MICRO-EPSILON

More Precision

eddyNCDT 3020 // Robust inductive measuring system for industrial applications

Robust inductive controller for precise displacement measurement
eddyNCDT 3020

- Extremely high temperature resistance and stability up to 105 °C
- Analog / RS485 / PROFINET / EtherNet/IP, EtherCAT
- High resolution and 3-point linearization
- Frequency response 5 kHz (-3dB)
- Measuring rate 80 kSa/s
- Configurable via sensorTOOL
- Switching output (NPN, PNP, TTL, HTL)

Robust and precise for industrial series applications

The eddyNCDT 3020 is an inductive eddy current measuring system for precise displacement and position measurements. The powerful controller offers high resolution and detects fast movements reliably and with high precision. Its robust, compact design, and flexible connection and configuration options make it particularly suitable for industrial environments and machine integration. The system is used, for example, for distance measurement in welding applications, steel selection processes or in die casting systems.

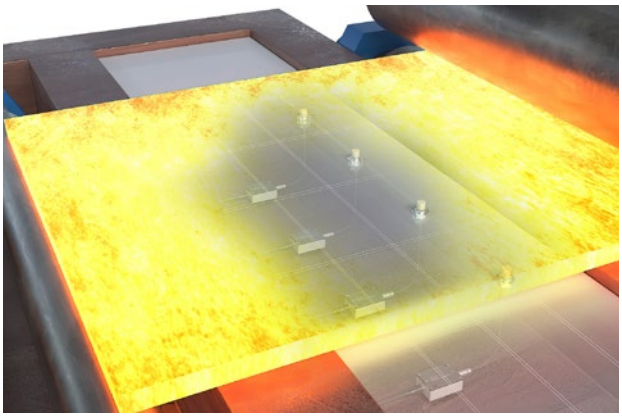
Due to the extremely high temperature resistance of the sensor (up to 200 °C) and controller (up to 105 °C), the complete measuring channel can be used at high ambient temperatures, which reduces temperature influences on the cable and increases measuring accuracy. Digital or analog interfaces also transmit the processed signal over long distances.

Wide range of sensors and easy setup

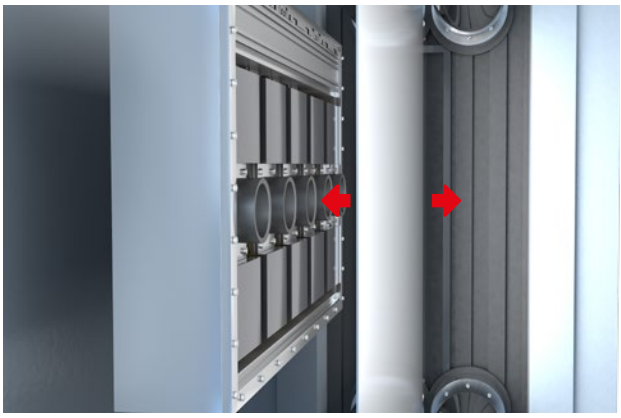
The combination of this controller and the extensive sensor portfolio covers measuring ranges from 1 to 80 mm.

The system is configured conveniently using the sensorTOOL, which offers great application flexibility due to numerous setting options:

- Customizable scaling of analog output and measuring range
- Wide range of options for Condition Monitoring (limit value monitoring via switching output)
- Data processing through averaging, mastering or data reduction
- 3-point linearization for customer-specific installation situations



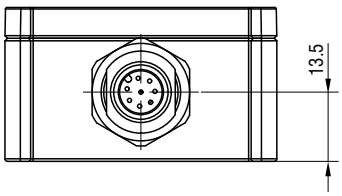
Flatness measurement during flat rolling of crude steel

