

# A850-S MEMS Tuff Tilt Series

## 0-5VDC Output

Jewell has a 30+ year history of providing precision electrolytic tiltmeters and is pleased to provide MEMS parts with the same attention to detail that our customers demand.

The A850 MEMS Tuff Tilt series is available in uniaxial and biaxial configurations. This presents a robust and rugged design for industrial use, but with the benefit of low-cost MEMS technology.



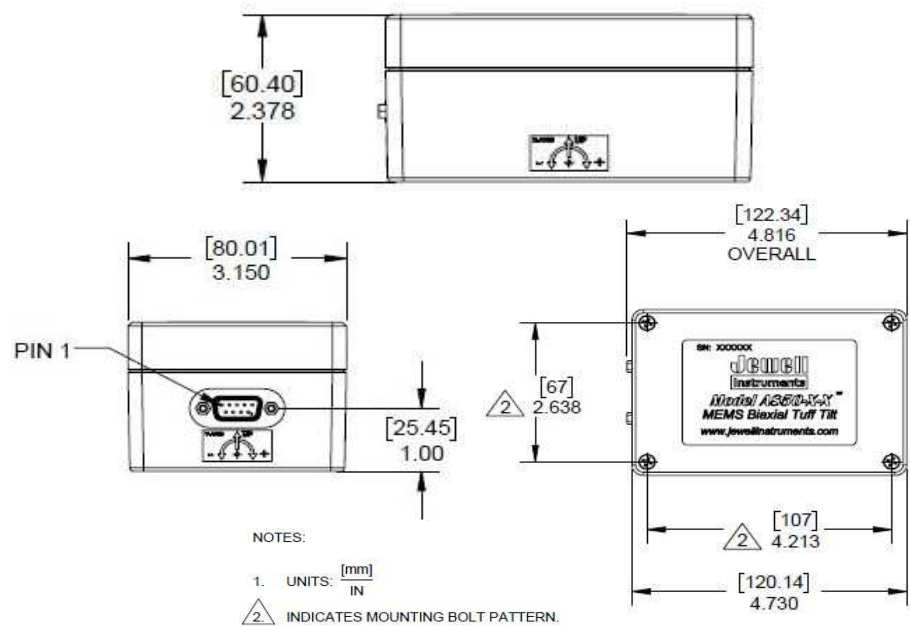
### Features

- $\pm 14.5^\circ$ ,  $\pm 30^\circ$  and  $\pm 90^\circ$  ranges
- Robust and Rugged Enclosure
- Uniaxial and Biaxial Models Available
- Low-Cost MEMS Technology
- RoHS Compliant
- Filtering Available
- Single Power Input
- 0-5 VDC Output
- Temperature Sensor Option Available
- IP65 Seal

### Applications

- Platform Leveling/Positioning
- Structural Monitoring
- Construction Monitoring
- Industrial Machinery Positioning
- Radial Gate Measurement & Control

### Outline Diagram



### Pin Out

SINGLE SUPPLY 9-PIN CONNECTOR	
PIN	ASSIGNMENT
1	+PWR
2	PWR RTN
3	N/C
4	X OUT
5	Y OUT
6	N/C
7	SIG RTN
8	THRM +
9	THRM -

### Performance Specifications

#### STATIC/DYNAMIC

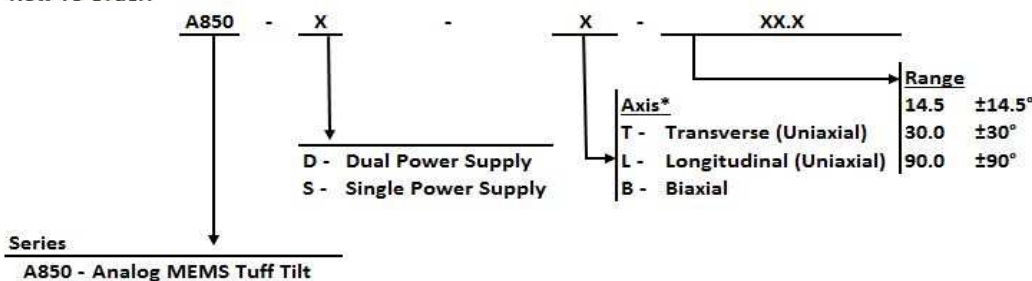
Measurement Range <sup>1</sup> (°)	±14.5	±30	±90
Output Voltage Range (VDC)	0-5	0-5	0-5
Scale Factor Tolerance (%)	±1	±1	±1
Scale Factor Temp. Coefficient (PPM/°C max)	150	150	150
0° Output (Volts max)	±0.03	±0.03	±0.03
0° Output Temp. Sensitivity (V/°C max)	±0.004	±0.004	±0.004
Transverse Axis Misalignment (° max)	±0.5	±0.5	±0.5
Resolution (° max)	0.002	0.002	0.004
Threshold (° max)	0.002	0.002	0.002
Non-linearity (% FRO max)	0.05	0.05	0.05
Nonrepeatability, Hysteresis (% FRO max)	0.014	0.007	0.004
Bandwidth (Hz nom) (-3 dB)	5	5	5
Warm Up Time (Seconds max)	0.5	0.5	0.5
Voltage to Radian conversion <sup>2</sup>	ASIN((<voltage> - 2.5)/10) ASIN((<voltage> - 2.5)/5) ASIN((<voltage> - 2.5)/2.5)		
Temperature Sensor	PTC Thermistor, Nominal resistance is 1kohm, +/-2%, dissipation constant 2mW/C		

