Schaevitz® T640 Series

DC-Operated Tilt Sensor with
unfiltered and low pass filter outputs

Sherborne Sensors
Clearly the first choice for precision .....

Features

- *Ranges ±30º, ±60º & ±90º*
- *Essentially zero temperature coefficent of damping ratio*
- *Filtered and unfiltered outputs simultaneously available*
- *Integral temperature compensation*
- *DC input - DC output*
- *Signal ground isolated from power ground*
- *High reliability*

Introduction

The Schaevitz range of range of Solid State Tilt Sensors manufactured by Sherborne Sensors measure angle with high accuracy using a micromachined (MEMS) silicon sensor incorporating an air damping feature. Unlike fluid damped devices the air damping employed is essentially independent of temperature. The transducer also incorporates positive mechanical stops confering excellent shock resistance.

The Tilt Sensor is compensated for the effects of temperature on both sensitivity and zero.

Typical applications include data acquisition systems, road bed analysis, platform levelling, structural monitoring, pipeline levelling, ship ballast transfer systems and many other applications requiring precision tilt measurement.

In addition to the instruments offered in this bulletin Sherborne Sensors design and develop Tilt Sensors for specific applications. These custom designed units can be manufactured and tested to conform to customers specific requirements.

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Website: www.sherbornesensors.com

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Designed for operation from an unregulated DC power supply the T640 series features a MEMS technology solid-state sensor with integral air damping. Electrical termination is via a military style, bayonet lock electrical connector. The tilt sensor has a high useable frequency response and is fitted with a 5Hz low pass filter as standard. Available with connector (T643) or solder pins (T645).

General Specification

Input

Ranges	±30º, ±60º & ±90º
Input Voltage	+6 to 32Vdc Unregulated
Input Current	40mA dc nom.

Output at 25°C

Full Range Output	±5V dc ±2%
Zero Offset	≤ ±2% FRO
Nonlinearity	≤ ±0.5% FRO
Hysteresis	≤ 0.02% FRO
Resolution	≤ 0.001% FRO
Cross Axis Sensitivity	≤ ±1% FRO
Noise Output	5mV (RMS) max.
Damping Ratio	0.7 (±0.2) @ 25°C
Output Impedance.	< 1Ω
Filtered output response	-3dB at 5Hz, 2-pole

Range	Resonant Frequency (Hz)	Unfiltered Frequency Response (Hz ± 5%)
All	700	0 to 250

Environmental

Temp. Operating	-40°C to +100°C
Temp. Compensated	0°C to +50°C
Temp. Storage	-55°C to +130°C
Thermal Sensitivity Shift	≤ ±0.03% FRO/°C
Thermal Zero Shift	≤ ±0.03% FRO/°C
Shock	200g for 2ms (½ sine wave)
Acceleration	Will withstand constant 20 times rated range in all 3 axes without damage
Humidity/Immersion	IP65
Insulation Resistance	≥ 20 MΩ at 50V dc

Physical

Weight ..... 120 grams max

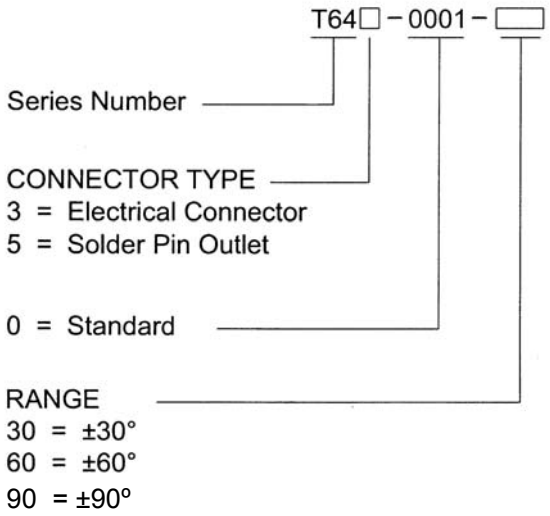
Electrical Connections

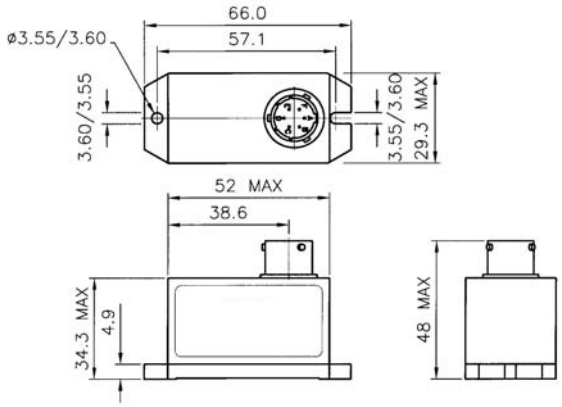
Connector ..... Type Bayonet lock, MIL-C-26482, 6 pin, Shell Size 10

Pin A – supply +
Pin B – supply 0v
Pin C - signal ground
Pin D - signal output (filtered)
Pin E - signal output (unfiltered)
Pin F – not connected

Please specify Mating Connector 3CON-0009 if required.

DESIGNATION & ORDERING CODE





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