

# Inclination sensor

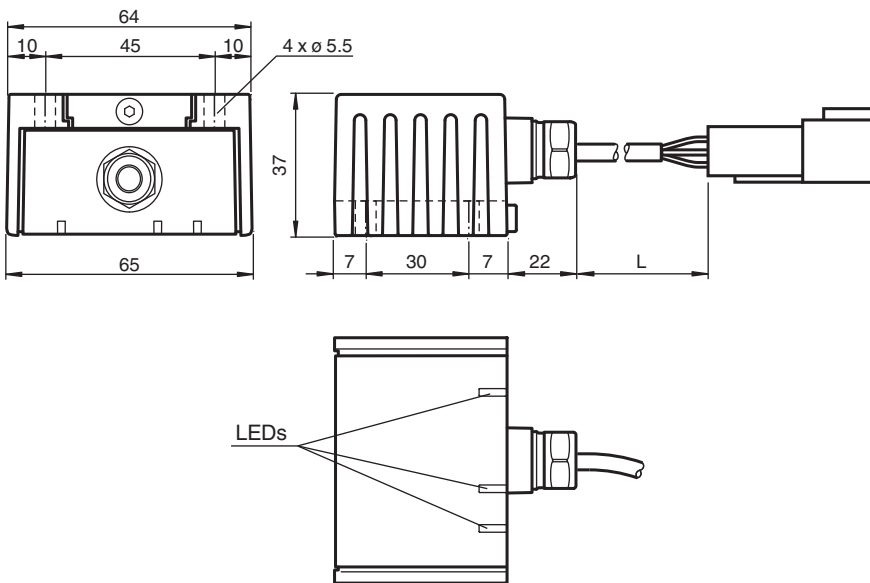
## INY170D-F99-B20-0,6M-6DTM04



- E1-Type approval
- High shock resistance
- Extended temperature range  
-40 ... +85 °C
- CAN bus with SAE J1939 protocol
- Measuring range -85° ... +85°



### Dimensions



### Technical Data

#### General specifications

Type	Inclination sensor, 2-axis
Measurement range	-85 ... 85 °
Absolute accuracy	≤ ± 0.5 ° [-60°...+60°]
Response delay	≤ 25 ms
Resolution	≤ 0.1 °
Repeat accuracy	≤ ± 0.1 °
Temperature influence	≤ 0.004 °/K

#### Functional safety related parameters

MTTF <sub>d</sub>	650 a
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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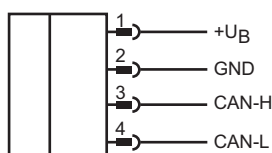
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## Technical Data

Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Indicators/operating means</b>		
Operation indicator		LED, green
Status indicator		LED, yellow
Error indicator		LED, red
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	5 ... 30 V DC
No-load supply current	I <sub>0</sub>	≤ 100 mA
Power consumption	P <sub>0</sub>	≤ 0.7 W
<b>Interface</b>		
Interface type		J1939
Data output code		binary code
Node ID		0 ... 253 , programmable
Transfer rate		10 ... 1000 kBit/s , programmable
Termination		external
Cycle time		programmable
SLOT Range		-85 ... 85 °
SLOT Offset		180 °
<b>Compliance with standards and directives</b>		
Standard conformity		
Shock and impact resistance		100 g according to DIN EN 60068-2-27
Standards		EN 60947-5-2:2007 IEC 60947-5-2:2007
<b>Approvals and certificates</b>		
UL approval		cULus Listed, Class 2 Power Source
E1 Type approval		10R-04
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 85 °C (-40 ... 185 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
Connection type		0.6 m, PUR cable 5 x 0.5 mm <sup>2</sup> Deutsch connector DTM04-6P
Housing material		PA
Housing length		65 mm
Housing width		45 mm
Housing height		37 mm
Degree of protection		IP68 / IP69K
Mass		240 g
<b>Factory settings</b>		
Node ID		30
Transfer rate		250 kBit/s

## Connection



**Accessories**

	<b>V15S-TR-CAN/DN-120R</b>	Terminal resistor for DeviceNet, CANopen
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## Mounting

### Sensor Orientation

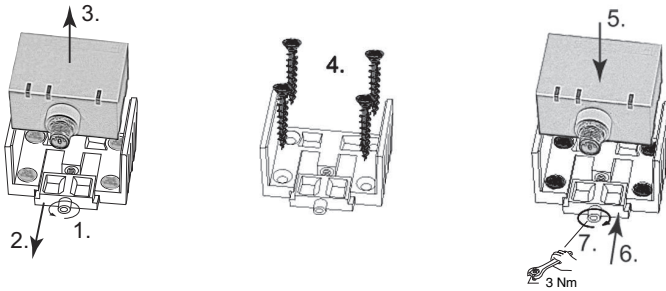
In the default setting the zero position of the sensor is reached, when the sensor is mounted on a horizontal plane and electrical connection faces sideways.

## Mounting

### Mounting of the sensor

Sensors from the -F99 series consist of a sensor module and accompanying cast aluminum housing. Select a horizontal flat surface with minimum dimensions of 70 mm x 50 mm to mount the sensor.

Mount the sensor as follows:



1. Loosen the central screw under the sensor connection.
2. Slide back the clamping element until you are able to remove the sensor module from the housing.
3. Remove the sensor module from the housing
4. Position the housing at the required mounting location and secure using four countersunk screws. Make sure that the heads of the screws do not protrude.
5. Place the sensor module in the housing.
6. Slide the clamping element flush into the housing. Check that the sensor element is seated correctly.
7. Finally tighten the central screw.  
The sensor is now mounted correctly.

## Technical Features

### EMC Properties

Interference immunity in accordance with  
DIN ISO 11452-2: 100 V/m

Frequency band 20 MHz up to 280 MHz and 295 MHz up to 2 GHz

Mains-borne interference in accordance with ISO 7637-2:

Pulse	1	2a	2b	3a	3b	4	5
Severity level	III	III	III	III	III	III	IV
Failure criterion	C	A	C	A	A	C	A

EN 61000-4-2: CD: 8 kV / AD: 15 kV

Severity level IV IV

EN 61000-4-3: 30 V/m (80...2500 MHz)

Severity level IV

EN 61000-4-4: 2 kV

Severity level III

EN 61000-4-6: 10 V (0.01...80 MHz)

Severity level III

EN 55011: Klasse A