#### ELECTRICAL AND ENVIRONMENTAL

Number of Axes	1 or 2
Input Voltage Range (VDC)	12 to 30
Input Current (mA max)	7
Output Noise (vrms max)	0.005
Output Impedance (Ohms nom)	1
Operating Temp. Range (°C)	-40 to +85
Storage Temp. Range (°C)	-40 to +95
Shock	100 g, 0.011 sec, ¼ sine
Weight (grams)	165 (1 axis), 170 (2 axes)
Seal	IP65

Notes: 1 - Custom ranges available on request.

#### How To Order:



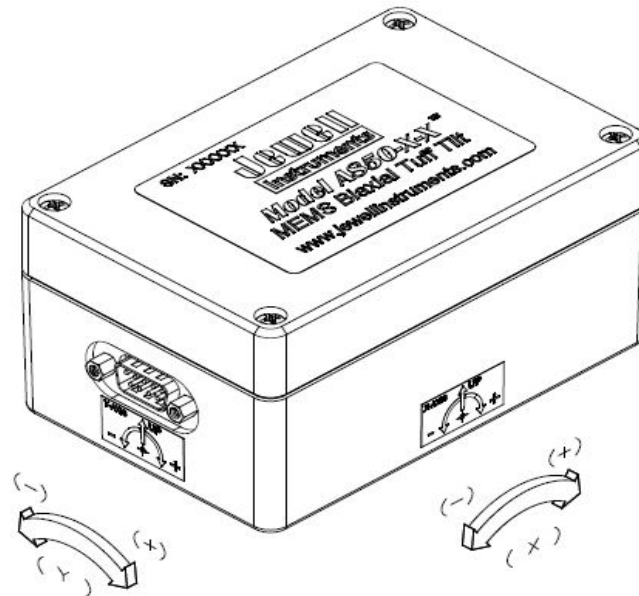
Example: A850-S-B-14.5 = A850 MEMS Tuff Tilt, Single Power Supply, Biaxial, ±14.5° range

\*Call factory for customized axis configurations

Transverse Part Numbers		Longitudinal Part Numbers		Biaxial Part Numbers	
A850-S-T-14.5	98850-10	A850-S-L-14.5	98850-16	A850-S-B-14.5	98850-04
A850-S-T-30	98850-11	A850-S-L-30	98850-17	A850-S-B-30	98850-05
A850-S-T-90	98850-12	A850-S-L-90	98850-18	A850-S-B-90	98850-06

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X = Longitudinal  
Y = Transverse

## Accessories

Model	Part Number	Description
84051	84051-01	Horizontal Mounting Plate Kit w/Mounting Hardware (See plate dimesions)
81439	81439-01	Vertical Mounting Plate Kit w/Mounting Hardware (see plate dimensions)
602-00013	602-00013	Extra Mounting Kit (Includes Allen Wrench, four (4) Mounting Studs, and Circular Bubble Level)
65050	65050	Mating Female D-sub Connector, 9 Pin
65052	65052-01	Connector Hood for a 9 Pin D-sub
70304	70304	Power/signal 10-conductor Cable, 24 AWG, Polypropylene Jacket (Specify total length on order)

