

More Precision

eddyNCDT // Inductive sensors based on eddy currents



Compact eddy current sensors with integrated controller eddyNCDT 3001





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 r	nm		4 n	nm		
Start of measuring range		0.4 mm						
Resolution 1)		4 <i>µ</i> m						
Frequency response (-3dB)		5 kHz						
Measuring rate	Analog output	75 kSa/s (16 bit)						
Linearity		$< \pm 28\mu{ m m}$						
Temperature stability ²⁾		< 0.6 µm / K < 1.2 µ				um / 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		
Tomporatura rapao	Storage	-20 +80 °C						
lemperature range	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)		

 $^{\rm D}$ RMS noise relates to mid of measuring range at a frequency response of 5 kHz $^{\rm a}$ Relates to the mid of the measuring range, in the compensated temperature range

3) Steel: St37 steel DIN1.0037 / aluminum: AIMg3

DT3001-U2-SA DT3001-U4-SA



DT3001-U4-Cx

.... ø10.5 11.5 7<u>SW19</u> 82.5 28.6 42 ø4.3

M12x1

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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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 <i>µ</i> m				
Frequency response (-3dB)		5 kHz						
Measuring rate	Analog output	75 kSa/s (16 bit)						
Linearity		< ±	15 <i>µ</i> m	$<\pm 20\mu{ m m}$				
Temperature stability 2)		< 1.5	μm / K	$<$ 2 μ m / 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)						
T	Storage	-20 +70 °C						
lemperature range	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)						
0 DMO								

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: AIMg3

DT3001-U6-SA DT3001-U8-SA



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

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