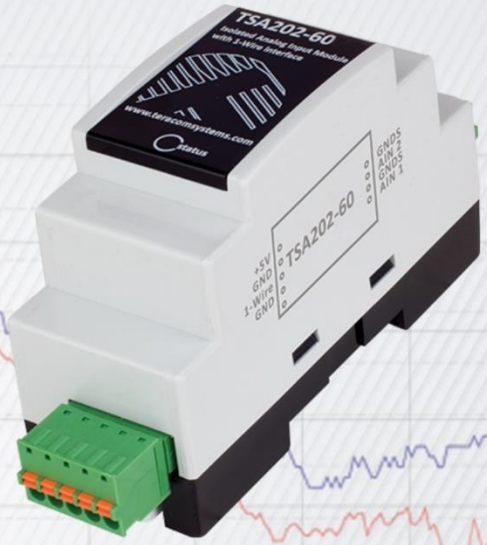
control solutions
TERACOM



TSA202-60
1-wire 60V input module

USER MANUAL

For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

Contact Details:
Tel: +44 1382 443000
Email: info@omni.uk.com

Website: www.omniinstruments.co.uk

Mailing Address: Unit 1, 14 Nobel Road,
Wester Gourdie Industrial Estate,
Dundee, DD2 4UH.

1. Short description

The TSA202-60 is a high-precision voltage input module utilizing the 1-Wire digital protocol. It provides a reliable solution for measuring higher voltage signals, ensuring accurate data acquisition in industrial and automation applications. The analog inputs are galvanically isolated from the interface, enhancing signal integrity and protection.
The TSA202-60 is capable of measuring voltages from 0 to 60V, making it ideal for monitoring battery banks, solar panels, industrial control circuits, and other high-voltage applications.
The module is suitable for measuring various electrical parameters, and the raw voltage readings can be easily converted into specific measurement units using an offset and multiplier within the master controller. This feature enables compatibility with a wide range of sensors and measurement systems, ensuring precise and application-specific data interpretation.
The TSA202-60 is an essential component for any system requiring precise high-voltage analog measurement over a digital interface, offering flexibility, ease of use, and broad sensor compatibility.

2. Features

- Functional isolation between the analog inputs and the 1-Wire interface for improved safety and signal integrity
- LED indicator for communication status
- Firmware updates via the 1-Wire interface.

3. Applications

- Battery voltage monitoring – Ideal for battery banks, UPS systems, and energy storage solutions
- Solar panel voltage measurement – Suitable for solar power monitoring and renewable energy systems
- Industrial power supply monitoring – Used in automation systems, power distribution units (PDUs), and control panels
- High-voltage signal measurement – Supports monitoring of industrial sensors, electrical circuits, and power electronics

4. Specifications

- Physical characteristics
  Dimensions: 120 x 36 x 60mm
  Weight: 65g
- Environmental limits
  Operating temperature range: -20 to 60°C
  Operating relative humidity range: 10 to 90% (non-condensing)
  Storage temperature range: -20 to 60°C
  Storage relative humidity range: 10 to 90% (non-condensing)
  Ingress protection: IP20
- Power requirements
  Operating voltage range (including -15/+20% according to IEC 62368-1): 4.5 to 5.5VDC
  Current consumption: 25mA@5VDC
- Input range
  Voltage input: 0 to 60V
- Measurement accuracy
  Internal ADC: 16-bit conversion
  Accuracy: ±1%
  Resolution: 0.001V
- Isolation
  Functional isolation: 1000Vdc
- Warranty
  Warranty period: 3 years

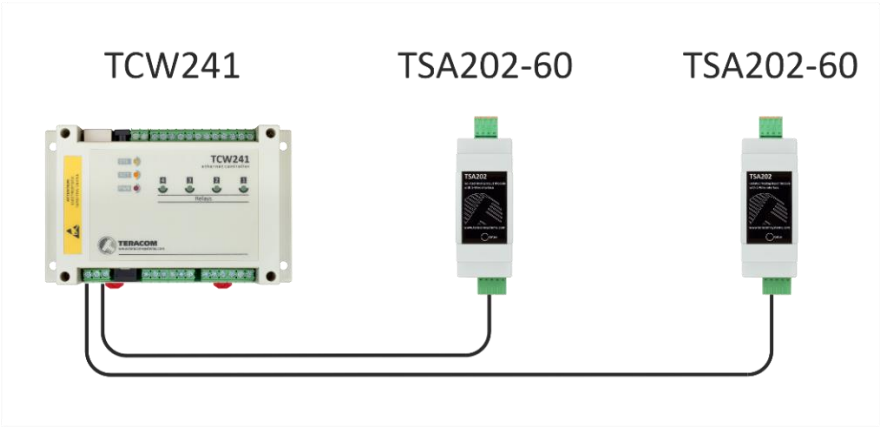
5. Pinout

Connector 1	Connector 2
Pin **+5V** – Positive power supply	Pin **AIN1** – Analog input 1
Pin **GND** – Ground	Pin **GNDS** - Ground
Pin **1-Wire** – 1-Wire data	Pin **AIN2** – Analog input 2
Pin **GND** – Ground	Pin **GNDS** – Ground

Note: The ground of the interface side (GND) is galvanically isolated from the ground of the analog inputs (GNDS) to ensure signal integrity and protection against ground loops.

6. Installation

For optimal performance, it is strongly recommended to use UTP/FTP cables and follow a daisy-chained (linear) topology when connecting multiple sensors. To ensure reliable communication and minimal signal degradation, keep the total cable length within 30 meters.



The "star" topology should only be used as a last resort, and only for up to 4 sensors with a maximum total cable length of 10 meters. Using a star topology may lead to increased signal interference and reduced communication reliability.

7. LED indicator

The device status is indicated by a single LED, located inside the enclosure. The LED behavior provides quick diagnostics of the device's operation and communication status:

- Blinking every 1 second – The device is operating normally;
- Blinking every 3 seconds – No communication with the master controller;
- No blinking (LED off) – No power supply detected.

8. Firmware update

The sensor's firmware can be updated using any Teracom controller that supports the 1-Wire interface. This ensures compatibility and easy maintenance.

For more details on the update process, please refer to the controller's documentation or contact your authorized dealer.

9. 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.