![level developments logo]

LCH-45-USB : Dual Axis Inclinometer, ±45° range, USB Interface

Features

- Dual axis measurement, range : ±45°
- Solid state MEMS sensor
- USB interface, and USB powered
- Zero offset position can be easily programmed and stored
- Programmable frequency response between 0.125 and 32Hz
- Software and drivers included
- Small size, 46 x 39 x 10.5mm
- Sealed to IP67

Applications

- PV solar tracker control systems
- Platform levelling and monitoring
- GPS compensation
- Platform scales and weigh bridge levelling
- Agricultural and industrial vehicle tilt monitoring
- Telescopic and scissor lift platform monitoring
- Can be readily customised to suit most applications

Description

The LCH-45-USB is a low cost dual axis inclinometer sensor supplied in a sealed machined Aluminium housing. It has a USB digital interface and takes power from the USB port of a PC or laptop. A PCB only version is also available (part number LCP-45-USB). These devices are manufactured and calibrated in our UK factory to guarantee performance to the stated specification

Specifications

Parameter	Value	Unit	Notes
Supply Voltage	4.9 to 15	V dc	Supply voltage is protected internally against reverse polarity, and supply transients. On request this unit can be supplied configured for 3.3V operation.
Operating Current	18	mA	Maximum value at any operating voltage in range. Low power version (<2mA) can be configured on request.
Operating Temperature	-40 to 85	°C	Maximum operating temperature range. Temperature variation will cause measurement errors as defined below.
Measuring range	±45	°	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)	0.05	°	Resolution is the smallest measurable change in output.
Zero Bias Error	±0.1°	°	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)	±0.3	°	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	0.01	°/°C	This is the maximum change in output per °C change of temperature.
Accuracy (-20 to 70°C)	±1	°	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.
Frequency Response	1	Hz	This is the frequency at which the output is 3dB less than the input value. This is adjustable between 0.125Hz and 32Hz via the RS232 control commands
Mechanical shock	3000 (0.5ms) 10000 (0.1ms)	g	Shock survival limit for MEMS sensor.
Cable Type	USB Type A		
Cable Length	3	m	Other lengths available on request
Weight	24	g	Not including cable

Dimension Drawing

10.50
4.00
39.00

30.00
15.00
30.00
37.00
2x Ø 4.20
14.00
38.00
46.00

Ø 9.00
5.25
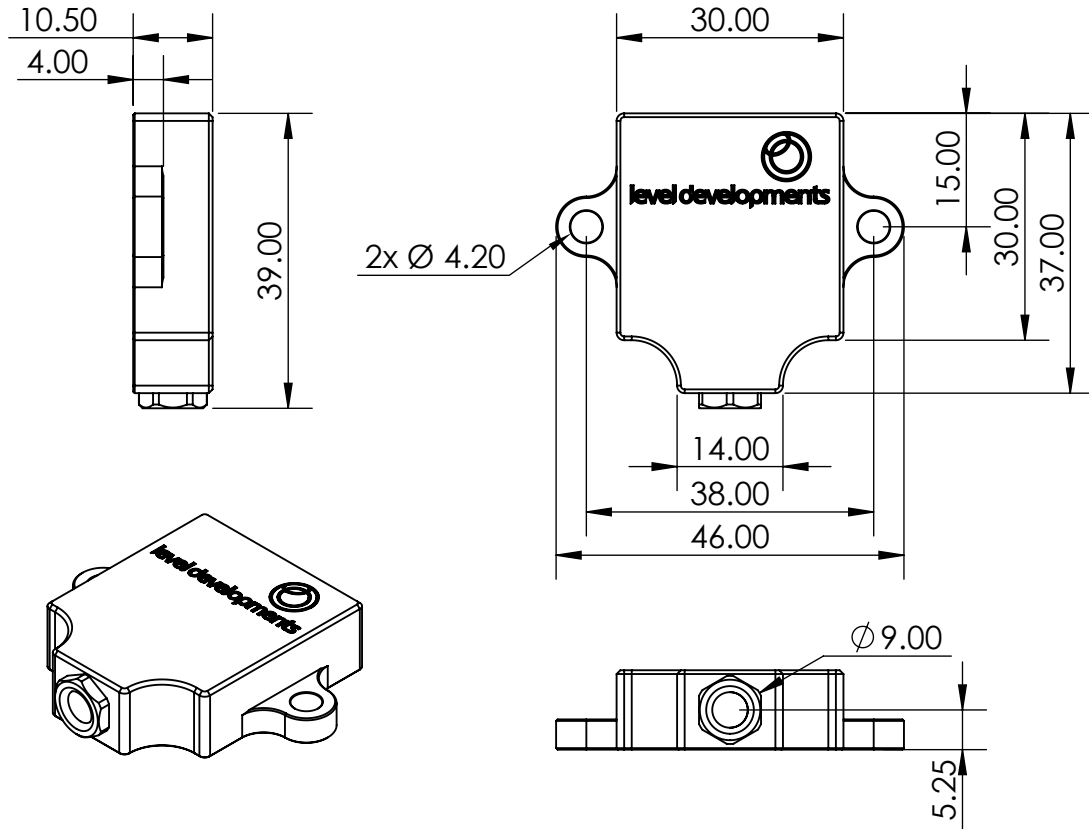
Axis Direction and Mounting Orientation

