PDTS : Dual Axis Panel Mount Display And Tilt Switch

Features

- 4 Digit LED Display. High contrast with wide viewing angle, and adjustable brightness
- Dual axis simultaneous display
- Programmable alarm function with 2 individually programmable relay outputs
- USB interface with free and highly flexible Windows application for monitoring angle and configuration of the 2 relays
- Compatible with many of our inclinometer sensors
- Display resolution adjustable with 0, 1, 2 or 3 decimal places)
- Sturdy low profile aluminium Housing
- Designed for panel mounting. IP65 sealed from front side when mounted with gasket and clamps supplied.
- Operating temperature -40 to +85°C

Description

The PDTS display is a high quality low cost display unit for displaying angle in both X and Y axis (pitch and roll) to the operator. It can interface with many of our inclinometer sensors depending on the requirements for the application.

The high contrast LED display is viewable in low light and direct sunlight, and the LED brightness is adjustable. It is designed to be panel mounted and is supplied with a sealing gasket and hardware for mounting on plates between 1mm and 10mm thick.

As well as displaying angle it also has a built in tilt switch functionality. The two on board relays can be configured to operate when a certain angle is exceeded in the X or Y axis (or both), in either the positive or negative direction (or both). It is highly configurable with adjustable threshold, hysteresis and delay.

There is a USB interface to allow the angle to be monitored or logged on a PC. The devices can be factory configured for OEM applications, or user configured using the simple yet highly configurable Windows configuration app which is available to download for free. When connected, the USB interface will supply power to the display and sensor.

DC Power is supplied to the display, which in turn will provide power to the sensor, simplifying the wiring requirements. Connection is via spring release terminal block for simple and secure wiring.
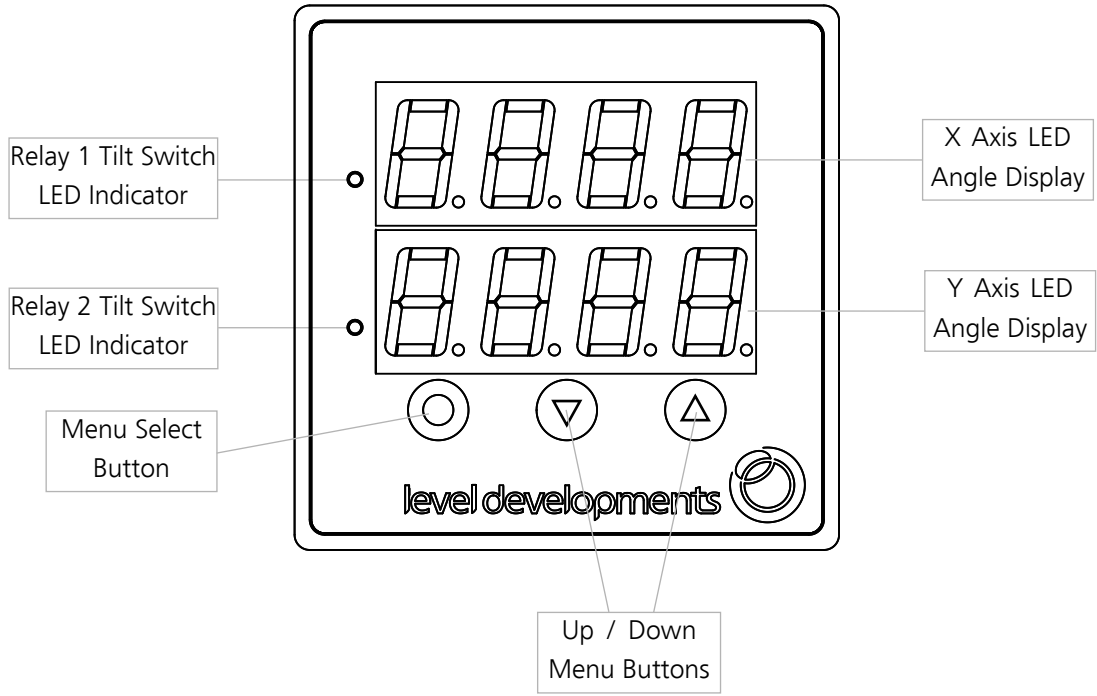
Specifications

