

# gSENS TLT-C CAN

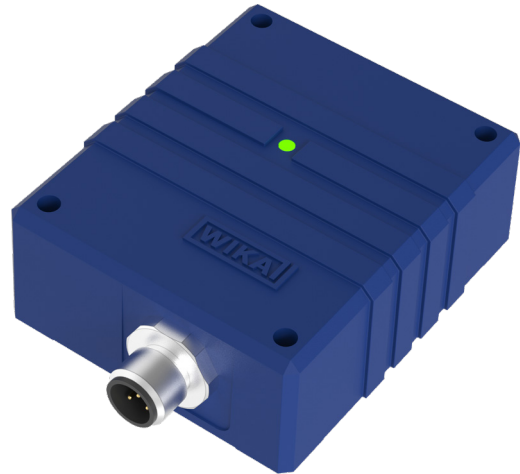
## Inclination sensor for mobile machines

### Applications

- Lattice Boom Crane
- Telescopic Crane
- Reach Stackers
- Boom Trucks
- Knuckle Boom

### Special Features

- Relative linearity error  $<0.1^\circ$
- Good damping behavior, no effect on gravity influence
- Seawater resistance
- IP67 protection rating
- Low temperature drift



gSENS TLT-C CAN inclination sensor

### Description

Inclination sensors detect the orientation angle of an object in relation to the gravitational field of the earth. The fields of application for these sensors are diverse. In cranes or mobile elevating work platforms (MEWP), the inclination angle of the booms is measured to calculate whether the machine stays within the safety regulations specified by the manufacturer.

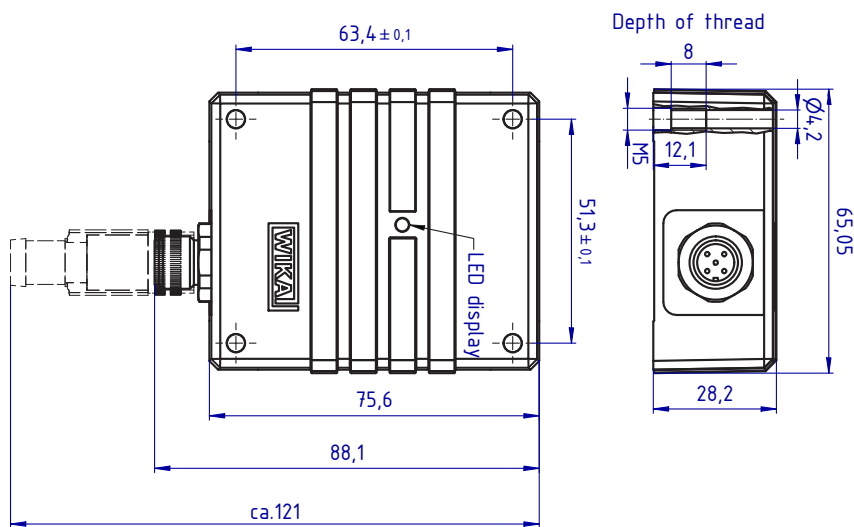
The sensor has a measuring range of up to  $360^\circ$  and offers an extraordinarily high accuracy and precision over the entire measuring range. The measured value resolution is  $0.1^\circ$ .

With its IP67 protection rating and aluminum housing, the sensor withstands even the harshest environmental conditions, e.g. seawater.

