

Accurate & reliable inclinometers for critical applications

Lika Electronic's IX series inclinometers can be equipped with analogue, CANopen, and Modbus interfaces, are rugged and accurate, and always provide reliable measurement of inclination even in critical environments such as in construction vehicles, agricultural machinery, mobile cranes, forklifts, bucket trucks.

- IXA: 1-axis and 2-axis current and voltage analogue inclinometer
- IXA R: redundant analogue version with duplicated electronics
- IXB / IXC: 1-axis and 2-axis programmable CANopen inclinometer
- IXM: 1-axis and 2-axis programmable Modbus inclinometer
- High resolution down to 0.001°, high accuracy down to $\pm 0.05^\circ$
- Rugged housing for reliable operation in harsh environments



IX inclinometers are designed to measure angles of inclination. They are available in **single and dual axis versions** and can be equipped with **analogue, CANopen, and Modbus interfaces**.

They base on MEMS (Micro Electro-Mechanical Systems) technology. The range of measurement is 0÷360 deg / ± 180 deg in 1-axis models and from ± 5 deg up to ± 60 deg in 2-axis models with **high resolution** (down to 0.001 deg) and **high accuracy** (down to ± 0.05 deg).

IX inclinometers are **compact, rugged, and IP67 protected**. The robust metal enclosure and the resin-coated electronics allow for high protection against mechanical stresses, vibrations, thermal shocks, and moisture and enable the use in the industrial operating temperature range (up to -40°C $+85^\circ\text{C}$ / -40°F $+185^\circ\text{F}$).

IXA model provides **current (4÷20mA) and voltage (0.5V÷4.5V) analogue signals** in a cost competitive package. It is also available in **redundant version (IXA R)**: all electronics are duplicated for redundancy, i.e. two separate boards with independent circuits, components (accelerometer sensor, signal conditioning, power supply, microcontroller, output interface, etc.) and power / signal cables are installed in the same package. It is perfect for safety-related applications according to UNI EN ISO 13849, for instance to check the flatness of aerial platforms and hoists.

IXB and IXC models are equipped with CANopen interface and comply with DS301 and DS410 profiles.

IXB is the high-performance model. It offers programmable 1-axis and 2-axis operation along with high resolution down to 0.001° and high accuracy down to typically $\pm 0.05^\circ$. IXC model is available in either single (IXC1) or dual (IXC2) axis version with lower accuracy values ($\pm 0.2^\circ$) in the same range

of resolutions. CANopen models also add complete diagnostics, programmable antivibration filter and an optional temperature compensation feature to highly reduce the thermal drift (0.002 deg/°C – IXB model only).

IXM model is offered with Modbus RTU (RS-485) interface. It is available in either single (IXM1) or dual (IXM2) axis version and has a resolution down to 0.01°.

Cable and M12 connector options are available (other specific standard automotive connectors can be provided on demand). Thanks to their robust construction, Lika inclinometers are designed to cope with dirt, moisture, vibration, shock, and extreme temperatures. So they are suitable for operation also in harsh environments such as in *construction machinery, mobile equipment, utility vehicles, telescopic handlers, material handling, mobile cranes, excavators, shovels, bucket trucks, forklifts, agricultural and forestry machinery and equipment* (tractors, harvesters, mowers, skidders, forestry harvesters, feller bunchers, etc.), solar trackers, marine installations. They also provide the **highest levels of safety and performance for robotics**, electro-medical equipment, telecommunications.

Technical specifications of all TILTCOD inclinometers

