

# SOLAR TRACKER

## SOLARQX – TR.02

TWO AXIS

PATENT PENDING



### Model TR.02

The TR.02 is an advanced control electronics designed for single or dual-axis solar tracking systems.

It is compatible with any solar tracker on the market, providing a precise and efficient solution to optimize solar panel energy generation.

With its integration of multiple sensors, the system operates with only the connection of motors and power supply.

The system features astronomical tracking, ideal for cloudy days, and optical positioning for absolute precision. Additionally, it includes a solid-state anemometer, specially designed to provide full protection in high wind or heavy rain conditions.

### Features and Benefits

- + **Universal Compatibility:** Compatible with any single or dual-axis solar tracker for easy integration.
- + **Advanced Sensors:** Includes accelerometer, compass, and optical sensor for precise tracking and minimal external components.
- + **Astronomical and Optical Tracking:** Ensures optimal performance in all weather with astronomical tracking for cloudy days and optical.
- + **Solid-State Anemometer:** No moving parts, providing reliable protection against high winds and rain.
- + **Remote Monitoring:** LoRa communication allows long-range data transmission and control.
- + **Low Power Consumption:** Efficient operation, ideal for remote installations.
- + **Easy Installation:** Plug-and-play setup with simple motor and power connections.

### Additional Features and Benefits

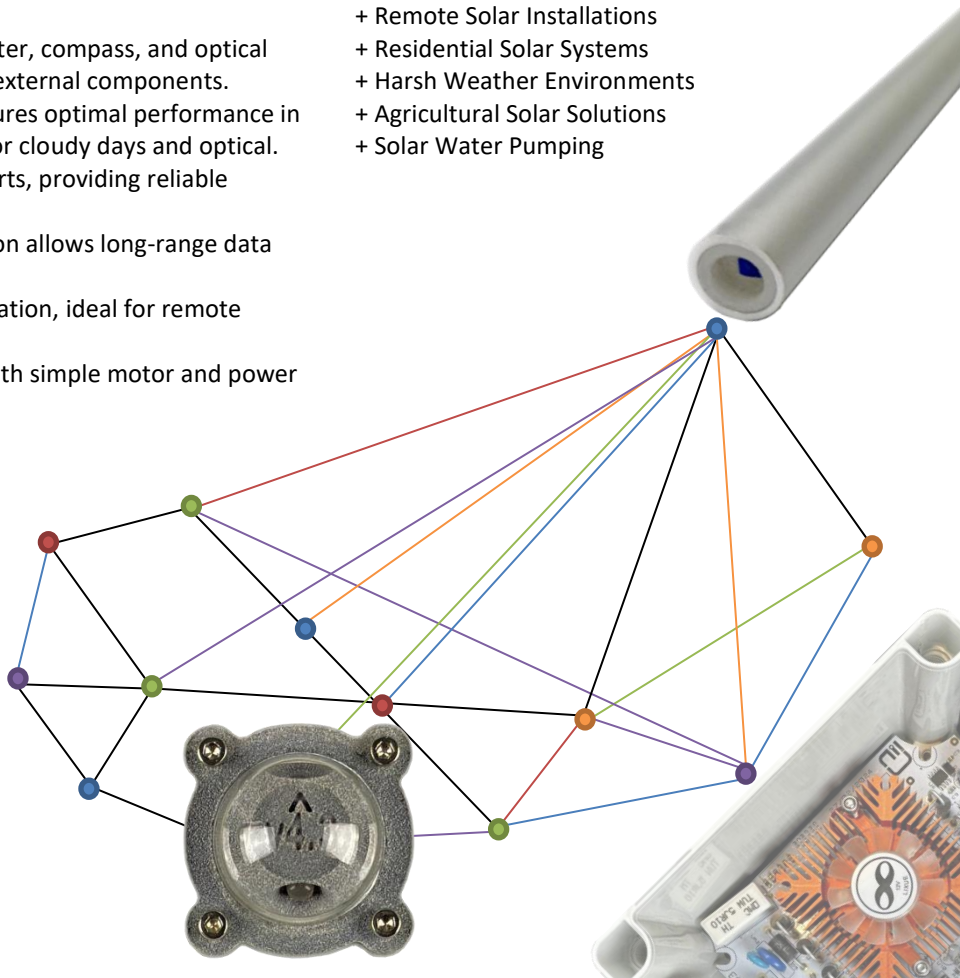
- + Real-Time Data Analytics
- + Configurable Alarm Outputs
- + Firmware Upgradable
- + Low Maintenance Requirements
- + User Configurable Settings

### Applications

- + Solar Power Plants
- + Remote Solar Installations
- + Residential Solar Systems
- + Harsh Weather Environments
- + Agricultural Solar Solutions
- + Solar Water Pumping



Electronic  
Circuit Design



Technical specifications				
	Measuring units	Accuracy*	Measuring range	Resolution
<b>Anemometer</b> Air velocity	km/h	±(3% of value + 0.2 km/h) from 0 to 20km/h ±(3% of value + 0.5 km/h) from 20 to 60km/h ±(3% of value + 1 km/h) from 60 to 130km/h	From 0 to 130km From 130 to 200km**	0.1Km/h
<b>Temperature</b>	Celsius	±0.5 °C	From -10 to +60 °C	0.01 °C
<b>Optical Tracking</b>	Degrees	±2 °	From 20 ° to 340 °	1 °
<b>Current Meter</b>	mA	5mA	From 1 to 7000mA	1 mA
<b>Voltage Meter</b>	V	0.5V	From 5 to 36V	0.01V

\*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions.  
\*\* interpolated through the use of a calibration curve obtained from 0 to 130 km.

General features	
<b>Anemometer Measuring element</b>	Hotwire air velocity: heated PT100 sensor Ambient temperature: PT100 sensor combined with digital sensor*
<b>Housing</b>	ABS-PC and Aluminum, IP67**
<b>Power supply</b>	From 12 to 36V
<b>Consumption</b>	Working mode: From 0.1 to 7.0A Stand-By mode: less than 100mA
<b>Communication</b>	SERIAL TTL @ 3v3 – 115200 bauds – Remote LoRa Wireless
<b>Dimensions</b>	Box: 130 x 130 x 75 mm
<b>Operating conditions</b>	From -25 to 55 °C
<b>Weight</b>	350 g
<b>Time acquisition</b>	Working Mode: 1sg

\* Depending on the version.  
\*\* Only for anemometer body.

Pinouts Connections	
	Power supply: Negative
	Power supply: Positive (12 to 36v)
	Motor Elevation
	Motor Common
	Motor Rotation