

More Precision

eddyNCDT // Inductive sensors based on eddy currents



High-performance inductive displacement measuring system for miniature sensors

eddyNCDT 3070



Performance and universality for industrial use

The eddyNCDT 3070 is a powerful, inductive sensor system based on eddy currents for measuring ranges smaller than 1 mm. The system comprises a compact controller, a sensor and an integrated cable and is factory-calibrated either for ferromagnetic or non-ferromagnetic materials.

Ideal for integration into plant and machinery

As sensor and controller are temperature-compensated, a high measurement accuracy can be achieved even in fluctuating temperatures. The sensors are designed for ambient temperatures up to a maximum of +200 °C and an ambient pressure up to 700 bar. The compact controller design as well as the sensor robustness make the measuring system ideal for integration into plant and machinery.

New benchmark in controller technology

The industrial-grade M12 Ethernet interface offers a modern fieldbus connection. Configurable analog outputs enable to output the measured values as voltage or current. For multi-system operation, the systems come with a new kind of frequency separation (LF/HF) which enables to operate several sensors next to one another without requiring any synchronization.

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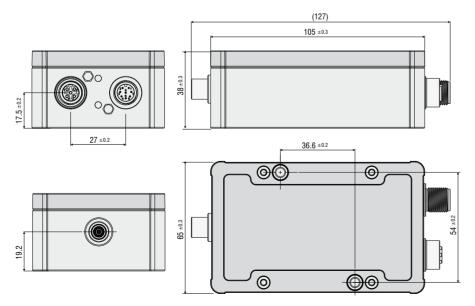
Frakusa	Controller type			
Features	DT3070	DT3071		
Active temperature compen-sation for sensor and controller	~	~		
Frequency separation (LF & HF)	~	~		
Ethernet interface	~	~		
ntuitive web interface	~	~		
Multipoint calibration regardless of the distance (up to 3-point calibration)	•	~		
Scalable measuring range via analog output (teach function)	~	~		
Scalable analog output	~	~		
Switching and temperature outputs	-	~		
5-point calibration	-	~		
Storage of multiple characteristic curves	-	~		

When connecting a PC via the Ethernet interface, a modern web interface can be accessed without any further installation and enables the parameterization of sensor and controller. The DT3071 controller provides enhanced features such as 5-point calibration, setting of switching and temperature outputs, as well as storage of multiple characteristic curves.

Model		DT3070	DT3071			
Resolution 1)	static (20 Hz)	0.005 9	% FSO			
	dynamic (20 kHz)	0.025 % FSO				
Frequency response (-3dB)		selectable (20 kHz, 5 kHz, 20 Hz)				
Measuring rate		50 kSa/s				
Linearity 2)		$<\pm0.2\%$ FSO $<\pm0.1\%$ FSO				
Temperature stability		< 0.05 % FSO / K				
Temperature compensation		+10 +50 °C				
Synchronization		with LF & HF variants (please consider the notes for frequency separation, p. 46)				
Target material 3)		Steel, aluminum				
No. of characteristic curves	f characteristic curves 1 max. 4					
Supply voltage		12 3	32 VDC			
Power consumption		2.5	W			
Digital interface		Ethernet				
Analog output		0 10 V; 4 20 mA (short circuit proof)				
Connection		Sensor: plug connector triaxial socket; supply/signal: 8-pole M12 connector; Ethernet: 5-pole M12 connector (cable see accessories)				
Mounting		through bores				
Temperature range	Storage	-10 +70 °C				
iemperature range	Operation	0 +50 °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 \dots 500 Hz in 3 axes, 2 directions and 10 cycles each				
Protection class (DIN-EN 6052	29)	IP67 (plugged)				
Material		Die-cast aluminum				
Weight		approx. 230 g				

FSO = Full Scale Output

³⁾ Steel: St37 Stahl DIN1.0037 / aluminum: AlCuMgPb3.1645 / AlMg3



Pin assignment IN/OUT/24V IN

Pin	Assignment	Color (cable: PCx/8-M12)			
1	Analog output U Displacement	White			
2	Supply +24 V	Brown			
3	Limit value 1 / U Temp sensor	Green			
4	Limit value 2 / U Temp controller	Yellow			
5	GND Temperature, limit value	Gray			
6	GND analog output	Pink			
7	GND supply	Blue			
8	Analog output I Displacement	Red			



