



More Precision

eddyNCDT // Eddy current sensors for displacement and position





- Compact M12 sensor design with integrated controller
- Bandwidth 5kHz (-3dB)
- Sensor for ferro- and non-ferromagnetic targets
- Temperature compensation up to 70°C
- Easy to use (plug & play)
- Robust design to IP67

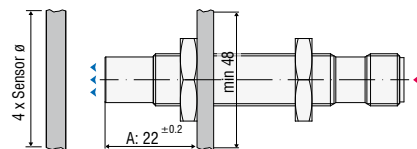
Robust miniature eddy current sensor

The eddyNCDT 3001 is a new, efficient eddy current sensor whose compact dimensions have to date only been reserved for inductive sensors and proximity sensors. This compact sensor comes with integrated electronics including temperature compensation, offering an outstanding price/performance ratio, as well as easy operation. Therefore, the sensor is ideally suited to OEM integration and mechanical engineering applications. The temperature-compensated design provides high

stability even in fluctuating ambient temperatures. The sensor is factory-calibrated for ferromagnetic and non-ferromagnetic materials, which eliminates the need for on-site linearisation of the sensor. The robust construction combined with the eddy current measuring principle enables measurements in harsh industrial environments (oil, pressure, dirt). In addition, the eddyNCDT 3001 is suitable for offshore/ marine applications (salt water).

Installation instructions

The relative size of the measurement object to the sensor and the position of the mounting nut have effects on the linearity deviation for eddy current sensors.



Please note:

- Depending on the sensor model, the measurement object geometry shall be 4 times the sensor diameter.
- The mounting nut should not exceed the indicated dimension A.

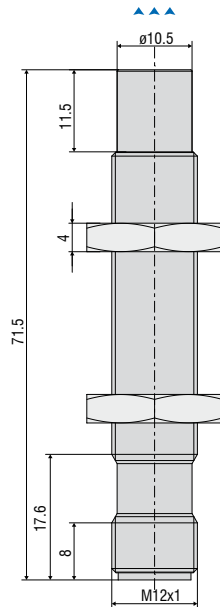
Model	DT3001-U2A-SA	DT3001-U2M-SA	DT3001-U4A-SA	DT3001-U4M-SA	DT3001-U4A-Cx	DT3001-U4M-Cx
Measurement object ¹⁾	aluminum	steel	aluminum	steel	aluminum	steel
Measuring range	2mm		4mm			
Offset distance	0.4mm					
Linearity	28μm					
Resolution ²⁾	4μm					
Bandwidth	5kHz (-3 dB)					
Temperature stability	0.03% FSO / °C					
Temperature compensation range	0°C ... +70°C					
Ambient temperature	0°C ... +70°C					
Installation	unshielded					
Recommended measurement object geometry (flat)	48mm					
Connection	connector 5-pin M12				integrated cable, 5-pin, length 3/6/9m	
Output	0.5 ... 9.5V				0.5 ... 4.5V	
Power supply	12V ... 32V					
Protection class	IP67 (connected)				IP67	
Weight	25g				60g (3m) 100g (6m) 140g (9m)	

FSO = of full scale output

¹⁾ Steel: ST37 DIN 1.0037 / aluminium: AlCuMgPb3.1645

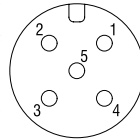
²⁾ RMS noise relates to centre of measuring range with a bandwidth of 5kHz

DT3001-SA

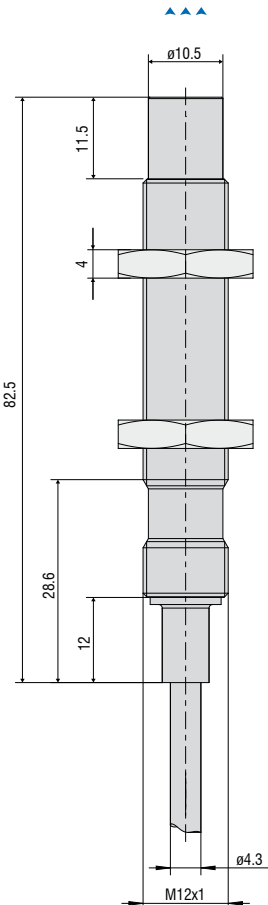


Pin assignment 5-pin M12-connector

Pin	Description
1	supply +24V
2	displacement signal
3	ground
4	internal
5	internal



DT3001-Cx



Pin assignment

Color	Description
brown	supply +24V
green	displacement signal
white	ground
yellow	internal
grey	internal

eddyNCDT 3001-U6 / 3001-U8

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- Easy to use (plug & play)
- Robust design to IP67



