase 4 Wire Unbalanced Load | 256-TXN | 40 |

## Product Codes – VA Transducer

|                                |         |    |
|--------------------------------|---------|----|
| Single Phase                   | 256-TYK | 14 |
| 3 Phase 3 Wire Balanced Load   | 256-TYG | 41 |
| 3 Phase 4 Wire Balanced Load   | 256-TYH | 42 |
| 3 Phase 3 Wire Unbalanced Load | 256-TYM | 20 |
| 3 Phase 4 Wire Unbalanced Load | 256-TYN | 35 |



## Power Factor and Phase Angle

A range of power factor and phase angle transducers with a linearised output.

### Product Codes – Power Factor Transducer (for Digital Meters & Systems)

3 Phase 3 or 4 Wire Balanced Load.

| Power Factor                               | Catalogue No. | Connection Diag. |
|--------------------------------------------|---------------|------------------|
| Single Phase 0.5/1/0.5                     | 256-TDSU      | 43               |
| Single Phase 0/1/0                         | 256-TDCU      | 43               |
| Single Phase 1/0/1/0/1                     | 256-TDAU      | 43               |
| 3 Phase 3 or 4 Wire Balance Load 0.5/1/0.5 | 256-TDTU      | 45               |
| 3 Phase 3 Wire Balance Load 0/1/0          | 256-TDEU      | 46               |
| 3 Phase 3 or 4 Wire Balance Load 1/0/1/0/1 | 256-TDBU      | 46               |

**Note:** These products are only suitable for 50Hz or 60Hz operation.

### Product Codes – Phase Angle Transducers Single Phase

3 Phase 3/4 Wire Balanced Load 2 or 4 Quadrant

| Phase Angle                                                 | Catalogue No. | Connection Diag. |
|-------------------------------------------------------------|---------------|------------------|
| Single Phase<br>60/0/60 75/0/36 0.5/1.0/0.5 or 0.2/1/0.8    | 256-TPSU      | 14               |
| Single Phase -180°/0/180°                                   | 256-TPAU      | 14               |
| 3 Phase 3 or 4 Wire Balanced Load<br>0.5/1/0.5 or 0.2/1/0.8 | 256-TPTU      | 42               |
| 3 Phase 3 or 4 Wire Balanced Load -180°/0/180°              | 256-TPBU      | 19               |

### Product Codes – Power Factor Transducer (Suits Analogue Indicators) Single Phase

3 Phase 3 or 4 Wire Balanced Load.

Accuracy +/- 3% of Span, i.e. 0.03 counts on 0.5/1/1/0.5 model.

| Power Factor                                     | Catalogue No. | Connection Diag. |
|--------------------------------------------------|---------------|------------------|
| Single Phase - 0.5/1/0.5                         | 256-TFSU      | 14               |
| Single Phase - 0/1/0                             | 256-TFCU      | 14               |
| Single Phase - 1/0/1/0/1                         | 256-TFAU      | 14               |
| 3 Phase 3 or 4 Wire Balanced Load 0.5/1/0.5      | 256-TFTU      | 42               |
| 3 Phase 3 Wire Balanced Load 0/1/0               | 256-TFEU      | 19               |
| 3 Phase 3 Wire or 4 Wire Balanced Load 1/0/1/0/1 | 256-TFBU      | 19               |

**Note:** These products are only suitable for 50Hz or 60Hz operation.

### Product Code – Phase Relationship Transducer

| Phase Relationship                                                   | Catalogue No. | Connection Diag. |
|----------------------------------------------------------------------|---------------|------------------|
| Measures the phase relationship between two systems (voltage inputs) | 256-TPDU      | 36               |

### Conversion to P.F.

The transducer output, if displayed on an analogue meter, produces an inconvenient non-linear scale. Computer users may find the need for a linearising program. Other transducers are available from Crompton Instruments with a linearised output if required.

