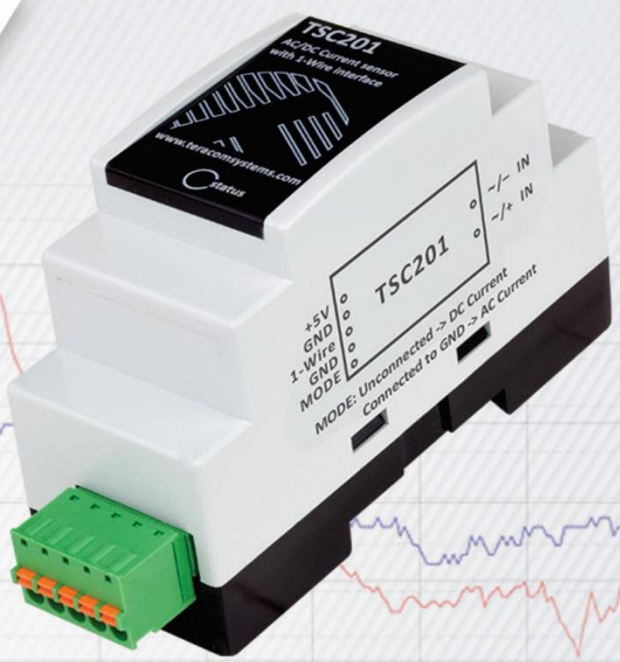
control solutions
TERACOM



TSC201

1-Wire isolated current sensor

USER MANUAL

www.teracomsystems.com

1. Short description

TSC201 is a compact current sensor module with a 1-Wire communication interface and an input range up to 10 A, designed for monitoring both AC and DC currents. It is optimized for use with current transformers (CTs) that provide a 10 A secondary output, enabling the indirect measurement of higher primary currents. The module features a 16-bit ADC for high-resolution measurements and galvanic isolation between the current input and the communication interface, ensuring electrical safety and system protection.
The device is factory calibrated and requires no user adjustment. It can be powered externally with 4 to 5.5 VDC. When used with Teracom controllers, the power supply is delivered through the 1-Wire interface itself.
Data update frequency depends on the master device. Teracom controllers typically request sensor data every second, which is close to the maximum practical polling rate for the 1-Wire protocol.
The sensor is enclosed in a compact 2-DIN module housing suitable for mounting in electrical panels and industrial enclosures.

2. Main features

- 1-Wire interface;
- LED indicator for communication status;
- Galvanically isolated current input;
- DIN rail mounting;
- Firmware update via the interface;
- Factory calibrated, ready for immediate use.

3. Applications

- Monitoring current consumption in electrical distribution systems
- Measuring AC load of motors, pumps, and compressors;
- Integration in industrial control systems for process monitoring
- Tracking inverter or UPS output current in energy systems.

4. Specifications

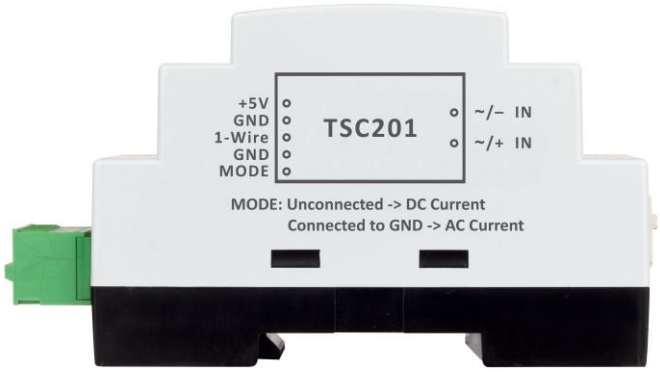
- Physical characteristics
  Dimensions: 36x107x59mm (2-DIN module enclosure)
  Weight: 65g
- Environmental limits
  Operating temperature range: -20 to 60°C
  Operating relative humidity range: 10 to 90% (non-condensing)
  Storage temperature range: -25 to 65°C
  Storage relative humidity range: 5 to 95% (non-condensing)
  Ingress protection: IP40 (connections IP20)
- Power supply
  Operating voltage range: 4 to 5.5VDC
  Current consumption: 30mA@5V
- Input
  Input AC current range: 0.1 to 10 Aac
  Input DC current range: ± (0.1 to 10) Adc
  Accuracy: ± 1%
  Resolution: 0.01A
  Maximum working voltage for basic isolation: 277Vac
  AC frequency: 48 to 65Hz
- Connectors
  Type: 3.81mm pitch screwless pluggable; Wire range: 28 to 16 AWG / 0.081 to 1.31 mm²;
  Type: 5.00 mm pitch screwless push-in; Wire range: 24 to 12 AWG / 0.2 to 2.5 mm²;
  Note: For currents up to 10 A, it is recommended to use wires with a minimum cross-section of 1.5 mm² (approximately 16 AWG) to ensure safe operation and minimal voltage drop.

5. Pinout

2-pin - current input connector

Pin	Label	Description
1	~ / – IN	Current input terminal (–)
2	~ / + IN	Current input terminal (+)

Note: Polarity matters only in DC mode.
In AC mode, the input is non-polarized.



5-pin - power and communication connector

Pin	Label	Description
1	+4.0 to 5.5 V	Power supply input
2	GND	Ground
3	1-Wire	1-Wire data line
4	GND	Ground(duplicated)
5	MODE	Measurement mode selection

MODE pin function:

- Floating/unconnected - DC current measurement
- Connected to GND - AC current measurement

6. Installation

The device should be installed in a dry, well-ventilated electrical enclosure, ensuring safe and stable operating conditions.

⚠ Safety Notice:
This device must be installed only by qualified personnel.
Improper handling or installation may result in electric shock, equipment damage, or personal injury.
The current input terminals may be connected to circuits carrying high voltages via current transformers.
Always ensure that power is disconnected before wiring, and observe all relevant electrical safety regulations.

DIN Rail mounting
The device is designed for installation on a standard 35 mm DIN rail (EN 60715). To mount the module:

- Tilt the upper part of the housing toward the rail and hook it over the top edge.
- Press the lower part gently until it clicks into place.
- Ensure the module is firmly secured and does not move along the rail.

1-Wire Interface
It is strongly recommended to use only UTP or FTP cables for the 1-wire interface to ensure reliable communication. The total cable length should be kept up to 30 meters. For connecting multiple sensors, it is strongly recommended to use a “daisy-chained” (linear) topology rather than a star or branched topology to minimize signal reflections and ensure stable operation.



Good practices for building 1-wire communication systems can be found here.
Note: 1-Wire is a registered trademark of Dallas Semiconductor, now part of Analog Devices.

7. LED status indicator

The device uses a single LED, visible through the semitransparent front panel, to indicate its current status:

- Blinking every 1 second - device is operating normally; communication with the controller is active;
- Blinking every 3 seconds - no communication with the controller;
- LED is off - no power supply.

8. Compatibility

The sensor is compatible with the following Teracom modules:

- TCW220;
- TCG120-4E;
- TCG140-4E;
- TCW241;
- TCG120-4G;
- TCG140-4G.

9. Third-party modules integration

If you wish to integrate support for this device into a third-party master device, please contact your dealer for the exact commands and specifications of the 1-Wire interface. This will ensure correct communication and full compatibility with the sensor.

10. Recycling

Please recycle all applicable materials in accordance with local regulations



Do not dispose of the device as regular household waste.
Electronic components should be properly recycled to minimize environmental impact.

