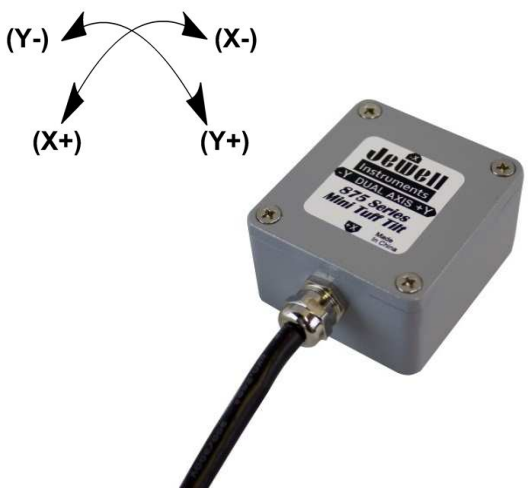
Model D875 Mini "Tuff Tilt" Digital Tiltmeter

The model 875 Mini "Tuff Tilt" Tiltmeter combines high precision and durability in a miniaturized and economical instrument package. Using MEMS technology, the 875 delivers superior measurement accuracy with virtually no long-term drift and a resolution of 0.05°. Output options include digital RS485 or RS232. All units are rated IP67 waterproof for advanced protection from the elements. Use the 875 Mini "Tuff Tilt" for structural monitoring, angle measurement and control, platform leveling, testing and research, OEM and more.



Static/Dynamic			
Angular Range[1]	±5°	±15°	±30°
Resolution	0.05°	0.05°	0.05°
Scale Factor (°/°)	1.00 ±0.005	1.00 ±0.005	1.00 ±0.005
SF Temp Coefficient (ppm/°C, max)	±150	±150	±150
0° Output (° max @ room temp.)	±0.300	±0.300	±0.300
0° Temp Coefficient (°/°C max)	0.008	0.008	0.008
Non-linearity (% FRO max)	0.20	0.20	0.20
Nonrepeatability (° max)	0.005	0.005	0.005
Transverse Axis Misalignment (° max)	±0.50	±0.50	±0.50
Relative Accuracy (° max)	0.10	0.11	0.21
Bandwidth (Hz nom) (-3 dB)	<1	<1	<1
Start Up Time (Seconds max)	5	5	5
Response Time (Seconds max)	0.3	0.3	0.3

Electrical & Environmental	
Number of Axes	1 or 2
Input Voltage Range (Vdc max)	9 - 30
Input Current (mA @ 24V max)	<20 mA @24Vdc
Output Noise (°rms max)	0.006
Operating Temperature Range (°C)	-40 to +85
Storage Temperature Range (°C)	-50 to +105
Shock (g, 1 msec, ½-sine)	500
Weight (grams)	210 (7.4 oz.)
Seal	IP67
Cable	2 M (6.6 ft), flying leads

[1]*Custom ranges available on request*

**Specifications subject to change without notice on account of continued product development*

**Measurements are performed at room ambient temperature unless stated otherwise*

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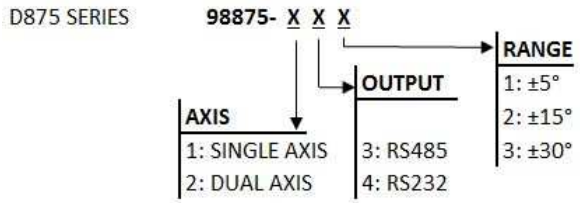
Ordering Code:



Wiring:

Wire Color	Function
Red	+VDC Power Input
Black	Power Return
Yellow	TXD
Blue	RXD
Green	Zero Function
White	No Connection
Brown	No Connection
Grey	No Connection

RS485 Communications Protocol:

1. Configuration: Baud rate 9600(default), see options below.
2. Data Output Format
   X:±xx.xx;Y:±xx.xx<CR><LF>
3. Commands Table

No.	Command	Function
1	$za<CR>	Set axis X & Y to zero
2	$br=[1-7] <CR>	Modify baud rate. See **Baud Rate Code Table**
3	$oc=[0/1] <CR>	0-Enter ASK mode, 1-Enter Continuous output[1]
4	$up=[0-9] <CR>	Set data output rate. See **Data Update Code Table**

[1] In ASK mode, when the inclinometer receives a letter 'A', it will output data once. When command is implemented, the inclinometer will return "Set OK!<0x0d>0x0a>".

Baud Rate Code Table

Code	1	2	3	4	5	6	7	8
Baud Rate	1200	2400	4800	9600	19200	38400	57600	115200

(Default – 9600)

Data Update Code Table

Code	1	2	3	4	5	6
Update	5Hz	10Hz	20Hz	25Hz	33Hz	50Hz

(Default – 5Hz)

RS232 UART Communications Protocol:

1. Configuration: Baud rate 9600(default), see options below.
2. Data Output Format
   X:±xx.xx;Y:±xx.xx<CR><LF>
3. Commands Table

No.	Command	Function
1	$za<CR>	Set axis X & Y to zero
2	$br=[1-7] <CR>	Modify baud rate. See **Baud Rate Code Table**
3	$oc=[0/1] <CR>	0-Enter ASK mode, 1-Enter Continuous output[1]
4	$up=[0-9] <CR>	Set data output rate. See **Data Update Code Table**

[1] In ASK mode, when the inclinometer receives a letter 'A', it will output data once. When command is implemented, the inclinometer will return "Set OK!<0x0d>0x0a>".

