TLP210 CANopen

ACCELEROMETER

MEMS technology acceleration sensor

CHARACTERISTICS

- MEMS technology
- High protection level and wide temperature range
- High temperature stability
- Resolution 1mg

ADVANTAGES

- Excellent accuracy
- Reliability and long service life for outdoor applications
- Compact dimensions
- Designed for harsh enviromental conditions

IP67 — High protection level

Shock/vibration resistant

Reverse polarity protection

°C -40...+85 — Wide temp. range

MEMS — MEMS sensors technology

CANopen — CANopen output

High accuracy

High repeatability

RoHS compliant — Directive 2011/65/EU

CE — EU conformity

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PRODUCT DESCRIPTION

An accelerometer measures the linear acceleration to the direction of one or more sensitive axes.

TLP210 is the new family of tri-axial acceleration sensors, based on the MEMS technology, capable of working in extreme conditions and hard environments, subjected to sharp movements, shocks and high vibrations.

The high bandwidth enables fast motion detection with very high accuracy and makes it suitable for vibration measurements, active vibration damping, load cells compensation of vibration and preventive maintenance.
Ideal for use on mobile machines such as: agricultural machinery, rotating machinery, hydraulic cranes, aerial platforms, operating and earth moving machines.

Agricultural machinery

Construction

Earth moving

Handling and **lifting**

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Top Sensors Manufacture

PRODUCT CODE

a Power supply range

- **2** = 9 ... 30 V DC

b Axis type

- **Z** = Triaxial

c Measurement range

- **02** = ±2g
- **04** = ±4g
- **08** = ±8g
- **16** = ±16g

d Output type

- **6** = CANopen

e Connections

- **1** = Male connector M12, 5-pin PUR cable 30cm
- **46** = Male connector M12, 5-pin PUR cable 30cm, plasting coupling nut (3)

f Architecture(2)

- **S** = Single tilt sensor
- **R** = Redundant tilt sensor

(1) Not all combinations can be ordered. Please contact TSM for confirmation before placing an order.
(2) Redundanted primary measures, acquired by a single logical unit and published on the CANOpen output by one or more PDOs, according to the selected mapping.
(3) Temperature range: -20°C ... 80°C

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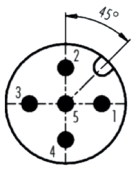
TECHNICAL SPECIFICATION

Measuring range	Up to ±16g
Linearity	±0.1g
Resolution	1mg
Zero-g level (Ta = 25°C)	±40 mg
Temperature drift	Offset: ±0.1 mg/°C typ. Sensitivity: ±0.01 %/°C typ.
Protection class	IP67 (acc. to EN 60529)
Temperature range	-40°C ... +85°C (1)
Housing	Glass fiber reinforced polyamide
Weight approx.	50 g
Shock resistance	acc. to EN 60068-2-27 50 G, 11 ms, 100 shocks per axis Axis : X, Y, Z
Vibration resistance	acc. to EN 60068-2-6 10 ... 500 Hz, 10g, 2h per axis Axis : X, Y, Z

ELECTRICAL CHARACTERISTICS

Power supply range	See order code
Consumption typ.	30 mA (12 VDC, w/o load) 15 mA (24 VDC, w/o load)
Startup time	< 1.5 s
Interface	CANopen
CANopen profile conformity	CiA DS301
Electromagnetic compatibility	acc. to EN 61326-1, EN 61326-3-1
EU conformity	EMC directive 2014/30/EU RoHS directive 2011/65/EU + 2015/863/EU

ELECTRICAL CONNECTION
M12 X 5 PINS



Pinout

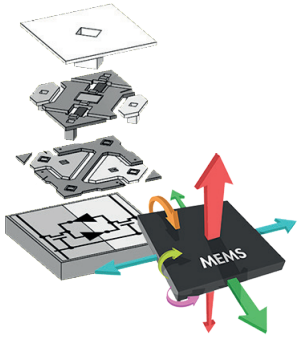
1	CAN-GND*
2	+Vin
3	GND*
4	CAN-H
5	CAN-L

* GND and CAN_GND terminals are internally connected to each other and identical in their function

(1) For .46 connection, the temperature range is derated to -20°C ... 80°C.

