



# More Precision

**eddyNCDT** // Inductive sensors based on eddy currents





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

#### Robust M12 miniature eddy current sensor

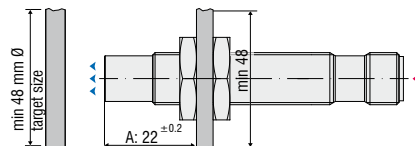
The eddyNCDT 3001 is a powerful eddy current sensor whose compact dimensions have to date only been reserved for inductive sensors and proximity sensors. This compact sensor comes with an integrated controller including temperature compensation, offering an outstanding price/performance ratio, as well as easy operation. Therefore, the sensor is ideally suited to OEM integration and machine building 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 linearization of the sensor.

Its robust design 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 measuring object to the sensor and the position of the mounting nut affect the linearity deviation for eddy current sensors.



#### Please note:

- The target geometry shall be 4 times the sensor diameter.
- The mounting nut must not exceed the indicated dimension A.

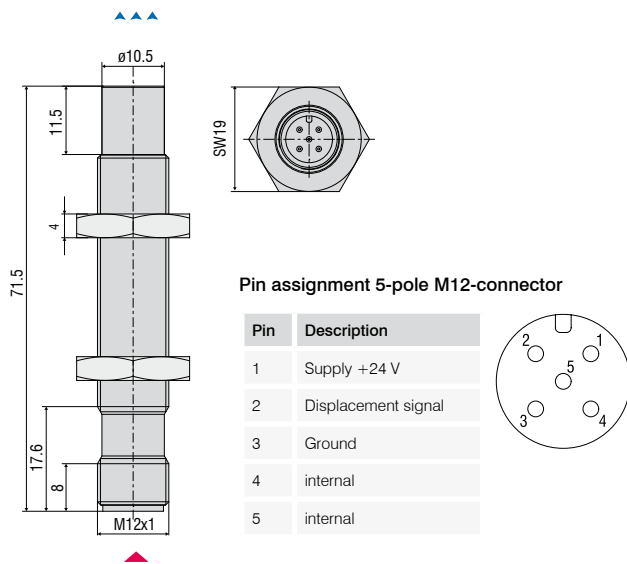
Model	DT3001-U2-A-SA	DT3001-U2-M-SA	DT3001-U4-A-SA	DT3001-U4-M-SA	DT3001-U4-A-Cx	DT3001-U4-M-Cx
Target <sup>1)</sup>	aluminum	steel	aluminum	steel	aluminum	steel
Measuring range	2 mm		4 mm			
Offset distance			0.4 mm			
Linearity			28 $\mu$ m			
Resolution <sup>2)</sup>			4 $\mu$ m			
Frequency response			5 kHz (-3dB)			
Temperature stability			0.03 % FSO/°C			
Temperature compensation range			0 ... +70 °C			
Temperature range	Operation	0 ... +70 °C				
	Storage	-20 ... +80 °C				
Installation			unshielded			
Recommended target geometry (flat)			$\varnothing$ 48 mm			
Connection	5-pole M12 connector				integrated cable, 5-pin, lengths: 3/6/9 m	
Output	0.5 ... 9.5 V				0.5 ... 4.5 V	
Power supply			12 ... 32 V			
Protection class	IP67 (plugged)				IP67	
Weight			25 g		60 g (3 m)	
					100 g (6 m)	
					140 g (9 m)	

FSO = Full Scale Output

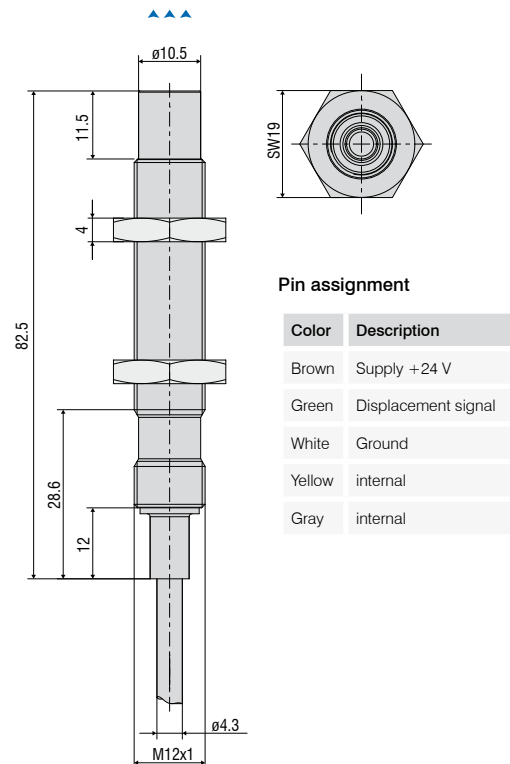
<sup>1)</sup> Steel: ST37 DIN 1.0037 / aluminum: AlCuMgPb3.1645

<sup>2)</sup> RMS noise relates to midrange at a frequency response of 5 kHz

### DT3001-SA



### DT3001-Cx



Measurement direction

Connector side

Dimensions in mm, not to scale.



