PALADIN ADVANTAGE
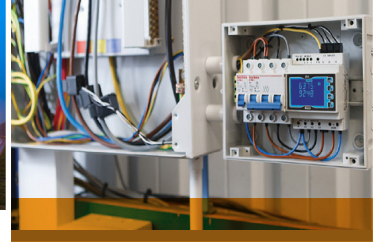## UNIVERSAL PROGRAMMABLE TRANSDUCER

KEY FEATURES

- DIN-rail enclosure

- Measurement, isolation and conversion of up to 4 parameters

- RS485 Modbus RTU protocol

- Alarm/pulsed output

- Programmable VT/CT ratio

- True rms measurement

- User programmable configuration

TE Connectivity's (TE) Crompton Instruments Paladin Advantage, 254-XZZ, is a programmable transducer which provides measurement isolation and conversion of all main electrical parameters into an industry standard DC output signal. The 254-XZZ can be used in single and three-phase balanced or unbalanced three or four-wire electrical systems. The 254-XZZ has an accuracy of CL0.2 and includes RS485 Modbus RTU communications protocol and pulse/alarm output as standard.

The 254-XZZ is an accurate device for the conversion of all main electrical parameters into a Voltage or mA output and provides measurement, isolation and conversion of up to four user defined inputs and outputs. The device is supplied programmed to the users requirements but can be easily be reprogrammed to suit any application.

Designed, developed and manufactured in the EU, with integrated microprocessor for exceptional waveform handling of distorted waveforms. The 254-XZZ is ideal for low, medium and high voltage applications and provides a high protection against continuous and short circuit protection as well as galvanically isolated inputs and outputs.

Customers can count on consistent, high quality products, driven by TE's proven innovation and backed by our extraordinary customer support.

The 254-XZZ is supplied fully user configurable with up to 4 user defined inputs and outputs. It is possible to program the device as many times as required to suit any application. TE supply a free of charge software called the Paladin Tool, available for free download on the Crompton website http://www.crompton-instruments.com/254-XZZ.html.

The Paladin Tool utility runs on a Personal Computer (PC) with Microsoft windows Operating System. The programmable transducer must be connected to the PC by a standard printer USB cable (not provided), and the auxiliary supply powered-on.

The USB connection to the transducer is fully isolated, allowing a safe programmability of the transducer itself even if it is completely wired to a live system.
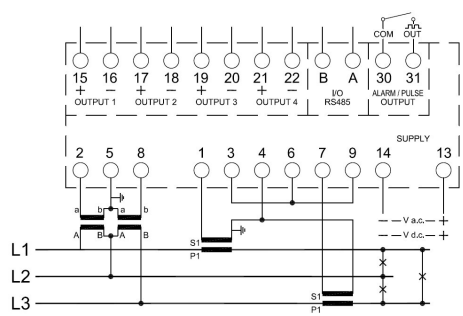
BENEFITS
• Cost effective

• CL 0.2 accuracy

• Modbus communications

• Fully configurable

APPLICATIONS
• Motor control centres

• Energy/building management systems

• Switchgear

• Generator sets

STANDARDS
• IEC 61326

• IEC 61010-1

• IEC 62053-21

• EN60688

• RoHS Compliant

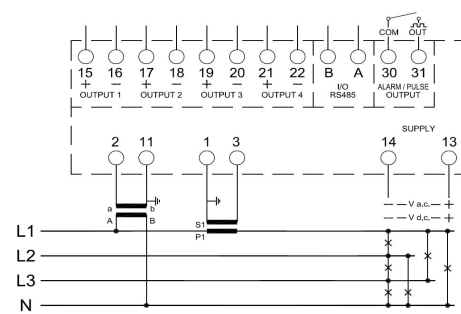| Product codes	Part number
Auxiliary 20 – 60 V AC/DC (+/- 10%) 45 – 66 Hz, 6 VA, two outputs	254-XZZ-L-O2
Auxiliary 80 – 260 V AC/DC (+/- 10%) 45 – 66 Hz, 6 VA, two outputs	254-XZZ-M-O2
Auiliary 20 - 60 V AC/DC (+/- 10%) 45 – 66 Hz, 6 VA, four outputs	254-XZZ-L-O4
Auxiliary 80 – 260 V AC/DC (+/- 10%) 45 – 66 Hz, 6 VA, four outputs	254-XZZ-M-O4

