

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.



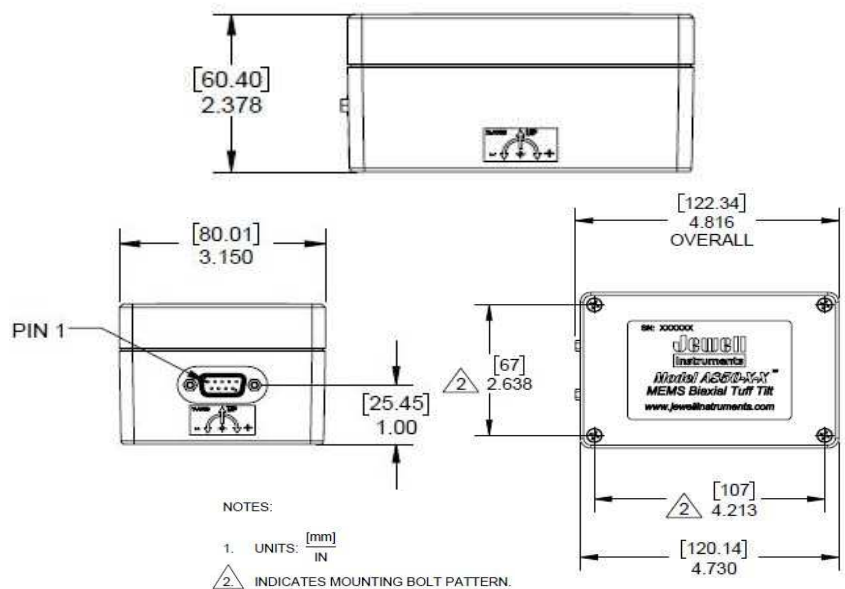
**Features**

- $\pm 14.5^\circ$ ,  $\pm 30^\circ$  and  $\pm 90^\circ$  ranges
- Robust and Rugged Enclosure
- Uniaxial and Biaxial Models Available
- Low-Cost MEMS Technology
- RoHS Compliant
- Filtering Available
- Dual Power Input
- $\pm 5$  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**

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

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**Performance Specifications**

**STATIC/DYNAMIC**

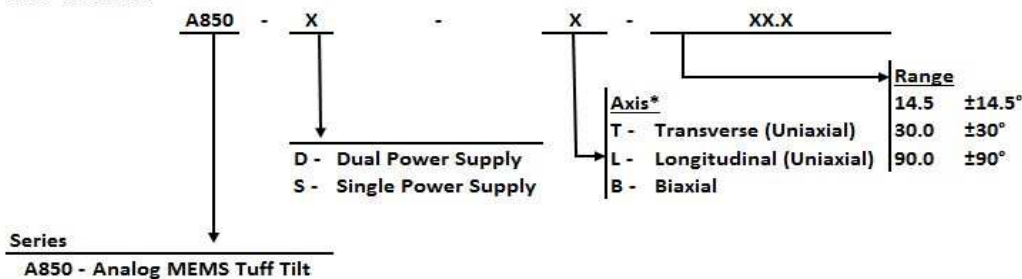
Measurement Range <sup>1</sup> (°)	±14.5	±30	±90
Output Voltage Range (VDC)	±5.00	±5.00	±5.00
Scale Factor Tolerance (%)	±1	±1	±1
Scale Factor Temp. Coefficient (PPM/°C max)	150	150	150
0° Output (Volts max)	±0.03	±0.03	±0.03
0° Output Temp. Sensitivity (V/°C max)	±0.004	±0.004	±0.004
Transverse Axis 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>/20)	ASIN(<voltage>/10)	ASIN(<voltage>/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 ±18
Input Current (mA max)	±6
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, ½ sine
Weight (grams)	165 (1 axis), 170 (2 axes)
Seal	IP65

Notes: 1 - Custom ranges available on request. 2 - Does not take into account any sources of error.

**How To Order:**



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

\*Call factory for customized axis configurations

**Transverse Part Numbers**

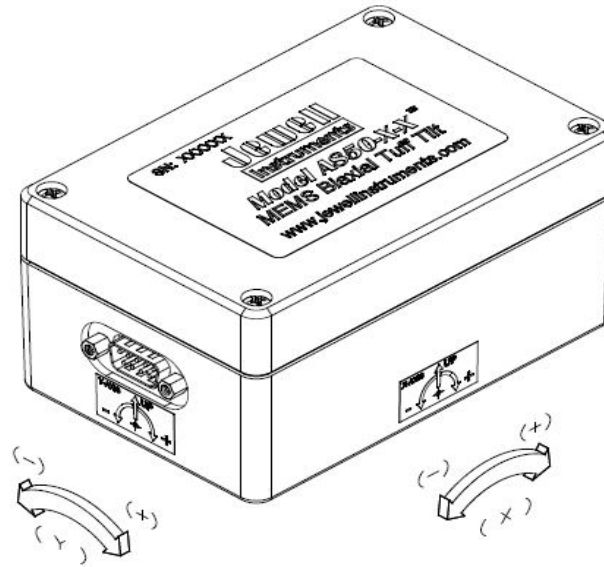
A850-D-T-14.5	98850-07
A850-D-T-30	98850-08
A850-D-T-90	98850-09

