



# CROMPTON INSTRUMENTS

## INTEGRA TL 1 TRI LOAD

## DIGITAL METERING SYSTEM

Designed, developed and manufactured in the UK, the Integra TL1 is a digital metering system which provides measurement, isolation and conversion of all main electrical parameters from 3x three phase loads, in a single meter. It can be used in three-phase unbalanced four-wire electrical systems and has an accuracy of CL1 Energy.

The Integra TL1 has an integrated microprocessor for exceptional waveform handling of distorted waveforms, and is ideal for low voltage applications. It provides a cost effective way of metering split load distribution and panel boards, in a single metering solution.

### Features

- DIN-rail enclosure
- Single meter for 3x three phase loads
- Multiple display modes
- Modbus RTU RS485 as standard
- User-programmable CT ratio and system configuration
- True rms measurement
- Continuous busbar or individual busbar metering
- Can be programmed for individual power loads when required
- RJ12 socket for fast connection
- Optional DIN 96mm panel mounting bezel can be supplied

### Applications

- Commercial Building Disclosures
- Nabers
- National Construction Code (NCC)
- Greenstar Energy Management

# INTEGRA TL 1 TRI-LOAD DIGITAL METERING SYSTEM

## Displayed Parameters

Load 1	Load 2	Load 3	System
Current L1	Current L1	Current L1	Current L1
Current L2	Current L2	Current L2	Current L2
Current L3	Current L3	Current L3	Current L3
kW L1	kW L1	kW L1	Voltage L1
kW L2	kW L2	kW L2	Voltage L2
kW L3	kW L3	kW L3	Voltage L3
Average System Volts	Average System Volts	Average System Volts	Average System Volts
Average System Current	Average System Current	Average System Current	Average System Current
Average System kW	Average System kW	Average System kW	Total System kWh
kWh Import	kWh Import	kWh Import	kWh Import - Load 1
			kWh Import - Load 2
			kWh Import - Load 3
			Frequency
			Power Factor (PF)

### Product Code

Integra TL1 DMS TL1-01

## Specification

Input	
Nominal input voltage	100V to 230V AC rms., L - N. 173V to 400V AC rms., L - L
Max. continuous input overload voltage	120% of nominal
Max. short duration input voltage (1 sec)	2 x nominal voltage
Nominal input voltage burden	0.2VA per phase (Except L1)**Self powered using the meter electrical input from L1 (6VA)
Nominal input current	100mA AC rms. per CT
System CT primary values	1-9999A (selectable from display)
CT burden	0.1 VA
Accuracy	
Voltage (V)	< 0.5%
Current (A)	< 0.5%
Frequency (Hz)	< 0.2% of mid range
Power factor (PF)	1% of unity
Active power (W)	+/- 1.0%
Active energy (kWh)	+/- 1.0% Class 1 IEC 62053-21
Range	
Voltage (V)	5% to 120% for nominal
Current (A)	5% to 120% of nominal
Frequency	45-65 Hz
Power	1-144% of nominal 0.8 capacitive - 1 - 0.8 inductive (functional 4 quadrant, 0-1 lag lead)
Power factor	
Energy	6-digit resolution and to be displayed in kWh (Maximum display 999999, before rollover to 0)
Outputs	
Communication protocol	RS485 Modbus RTU
Type	2-wire half duplex
Baud rate	9600, 19200, 38400



## Benefits

- Cost-effective, single meter solution
- UK manufactured
- CL1.0 accuracy for Energy
- Modbus communications
- Fully configurable
- Additional facility to accumulate the total system power/kWhs -displaying the combined system total parameters

