



## TR4

### Measurement device for up to 4 strings



In the case of control automatons with 0-20 mA analogue inputs distributed within a plant, **TR4** is the ideal control device, since it converts a maximum signal of 20 A in the primary, into a 0-20 mA process signal. **TR4** is a robust and powerful digital transducer which the user can use, along with the control automaton, to control the real time status of photovoltaic strings.

## Main Features

### Inputs/Outputs

- Four 20 A direct current inputs
- 8 voltage-free digital inputs (alarms)
- One 1000 V<sub>d.c.</sub> input
- 230 V<sub>a.c.</sub> or 24 V<sub>d.c.</sub> power supply voltage

## TECHNICAL FEATURES

<b>Construction features</b>	
Box material	V0 self-extinguishing
<b>Communications (TR8/TR16)</b>	
Port / Protocol	RS-485 / Modbus/RTU
<b>Environmental conditions</b>	
Operating temperature	-20... + 50°C
Protection degree	IP 20
Humidity (non-condensing)	5% to 95%
Maximum altitude	2000 m
<b>Safety</b>	
Type of insulation	Category III – 300 V <sub>a.c.</sub> EN 61010 double-insulated electric shock protection class II
<b>Standards</b>	
IEC 61010-1 :2001, IEC 60664-1 :2007, IEC 61000-6-2 :2005, IEC 61000-6-4 :2006, EN 55011 :2007 (For TR8 and TR16), EN 61010	

## Models

Measurement device for up to 4 strings

### TR4-020

Measurement device for up to 8 strings

### TR8-RS485-25

### TR8-RS485-100/200

Measurement device for up to 16 strings

### TR16-RS485-25

Measurement modules

Two 25 A circuits **M/TR-25 x2**

Four 25 A circuits **M/TR-25 x4**

One 100 A circuit **M/TR-100**

One 200 A circuit **M/TR-200**

# TR

Measurement systems for photovoltaic strings

*Ensures the profitability of your photovoltaic installation*



# TR8 - RS-485

Measurement device for up to 8 strings



It is extremely difficult to certify that a photovoltaic plant is at its maximum performance level, without controlling the primary generation sources that certify this. The **TR8** has been specifically designed to control strings in photovoltaic plants, providing real time information on the current level generated in the different sets and, as a result, information on the current flowing through the external sensors.

## Main Features

### Inputs/Outputs

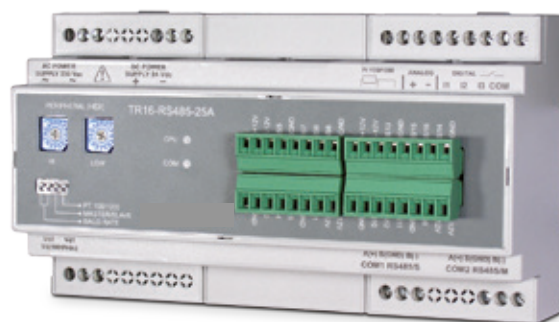
- Eight 25 A and 100/200 A direct current inputs (Hall effect system)
- Connection of 2 **M/TR** transformer modules
- 8 voltage-free digital inputs (alarms)
- One 1000 V<sub>d.c.</sub> input
- 230 V<sub>a.c.</sub> or 24 V<sub>d.c.</sub> power supply voltage

### Communications

- 2 RS-485 Modbus/RTU communications ports
- *Multi-Slave* communications system (up to 8192 strings)

# TR16 - RS-485

Measurement device for up to 16 strings



The **TR16** is a more advanced version of the **TR8** model. In addition to the main current measurement features, it also includes other useful features for large-scale photovoltaic installations such as the possibility of measuring the ambient temperature in each zone of the installation.

## Main Features

### Inputs/Outputs

- Sixteen 25/100/200 A direct current inputs (Hall effect system)
- Connection of up to 4 **M/TR** transformer modules
- 3 voltage-free digital inputs (alarms)
- One 1000 V<sub>d.c.</sub> input
- 1 input for the temperature probe Pt100 or Pt1000 (selectable)
- One 0-20 mA analogue input
- 230 V<sub>a.c.</sub> or 24 V<sub>d.c.</sub> power supply voltage

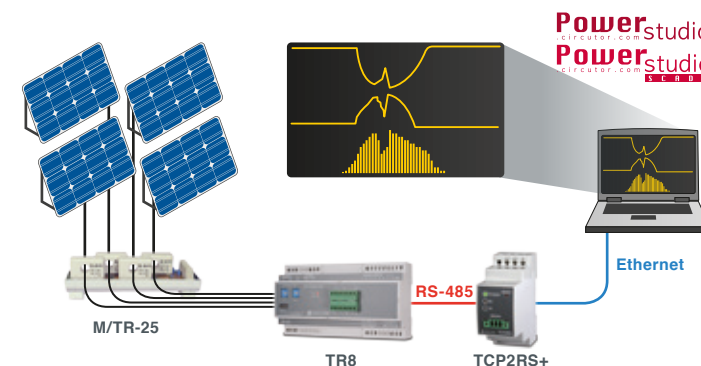
### Communications

- 2 RS-485 Modbus/RTU communications ports
- *Multi-Slave* communications system (up to 7680 strings)

## Communications

The **PowerStudio** energy management software is used to display the different measurements for the devices from any point, therefore providing centralised management of the photovoltaic plant.

This software can be used to create all types of tables and graphics containing all the data collected from the installations.



## Accessories

### M/TR-25

**M/TR-25** is the measurement module for 2 or 4 current circuits that use both **TR8** and **TR16** to measure currents up to 25 A<sub>d.c.</sub>



### M/TR-100 M/TR-200

**M/TR-100 / M/TR-200** are the measurement modules used by the **TR8** to measure currents up to 100/200 A<sub>d.c.</sub> depending on the type.