

Fully digital twin-channel inclinometer for on-board systems in lorries and other mobile weighing applications.

General

The two sensors each consist of a silicon differential capacitor, in which the deflection of the middle capacitor plate (seismic mass) is measured.

The suspension of the capacitor plates ensures a pure vectorial measurement of the gravitational acceleration and hence the tilt with respect to a horizontal axis. Each of the two horizontal axes has its own sensor.

The signal is converted electronically, so that a 5V TTL frequency signal is available at the output.

In addition, the temperature is measured inside the sensor, in order to compensate mathematically the zero and sensitivity drift.

All calibration data are stored on a built-in EEPROM.

Application

Measurement and mathematical compensation of tilt angle in non-stationary weighing systems

- On-board weighing systems in lorries
- Scales mounted on any means of transport



- Transportable scale

Description

The BJ inclinometer was developed specially for vehicle weighing systems, a DIGI SENS AG speciality.

It allows mathematical compensation of the error caused by tilt and, when connected to a DIGI SENS weighing electronics, the exact, certified determination of the weight, even when the scales or vehicle equipped with the weighing system is standing on uneven or sloping ground.

In accordance with its use as part of a calibrated weighing system, the BJ satisfies the same high precision specification as the associated load cells. The unit is robust and watertight, fully adapted to the rough conditions encountered on road vehicles.

The data specific to the BJ inclinometer are stored in a built-in memory chip. No adjustment whatsoever is required when installing or changing an inclinometer.

Two 5V TTL signals are available at the output. For the signal processing and evaluation a DIGI SENS computer is recommended, which is designed to be connected to a number of sensors and allows the measuring values from the different cells to be combined in real-time.

Special software allows an easy setting-up of the vehicle weighing system in both axes, in case the tilt-angle errors do not only obey the cosine-law.

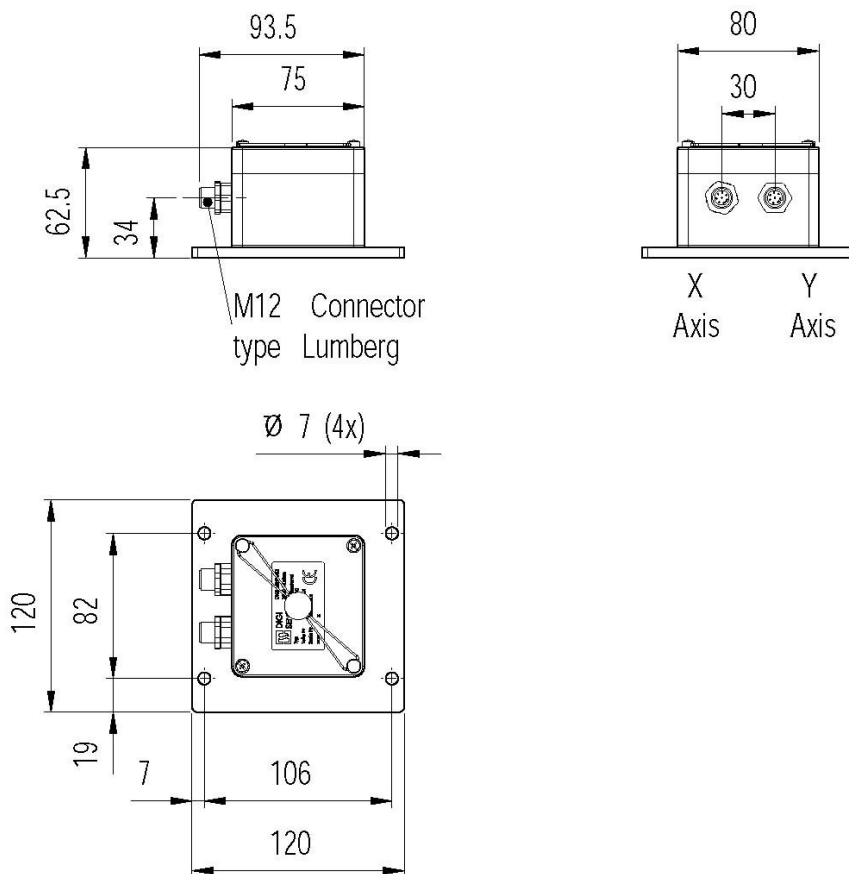
Inclinometer Type BJ / ED 21



Technical Data

Measuring ranges Tilt from horizontal -10...+10% (-5.7...+5.7°) Frequency response 0...1Hz Resolution Tilt angle 0.01° Measurement Error Total error <0.1° Repeatability <0.05° Overload Capacity Without lasting damage 100g	Temperature Sensitivity Zero 0.01% / 10K Gain 0.01% / 10K Warming-up Time For error within 0.1° < 5 Min Power Supply Voltage 5V DC ±0.2V Max current consumption <30mA Output Signal Frequency range 12...18kHz Sensitivity 200Hz/° Amplitude 5V TTL	Temperature range Calibration -10...+40°C Working -20...+60°C Weight BJ 0.32kg EMC Tested acc. To 95/95 EC, ISO7637-2 ISO11452-5, EN61000-4-2, EW61000-4-3, Grange CCG 001/A Mark of Conformity CE, e Protection Class Housing and Connector IP68
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Dimensional drawing



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