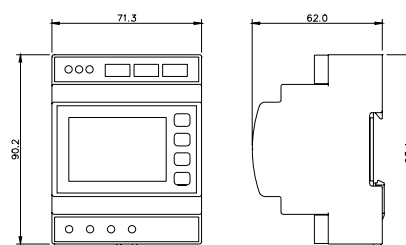
## Uses

- Switchgear distribution systems
- Energy/Building Management Systems

## Standards

- IEC 61326
- IEC 61010-1
- IEC 62053-21
- RoHS Compliant

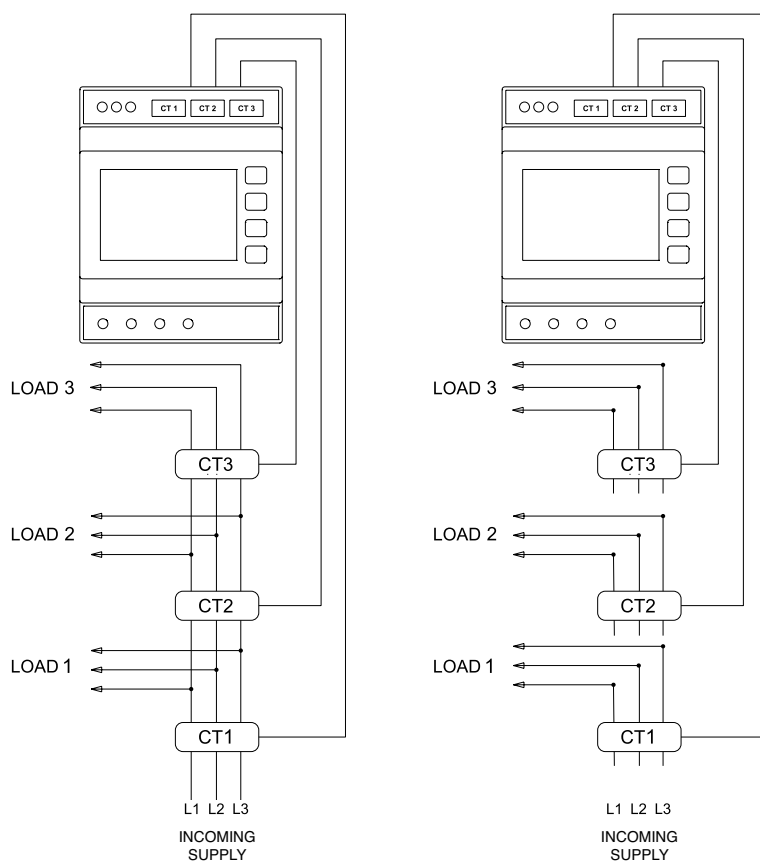
## Dimensions



# INTEGRA TL 1 TRI-LOAD DIGITAL METERING SYSTEM

Enclosure	
Enclosure style	DIN-rail mounting EN43880
Dimensions	72 x 90 x 62 mm
Material	Polycarbonate to UL94-V0
Weight	0.25kg
Terminals voltage	Shrouded screw-clamp 0.05-4mm wire
Terminals CT	RJ12 connector
Sealing	IP52 front of panel
Environment	
Operating temperature	-10°C to +55°C
Storage temperature	-20°C to +70°C
Relative humidity	0-90% non-condensing
Shock	30g in 3 planes and vibration of 0Hz to 50Hz IEC 60068-2-6, 2g
Vibration	0Hz to 50Hz, IEC 60068-2-6, 2g. Withstand test 2.2kV, 50Hz for 1 minute between auxiliary / input / output

## Measuring Modes

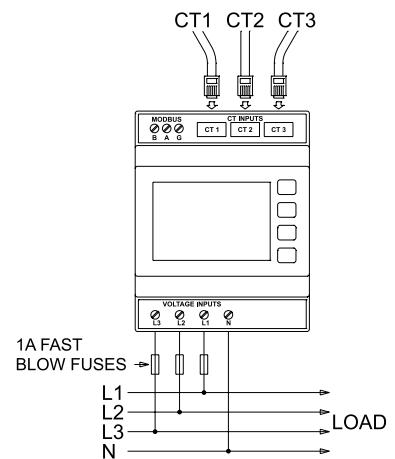


	Operating Mode	
	Tri1	Tri2
Load 1 (CT1)	CT1 - CT2	CT2 - CT3
Load 2 (CT2)	CT2 - CT3	CT1 - CT2
Load 3 (CT3)	CT3	CT3

	Operating Mode
	Tri3
Load 1 (CT1)	CT1
Load 2 (CT2)	CT2
Load 3 (CT3)	CT3

## Connection Diagram

3 Phase, 4 wire



## 3-in-1 Current Transformer



Part number	Primary Current	VA at Class 1	VA at Class 0.5
DL3N1-35-60/0.1	60A	0.25	-
DL3N1-35-125/0.1	125A	0.5	0.25
DL3N1-35-160/0.1	160A	0.35	0.25
DL3N1-35-250/0.1	250A	0.5	0.25
DL3N1-45-250/0.1	250A	0.25	-
DL3N1-45-400/0.1	400A	-	0.25
DL3N1-45-600/0.1	600A	-	0.25
DL3N1-70-400/0.1	400A	-	0.25
DL3N1-70-600/0.1	600A	-	0.25
DL3N1-70-800/0.1	800A	-	0.25

TE Connectivity Ltd. is a \$13 billion global technology and manufacturing leader creating a safer, sustainable, productive, and connected future. For more than 75 years, our connectivity and sensor solutions, proven in the harshest environments, have enabled advancements in transportation, industrial applications, medical technology, energy, data communications, and the home. With 78,000 employees, including more than 7,000 engineers, working alongside customers in nearly 150 countries, TE ensures that EVERY CONNECTION COUNTS. – [www.TE.com](http://www.TE.com).

#### Generation

- Conventional Power
- Nuclear Power
- Wind/Solar
- Hydro-electric

#### Transmission & Distribution

- Substation
- Underground
- Overhead
- Street Lighting

#### Industry

- Mining
- Petrochemical
- Railway
- Shipbuilding

WHEREVER ELECTRICITY FLOWS, YOU'LL FIND TE ENERGY



[te.com/energy](http://te.com/energy)

© 2018 TE Connectivity Ltd. family of companies. All Rights Reserved. EPP-3051-DDS-2/18-Triload-meter-TE

TE Connectivity and the TE connectivity (logo) are trademarks of the TE Connectivity Ltd. family of companies. Other logos, product and Company names mentioned herein may be trademarks of their respective owners. While TE has made every reasonable effort to ensure the accuracy of the information in this brochure, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this brochure are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.



For more information

Call 1300 36 26 26 | [sales@colterlec.com.au](mailto:sales@colterlec.com.au) | [www.colterlec.com.au](http://www.colterlec.com.au)