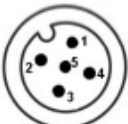
## Technical Specifications

| gSENS TLT-C CAN  | gSENS WGC compatible mode   | TLT-C (extended setup)                |
|--|---|---------------------------------------|
| Measuring range  | -180°...180°, zero position factory preset  |                                       |
| Relative linearity error                                 | <0.1°   |                                       |
| Resolution   | 0.01°   | 0.01°<br>(adjustable acc. to CiA 410) |
| Cross slop error $\leq \pm 5^\circ$ full measuring range | <0.2°   |                                       |
| Temperature drift  | 0.002°/K  |                                       |
| Dynamic behavior   | Special filter, backward compatible mode  | FIR filter 5 Hz cutoff frequency      |
| Recommended measuring rate                               | 10 Hz   |                                       |
| Operating temperature                                    | -40°...+70°C  |                                       |
| Electrical connection                                    | M12x1   |                                       |
| Output signal  | CANopen (CiA-DS301, CiA-DS410), LSS acc. to CiA-DS 305  |                                       |
| Terminal resistor  | 120 Ohm, available and switchable via CAN command   |                                       |
| Supply voltage   | 8...54 VDC (starting from 7 VDC)  |                                       |
| Power consumption  | approx. 38 mA at 12 VDC, approx. 21 mA at 24 VDC  |                                       |
| Protection rating  | IP67<br>IP69K when mounted on a mounting plate (see below), a cable with a corresponding sealed mating connector must be connected to the M12 round connector |                                       |
| Shock (EN 60068-27)                                      | Class 5M3 acc. to EN 60721-3-5:1997 or higher<br>80g, 6ms, 100 shock, half-sine   |                                       |
| Vibration (EN 60068-6)                                   | Class 5M3 acc. to EN 60721-3-5:1997 or higher<br>5-11Hz, +/-10mm, 11-2000Hz ,10g, 1 Octave/min, 20 sweeps per axis  |                                       |
| CE marking   | EN 61000-6-2 (interference immunity industry)<br>EN 61000-6-4 (interference emission industry)<br>EN 61000-6-3 (interference emission household)<br>RoHS      |                                       |
| Housing material   | Aluminum, coated (seawater resistance grade)  |                                       |