Baud Rate Code Table

Code	1	2	3	4	5	6	7	8
Baud Rate	1200	2400	4800	9600	19200	38400	57600	115200

(Default – 9600)

Data Update Code Table

Code	0	1	2	3	4	5	6
Update	5Hz	10Hz	15Hz	20Hz	25Hz	33Hz	50Hz

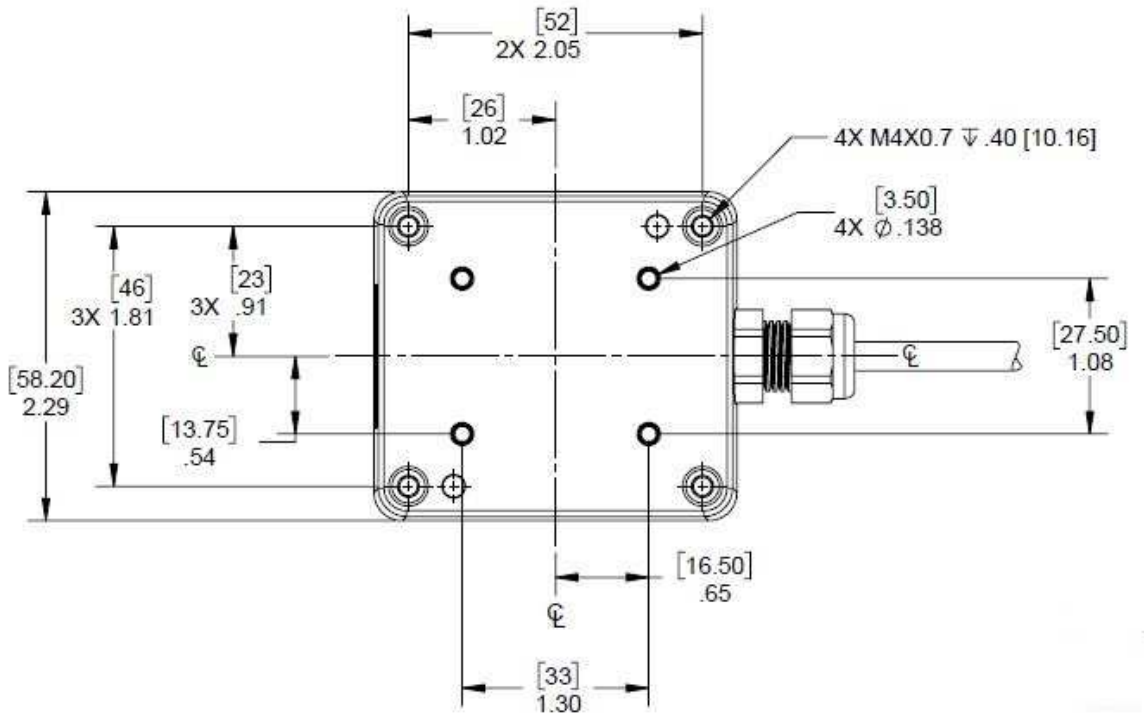
(Default – 5Hz)

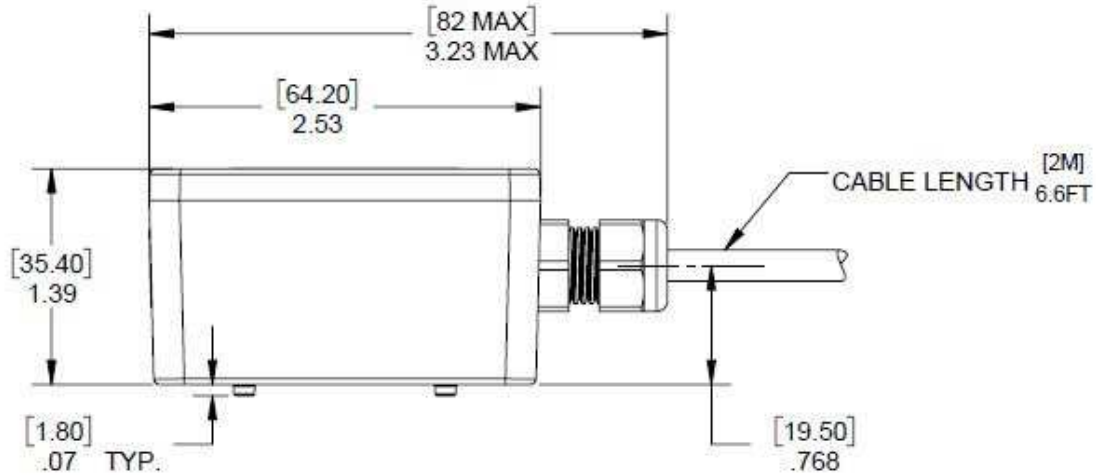
**Output is linear with change in degrees tilt.*

