

CXTD

DIGITAL TILT & ACCELERATION SENSOR

- Roll and Pitch Angle Measurement in Any Orientation
- 3-Axis Digital Acceleration Output
- High Accuracy
- Fully Temperature Calibrated
- ~80dB Signal to Noise Ratio



Applications

- Seismic Monitoring
- Structural Monitoring
- High-Accuracy Tilt

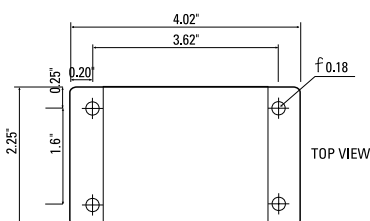
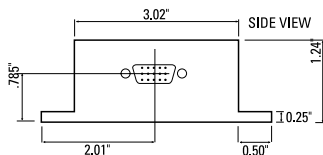
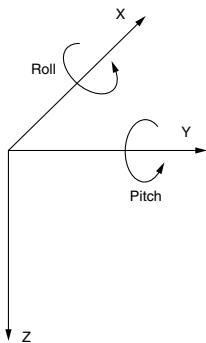
CXTD02

The CXTD02 offers outstanding resolution and accuracy in measuring tilt angles on an object with respect to gravity. The CXTD02 measures tilt using a triaxial MEMS accelerometer that is responsive to gravity. The triaxial accelerometer allows sensing over the entire 360° roll range and 180° pitch range.

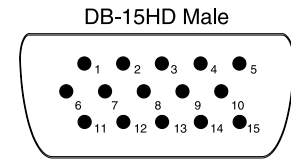
The CXTD02 provides superior performance in more demanding measurement applications, where high accuracy must be maintained over the wide industrial temperature range of -40 to +85°C. Each CXTD02 is tested and temperature compensated over the full temperature range. In addition, alignment, scale factor, and non-linearity compensation are computed internal to the sensor with the on-board DSP processor.

The CXTD02 can also be used as a precision accelerometer. The low-noise floor and true DC response make it an excellent choice for long-term structural and seismic monitoring applications. The digital RS-232 output makes it easy to collect data in real-time without external data-acquisition or Analog-Digital converter cards.

The CXTD02 comes with a User's Manual offering helpful hints on programming, installation, and product information. In addition, Crossbow's GYRO-VIEW software is included to assist you in system development and evaluation, and allows you to perform data acquisition.



Specification	CXTD02	Remarks
Performance		
Update Rate (Hz)	> 100	Continuous Update Mode
Start-up Time Valid Data (sec)	< 1	
Tilt Angle		
Range: Roll, Pitch (°)	± 180, ± 90	
Accuracy (°) Over Temperature	± 0.2	At level
Accuracy (°) Over Temperature	± 0.6	± 45° Tilt Range
Resolution (°)	< 0.1	
Acceleration		
Input Range: X/Y/Z (g)	± 2	
Bias: X/Y/Z (mg)	<± 3.5	
Scale Factor Accuracy (%)	< 1	
Non-Linearity (% FS)	< 1	
Resolution (mg)	< 0.25	
Bandwidth (Hz)	> 75	-3dB point
Random Walk (m/s/hr ^{1/2})	< 0.1	
Environment		
Operating Temperature (°C)	-40 to +85	
Non-Operating Temperature (°C)	-55 to +85	
Non-Operating Vibration (grms)	6	20 Hz - 2 KHz random
Non-Operating Shock (g)	1000	1 ms half sine wave
Electrical		
Input Voltage (VDC)	9 to 30	
Input Current (mA)	< 100	
Power Consumption (W)	< 1.2	at 12 VDC
Digital Output Format	RS-232 (38.4k baud)	See "User's manual"
Physical		
Size (in)	4.02 x 2.26 x 1.24	Includ. mounting flanges
(cm)	10.21 x 5.74 x 3.15	Includ. mounting flanges
Weight (oz)	< 8	
(kg)	< 0.23	
Connector	15 pin sub-miniature high-density male	

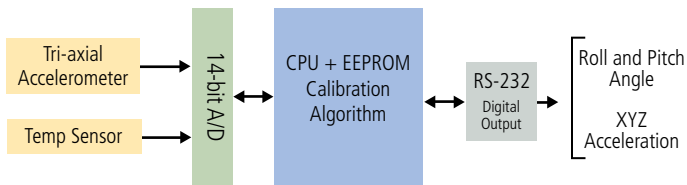


Pin	Function
4	Transmit Data
3	Receive Data
1	Signal Ground
11	Input Power
5	Power Ground

Pin Diagram

Notes:

Specifications subject to change without notice.



CXTD Block Diagram



Ordering Information

Model	Description	Angular Range	Temperature Range	Accuracy (Level)	Accuracy (± 45°)
CXTD02	Precision Inclinometer	± 180°	-40 to +85°C	± 0.2°	± 0.6°

CALL FACTORY FOR OTHER CONFIGURATIONS

The Crossbow CXTD02 products are subject to United States export controls under the International Traffic in Arms Regulations, 22 C.F.R. Parts 120-130, or the Export Administration Regulations, 15 C.F.R. Parts 730-774. In accordance with those export control regulations, an export license from the competent United States Government agency must be obtained before exporting any of the CXTD02 products to any foreign destination.

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