**Longitudinal Part Numbers**

A850-D-L-14.5	98850-13
A850-D-L-30	98850-14
A850-D-L-90	98850-15

**Biaxial Part Numbers**

A850-D-B-14.5	98850-01
A850-D-B-30	98850-02
A850-D-B-90	98850-03



**X = Longitudinal**  
**Y = Transverse**

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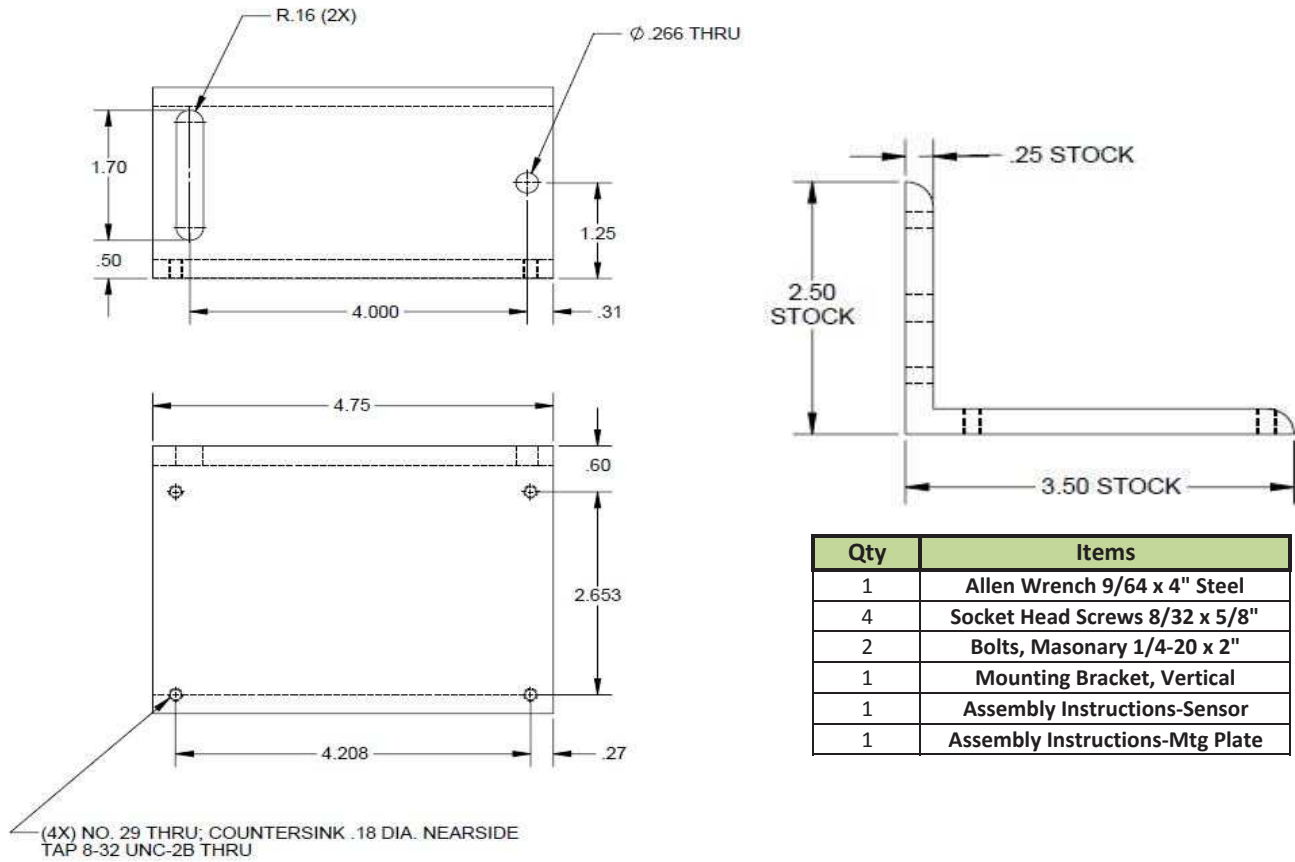
**Accessories**

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

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



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