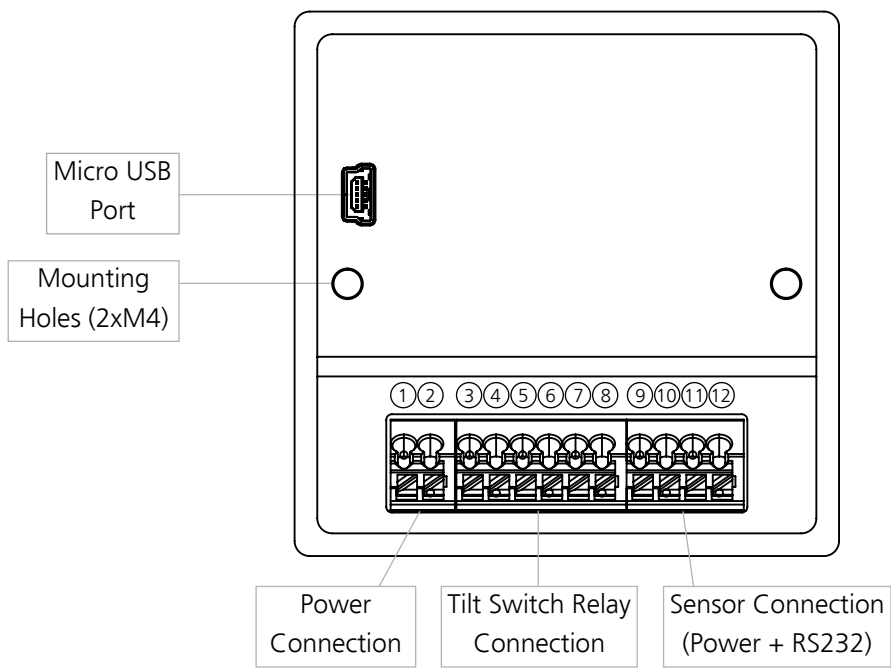| General	
Voltage Supply	12-30Vdc
Power Draw	4W (max)
Size	72 x 72 x 23 mm
Weight	350 g
Connections	Quick release 0.1" pitch terminal blocks.
Sensor Interface	
Type	RS232 Full Duplex
Speed	38400bps (adjustable)
Parity	None
Stop Bits	1
Protocol	Level Developments Simplified Protocol
Supply to Sensor	14Vdc 50mA (max)
Relay Outputs (Tilt Switch Function)	
Number of Relays	2
Output type	Double Pole Single Throw
Switching Voltage	220Vdc (max) 250Vac (max)
Switching Current	2A Max
Switching Power	60W (max)
USB Interface	
Connector Type	Micro USB

Product Features

Front View

Relay 1 Tilt Switch LED Indicator

Relay 2 Tilt Switch LED Indicator

Menu Select Button

X Axis LED Angle Display

Y Axis LED Angle Display

Up / Down Menu Buttons

level developments

Rear View

Micro USB Port

Mounting Holes (2xM4)

