MICRO-EPSILON

More Precision

eddyNCDT // Inductive sensors based on eddy currents

Compact eddy current sensors with integrated controller
eddyNCDT 3001

- Compact M12 sensor design with integrated controller
- Frequency response 5 kHz (-3dB)
- Measuring rate 75 kSa/s
- Sensors 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

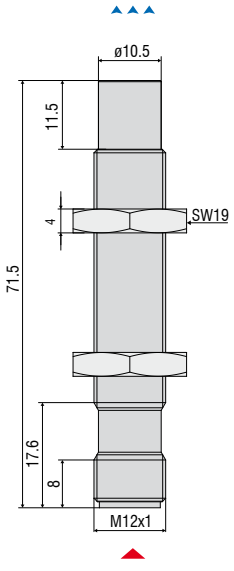
The two eddyNCDT 3001 U2 and U4 models are powerful eddy current sensors whose compact dimensions have to date only been reserved for inductive sensors and proximity sensors. These compact sensors come with integrated controller including temperature compensation while offering an excellent price/performance ratio, as well as easy operation. Therefore, the sensors are ideally suited to OEM integration and machine building applications.

The temperature-compensated design provides high stability even in fluctuating ambient temperatures. The sensors are 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).

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
Measuring range		2 mm		4 mm			
Start of measuring range		0.4 mm					
Resolution [1]		4 µm					
Frequency response (-3dB)		5 kHz					
Measuring rate	Analog output	75 kSa/s (16 bit)					
Linearity		< ±28 µm					
Temperature stability [2]		< 0.6 µm / K		< 1.2 µm / K			
Temperature compensation		0 …+70 °C					
Sensor type		unshielded					
Min. target size (flat)		Ø 48 mm					
Target material [3]		Aluminum	Steel	Aluminum	Steel	Aluminum	Steel
Supply voltage		12 … 32 VDC					
Power consumption		0.5 W					
Analog output		0.5 ... 9.5V				0.5 ... 4.5V	
Connection		Supply/signal: 5-pole M12 connector (cable see accessories)				integrated cable, 5-pin, lengths: 3/6/9 m	
Temperature range	Storage	-20 … +80 °C					
	Operation	0 …+70 °C					
Shock (DIN EN 60068-2-27)		15 g / 6 ms in 3 axes, 2 directions and 1000 shocks each					
Vibration (DIN EN 60068-2-6)		5 g / 10 ... 500 Hz in 3 axes, 2 directions and 10 cycles each					
Protection class (DIN EN 60529)		IP67 (plugged)				IP67	
Weight		25 g				60 g (3 m) 100 g (6 m) 140 g (9 m)	

[1] RMS noise relates to mid of measuring range at a frequency response of 5 kHz
[2] Relates to the mid of the measuring range, in the compensated temperature range
[3] Steel: St37 steel DIN1.0037 / aluminum: AlMg3

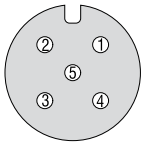
DT3001-U2-SA
DT3001-U4-SA



Pin assignment for power supply and signal

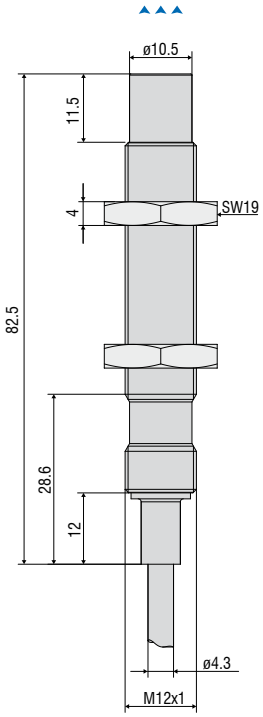
Pin	Assignment	Color (cable: PCx/5-M12)
1	Supply +24 V	Brown
2	Displacement signal	White
3	GND	Blue
4	internal	Black
5	internal	Gray

5-pin housing connector M12x1
View on pin side



▲▲▲ Measurement direction ▲ Connector side

DT3001-U4-Cx



Pin assignment of integrated supply and signal cable

Assignment	Cable color
Supply +24 V	Brown
Displacement signal	Green
GND	White
internal	Yellow
internal	Gray

Dimensions in mm, not to scale.