OPERATING PRINCIPLE

MEMS, or Micro Electro-Mechanical System, is a chip-based technology where sensors are composed of proof masses sprung between capacitive plates. Each mass act like a moving plate of a variable capacitor formed by an array of interlaced 'fingers'.
If the sensor is subjected to an external acceleration, the mass moves changing the distance between the plates and therefore
the capacitance. By measuring the capacitance variation the external acceleration can be detected.



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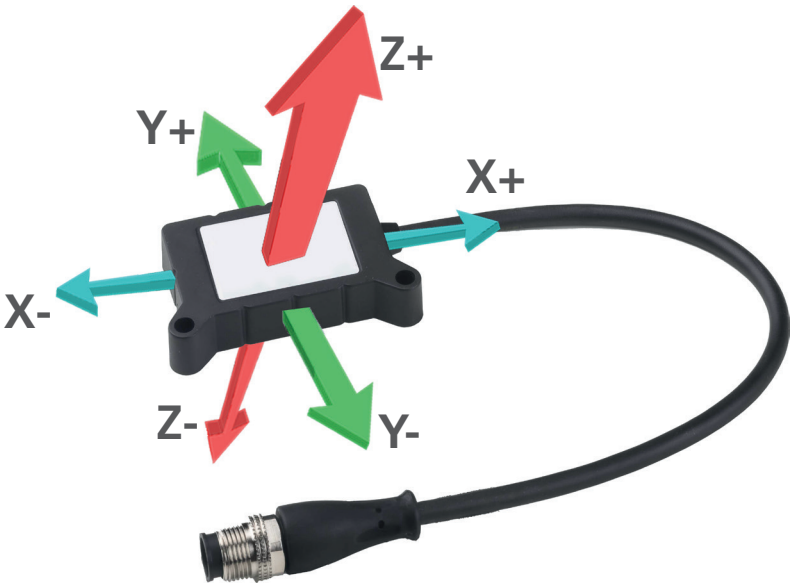
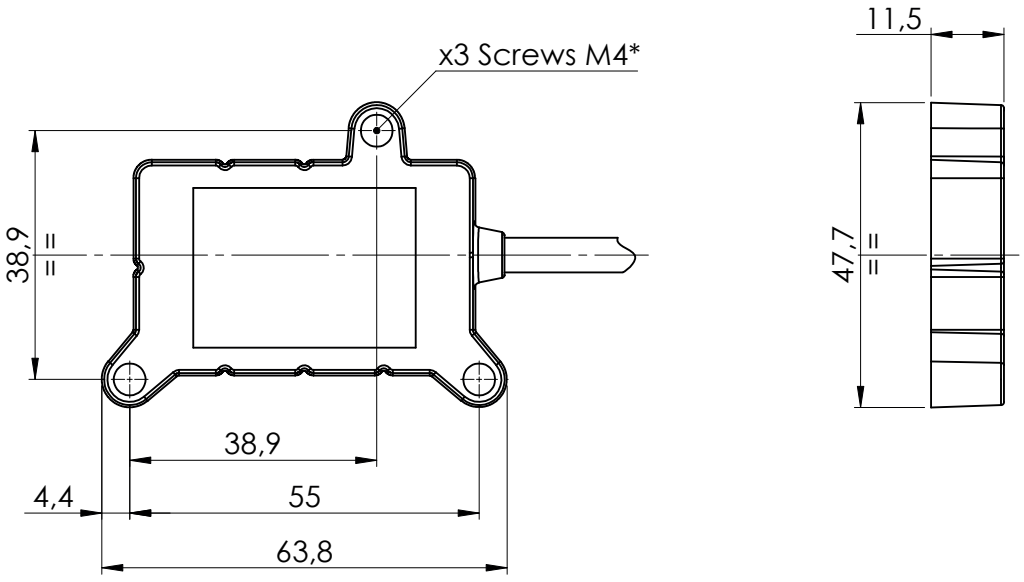
SENSIBLE AXES



DIMENSIONS [mm]



* MAX tightening torque 2Nm

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