Power Connection

Tilt Switch Relay Connection

Sensor Connection (Power + RS232)
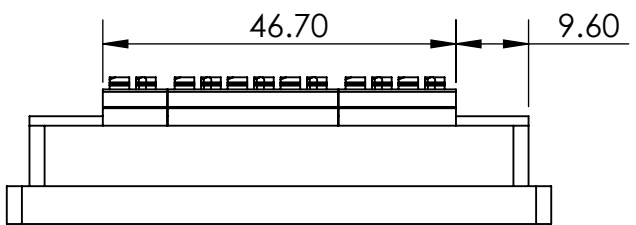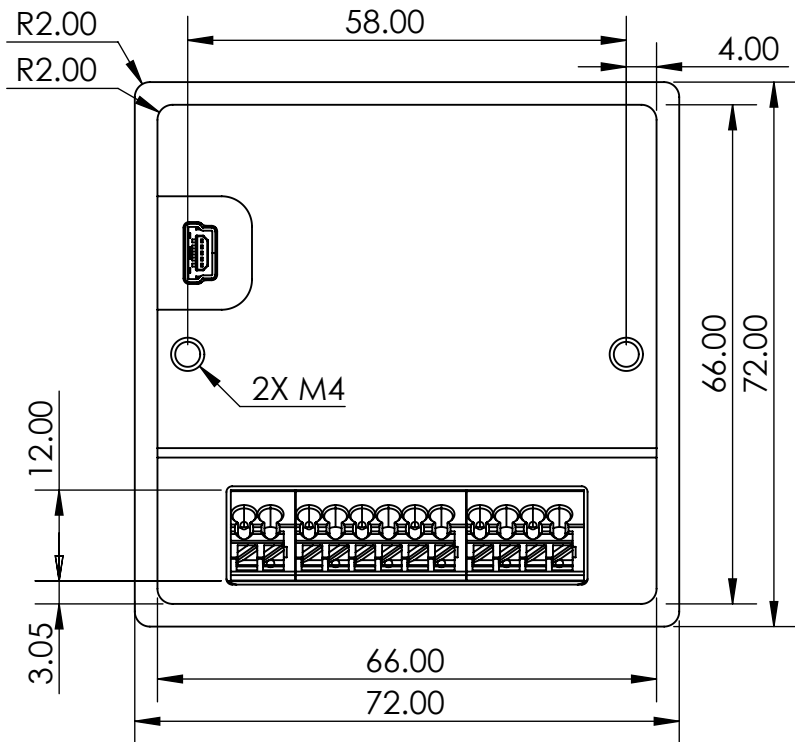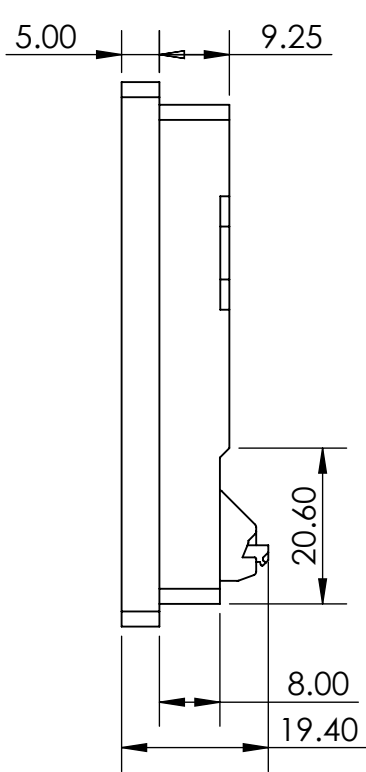
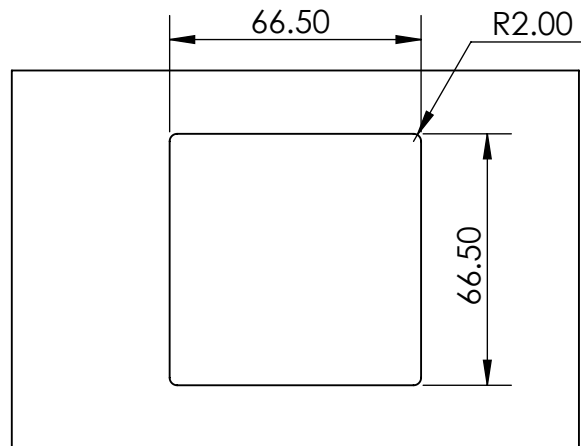| Pin	Function
1	Supply GND
2	Supply +ve
3	Relay 1 COM
4	Relay 1 NO
5	Relay 1 NC
6	Relay 2 COM
7	Relay 2 NO
8	Relay 2 NC
9	Sensor RS232 Rx
10	Sensor RS232 Tx
11	Sensor Supply +ve
12	Sensor GND

