QG series

QG65-KD-030H-CAN-C(F)M

Inclination sensor
2 axis horizontal mounting

Programmable device
Interface: CANopen

Parameters programmable by CANopen object dictionary

Measuring range ± 30°

<table>
<thead>
<tr>
<th>Housing</th>
<th>Reinforced plastic injection molded (Faradex DS, black, EMI shielded by stainless steel fiber in PC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (indicative)</td>
<td>60x50x27 mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>4x M5x25 mm zinc plated pozidrive screws included (optional: 2x Ø4mm positioning pins)</td>
</tr>
<tr>
<td>Ingress Protection (IEC 60529)</td>
<td>IP67</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 110 gram</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>10 - 30 V dc</td>
</tr>
<tr>
<td>Polarity protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Current consumption</td>
<td>≤ 50 mA</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 .. +85 °C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40 .. +85 °C</td>
</tr>
<tr>
<td>Measuring range</td>
<td>± 30°</td>
</tr>
<tr>
<td>Centering function</td>
<td>Yes (CANout 0 = 0°), range: ±5°</td>
</tr>
<tr>
<td>Frequency response (-3dB)</td>
<td>0 - 10 Hz</td>
</tr>
<tr>
<td>Typ. Accuracy @20°C (2o)</td>
<td>overall 0,05° typ.</td>
</tr>
<tr>
<td>Offset error</td>
<td>&lt; ± 0,03° typ. (&gt; ± 0,08° max.) after centering</td>
</tr>
<tr>
<td>Non linearity</td>
<td>&lt; ± 0,04° typ. (&gt; ± 0,09° max.) after centering</td>
</tr>
<tr>
<td>Sensitivity error</td>
<td>not applicable</td>
</tr>
<tr>
<td>Resolution</td>
<td>0,01°</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>± 0,005°/K typ.</td>
</tr>
<tr>
<td>Max mechanical shock</td>
<td>20.000g</td>
</tr>
<tr>
<td>CAN interface (hardware)</td>
<td>CANopen protocol: EN 50325-4 (CiA 301 v4.0 &amp; v4.2.0)</td>
</tr>
<tr>
<td>CANopen application layer and communication profile</td>
<td>125 kbit/s (default), 250 kbit/s, 500 kbit/s, 1Mbit/s</td>
</tr>
<tr>
<td>Baud rate</td>
<td>01h (range: 01h - 7Fh)</td>
</tr>
<tr>
<td>Node Id</td>
<td>TPD01: 181h (for Node ID=01h)</td>
</tr>
<tr>
<td>TPDO</td>
<td>TPD01: 5 - 500 ms (default: 100 ms)</td>
</tr>
<tr>
<td>Event time</td>
<td>On/off (default: off)</td>
</tr>
<tr>
<td>Sync mode</td>
<td>On/off (default: on, 2s)</td>
</tr>
<tr>
<td>Heartbeat</td>
<td>Baudrate, Node Id, Event time, Sync mode, Heartbeat, Output format Integer: -3000 to +3000 (PDO1:X=byte2,1;Y=byte4,3) Yes</td>
</tr>
<tr>
<td>Programming options</td>
<td>Input filter enabled, output filter disabled</td>
</tr>
<tr>
<td>Output format</td>
<td>Event mode, Sync-mode</td>
</tr>
<tr>
<td>Filtering</td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td>Modes of operation</td>
<td>by CANopen object dictionary (CAN parameters, filtering)</td>
</tr>
</tbody>
</table>

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Transfer characteristic

CANoutput = 100*α

Clipping outside measuring range

Default 0°: horizontal (label upwards), no acceleration applied. To eliminate mounting offsets the sensor can be centered within ±5° tilt (by the CAN object dictionary)

Cross tilt sensitivity error: < (0.12 * cross tilt angle)^2 % typ.

→ one axis <10° tilt for max. accuracy

Measurement orientation

Horizontal mounting:


gravity

Connector M12 male

Connectivity (length ±10%)

Male only or Male & Female (internal T-junction) M12 connector (5 pins, A-coding) (CiA303 V1.8.0) (Brass Nickel coated, contacts copper alloy)

No bus termination inside. A CANbus always has to be terminated properly. For bus termination order separate M12 termination resistor (optional: T-connector)

Wire / pin coding

Pin 1: Shield
Pin 2: Vcc
Pin 3: Gnd & CAN_GND
Pin 4: CAN_H
Pin 5: CAN_L

Mechanical dimensions (indicative only)

Centering can be done to eliminate mechanical offsets. (can be done by CAN object 300Fh)

The current sensor position will be stored as the new Center position in the internal Eeprom.

A CAN-manual is available at www.dis-sensors.com, see ‘downloads’

EDS-file (CiA306 V1.3.0) is available at www.dis-sensors.com, see ‘downloads’

As this device is accelerometer-based the sensor is inherent sensitive for accelerations/vibrations. Application specific testing must be carried out to check whether this sensor will fulfil your requirements.

Ordering codes:

M12 Male: QG65-KD-030H-CAN-CM 11783
M12 Male & Female: QG65-KD-030H-CAN-CFM 11440

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