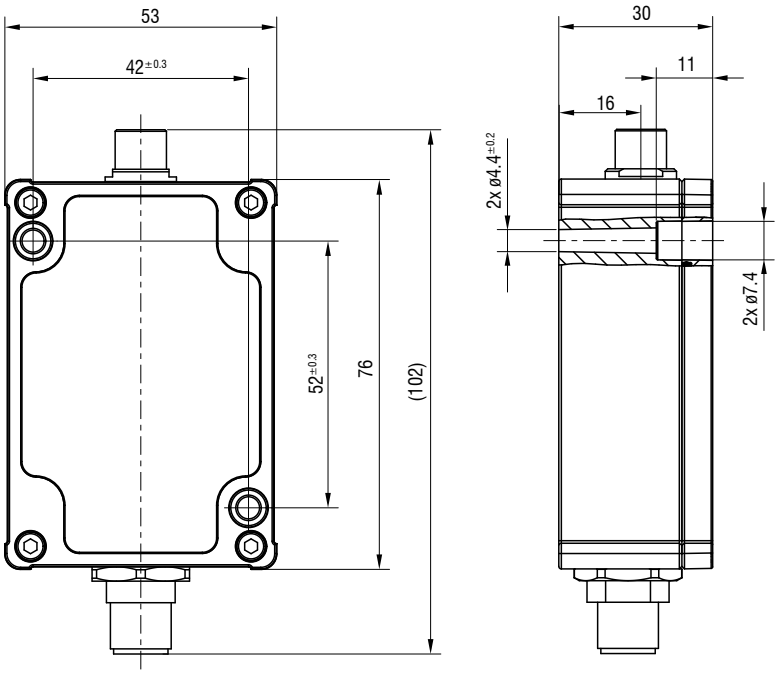


Distance measurement for stabilizing metal strips, e.g. in the galvanizing process

Model		DT3020
Resolution [1]	Static	0.004 % FSO
	Dynamic	0.01 % FSO
Frequency response (-3dB) [2]		9 adjustable stages: 10 Hz ... 5 kHz
Measuring rate	Analog output	80 kSa/s
	Digital output	10 kSa/s
Linearity [3]		< ±0.2 % FSO
Temperature stability [4]		< 0.025 % FSO / K
Temperature compensation		10 ... 105 °C
Target material [5]		Steel, aluminum
No. of characteristic curves		1
Supply voltage		12 ... 32 VDC
Power consumption		< 1.7 W
Digital interface [6]		RS485 / USB / Ethernet / EtherCAT / PROFINET / EtherNet/IP
Analog output		4 ... 20 mA (max. 500 Ω load, freely scalable 0 ... 20 mA)
Switching output		Selectable: NPN, PNP, push-pull
Connection		Sensor: plug connector triaxial socket; supply/signal: 8-pole M12 connector
Mounting		Through-bores (Ø 4.4 mm)
Temperature range	Storage	-20 … 105 °C (non-condensing)
	Operation	-20 … 105 °C (non-condensing)
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)
Material		Aluminum die-cast
Weight		approx. 190 g
Control and indicator elements [7]		Configurable via sensorTOOL software: 3-point linearization, scaling of the analog output, filter & averaging, interface selection

[1] FSO = Full Scale Output, RMS noise relates to the mid of the measuring range, static: 20 Hz, dynamic: 5 kHz
[2] Factory setting 5 kHz
[3] Value valid with 3-point linearization
[4] Value valid in the temperature-compensated range
[5] Steel: St37 1.0037; Aluminum: AlMg3 3.3535
[6] Connection via an interface module is required for USB, Ethernet, EtherCAT, PROFINET and EtherNet/IP
[7] Access to sensorTOOL requires connection to PC via an interface module

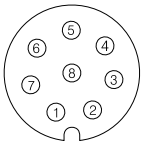




Pin assignment for power supply and signal

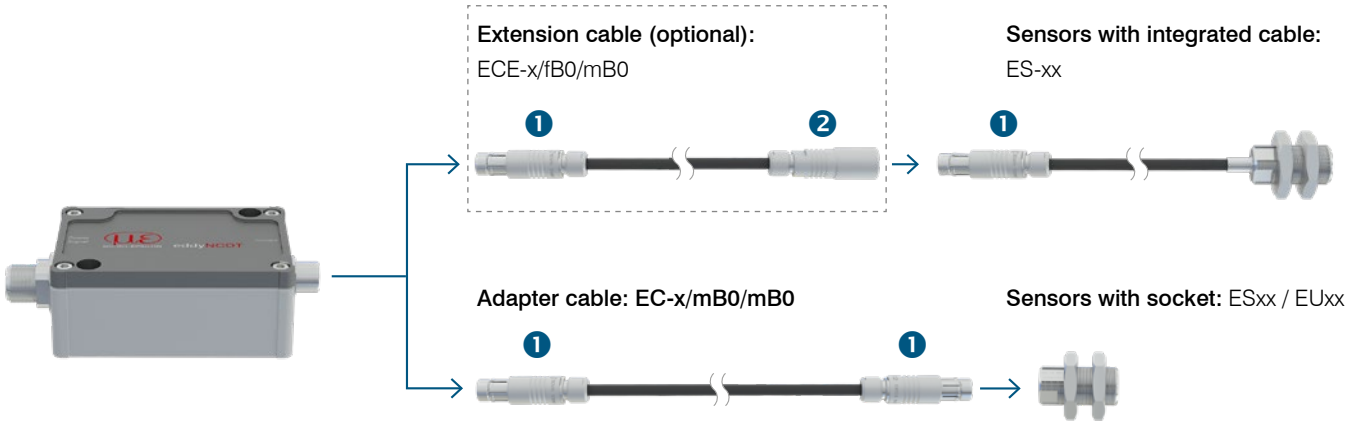
Pin	Assignment	Color (Cable: PC5/8-M12/105)
1	Not assigned	White
2	Supply: +24 V	Brown
3	Switching output	Green
4	RS485 A/+	Yellow
5	RS485 B/-	Gray
6	GND analog output	Pink
7	GND supply	Blue
8	Analog output $I_{Displacement}$	Red