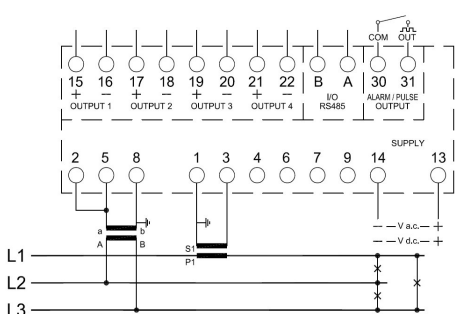## CONNECTION DIAGRAMS

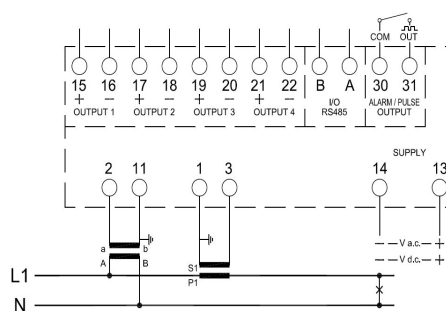**3-phase 4-wire unbalanced**
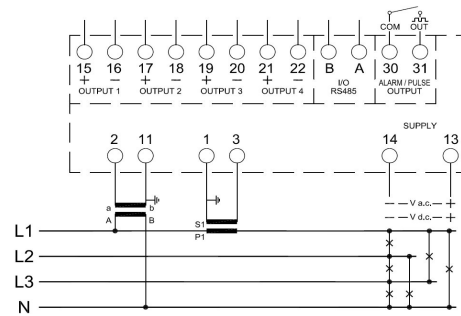
3-phase 3-wire unbalanced

3-phase 4-wire balanced

3-phase 3-wire balanced

Single-phase

SPECIFICATION

Input	
Nominal input voltage	57.7 V – 277 V AC L-N (100 – 480 V L-L) 480 V MAX
Max. Continuous input overload voltage	120% of nominal
Max. Short duration input voltage (300 msec)	2 x nominal voltage
Nominal input voltage burden	< 0.5 VA per phase
Nominal input current	1A AC or 5A AC rms
Nominal input current burden	< 0.1 VA
Max. Continuous input overload current	2 x nominal voltage
Max. Short duration input current (300 msec)	20 x nominal current

Auxiliary	
Operating range	80 – 260 V AC/DC (+/- 10%) 45 – 66 Hz, 6 VA or 20 – 60 V AC/DC (+/- 10%) 45 – 66 Hz, 6 VA
Supply burden	6 VA

Accuracy	
Voltage (V)	< 0.2%
Current (A)	< 0.2%
Neutral current calculated (A)	< 1.0%
Frequency (Hz)	< 0.1 Hz
Power factor (PF)	1% of unity
Active power (W)	+/- 0.2% of range
Reactive power (VAr)	+/- 0.2% of range
Apparent power (VA)	+/- 0.2% of range
Active energy (kWh)	Class 0.2 (IEC 62053-21)
Reactive energy (kVArh)	+/- 0.2% of range
Response time	<200 msec

Range	
Voltage (V)	5% to 120% for nominal
Current (A)	5% to 120% of nominal
Frequency	45 – 65 Hz
THD	up to 31st harmonic

Outputs	
Analogue output	0... +/- 1 mA 0... +/- 5 mA 0... +/- 10 mA 0... +/- 20 mA 4... +/- 20 mA 0... +/- 1 V 2... +/- 10 V All programmable
Pulse/alarm output relay	User defined solid state relay
Contact rating	100 mA @ 250 V
Pulse duration	30 msec to 1000 msec
Alarm delay	0 – 120 secs
Alarm hysteresis	1 – 99%
Alarm type	User Defined Solid State Relay
Communication protocol	RS485 Modbus RTU
Type	2-wire half duplex
Baud rate	9600, 19200, 38400

Enclosure	
Enclosure style	DIN-rail mounting
Dimensions	100 x 79 x 118 mm
Material	Polycarbonate to UL94-V0
Weight	0.42 kg
Terminals	Shrouded screw-clamp 0.05 – 4 mm wire

| Environment	
Operating temperature	-10°C to +55°C
Storage temperature	-30°C to +70°C
Relative humidity	0 – 90% non-condensing
Shock	30 g in 3 planes
Vibration	10 Hz to 50 Hz
Dielectric voltage	Withstand test 4 kV, 50 Hz for 1 minute between auxiliary/input/output