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- Temperature compensation up to 70 °C
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Robust miniature sensors in M18 housing

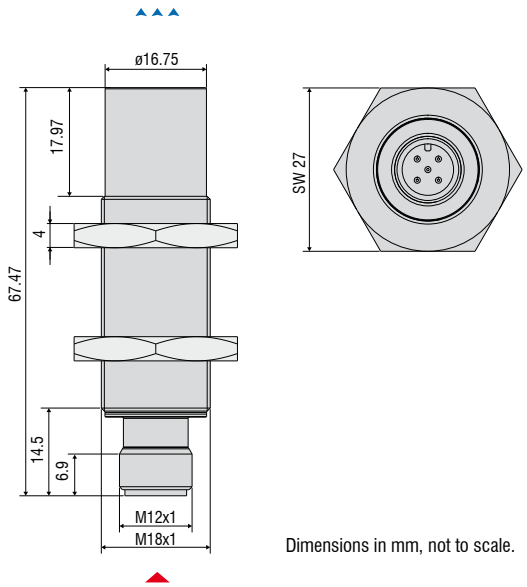
The U6 and U8 models of the eddyNCDT 3001 series are powerful eddy current sensors with integrated controller in an M18 design. Calibrated for ferromagnetic or non-ferromagnetic materials, these compact sensors offer measuring ranges of 6 mm or 8 mm.

As these sensors are temperature-compensated, they provide high signal stability even in fluctuating ambient temperatures. Due to their robust design, these sensors are used for measurement tasks in harsh, industrial environments.

Model		DT3001-U6-A-SA	DT3001-U6-M-SA	DT3001-U8-A-SA	DT3001-U8-M-SA
Measuring range		6 mm		8 mm	
Start of measuring range		0.6 mm		0.8 mm	
Resolution [1]		3 µm		4 µm	
Frequency response (-3dB)		5 kHz			
Measuring rate	Analog output	75 kSa/s (16 bit)			
Linearity		< ±15 µm		< ±20 µm	
Temperature stability [2]		< 1.5 µm / K		< 2 µm / K	
Temperature compensation		0 … +70 °C			
Sensor type		unshielded			
Min. target size (flat)		Ø 72 mm			
Target material [3]		Aluminum	Steel	Aluminum	Steel
Supply voltage		12 … 32 VDC			
Power consumption		0.6 W			
Analog output		0.5 … 9.5 V			
Connection		Supply/signal: 5-pole M12 connector (cable see accessories)			
Temperature range	Storage	-20 … +70 °C			
	Operation	-20 … +70 °C			
Shock (DIN EN 60068-2-27)		15 g / 6 ms in 3 axes, 2 directions and 1000 shocks each			
Vibration (DIN EN 60068-2-6)		5 g / 10 ... 500 Hz in 3 axes, 2 directions and 10 cycles each			
Protection class (DIN EN 60529)		IP67 (plugged)			
Weight		35 g (without nuts)			

[1] RMS noise relates to mid of measuring range at a frequency response of 5 kHz
[2] Relates to the mid of the measuring range, in the compensated temperature range
[3] Steel: St37 steel DIN 1.0037 / aluminum: AlMg3

DT3001-U6-SA
DT3001-U8-SA

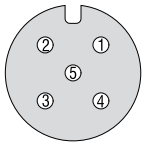


Dimensions in mm, not to scale.

Pin assignment for power supply and signal

Pin	Assignment	Color (cable: PCx/5-M12)
1	Supply +24 V	Brown
2	Analog output	White
3	GND	Blue
4	internal	Black
5	internal	Gray

5-pin housing connector M12x1
View on pin side



Measurement direction

Connector side

Accessories
eddyNCDT

Article	Description	DT3001	DT3005	DT3060	DT3070	DT3300	DZ140	SGS
PCx/8-M12	**Supply and signal cable** 8-pole with M12 connector Standard length: 3 m Optionally available: 5 m/ 10 m /15 m 10 m as drag-chain suitable variant			x	x			
PCx/5-M12	**Supply and signal cable** 5-pole with M12 connector Standard length: 5 m Optionally available: 10 m / 20 m / 40 m / 80 m as drag-chain suitable variant	x	x					
PC4701-x	**Supply and signal cable** 8-pole with M12 connector Standard length: 10 m Optionally available: 15 m 10 m as drag-chain suitable variant							x
SCD2/4/RJ45	**Ethernet cable** 4-pole with M12 connector on RJ45 connector Standard length: 2 m			x	x			
SCAx/5	**Signal cable, analog** 5-pole with M16x0.75 connector Standard length: 3 m Optionally available: 6 m / 9 m					x		
SCDx/8	**Signal cable for switching inputs and outputs:** 8-pole with M16x0.75 connector Standard length: 0.3 m Optionally available: 1 m					x		
PSCx	**Supply and synchronization cable** 5-pole with M9 connector Standard length: 0.3 m Optionally available: 1 m					x		
ESCx	**Synchronization cable** 5-pole with M9 connector Standard length: 0.3 m Optionally available: 1 m					x		
PC140-x	**Supply and signal cable** 8-pole connector Standard length: 3 m Optionally available: 6 m						x	
PS2020	**Power supply unit** Input 100-240 VAC output 24 VDC / 2.5 A; mounting onto symmetrical standard rail 35 mm x 7.5 mm, DIN 50022	x	x	x	x	x	x	x

Sensors and Systems from Micro-Epsilon

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3D measurement technology for dimensional testing and surface inspection

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