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Dimensions

5.00 9.25 R2.00 R2.00 58.00 4.00

2X M4

12.00 66.00 72.00

3.05 66.00 72.00

20.60 8.00 19.40

46.70 9.60

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Panel Mounting

Panel   Gasket   PDTS Display

2x M3x16   2x M4x12   2x Fixing Brackets

77

66.50   R2.00

66.50

Cutout dimensions

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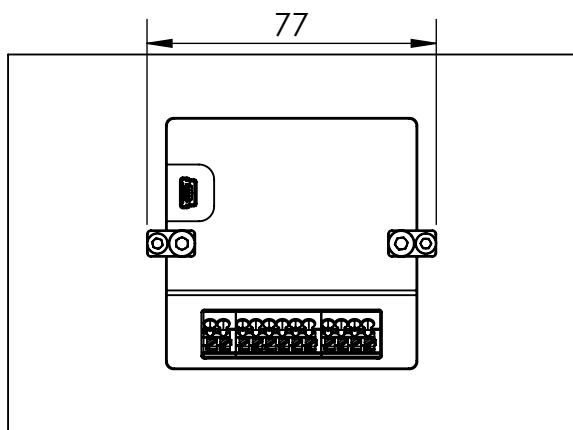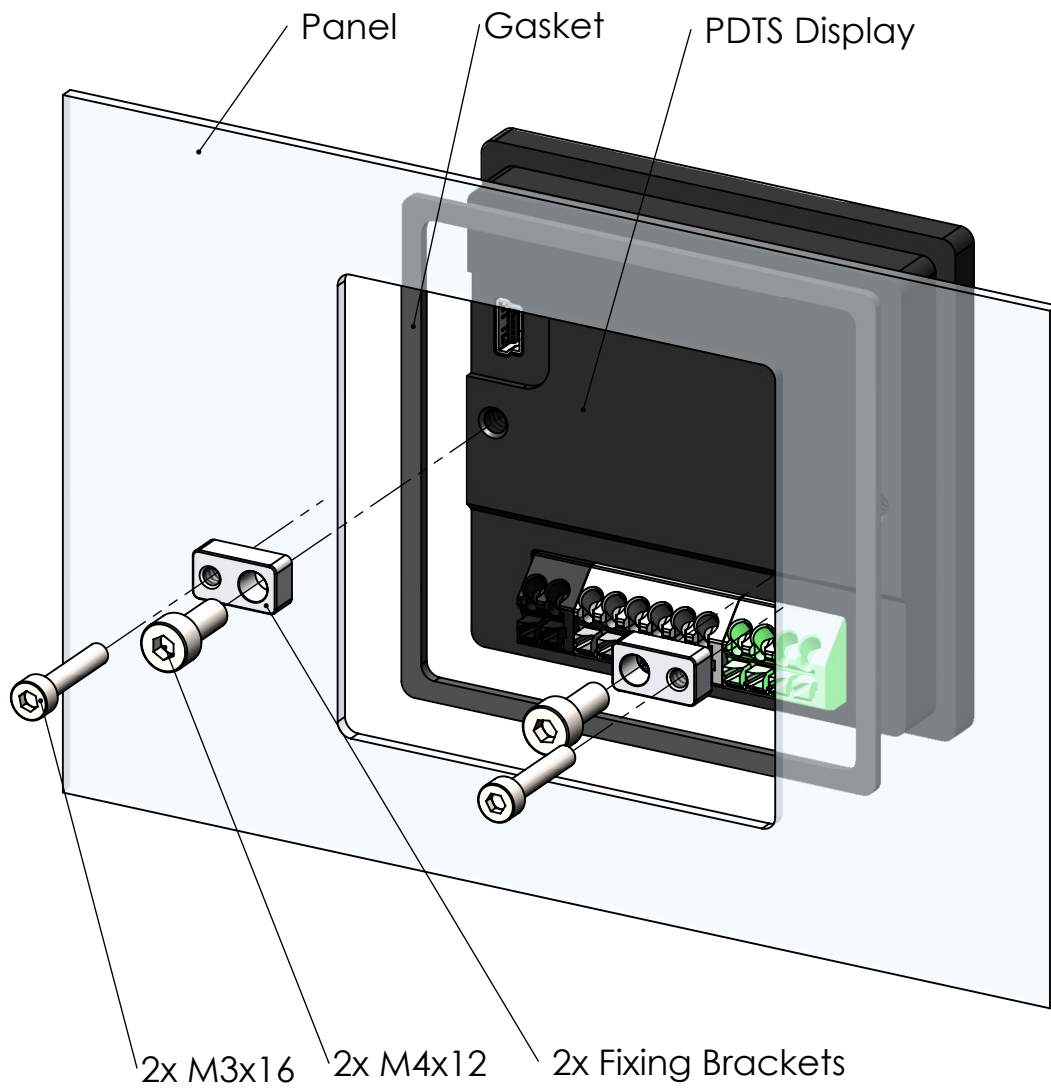Page 4 of 7   Rev 3