INPUT PARAMETERS

| Button	ID	Description
Voltage	VL1	Volts L1-N
	VL2	Volts L2 - N
	VL3	Volts L3 - N
	2VL12	Volts L1 - L2
	VL23	Volts L2 - L3
	VL31	Volts L3 - L1
	AVG V12	Average Vvlt
	V23 V31	- age (L-L)
	AVG V1N	Average Vvlt-
	V2N V3N	age (L-N)
	DELTA V	Volts diff L-L
	DELTA VN	Volts diff L-N
Current	IL1	Current L1
	IL2	CurrentL2
	IL3	Current L3
	IN	Neutral I
	AVG I1 I2 I3	Average Current
	DELTA I	Current diff
	I1 MAX	I1 Max demand
	I2 MAX	I2 Max demand
	I3 MAX	I3 Max demand
	I1 AVG	Average I1
	I2 AVG	Average I2
	I3 AVG	Average I3
Active Power	P	System power
	P1	Power L1
	P2	Power L2
	P3	Power L3
	PMAX	Max power
	PAVG	Average power
Reactive Power	Q	System VAr
	Q1	Systme VAr L1
	Q2	System VAr L2 Q3
	Q3	System VAr L3
Apparent Power	S	System VA
	S1	System VA L1
	S2	System VA L2
	S3	System VA L3
Power factor	PF	Power Factor
	PF AVG	Average PF
	PF1	PF L1
	PF2	PF L2
	PF3	PF L3
Angle	SYS ANGLE	System Angle
	ANGLE L1	Phase Angle L1
	ANGLE L2	Phase Angle L2
	ANGLE L3	Phase Angle L3
THD	THDV1	THD V1
	THDV2	THD V2
	THDV3	THDV3
	THD I1	THD V3
	THD I2	THD I2
	THD I3	THD I3
COSPHI	COSPHI 1	Displacememnt P.F
	COSPHI 2	Displacememnt P.F
	COSPHI 3	Displacememnt P.F

TE connectivity

SOFTWARE SCREENS

System Settings

• Current and Voltage transformer ratio's settings

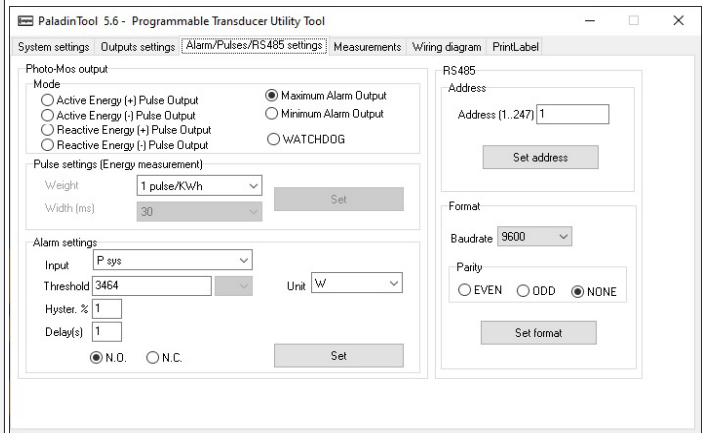• Settings for 3 phase 3 wire, 3 phase 4 wire and single phase 2 wire
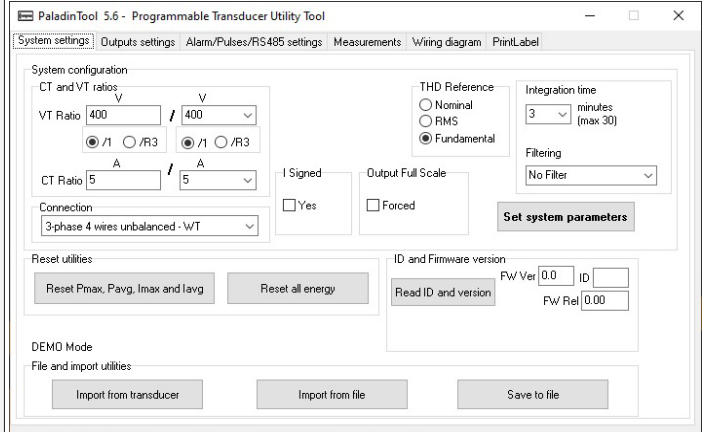
Input/ Output Settings