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

#### Robust M18 miniature eddy current sensor

The eddyNCDT 3001 is a powerful eddy current sensor in M18 design. This compact sensor comes with an integrated controller including temperature compensation, offering an outstanding price/performance ratio, as well as easy operation. Therefore, the sensor is ideally suited to OEM integration and machine building 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 linearization of the sensor.

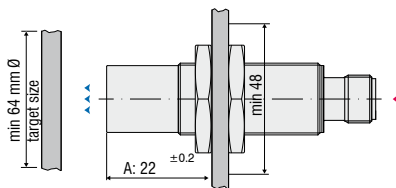
Its robust design combined with the eddy current measuring principle enables measurements in harsh industrial environments (oil, pressure, dirt). In addition, the eddyNCDT 3001 is suitable for offshore/marine applications (salt water).

#### Installation instructions

The relative size of the measuring object to the sensor and the position of the mounting nut affect the linearity deviation for eddy current sensors.

#### Please note:

- The target geometry shall be 4 times the sensor diameter.
- The mounting nut must not exceed the indicated dimension A.

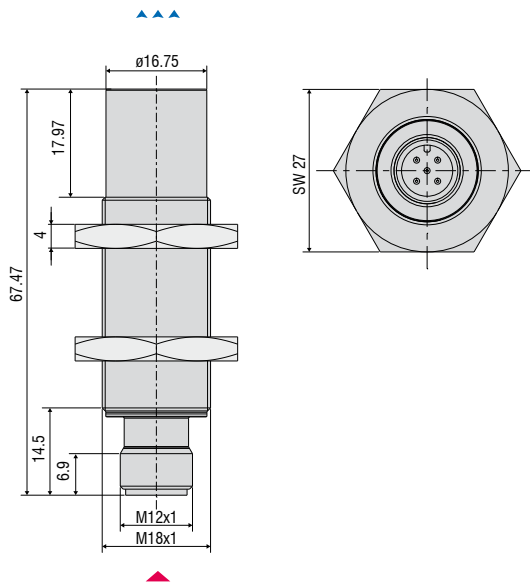


Model	DT3001-U6-A-SA	DT3001-U6-M-SA	DT3001-U8-A-SA	DT3001-U8-M-SA
Target <sup>1)</sup>	aluminum	steel	aluminum	steel
Measuring range	6 mm		8 mm	
Offset distance	0.6 mm		0.8 mm	
Linearity	$\leq 15 \mu\text{m}$		$\leq 20 \mu\text{m}$	
	$\leq 0.25 \% \text{ FSO}$		$\leq 0.25 \% \text{ FSO}$	
Resolution <sup>2)</sup>	$\leq 3 \mu\text{m}$		$\leq 4 \mu\text{m}$	
	$\leq 0.05 \% \text{ FSO}$		$\leq 0.05 \% \text{ FSO}$	
Frequency response (-3 dB)	5 kHz			
Temperature stability	$\leq 0.025 \% \text{ FSO}/^\circ\text{C}$			
Temperature compensation range	0 ... +70 °C			
Temperature range	Operation	-20 ... +70 °C		
	Storage	-20 ... +80 °C		
Installation	unshielded			
Recommended target geometry (flat)	$\varnothing 64 \text{ mm}$			
Connection	5-pole M12 connector			
Output	analog	0.5 ... 9.5 V		
	digital	RS485		
Power supply	12 ... 32 V			
Protection class	IP67 (plugged)			
Weight	34.4 g (without nuts)			

FSO = Full Scale Output

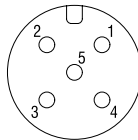
<sup>1)</sup> steel: ST37 DIN 1.0037 / aluminum: AlCuMgPb3.1645

<sup>2)</sup> RMS noise relates to midrange at a frequency response of 5 kHz



#### 5-pole M12 connector of controller

Pin	Description	PCx/5 cable
1	+24 V <sub>DC</sub> supply	Brown
2	Analog output	White
3	Ground	Blue
4	RS485 (A+)	Black
5	RS485 (B-)	Gray



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Measurement direction

▲  
Connector side

Dimensions in mm, not to scale.

Article	Description	eddyNCDT 3001	eddyNCDT 3005	eddyNCDT 3060	eddyNCDT 3300
PCx/8-M12	Supply and signal cable, 8-pin, lengths: 3 / 5 / 10 / 15 m			•	
PCx/5-M12	Supply and signal cable, 5-pin, 5 m / 20 m	•	•		
SCD2/4/RJ45	Industrial Ethernet cable with M12 connector, 4-pin, 2 m			•	
PS2020	Power supply 24 V / 2.5 A, input 100 - 240 VAC, output 24 VDC / 2.5 A, mounting onto symmetrical standard rail 35 mm x 7.5 mm, DIN 50022;	•	•	•	•
SCAx/5	Signal cable, analog, 3 / 6 / 9 m				•
SCDx/8	Signal cable for switching inputs and outputs, 3 / 6 m (also for 11 - 32 VDC supply); for DT3301				•
PSCx	Supply and synchronization cable 0.3 / 1 m, for DT3300				•
ESCx	Synchronization cable 0.3 / 1 m, for DT3301				•

## High performance sensors made by Micro-Epsilon



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