

Dual-axis accelerometer with USB Interface

Features

- Measure Acceleration and tilt
- Supports USB 2.0
- Driver USB for Mobile unit available
- Low cost

Applications

- Tilt unit Plug and Play
- Development board for the ADIS16003
- Instrumentation



Using the USC-220 is an easy way to measure the surface tilt with a USB communication. This unit uses the dual-axis accelerometer from Analog Device (ADIS16003). This component has a 1.5° precision with 12 bit of resolution.

The USC-220 can be used with all computers provided with an USB port that supports the 2.0 standard or with a mobile unit provided an USB port that can be used in host mode. The USB enumeration is done spontaneously when the USC-220 is connected to the USB host, no code necessary.

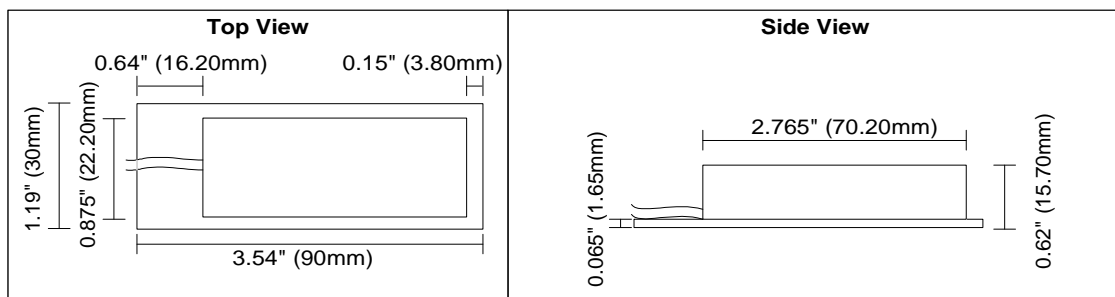
The USC-220 can read automatically, in continuous with a predefined interval, the tilt angle. The interval to read each sample can be set between 1mS and 80mS.

The USC-220 was designed to implement a Faraday cage to decrease the EMI emission and reception. Thus, the USC-220 can be delivered with or without a Faraday cage installed.

The USC-220 is easy to use with the predefined command to configure the communication with the accelerometer and to start the tilt sampling. For more information on the programming the USC-220 on the PC see the Programming guide USC-220 for PC or the Programming guide USC-220 for Mobile if the utilization is for a mobile unit with a USB host port .

The USC-220 is provided with an USB connector type A female, with an one meter wire.

Mechanical

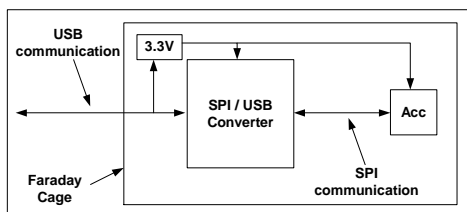


Specifications	USC-220	Unit
Performance		
USB Compliance	2.0	
Sampling		
Interval Min	1	mS
Interval Max	80	mS
Accelerometer		
Bandwidth	50	Hz
Measurement range	±1.7	g
Sensibility	820 ±65	LSB/g
0g Bias Level	2048 ±142	LSB
Environment		
Operating Temp Range	-40 to 85°C	°C
Electrical		
Supply Voltage USB Side	5	V
Supply Current USB Side	26	mA
Physical		
Size	3,54 x 1,19 x 0,62	In
	90 x 30 x 15,7	mm
Weight	0,026	lbs
	12	Grams

Connector	
Pin	J1
1	VC
2	D+
3	D-
4	GND
5	SHIELD

* INSTALLED: USB TYPE A FEMALE

Principle of operation



The SPI port must be configured before to start the sampling of the accelerometer. At this moment, the command to start the sampling can be send. Thus, the USC-220 sends at regular intervals the command for the accelerometer and the accelerometer replies simultaneously to the previous command. This sample will be store in the USC-220 circular buffer until a packet is sent to the USB host.

For the transfer of data on the USB side, the USC-220 uses Bulk mode. The unit has two endpoints one IN and one OUT, this allow for a bi-directional USB communication. It is the USB host who start to initialize a read packet.

The USC-220 has a circular buffer of 834 bytes that allows storing the samples before to send to the USB host. If the number of sample stored in the circular buffer exceeds 834 bytes, the USC-220 will return 0x0000 and 0xFFFF in alternating until the stop command is received.

The SPI configuration must be done depending of the baud rate of the accelerometer sampling.

Ordering Information

Part	Temperature Range
USC-220LF ⁺	-40°C ~ 85°C

⁺ Lead-free compliant

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