8-pole M12x1 housing connector

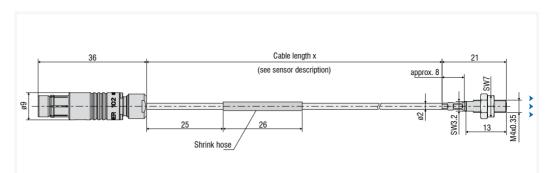
View on pin side



¹⁾ RMS noise relates to mid of measuring range 2) Value with 3-point linearization



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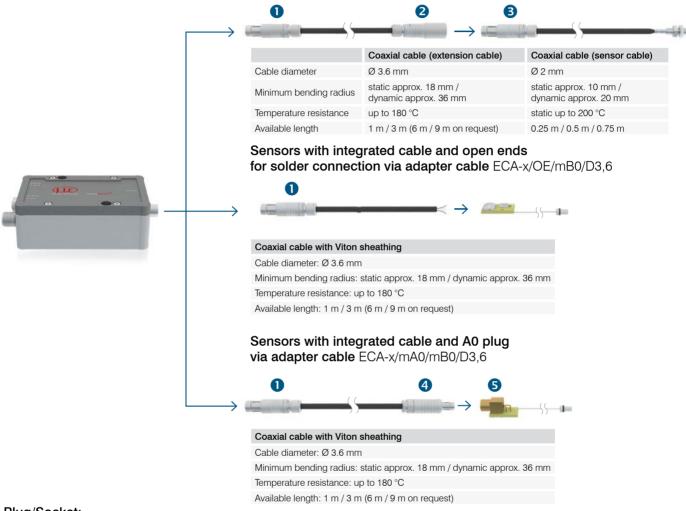
Model		ES-S04			
Measuring range		0.4 mm			
Start of measuring range		0.04 mm			
Resolution 1) 2) 3)		0.02 <i>µ</i> m			
Linearity 1) 4)		< ±1 µm			
Temperature stability 1) 2)		< 0.1 μ m / K			
Temperature compensation		+10 +180 °C			
Sensor type		shielded			
Min. target size (flat)		Ø 5 mm			
Connection		integrated cable, axial, length 0.25 m, 0.5 m and 0.75 m 5 bending radius: static \geq 10 mm, dynamic \geq 20 mm			
Mounting		Cable gland (M4)			
Tomporatura ranga	Storage	-50 +180 °C			
Temperature range	Operation	-50 +180 °C			
Pressure resistance		100 bar (front)			
Shock (DIN EN 60068-2-27)		30 g			
Vibration (DIN EN 60068-2-6)		15 g			
Protection class (DIN-EN 60529)		IP50			
Material		stainless steel and ceramics			
Weight		approx. 25 g			

¹⁾ Valid for operation with DT307x controller, referred to nominal measuring range
2) Relates to mid of measuring range
3) RMS value of the signal noise, static (20 Hz)
4) Only with DT307x controller and 3-point or 5-point linearization
5) Length tolerance cable: ±0,03 m

Connection cable for DT3070 portfolio sensors

Sensors with integrated cable: ES-S04-C-CAx/mB0





Plug/Socket:

1 Triax plug 0323118:

Type S 102 A014-120 D4,1 Triaxial plug: Type: mB0 Connection: push-pull

Temperature resistance: 200 °C (3000 hrs.)

2 Triax socket 0323141:

Type KE102 A014-120 D4,1 Triaxial socket: Type: fB0 Connection: push-pull

Temperature resistance: 200 °C (3000 hrs.)

Triax plug 0323727:

Type S 102 A014-120 D2,1 Triaxial plug: Type: mB0 Connection: push-pull

Temperature resistance: 200 °C (3000 hrs.)

4 Triax plug 0323174:

Type S101 A005-120 D4,1 Triaxial plug: Type: mA0 Connection: push-pull

Temperature resistance: 200 °C (3000 hrs.)

Triax socket 0323173

Triaxial socket: Type: fA0 Connection: push-pull

Temperature resistance: 200 °C (3000 hrs.)



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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: 20 m	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



Sensors and systems for displacement, distance and position



Sensors and measurement devices for non-contact temperature measurement



Measuring and inspection systems for metal strips, plastics and rubber



Optical micrometers and fiber optics, measuring and test amplifiers



Color recognition sensors, LED analyzers and inline color spectrometers



3D measurement technology for dimensional testing and surface inspection