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1D-Inclination Sensor with Current Interface

IS1A 45 P59

Characteristics:

- **1- dimensional inclination sensor with measurement range: ±45°**
- **4 mA ... 20 mA current interface**
- **Robust, UV- resistant plastic housing**
- **Suitable for industrial use:**
  - Temperature range: -10 °C ... +60 °C
  - Degree of protection: IP65/67

Figure similar

The sensor IS1A45P59 is suitable for one-channel static measurement of inclination angles. The full-scale readings are calibrated factory-made at 25 °C.
The compact and robust plastic housing makes the sensor a suitable angle measurement device in rough surroundings for different applications in industry and automotive technology.

Applications:

- **Tracking Systems (Renewable energy)**
- **Agricultural and forestry machines**
- **Utility vehicles**
- **Crane and hoisting technology**

GEMAC - Gesellschaft für Mikroelektronikanwendung Chemnitz mbH
Zwickauer Straße 227 D-09116 Chemnitz
Telefon: +49 371 3377-0 Telefax: +49 371 3377-272
E-Mail: info@gemac-chemnitz.de www.gemac-chemnitz.de

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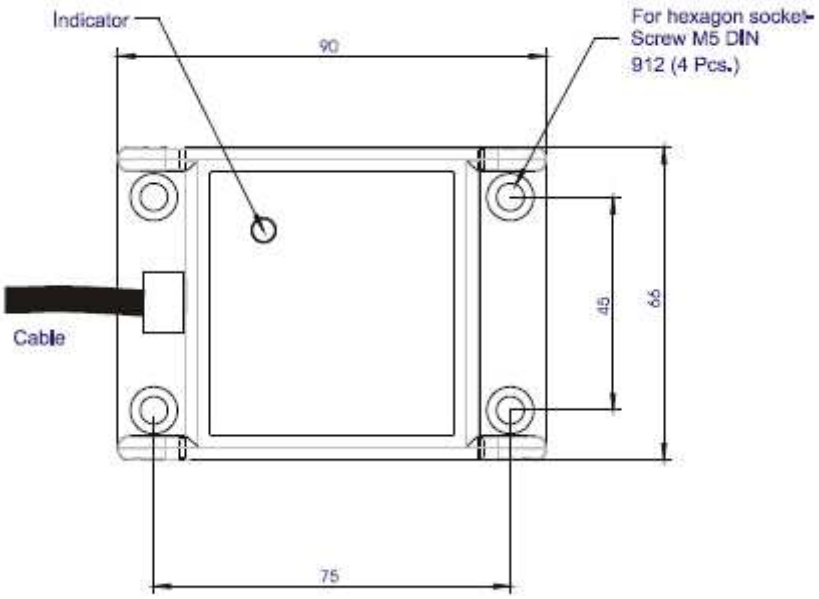
Technical Data:

General Parameters: Ta = 25 °C	
Measurement axes	1 axis
Measurement range	±45°
Resolution (at zero point)	0.05°
Angle tolerances (in measurement range)	typ. ±0.15°
Temperature coefficient (zero point)	max. ±0.01 °/K
Cross sensitivity	max. 5 %
Cut-off frequency	typ. 18 Hz (other values on request)
Operating temperature	-10 °C ... +60 °C
Storage temperature	-40 °C ... +80 °C
Characteristics	
Interface	current output 4 mA ... 20 mA min. load resistance : 50 Ohm max. load resistance at U = 11 V : 250 Ohm
Calculation formula Angle value [°]	$\arcsin\left[\left(\frac{I_{meas}-12\,mA}{8\,mA}\right)*\sin range value\right]$
Electrical Parameters	
Supply voltage	11 V DC ... 30 V DC
Current consumption	max. 60 mA
Mechanical Parameters	
Connector	3 m cable, 4 x 0.5 mm² with wire end ferrule, cable Ölflex Robust 215C, outside diameter max. 7 mm
Degree of protection	IP65/67 min. locking torque of the sensor connector 0.9 Nm
Shock survival	max. 3 500 g
Dimensions	65 mm x 90 mm x 35 mm
Mass	about 200 g
Standards EMV/Environment/Climate	
ISO 10605:2001	Severity level IV: direct discharge ±8 kV ; air discharge ±15 kV
VDE 0879-2:1999, CISPR25 radio interference suppression	measured with absorber lined chamber narrow band peak: @ 0.15 MHz ... 1 GHz max. 19 dB (µV/m) broadband peak: @ 0.15 MHz ... 1 GHz max. 35 dB (µV/m)
ISO 7637-2: 2004 (24 V System) 27 V	Impulse 1-4 Severity level 3; Impulse 5: Severity level 1
ISO 11452-5: 2005 strip line	AM 80 % 1 kHz 100 V/m
IEC 60068-2-6 vibration sinusoidal, 3 axis	5 – 2000 Hz; ± 1.5 mm (p-p) / 30 ms-2; cut-off frequency 57 Hz process rate 1 Oct./min.; test duration 2 h each in 3 axes (X, Y, Z)
IEC 60068-2-27 Ea shock transport, 3 axis	50 g, 11 ms, 1/s, 3/axis
DIN-IEC 60068-2-14 Na TW (-40... +80) °C	Transition period 1 min; retention period 1 h; 5 cycles; specimen passive
DIN EN 60068-2-14 Test Nb (-40... +80) °C	temperature gradient 3 K/min; retention period 1 h; 5 cycles; specimen active
DIN-IEC 60068-2-2Bb (B dry heat)	+85 °C
DIN-IEC 60068-2-2 Ab (test group A low temp.)	-40 °C
DIN-IEC 60068-2-32	1 x free fall per axis from 1 m height

Dimensioned Drawing:



Cable Allocation:

Cable	Allocation
1	Supply voltage (V+)
2	GND-supply (V- / GND)
3	Sensor signal X-Axis (X-OUT)
4	Reference potential for sensor signal (GND-SENS)

Ordering Information:

Product type	Description	Article Number
IS1A 45 P59	1-dimensional, ±45°, 4 mA ... 20 mA	PR-24046-00