PDTS-SOLAR2 : Dual Axis Inclinometer with Panel Mount Display

Overview

The PDTS-SOLAR2 is a dual axis inclinometer sensor with a high-quality, low-cost display unit for displaying angle in both the X and Y axis (pitch and roll). With connection via a standard RS232 communication protocol, the high contrast LED display is designed to be panel mounted and is supplied with a sealing gasket and hardware.

The display also has built-in tilt switch functionality. The two on-board relays can be configured to operate when a certain angle is exceeded in the X and/or Y axis, in either the positive and/or negative direction. When connected, the USB interface allows logging of the data and will supply power to the display and sensor. Manufactured and calibrated in our UK factory to ensure high-quality.

Features

High Accuracy

- Dual axis measurement range: ±30°
- Solid state, high performance MEMS sensor
- Low temperature drift

Highly Configurable

- Adjustable threshold, hysteresis and delay
- Display resolution adjustable to 0, 1, 2 or 3 d.p.
- Temperature compensation available
- Cable lengths of 3m and 10m available

Standardised Connectivity

- RS232 interface
- USB interface with Windows-based application for monitoring angle and configuration

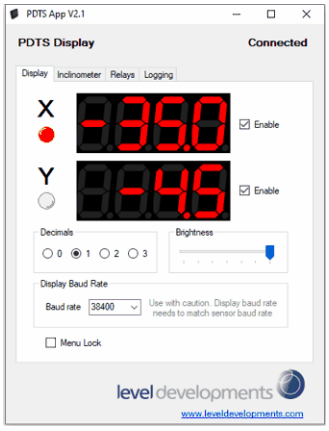
User Friendly

- 4 Digit simultaneous dual axis LED Display
- High contrast with wide viewing angle and adjustable brightness
- Programmable alarm function with 2 individually programmable relay outputs

Robust Design

- Operating temperature -40 to +85°C
- Sensor contains tough sealed IP67 aluminium housing
- Compact design of both sensor and display unit
- Designed for panel mounting - IP65 sealed from front when mounted with gasket and clamps supplied.
- ROHS and CE Compliant

Software



The device is supplied with a Free Windows based configuration application that can used to setup the display and trip angle. The display connects with a USB interface. It uses a the standard HID USB protocol so there is no need for any additional drivers as it utilises the standard Windows plug and play HID drivers. If another power supply is not connected to the device then the attached sensor will be powered from the USB port

The configuration changes are stored permanently in the display or in the sensor as the changes are made, and will be remembered after a power cycle.

The application is available to download free of charge from the our website.

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Applications

Example applications for this product's use include:

- Platform levelling and monitoring
- Pipeline construction and maintenance
- Geotechnical and ground displacement applications
- Agricultural and industrial vehicle tilt monitoring
- Telescopic and scissor lift platform monitoring
- Platform scales and weigh bridge levelling
- Fuel and hydraulic system installation

The system can be readily customised to suit most applications for both hardware and software requirements. Please contact us to discuss your OEM needs.

Specifications

General		
Voltage Supply	12-30Vdc	Supply voltage is protected internally against reverse polarity, and supply transients.
Measuring range	±30	Direction of measurement can be reversed and zero position can be reset anywhere in range. Settings are stored in non volatile memory so are remembered after power down.
Resolution (@1Hz BW)	0.001°	Resolution is the smallest measurable change in output.
Zero Bias Error	±0.015°	This is the maximum error when the device is mounted on a level surface when the device is at room temperature (20°C)
Accuracy (@20°C)	±0.030°	This is the maximum error between the measured and displayed value at any point in the measurement range when the device is at room temperature (20°C)
Temperature Error	0.0015°/°C	This is the maximum change in output per °C change of temperature.
Accuracy (-20 to 70°C)	±0.120	This is the maximum error between the measured and displayed value at any point in the measurement range at any temperature over the specified temperature range.
Long Term Stability	±0.007	This is the maximum change in output per °C change of temperature.
Sensor Interface	RS232 Full Duplex 38400 bps (adjustable)	Bit rate is adjustable between 115.2k, 57.6k, 38.4k, 19.2k and 9.6k, 4.8k and 2.4k via the digital interface
Supply to Sensor	14Vdc 50mA (max)	
Relay Outputs (Tilt Switch Function)		
Number of Relays	2	
Switching Voltage	220Vdc (max) 250Vac (max)	
Switching Current	2A Max	Large relay currents will reduce the relay contact life
Switching Power	60W (max)	

More information and detailed specifications on both the SOLAR-2-30 and PDTS can be found via the links on the right. Visit our website or contact us to make an order.