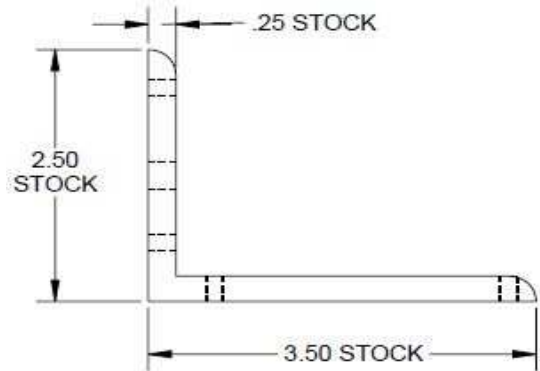
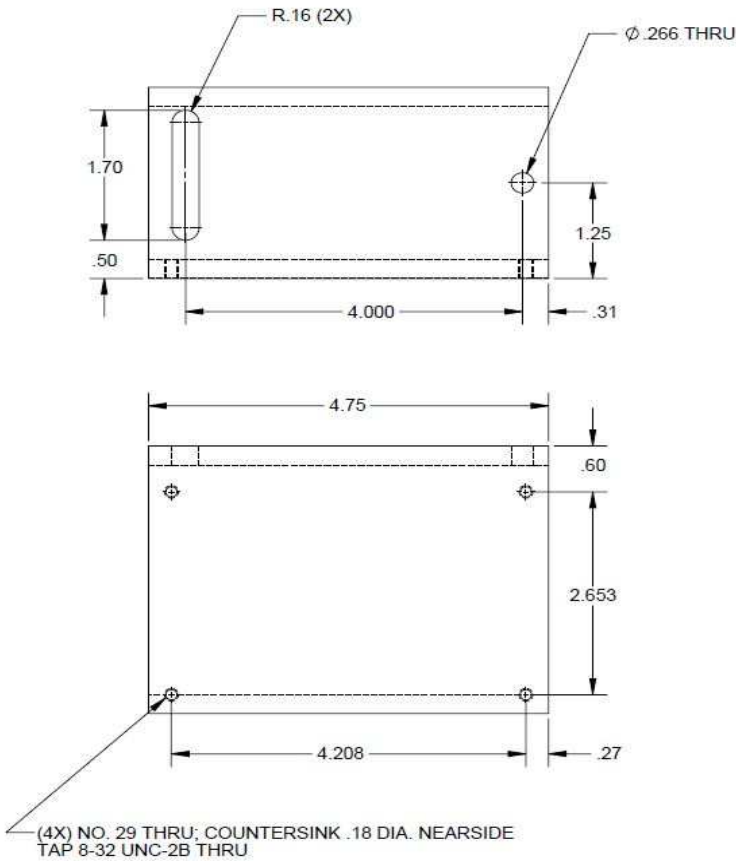
### Extra Mounting Kit, Tuff Tilt, Part Number 602-00013

Qty	Items	Item Description
1	Allen Wrench	9/64" x 4", Alloy steel
1	Circular Bubble Level	Acrylic Circular Bubble Level
4	Stud Mounting Assys	2-Hex Nuts, 3-Flat Washers, 1-Socket Head Screw, & 1-Locknut
1	Assembly Instructions	Assembly Mounting Instructions

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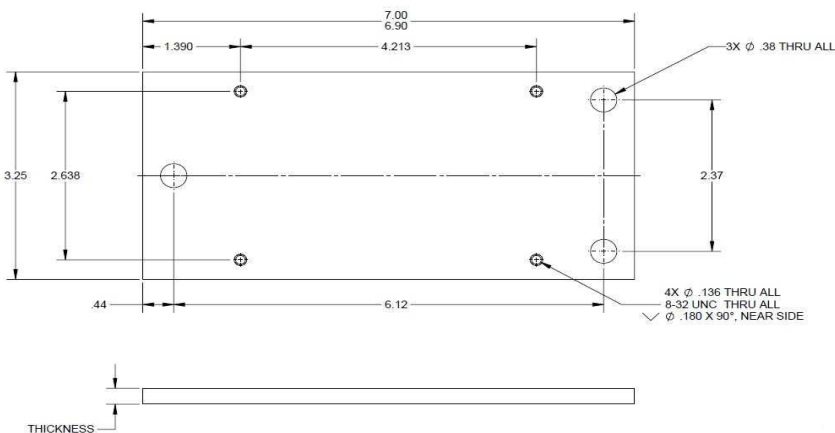
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### Right Angle Mounting Bracket Diagram - Model: 81439, Part Number: 81439-01



Qty	Items
1	Allen Wrench 9/64 x 4" Steel
4	Socket Head Screws 8/32 x 5/8"
2	Bolts, Masonary 1/4-20 x 2"
1	Mounting Bracket, Vertical
1	Assembly Instructions-Sensor
1	Assembly Instructions-Mtg Plate

### Horizontal Mounting Plate Diagram - Model: 84051, Part Number 84051-01



Qty	Items
1	Allen Wrench 9/64 x 4" Steel
4	Socket Head Screws 8/32 x 5/8"
3	Socket Head Bolt 1/4-28 x 3 1/2"
1	Mounting Bracket, Horizontal
1	Assembly Instructions-Sensor
1	Assembly Instructions-Mtg Plate