Compatible Sensors

The display is compatible with all of our inclinometers that use the standard Level Developments communication protocol over RS232. These sensors include the models listed below:

LCH-45 & LCH-360 Series

- Dual Axis, ±45°, or Single Axis ±180°
- RS232 interface
- Low cost (<£25 for 1kpcs)
- Small size, 46 x 43.5 x 13.5mm
- Aluminium housing Sealed to IP65
- Braided screen 4 core PUR cable
- CE certified and RoHS compliant.

SOLAR-2 & SOLAR-360 Series

- Dual axis measurement range from ±5 to ±45°, or Single Axis ±180°
- High resolution and accuracy
- Low temperature drift
- RS232 interface
- Tough sealed anodised aluminium housing (IP67)
- CE certified and RoHS compliant.
- Braided screen 4 core 3m PUR cable
- Small size, 75 x 37.5 x 12.5mm and light weight

VS Series

- Dual axis measurement range from ±5 to ±45°
- High resolution and accuracy
- Low temperature drift
- RS232 output interface
- Robust corrosion resistant anodised Aluminium housing sealed to IP67
- IP67 Sealed locking M9 connector
- Outputs isolated from supply (1500Vdc isolation)
- CE certified and RoHS compliant.

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Configuration Application

A highly flexible Windows-based configuration application is available for download (free) from our website. This software can be used to configure the settings within the PDTS and sensor, record data onto a PC, and display the angle on the computer screen. The display connects to a PC using a USB interface and uses the standard HID USB protocol so there is no need for any additional drivers (it is plug-and-play). If another power supply is not connected, the PDTS and the attached sensor will both be powered from the USB port. This software is available to download from the PDTS's product page on our website, or it can be downloaded directly by clicking the following link: Software Download

Using this application it is possible to configure:

- LED Brightness & number of decimals shown on the display
- Enable or lock/disable the front panel buttons and display windows
- Adjust the sensor's filter setting and baud rate
- Set (and cancel) the relative zero position
- Enable/disable "failsafe" mode (inverts the operation of the relays so they are active at 0°)
- Assign relay 1 and/or relay 2 to X , Y, (or X and Y), or Omni directional axis
- Adjust the tilt switch threshold for relay 1 or relay 2
- Adjust hysteresis % for relay 1 or relay 2
- Adjust X and Y axis tilt switch delay (before operation)

