

TILTIX INCLINOMETERS

Precise And Robust Tilt Sensors



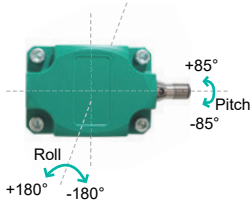
Inclinometers, also called tilt sensors, are designed to measure the angle of an object with respect to the force of gravity. These tilt or level meters determine the angle orientation in space with gravity as reference and output these values via the appropriate electrical interface. Inclinometers are easy to integrate to an application because there is no need for mechanical linkages other than the installation itself – a real advantage for design engineers. POSITAL's inclinometer portfolio offers solutions for different industries to tackle all application-specific challenges.

- > **Single and Dual Axis Measurement**
Up to 360° Single and up to +/-180° Dual
- > **Horizontal or Vertical Mounting Orientation**
For the Perfect Fit
- > **Analog and Digital Interfaces Available**
CANopen, RS232, SSI, J1939, DeviceNet
- > **Ex-Proof Versions Available**
For Mining or Oil and Gas Applications
- > **High Shock and Vibration Resistance**
Up to 200g
- > **Different Inclinometer Technologies**
Tackle the Challenges of Each Application
- > **Durable & Robust Housing Concept**
Up to IP69K
- > **Dynamic Inclinometers**
Ideal for Applications with Dynamic Movements



TILTIX INCLINOMETERS

Dynamic Inclinator



- > Accurate Measurement During Dynamic Movements
- > Output of Accelerations and Rate of Rotation

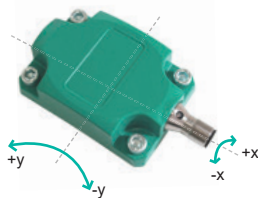
Static Inclinator



- > High Accuracy in Slow Moving Applications

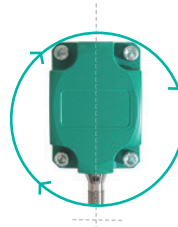
Mounting Options

Horizontal mounting



- > Dual Axis Output
- > Ideal for Levelling Tasks
- > Often Used on Chassis of Mobile Machines or Other Platforms

Vertical mounting



- > Single or Dual Axis Output
- > Monitor Angles of Excavator Booms, Firetruck Ladders or Solar Panels

Applications

Inclinometers offer an easy and efficient way of monitoring spatial orientations without the need for mechanical linkages – a real advantage for design engineers.

Dynamic inclinometers output a clean measurement signal that can be used reliably on mobile equipment such as cranes, construction, mining, agricultural machinery and other applications where sudden movements, shocks and vibrations are likely to be encountered.

Static inclinometers can significantly improve operating safety in mobile machines, platform leveling or medical applications by continuously monitoring the tilt or inclination angles. Inclinometers are much easier to install and thus less expensive compared to rotary encoders, making them ideal for applications such as solar trackers, scissor lift tables, and aerial work platforms.

Excavator



- > Reliable Angle Measurement of Booms and Chassis
- > Able to Withstand High Shocks and Vibrations

Concrete Pump Truck



- > Stable Monitoring of Boom Angles
- > IP69K Protection for Outdoor Usage

Solar Energy



- > Accurate Angle Measurement for Alignment of Solar Panels Even During Large Temperature Fluctuations

Aerial Work Platform & Scissor Lift



- > Platform Monitoring on Slow Moving Material Handling Equipment and Hoists

TILTIX INCLINOMETERS

How to Select the Right Inclinometer for your Application



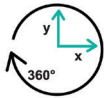
1. Accuracy – Application/Technology

Depending on the application and measurement task a static or dynamic inclinometer with specific accuracy can be selected.



2. Certificate

For most applications, a standard product without special certification is sufficient. POSITAL offers special product versions with ATEX certification for mining or oil-and-gas applications.



3. Measurement Range

Different measurement ranges and mounting orientations can be selected, depending on the mounting position on the application.



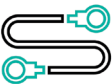
4. Communication Interface

POSITAL offers a wide range of commonly used interfaces from CANopen, SAE J1939, to Analog with different current or voltage outputs and Modbus RTU and SSI.



5. Housing

Choose between cost efficient fiber-reinforced plastic, heavy duty die-cast aluminum, or a stainless steel V4A or aluminum ATEX housing.



6. Connection Type

M12 connectors and PVC or PUR cable exits of different length are available. We offer dual connector variants with integrated T-coupler (Bus-in and Bus-out) that minimize cabling efforts and costs for BUS systems like CANopen or SAE J1939.



TILTIX INCLINOMETERS

1 Accuracy (Technology)

0.10°

0.30°

2 Certificate

ATEX Zone 1&21 (Oil+Gas)

ATEX Zone 1&21 (Mining)

CE / UL

3 Measurement Range

1 Axis

90°; 120°; 180°; 270°; 360°

2 Axes

± 10°; ± 20°; ± 30°; ± 40°; ± 60°; ± 80°; ± 90°;

Pitch & Roll

± 85°/± 180° Vertical Mount;

± 85°/± 180° Horizontal Mount

4 Communication Interface

Analog

CANopen

J1939

SSI

Modbus RTU

5 Housing

Aluminum

Fiber-Reinforced Plastic

Stainless Steel V4A

6 Connection Type

Cable

1; 2; 5; 10 m

Connector

M12;

2 x M12 (m+f);

2 x M12 (m+m)

ATEX Explosion Proof Certified InclInometers



- > Compliance with IECEx and ATEX Directives
- > Zone 1/21 Mining or Oil and Gas
- > Group I (Mining) Ex I M2 Ex e mb I Mb
- > Group II (Above Ground Operations)