

## RI-TPP010-C

### Multifunction Power / Energy Transducer



- 7 Module DIN rail mounting
- Real time clock with battery backup
- Data logging with time stamps
- Three phase 3 or 4 wire or Aron network compatible (TT, TN, IT)
- -/1A or -/5A current transformer input (Primary 1...5000A)
- 4 Quadrant measurement
- Class 0.2S Active energy measurement
- Class 0.2 Active power measurement
- Digital inputs
- Digital, Alarm relay and Analogue outputs
- Modbus connection
- Supplied with RI-TPP software for programming and enhanced data interrogation

#### Product Description

The RI-TPP010-C is a DIN rail mounted multifunction Energy/Power transducer suitable for monitoring or controlling power and energy, along with many other electrical parameters in industrial and commercial applications. The transducer may be used in 3 Phase 3 or 4 wire or Aron systems.

The transducer is extremely versatile providing two energy tariff registers, two configurable relay outputs, two digital inputs, two digital outputs, two analogue outputs and RS485 Modbus communication. A real time clock (with battery backup) allows data logging with time stamp for Min./Max./Average values, Demand and up to 50 alarm records. Additionally, the RI-TPP010-C has 28 digital input logs.

RI-TPP viewer software allows remote monitoring of all measured or calculated parameters. Historical (archived) data can also be downloaded as MS Excel or WordPad files. This software is included when buying the RI-TPP010-C transducer.

#### General

Measurement / calculation	Current, voltage, frequency Active, reactive and apparent power Current and voltage harmonics up to 51st THDV, THDI Power factor Cos $\phi$ for each phase Neutral current
Energy	1st and 2nd tariff Import active Export active Import reactive Export reactive (Registers can be assigned to digital inputs)
Inputs / outputs	2 x Programmable alarm relay outputs 2 x Digital outputs 2 x Digital inputs 4 x Analogue outputs RS485 communication Battery supported real time clock and memory

## General

Battery	✓
Real time clock	✓
Current transformer ration	1...5000
Voltage transformer ratio	1...5000
Demand period	1...60min. adjustable
Connection type	3 Phase 4 wire or 3 Phase 3 wire or Aron
Measurement in Quadrants	4
Number of measurements in period	512
Networks	TT, TN, IT
Min./Max./Demand Values	✓

## Energy Measurement

Number of Tariffs	2
Multi Sub-Tariffs (Peak, Day and Off-Peak)	✓
3Ø Phase Energy Meters	✓

## Current Measurement Input

Measurement Range	10mA...5A(nominal) 10mA...6A(Max. continuous)
Overvoltage Category	300V Cat III
Measurement Surge Voltage	2 kV
Power Consumption	<0.2 VA
Intermittent Overload	100A for 1sec.
Sampling Frequency between 45-65 Hz	25.6kHz

## Voltage Measurement Input

Overvoltage Category	300V Cat III
Measured Range L-N	1...300 Vrms
Measured Range L-L	2...500 Vrms
Measured Frequency Range	45...65Hz
Power Consumption	<0.1 VA
Sampling Frequency between 45-65 Hz	25.6kHz

## Power Quality Measurements

Harmonics for Current and Voltage Phases	Up to 51st
THD - Voltage in %	✓
THD - Current in %	✓

### According to IEC 61557-12

Total Active Power	Class 0.2
Total Reactive Power	Class 1
Total Apparent Power	Class 0.2
Total Active Energy	Class 0.5
Total Reactive Energy	Class 2
Frequency	Class 0.05
Current	Class 0.2
Neutral Current	Class 0.5
Voltage	Class 0.2
Power Factor	Class 0.5
THDV, THDI	Class 1

### According to IEC 62053-22

Total Active Energy	Class 0.2S
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### According to IEC 62053-23

Total Reactive Energy	Class 2
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### Alarm Relay Outputs

Number of Outputs	2
Type	NO (SPST)
Max. Switching Current	5A
Max. Switching Voltage	250VAC
Max. Switching Power	1250VA

### Digital Inputs

Number of Inputs	2
Minimum Counting Frequency	100Hz, 10ms
Input Present or Not	Dry Contact
Isolation Level	3750Vrms

### Digital Outputs

Number of Outputs	2
Type	Transistor
Switching Voltage Range	5...30VDC
Minimum Switching Frequency	20Hz, 50ms
Isolation Level	3750Vrms

## Analogue Outputs

Number of Outputs	4
Range of Outputs	0...5V, 0...10V, -5...5V, -10...10V, 0...20mA, 4...20mA
Isolation	Isolated