The software contains 2 tabs, "Settings" and "Logging", as shown below:
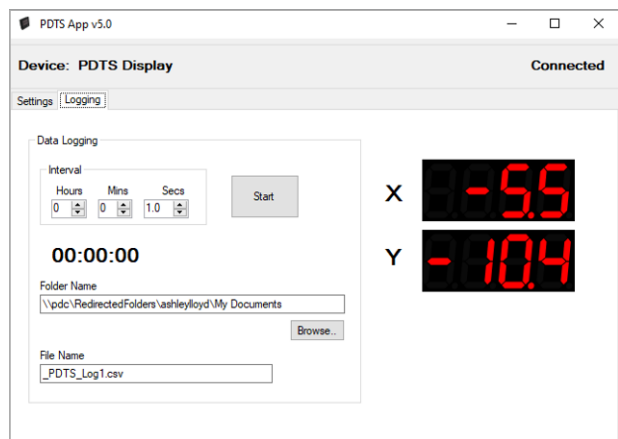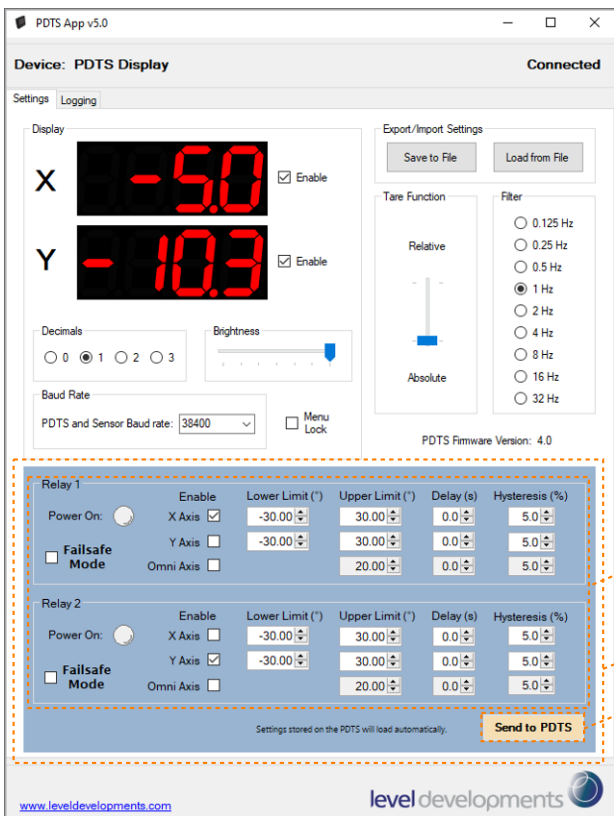
The "Relay1" & "Relay2" areas are highlighted yellow while "Failsafe Mode" is on. (Failsafe is off by default)

Settings applied in the blue area are only sent when "Send to PDTS" is pressed. (This only applies to blue area)

This is highlighted to indicate unsaved changes were made

Please note: The PC application was updated to V5 in September 2023. All PDTS displays with serial numbers ≥200,000 must use the new V5 app (as shown above), whereas older displays must continue using the older PC applications (V2 to V4). The V4 application can still be downloaded, it is included in the same download as the V5 app.

Front Panel Menu Operation

The device has three buttons on the front panel:

Menu Select Button

Up Menu Button

Down Menu Button
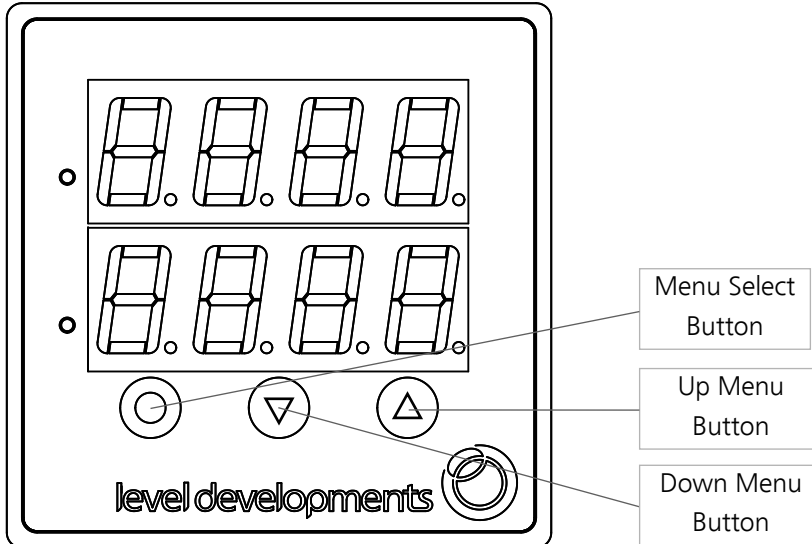
Using this front panel buttons it is possible to set and cancel the relative zero (tare). For more detailed control and configuration of the device it is necessary to use the free Windows application and the USB interface.

Set and Cancel Relative Zero (Tare)

- To enter the menu, press and hold the menu button for 4 seconds
- Use the up and down arrow keys to switch the tare on or off
- Press the menu key again for 4 seconds to exit the menu and return to normal display mode
- The tare is stored in the sensor, and will be remembered by the sensor after power down.

The front panel menu buttons can be disabled using the Windows USB configuration application.

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