



### Features

- Analog and digital output signals
- Measurement range options, two-dimensional:  $\pm 5^\circ$ ,  $\pm 10^\circ$ ,  $\pm 15^\circ$ ,  $\pm 30^\circ$ ,  $\pm 45^\circ$ ,  $\pm 90^\circ$
- High accuracy:  $0.15^\circ$  (Typical)
- Three-axis accelerometer (Digital output)
- Low power consumption: 20mA (@ 5 V)
- Analog output: 0.3 V to 4.7 V
- Programmable bandwidth and response time
- Digital interface: 3.3V TTL UART

### Applications

- Platform control, alignment, and stabilization
- Solar panel tracking and control systems
- Tilt sensing and leveling
- Weighting systems
- Telescopic and scissor platform monitoring
- Motion/position measurement
- Navigation and GPS compensation
- Robotic position sensing
- Agricultural and industrial vehicle tilt monitoring

### Technical Data - specifications

Power source	4.1 – 38 VDC
Power consumption	$20 \pm 2$ mA (@ 5 V)
Measurement range options	$\pm 5^\circ$ , $\pm 10^\circ$ , $\pm 15^\circ$ , $\pm 30^\circ$ , $\pm 45^\circ$ , $\pm 90^\circ$ (two-dimensional)
Resolution	$< 0.05^\circ$
Accuracy	$0.25^\circ$ (Typical), $0.4^\circ$ (Maximum error in full range)
Zero offset error <sup>†</sup>	$< \pm 0.1^\circ$ (@ $20^\circ\text{C}$ ) <sup>‡</sup>
Temperature offset drift	$\pm 0.01^\circ/\text{C}$ (Typical)
Noise density	$0.01^\circ/\sqrt{\text{Hz}}$

#### Analog Output

Analog voltage output	0.3 V to 4.7 <sup>§</sup> V
Sensitivity	150 mV/ $^\circ$ : range $\leq \pm 15^\circ$ 34 mV/ $^\circ$ : $\pm 30^\circ \leq$ range $\leq \pm 60^\circ$ 25 mV/ $^\circ$ : $\pm 90^\circ$ full range
Reference voltage output	$2.5 \pm 0.005$ V

#### Digital Output

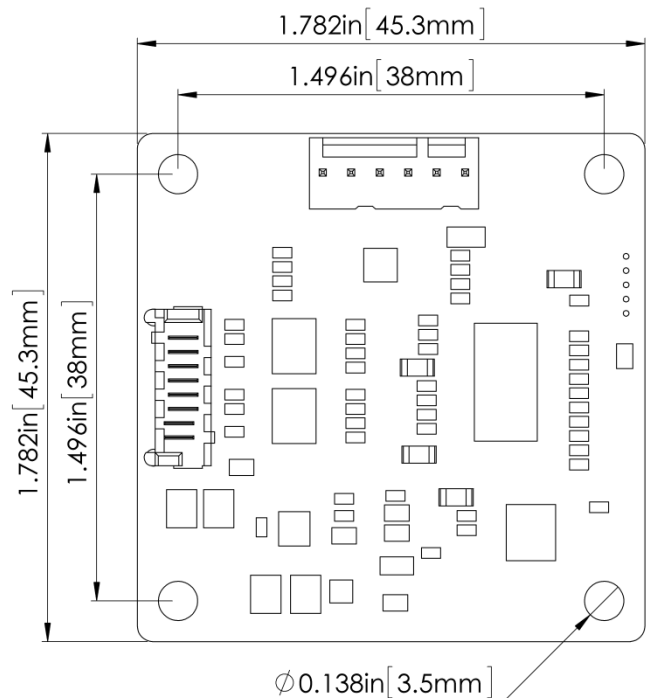
Serial interfaces	3.3V TTL UART
Baud rate	2.4kbps – 921.6kbps selectable, default: 115.2kbps
Data format	ASCII, port settings: 1 start bit, 8 data bits, 1 stop bit & no parity
Output data rate	1, 2, 5, 10, 20, 50, 100, and 200 Hz selectable
Accelerometer data	$\pm 2$ g/ $\pm 4$ g/ $\pm 8$ g selectable
LED indicators	Data transmission rate Flashing at current data rate
GUI software	WinCTi-Tilt <sup>®</sup>
Temperature sensor resolution	$1^\circ\text{C}$
Operating Temperature	$-25^\circ\text{C}$ to $+80^\circ\text{C}$ ( $-13^\circ\text{F}$ to $+176^\circ\text{F}$ )

<sup>†</sup> Zero g offset can be easily corrected and saved by user with digital interface command.

<sup>‡</sup> Units can be calibrated between  $-25^\circ\text{C}$  and  $80^\circ\text{C}$  on request.

<sup>§</sup> The maximum analog output voltage 4.7 V (for  $\pm 90^\circ$  full range) needs the power source  $\geq 5.25$  V.

### Dimensional Drawing



### Terminal Assignment

X1	Name	Description	Type
Pin 1	+Vin	+Vin (4.1 V to 38 V DC)	Input
Pin 2	Vref	Voltage reference (2.5 V)	Output
Pin 3	GND	Ground	Input
Pin 4	OUT X	Analog signal, X axis	Output
Pin 5	OUT Y	Analog signal, Y axis	Output
Pin 6	OUT T	Analog signal, Temperature	Output
Pin 7	RX	Digital signal, receive data	Input
Pin 8	TX	Digital signal, transmit data	Output

X2	Name	Description	Type
Pin 1	+Vin	+Vin (4.1 V to 38 V DC)	Input
Pin 2	GND	Ground	Input
Pin 3	TX	Digital signal, transmit data	Output
Pin 4	OUT X	Analog signal, X axis	Output
Pin 5	RX	Digital signal, receive data	Input
Pin 6	OUT Y	Analog signal, Y axis	Output

### Ordering Information

Part Number	Range
TILT-15-S-05	±5°
TILT-15-S-10	±10°
TILT-15-S-15	±15°
TILT-15-S-30	±30°
TILT-15-S-45	±45°
TILT-15-S-90	±90°

**Warranty:** This product has 18 months limited warranty. For more information, please visit:

[www.CTiSensors.com/warranty](http://www.CTiSensors.com/warranty)

**This product is fully designed and manufactured in the U.S.A.**

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