

# Inclination sensor

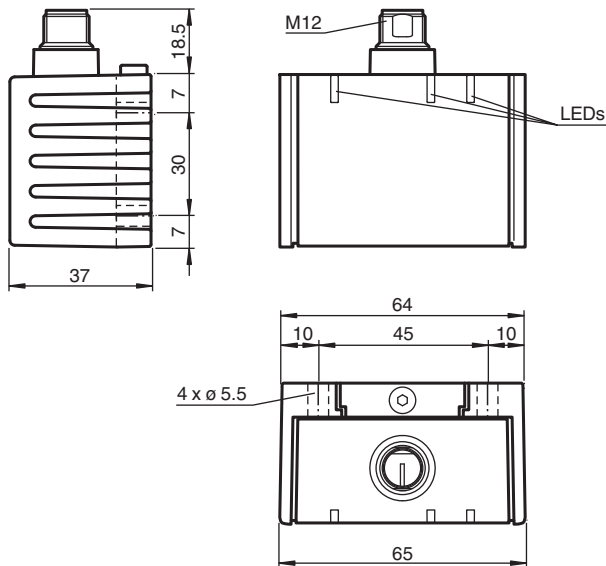
## INY030D-F99-2I2E2-V17



- E1-Type approval
- Measuring range  $-15^{\circ} \dots +15^{\circ}$
- Analog output 4 mA ... 20 mA
- Fixed evaluation limits
- High shock resistance
- Increased noise immunity 100 V/m



### Dimensions



### Technical Data

#### General specifications

Type	Inclination sensor, 2-axis
Measurement range	$-15 \dots 15^{\circ}$
Absolute accuracy	$\leq \pm 0.2^{\circ}$
Response delay	$\leq 25 \text{ ms}$
Resolution	$\leq 0.01^{\circ}$
Repeat accuracy	$\leq \pm 0.02^{\circ}$
Temperature influence	$\leq 0.004^{\circ}/\text{K}$

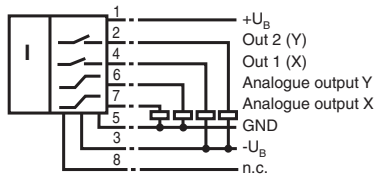
#### Functional safety related parameters

## Technical Data

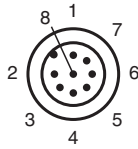
MTTF <sub>d</sub>		304 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Indicators/operating means</b>		
Operation indicator		LED, green
Switching state		2 yellow LEDs: Switching status (each output)
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC
No-load supply current	I <sub>0</sub>	≤ 25 mA
Time delay before availability	t <sub>v</sub>	≤ 200 ms
<b>Switching output</b>		
Output type		2 switch outputs PNP, NO , reverse polarity protected , short-circuit protected
Operating current	I <sub>L</sub>	≤ 100 mA
Voltage drop		≤ 3 V
<b>Analog output</b>		
Output type		2 current outputs 4 ... 20 mA (one output for each axis)
Load resistor		0 ... 200 Ω at U <sub>B</sub> = 10 ... 18 V 0 ... 500 Ω at U <sub>B</sub> = 18 ... 30 V
<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		8-pin, M12 x 1 connector
Housing material		PA
Degree of protection		IP68 / IP69K
Mass		240 g
<b>Factory settings</b>		
Analog output (X)		-15 ° ... 15 °
Analog output (Y)		-15 ° ... 15 °
Switching output (X)		-15 ° ... 15 °
Switching output (Y)		-15 ° ... 15 °

## Connection

Standard symbol/Connection:



## Connection Assignment



Wire colors

1	WH	(white)
2	BN	(brown)
3	GN	(green)
4	YE	(yellow)
5	GY	(gray)
6	PK	(pink)
7	BU	(blue)
8	RD	(red)

## Accessories

	<b>V17-G-2M-PUR</b>	Female cordset, M12, 8-pin, shielded, PUR cable
	<b>V17-G-5M-PUR</b>	Female cordset, M12, 8-pin, shielded, PUR cable
	<b>V17-G-10M-PUR</b>	Female cordset, M12, 8-pin, shielded, PUR cable
	<b>V17-G-10M-PVC-ABG</b>	Female cordset, M12, 8-pin, shielded, PVC cable

Release date: 2020-04-24 Date of issue: 2020-06-03 Filename: 222356\_eng.pdf

## Mounting

### Sensor Orientation

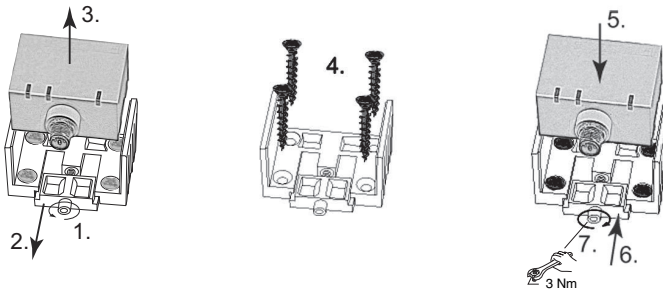
**In the default setting the zero position of the sensor is reached, when the sensor is mounted on a horizontal plane and electrical connection faces sideways.**

## 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 2 GHz

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

Pulse	1	2	2	3	3	4
		a	b	a	b	
Severity level	I	I	I	I	I	I
	I	I	I	I	I	I
	I	I	I	I	I	I
Failure criterion	C	A	C	A	A	C
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					

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