**Zero Function: Short green and black wires at power-on for 3 seconds and release. Do not short wires in operation mode.*

Model D875 Mini "Tuff Tilt" Dimensions

Units: Inch [MM]
Cable Length: 6.6 ft [2 M]





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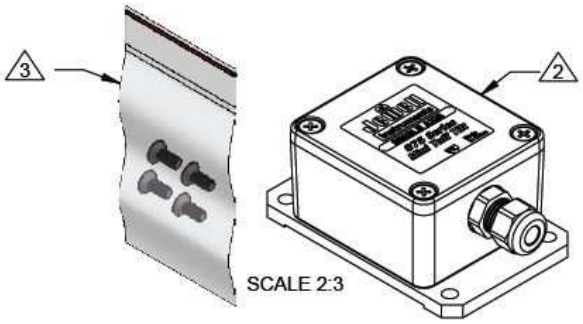
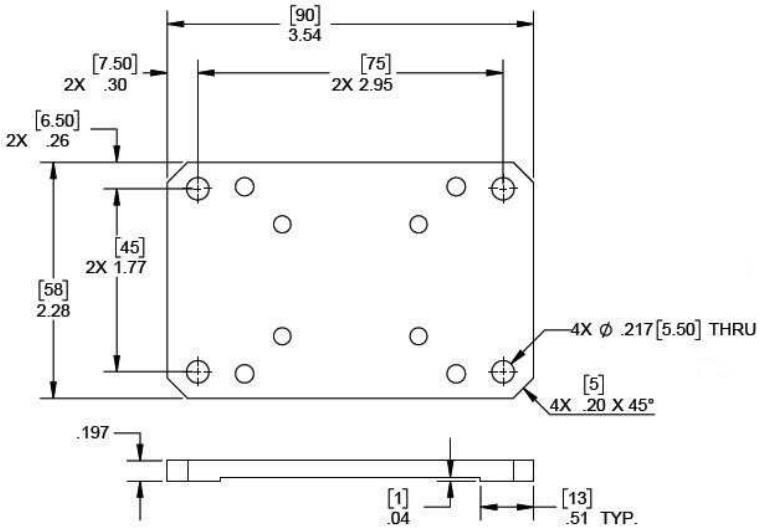
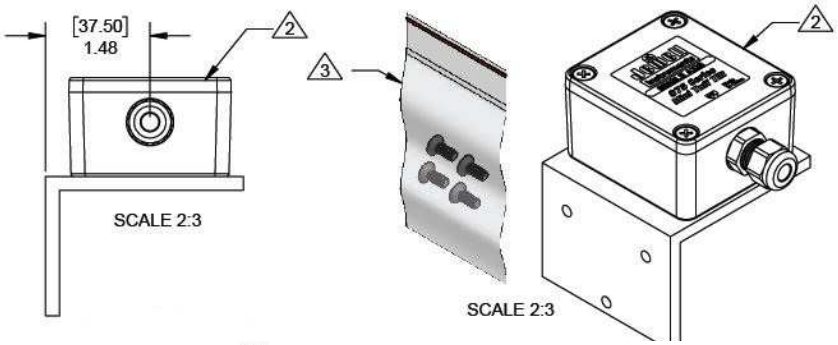
Straight Mounting Bracket

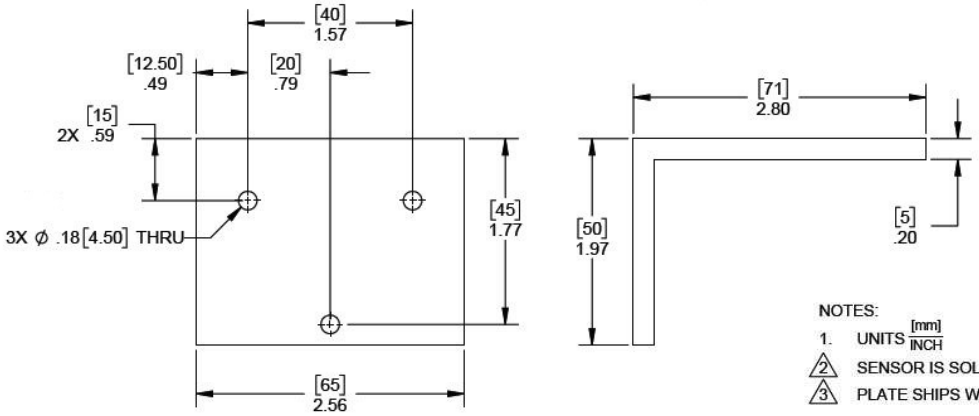


NOTES:
1. UNITS [mm] / INCH
2. SENSOR IS SOLD SEPERATLY
3. PLATE SHIPS WITH MOUNTING HARDWARE.



Right Angle Mounting Bracket





NOTES:
1. UNITS [mm] / INCH
2. SENSOR IS SOLD SEPERATLY
3. PLATE SHIPS WITH MOUNTING HARDWARE.

How to Order:

Model	Part Number	Description
875-SMB	879851-01	Straight Bracket
875-RAMB	879851-01	Right Angle Bracket

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