Mounted on Horizontal Surface


Y Axis
+ve
-ve
X Axis
-ve
+ve
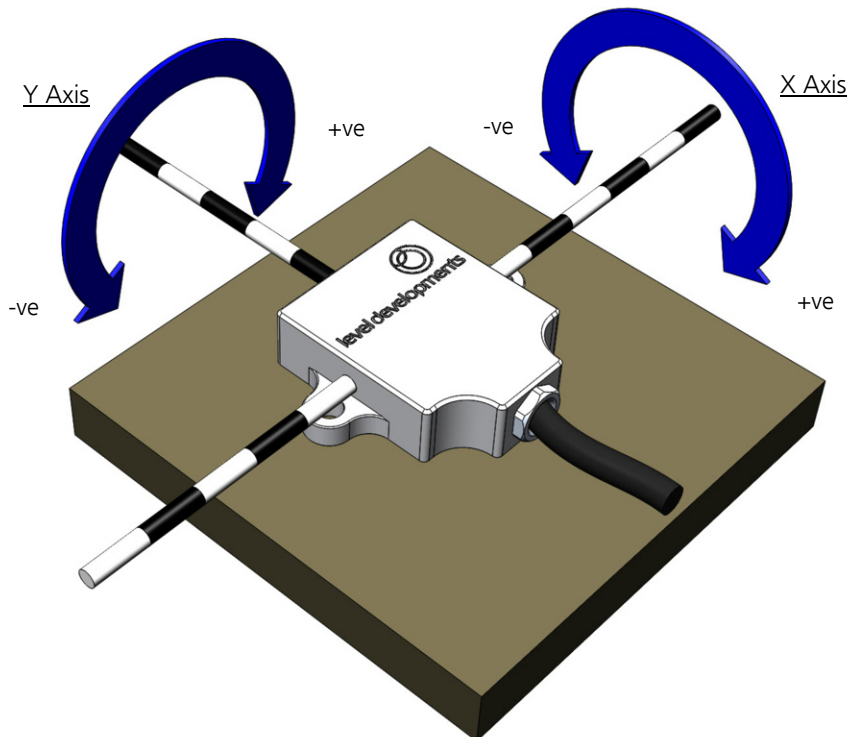
Software

A free Windows based application for reading angle, logging and device configuration is available from our website. It requires Windows XP SP3, Windows 7, Windows 8 or Windows 10 and works with 32 and 64 bit systems. It also requires the .net framework V3.5 or higher, and will prompt you to download and install this from Microsoft if it is not already installed on your system. A USB 2.0 or higher port is also required.

The basic features are shown below:

- Compatible with single or dual axis sensors
- Adjustable number of decimal places on displays
- Changing axis orientation
- Logging of data at specified intervals into CSV file
- Setting device to absolute or relative measurement mode
- Changing the frequency response of the sensor
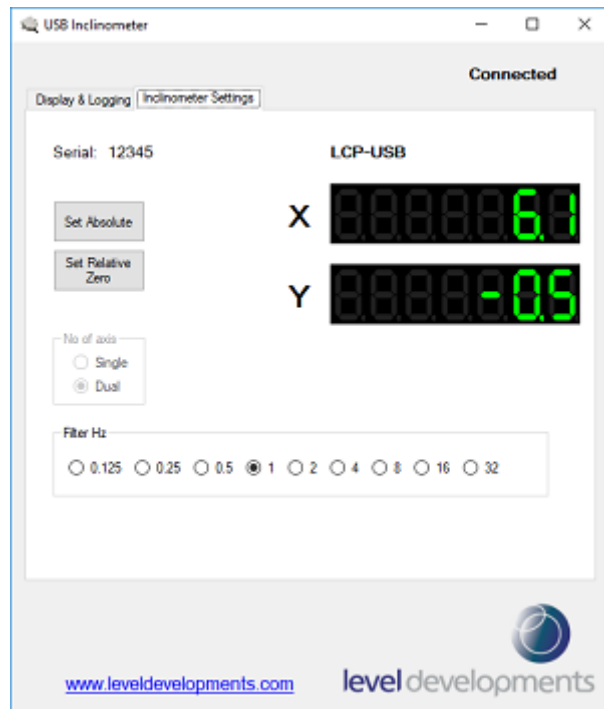
We can also offer custom software development services, please contact us for further information.

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Product Options

1. Axis orientation and directions can be factory modified.
2. Cable length & USB termination type can be adjusted.
3. A PCB only option is available.

Special order versions are generally only available for volume orders or ongoing requirements, please contact sales@leveldevelopments.com for more information.

Level Developments Ltd.   Croydon, Surrey, CR0 2DN   t : +44 (0)20 8684 1400   sales@leveldevelopments.com
97-99 Gloucester Road   United Kingdom   f : +44 (0)20 8684 1422   www.leveldevelopments.com

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