PDTS	Product Page	Datasheet
SOLAR-2-30	Product Page	Datasheet

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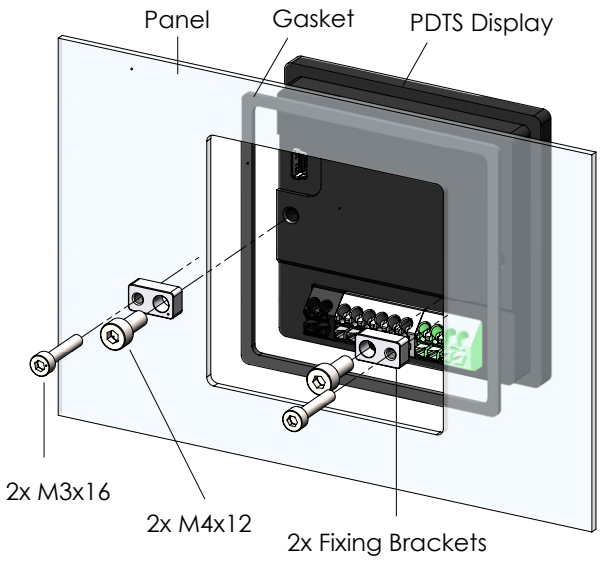
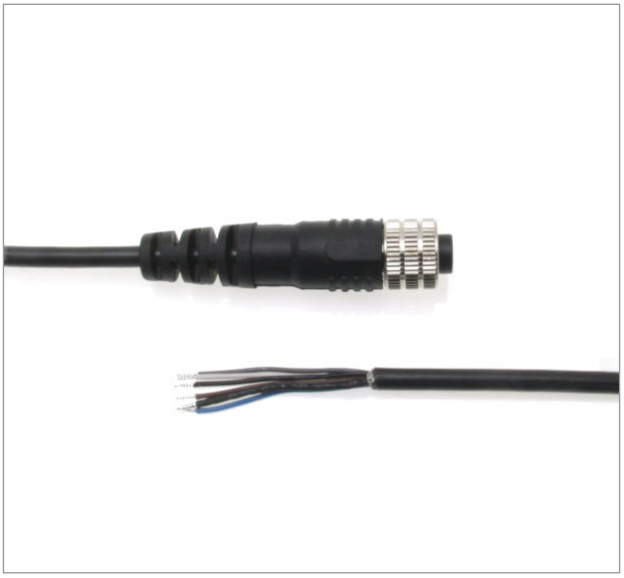
Connection & Mounting



Accessories

All PDTS-SOLAR2 orders include an adaptor for connecting the SOLAR M12 cable to the PDTS Display via the terminal blocks. The M12 colour connections can be seen below. If you are ordering the PDTS and SOLAR-2 separately, you will also need to purchase this connector from our website. PN: 6293/7 – Cable, 0.5m, PUR Jacket

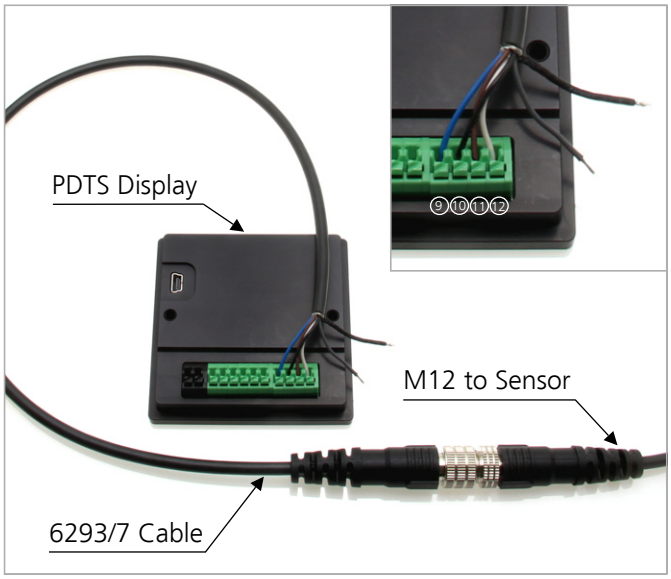
PDTS Pin Number	Wire Colour	Function from SOLAR
9	Blue	RS232 Rxd
10	Black	RS232 Txd
11	Brown	+ve Supply
12	White	Gnd (0v)



M12 Connection to PDTS

The following section describes the Pin out for connecting a PDTS Display to an RS232 M12 Sensor using the 6293/7 Cable. The internal wire colours of the sensor match the 6293/7 wire colours. The Grey wire is not connected and the thicker black wire is the cable shielding ground.

PDTS Pin Number	Wire Colour	Function from Sensor
9	Blue	RS232 Rxd
10	Black	RS232 Txd
11	Brown	+ve Supply
12	White	Gnd (0v)



Bare Ended Connection to PDTS

The following section describes the Pin out for connecting a PDTS Display to an RS232 Bare ended Sensor. Information on the sensors cable termination can be found on their respective data sheets.

PDTS Pin Number	Wire Colour	Function from Sensor
9	Green	RS232 Rxd
10	Yellow	RS232 Txd
11	Red	+ve Supply
12	Blue	Gnd (0v)