8-pole M12x1 housing connector
View on pin side



Connection possibilities

Sensors:

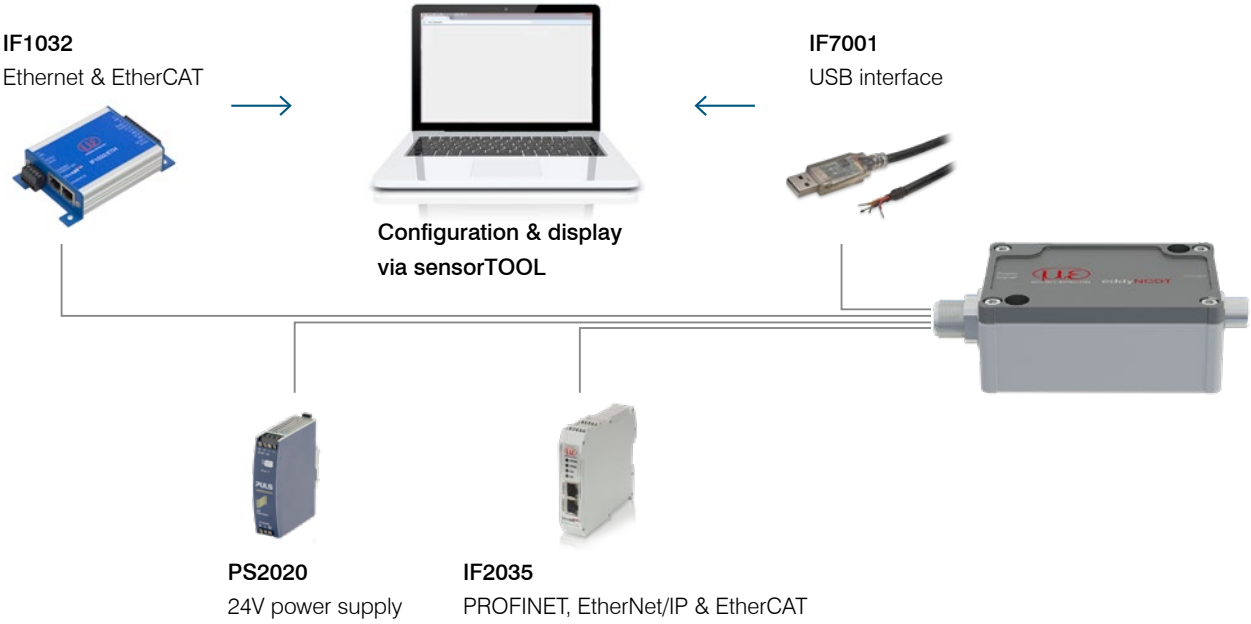


Connector mB0
Outer diameter: 9 mm
Mating length: 26 mm
Temperature resistance: up to 200 °C

Coaxial cable with Viton sheath
Cable diameter: 3.6 mm
Minimum bending radius: static approx. 27 mm / dynamic approx. 54 mm
Temperature resistance: up to 200 °C
Available lengths: 1 m / 3 m / 6 m (9 m on request)

Socket fB0
Outer diameter: 10 mm
Mating length: 35 mm
Temperature resistance: up to 200 °C

Accessories:



Cables:

29011506	PC5/8-M12/105	Supply/output cable, 5 m long, temperature-resistant up to 105 °C
29011159	PC3/8-M12	Supply/output cable, 3 m long
29011141	PC5/8-M12	Supply/output cable, 5 m long
29011058	PC10/8-M12	Supply/output cable, 10 m long
29011285	PC10/8-M12	Supply/output cable, drag-chain suitable, 10 m long

Modifications reserved / Y9761884-A012095GKE

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