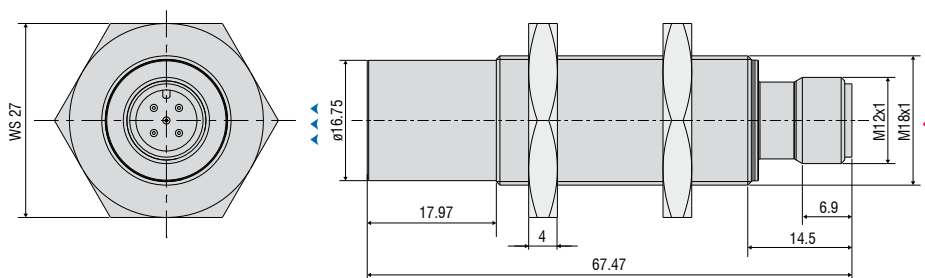
Model	DT3001-U6-A-SA	DT3001-U6-M-SA	DT3001-U8-A-SA	DT3001-U8-M-SA
Measurement object	aluminum	steel	aluminum	steel
Measuring range	6mm		8mm	
Offset distance	0.6mm		0.8mm	
Linearity deviation ¹⁾	≤ 15µm		≤ 20µm	
	≤ 0.25% FSO		≤ 0.25% FSO	
Resolution ^{1) 2) 3)}	≤ 3µm		≤ 4µm	
	≤ 0.05% FSO		≤ 0.05% FSO	
Temperature stability ^{1) 2)}	≤ 1.5µm/°C		≤ 2µm/°C	
	≤ 0.025% FSO/°C		≤ 0.025% FSO/°C	
Bandwidth (-3 dB)		5kHz		
Temperature compensation range		0°C ... +70°C		
Temperature range	Operation	-20°C ... +70°C		
	Storage	-20°C ... +80°C		
Installation		unshielded		
Recommended measurement object geometry (flat)		Ø 64mm		
Connection		5-pole M12 connector		
Output	analog	0.5V...9.5V		
	digital	RS485 (ME bus protocol)		
Power supply		12V ... 32V		
Protection class		IP67		
Weight		34.4g (without nuts)		

FSO = full scale output

¹⁾ applicable under the following conditions:

- Calibration to flat steel or aluminum target (1.0037 and 3.1645 respectively)
- Nominal measuring range
- Temperature compensation range: 0 ... +70°C

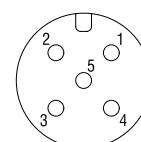
²⁾ relates to midrange; ³⁾ RMS value of the signal noise



▲ ▲ ▲ Measurement direction
▲ Connector side

5-pole M12 connector on electronics

Pin	Description	PCx/5 cable
1	+24 V _{DC} supply	brown
2	analog output	white
3	Ground	blue
4	RS485 (A+)	black
5	RS485 (B-)	gray



Article	Description	eddyNCDT 3001	eddyNCDT 3005	eddyNCDT 3010	eddyNCDT 3100	eddyNCDT 3300
PC3/8	Power- and output cable, 3m, 8 pin			•		
PC5/5	Power- and signal cable	•	•			
SC30	Synchronization cable, 30cm			•		
CSP 301	Digital signal processing and display unit up to 2 channels			•		
PC3100-3/6/BNC	Output cable and supply unit, 3m				•	
PS2020	Power Supply 24V / 2.5A; Input 100-240 VAC; Output 24 VDC / 2.5A; DIN rail mounting; 35mm x 7.5mm, DIN 50022				•	•
MC2.5	Micrometer calibration fixture, range 0 to 2.5 mm, division 1 μ m, for sensors EPU05 to EPS2, adjustable offset (zero)			•	•	•
MC25D	Micrometer calibration fixture, range 0 to 25mm, division 1 μ m, for sensors EPU05 to EPU15, adjustable offset (zero)			•	•	•
ECx	Sensor cable, length selectable up to 15m					•
ECx/90	Sensor cable with 90° connector (sensor-sided) length selectable up to 15m					•
ECx/1	Extension cable for solder connection					•
ECx/2	Extension cable for plug connection					•
SCA3/5	Signal cable analog, 3m					•
SCA3/5/BNC	Signal cable analog with BNC connector, 3m					•
SCD3/8	Signal cable digital (switch input/output), 3m (also for supply 11 - 32VDC); for DT3301					•
SIC3(07)	Signal cable with BNC connector for direct operation with oscilloscope					•
PSC30	Power / Synchronization cable, 0.3m, for DT3300					•
ESC30	Synchronization cable, 0.3m, for DT3301					•
PS300/12/5	Power supply Input 100 - 240VAC; Output \leq 12VDC / 5.2VDC integrated cable 1.5m; for max. 4x DT3300					•
MBC300	Mounting base for controller DT330x, fixing through M4 threaded holes 166x108x60mm					•
MCT304-SM	Tower for max. 4 controller DT 3300; supply 100 - 240VAC					•
MCT304(01)	Tower for max. 4 controller DT 3301; supply 11 - 32VDC					•

High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Optical micrometers, fiber optic sensors and fiber optics



Color recognition sensors, LED analyzers and color online spectrometer



Measurement and inspection systems