

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

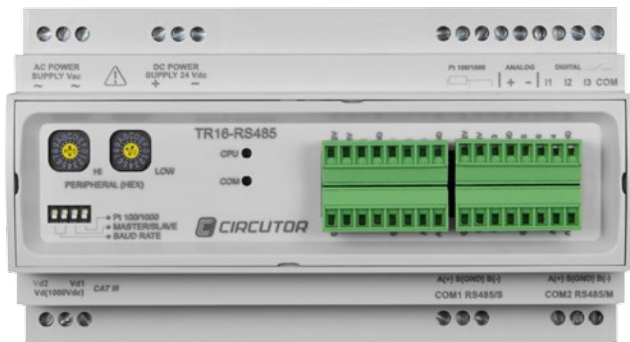
- › Eight 25 A and 100/200 A direct current inputs (Hall effect system)
- › Connection of 2 M/TR transformer modules
- › 8 voltage-free digital inputs (alarms)
- › One 1000 V_{d.c.} input
- › 230 V_{a.c.} or 24 V_{d.c.} power supply voltage

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 $V_{d.c.}$ input
- › 1 input for the temperature probe Pt100 or Pt1000 (selectable)
- › One 0-20 mA analogue input
- › 230 $V_{a.c.}$ or 24 $V_{d.c.}$ power supply voltage

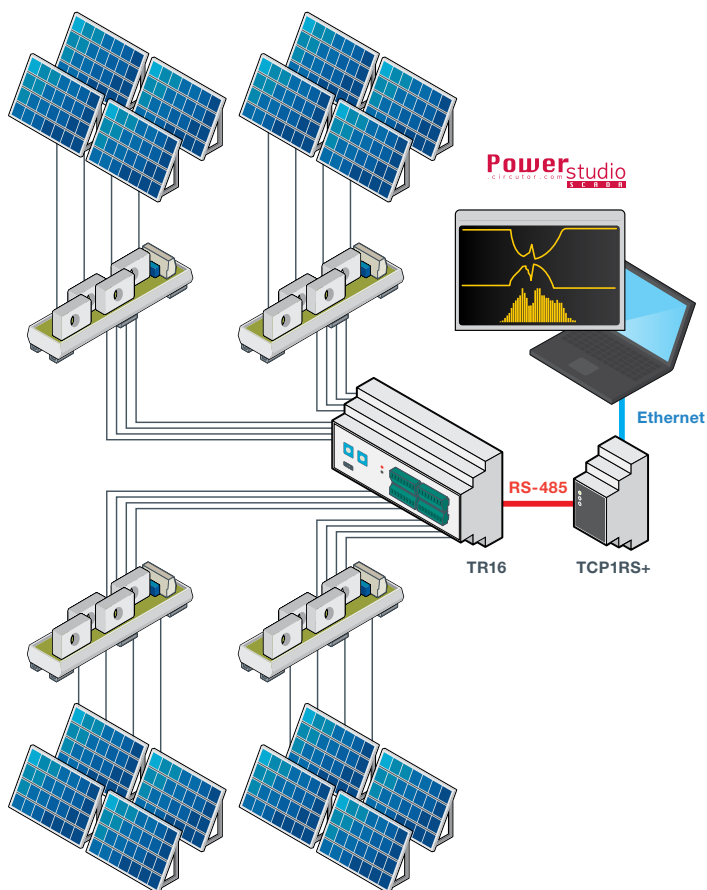
Communications

- › 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.

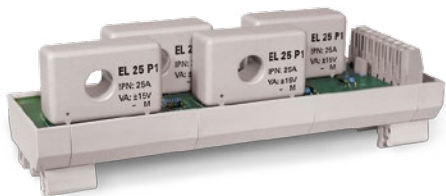




Accessories

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_{d.c.}



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_{d.c.} depending on the type.

Technical features

Power-supply circuit	Nominal voltage	230 V _{a.c.} ± 30%
	Frequency	50 Hz
	Nominal voltage	24 V _{d.c.} ± 10%
	Frequency	50 Hz
Voltage measure circuit	Voltage	10...300 V _{a.c.}
	Frequency	50...60 Hz
Temp. input accuracy (only TR16)	Temperature sensor	± 3 °C
Communications	Port	RS-485
	Protocol	Modbus/RTU
Building features	Enclosure material	UL 94 plastic V0 self-extinguishing
	Protection degree	IP 20
Enviromental conditions	Working temperature	-10 ... + 65 °C
	Humidity	5 ... 95% without condensation
	Max. altitude	2000 m
Safety	Category III – 300 V _{a.c.} EN 61010 Double-insulated electric shock protection, Class II	
Standards	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 CE Certification, UL / UR certification depending on model	

Models

Tipo	Código	Descripción
TR8-RS-485-25	E80000	Medida 8 canales de 25 A Medida tensión hasta 1000 V
TR8-RS-485-25A-UL	E800000000700	Medida 8 canales de 25 A Medida tensión hasta 1000 V Certificación UL
TR8-RS-485-100/200	E80001	Medida 8 canales sólo 100/200 A Medida tensión hasta 1000 V
TR8-RS-485-100/200A-UL	E800010000700	Medida 8 canales sólo 100/200 A Medida tensión hasta 1000 V Certificación UL

Tipo	Código	Descripción
TR16-RS-485	E80003	Medida 16 canales de corriente configurable Medida tensión hasta 1000 V Posibilidad de conexión de transformadores con diferentes primarios
TR16-RS-485-UL	E800020000700	Medida 16 canales de corriente configurable Medida tensión hasta 1000 V Posibilidad de conexión de transformadores con diferentes primarios Certificación UL

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