• Set the required inputs and output values

• 2 or 4 outputs available
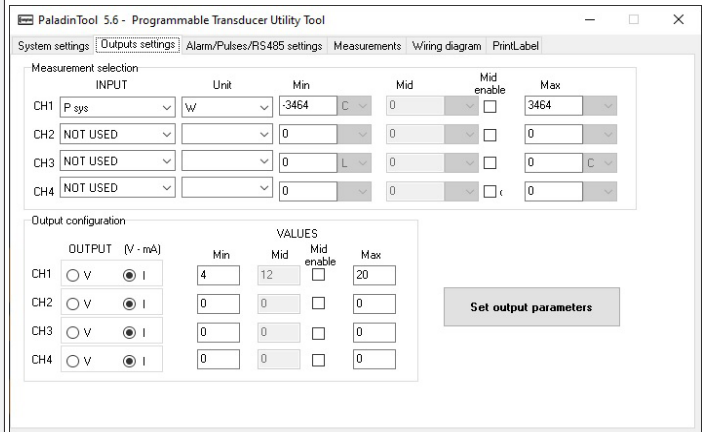
Alarms & Comms

• Set parameters and values for any required alarm outputs and set communication values
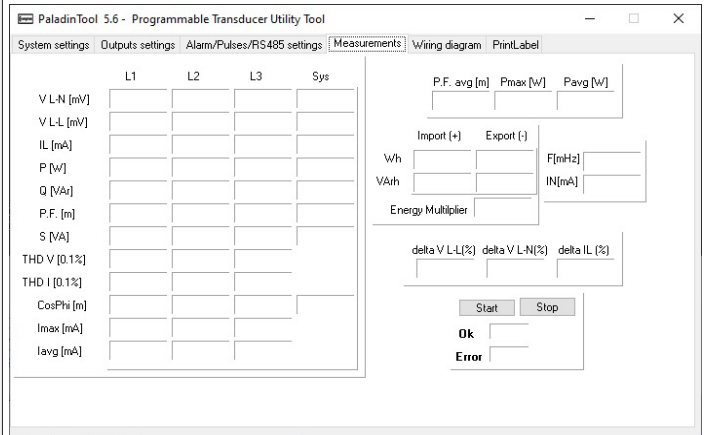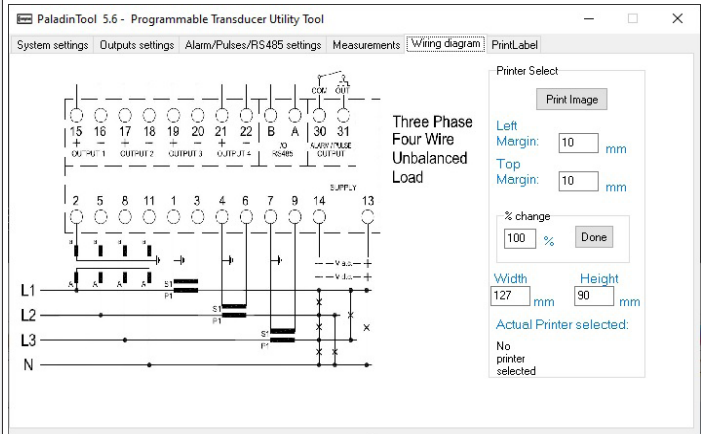
SOFTWARE SCREENS

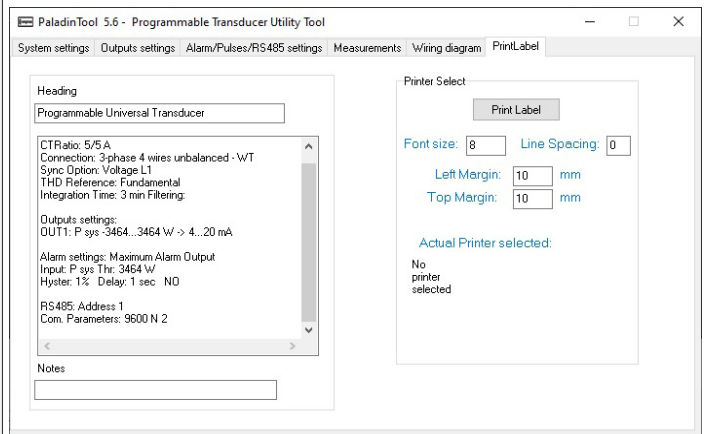### Measurements

• Overview of values on single dashboard

Wiring Diagram

• After setting all the required parameters you can print out a bespoke wiring diagram to fix to the product.

Label

• Print a label showing exact configuration of all values in the Transducer including any alarm values and communication settings.

DIMENSIONS

- 100 x 70 x 118 mm

- 3.94" x 3.11" x 4.65"

- Weight 0.42 kg

- User programmable configuration

TERMINAL BLOCKS
max 4 sq. mm

70 mm

118 mm

Ø4.2

DIN EN 5022

35 mm

84 mm

87 mm

TE
connectivity