## Voltage

AC	85...300V
DC	85...300V

## Consumption

AC	<3VA
DC	<2.5W

## Supply

Frequency	45...65Hz
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## Min. / Max. and Average Values

Hourly Records	1920 Hours x 68 Different Parameters
Daily Records	240 Days x 68 Different Parameters
Monthly Records	36 Months x 68 Different Parameters

## Data Logging with Time Stamp

Demand	4 Months x 16 Different Parameters
Alarm Records	50

## Communication

Protocol	Modbus RTU
Baud Rate	2400...115200 bps adjustable
Stop Bit	1
Address	1...247
Isolation	2750V RMS

## Mechanical

Weight (g)	335g
Protection Class	IP20
Mounting Type	DIN Rail Mounted

## Supply, Voltage, Current Relay Outputs

Stranded:	2.5mm <sup>2</sup> - 14AWG
Solid:	4mm <sup>2</sup> - 12AWG, 2 x 1.5mm <sup>2</sup> - 2 x 16AWG

## Digital I/O, RS485, Analogue Output

Stranded:	1.5mm <sup>2</sup> - 16AWG
Solid:	1.5mm <sup>2</sup> - 16AWG, 2 x 0.75mm <sup>2</sup> - 2 x 18AWG

## Environmental

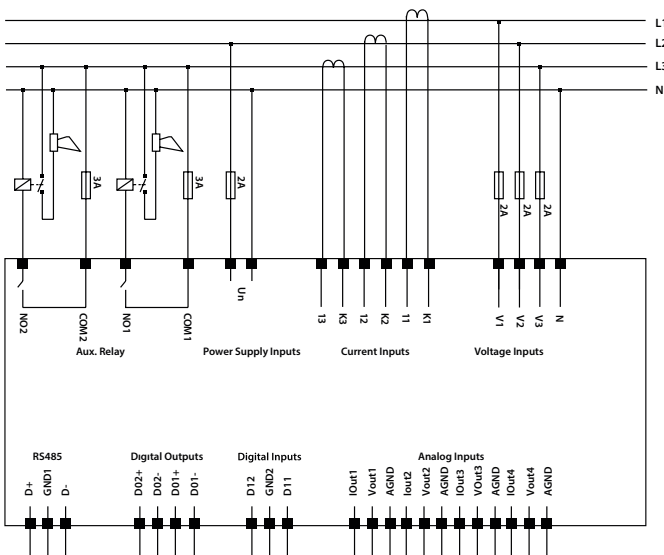
Operating Temperature	-20°C +70°C
Storing Temperature	-30°C +80°C
Relative Humidity	Max. 95% (Non condensing)

## EMC-EMI

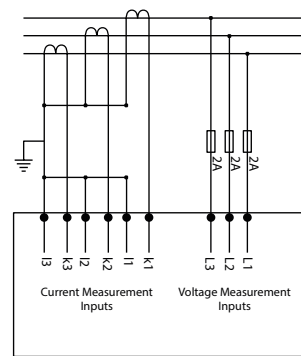
300VAC CAT II according to IEC 61010-1
EN 55011/A1:2010, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN61000-4-11

## Wiring Diagrams

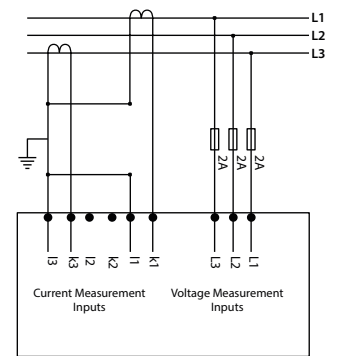
### Three Phase with Neutral - 3P4W



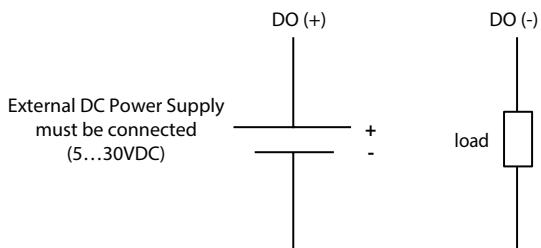
### Three Phase no Neutral - 3P3W



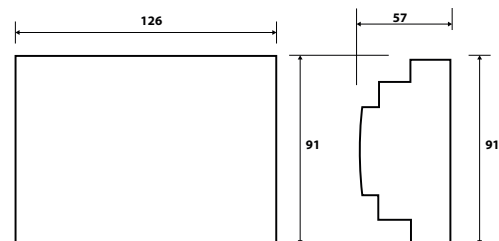
### Three Phase no Neutral - Aron



## Digital output connection



## Dimensions (mm)



## Model Selection Table

Description	Model
Multifunction Power Transducer	RI-TPP010-C