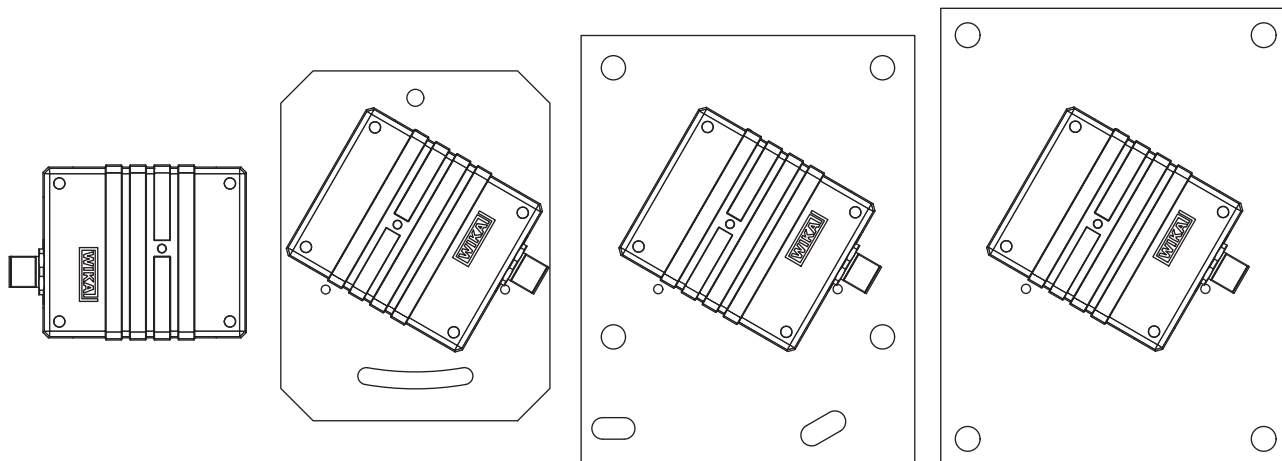
## Dimensions



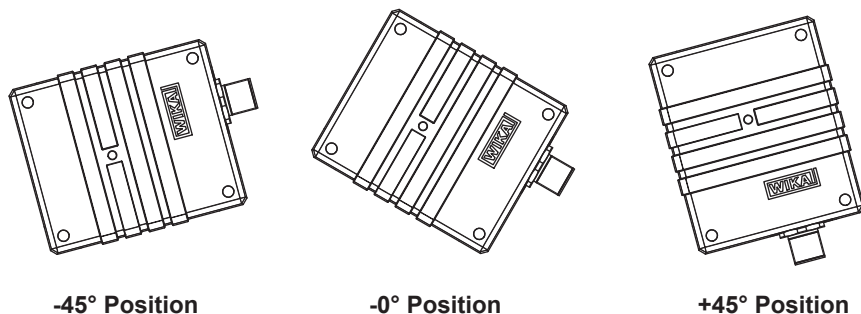
## Pin Assignment stand-alone sensor

| Pin Assignment  | 5 pin M12 male | Signal                       |
|---|----------------|------------------------------|
|  | 1              | CAN shield = housing         |
|   | 2              | +UB Operating voltage DC (+) |
|   | 3              | 0 V Operating voltage DC (-) |
|   | 4              | CAN High                     |
|   | 5              | CAN Low                      |

## Available Mounting Options



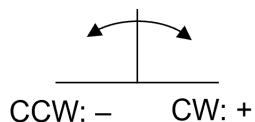
## Orientation



-45° Position

-0° Position

+45° Position



# Product Code and Variants

|                                    | G S E N S    T L T    - C - 0 0    - X X X / X X X X - X X / X X - X X X / X X X - X X X - X X - X X X X X W X X X |                              |            |             |         |  |  |  |  |  |  |
|------------------------------------|--|------------------------------|------------|-------------|---------|--|--|--|--|--|--|
| <b>Product</b>                     | Inclination sensor   |                              |            |             |         |  |  |  |  |  |  |
| <b>Technology</b>                  | Capacitive   |                              |            |             |         |  |  |  |  |  |  |
| <b>Safety</b>                      | Non-safety   |                              |            |             |         |  |  |  |  |  |  |
| <b>Measuring range</b>             | 360°   | 180°                         | 90°        | Specific    |         |  |  |  |  |  |  |
| <b>Type (+ consecutive number)</b> | gSENS WGC-compatible, CAN  | Extended setup, CIA 410, CAN |            |             |         |  |  |  |  |  |  |
| <b>Output signal</b>               | CANopen  |                              |            |             |         |  |  |  |  |  |  |
| <b>Hardware revision</b>           | Consecutive number   |                              |            |             |         |  |  |  |  |  |  |
| <b>Angle range</b>                 | Positive angle range   | Negative angle Range         |            |             |         |  |  |  |  |  |  |
| <b>Connector</b>                   | Cable 0.3m + JST plug (socket) 7-pin   |                              |            |             |         |  |  |  |  |  |  |
| <b>Accuracy class</b>              | 0.3%   |                              |            |             |         |  |  |  |  |  |  |
| <b>Resolution</b>                  | 0.1°   | 0.01°                        |            |             |         |  |  |  |  |  |  |
| <b>Terminating resistors</b>       | Without terminating resistor   |                              |            |             |         |  |  |  |  |  |  |
| <b>Filter</b>                      | Kalman default setup (2,00 / 0,12) - standard  |                              |            |             |         |  |  |  |  |  |  |
| <b>Baudrate</b>                    | 125 kbit/s   | 250 kbit/s                   | 500 kbit/s | 1000 kbit/s |         |  |  |  |  |  |  |
| <b>Heartbeat</b>                   | 100 ms   | 250 ms                       | 500 ms     | 1000 ms     |         |  |  |  |  |  |  |
| <b>PDO event time</b>              | 10 ms  | 50 ms                        | 100 ms     | 500 ms      | 1000 ms |  |  |  |  |  |  |
| <b>Logo</b>                        | WIKAL logo   |                              |            |             |         |  |  |  |  |  |  |
| <b>Node ID (decimal)</b>           | Standard   |                              |            |             |         |  |  |  |  |  |  |
|                                    | Specific (e.g. 081, 087, etc.)   |                              |            |             |         |  |  |  |  |  |  |