



More Precision

induSENSOR // Linear inductive displacement sensors



Compact controller for inductive displacement sensors

indu**SENSOR** MSC7401 / MSC7802

-  Compact and robust aluminum housing
-  High resolution and linearity
-  Ideal for serial applications in machine building and automation
-  User-friendly parameter setting via buttons or software
-  Models with plug and cable bushings
-  **IP67** Robust design IP67
-  **INTER FACE** Analog (U/I) / RS485 / Ethernet / EtherCAT / PROFINET / EtherNet/IP



The MSC7401 / MSC7802 controllers are designed to be operated with measuring gauges and displacement sensors of the DTA (LVDT) and LDR (half-bridge sensors) series. Due to their robust aluminum housing protected to IP67, the controllers are predestined for industrial measurement tasks.

A wide variety of compatible, inductive displacement sensors and gauges from Micro-Epsilon combined with an optimized price/performance ratio opens up numerous fields of applications in automation technology and machine building. The controller is easily set up using buttons or software. Besides the basic settings, adjusting the measuring systems is also possible. Users can either choose the symmetrical adjustment around the zero point in order to make optimum use of the specific advantages of differential sensors, or teach in two almost arbitrary points within the measuring range. If desired, these settings can be made at the factory and documented with a manufacturer test certificate.

Example configuration

MSC7401 with DTA-5G8-3-CA gauge:



Technical data	Channel with DTA-5G8-3-CA
Measuring range	± 5 mm
Linearity	$30 \mu\text{m}$
Resolution	$\sim 1.2 \mu\text{m}$
Output	Analog and RS485



Model		MSC7401	MSC7802
Resolution ^[1]	DTA series	13 bits (0.012 % FSO) at 50 Hz 12 bits (0.024 % FSO) at 300 Hz	
	LDR series	12 bits (0.024 % FSO) at 50 Hz 11 bits (0.048 % FSO) at 300 Hz	
Frequency response (-3dB)		300 Hz (adjustable only via software)	
Linearity		≤ ±0.02% FSO	
Temperature stability	DTA series	≤ 100 ppm FSO/K	
	LDR series	≤ 125 ppm FSO/K	
Supply voltage ^[2]		14 ... 30 VDC (5 ... 30 VDC)	
Max. current consumption		40 mA	80 mA
Input impedance ^[3]		> 100 kOhm	
Digital interface ^[4]		RS485 / PROFINET / EtherNet/IP / Ethernet / EtherCAT	RS485 / PROFINET / EtherNet/IP / EtherCAT
Analog output ^{[3] [5]}		(0)2 ... 10 V; 0.5 ... 4.5 V; 0 ... 5 V (Ra 1 kOhm) or 0(4) ... 20 mA (load 500 Ohm)	
Connection		Sensor: Screw terminal AWG 16 to AWG 24; with wire end ferrule up to AWG 28 or plug connector 5-pin M9 (see accessories for cable) Supply/signal: Screw terminal AWG 16 to AWG 24; with wire end ferrule up to AWG 28 or plug connector 5-pin M12 (see accessories for cable)	
Mounting		2x mounting holes for M4	
Temperature range	Storage	-40 ... +85 °C	
	Operation	-40 ... +85 °C	
Shock (DIN EN 60068-2-27)		40 g / 6 ms in 3 axes, 2 directions and 1000 shocks each 100 g / 5 ms in 3 axes, 2 directions and 9 shocks each	
Vibration (DIN EN 60068-2-6)		±1.5 mm / 5 ... 57 Hz in 3 axes, 10 cycles each ± 20 g / 57 ... 500 Hz in 3 axes, 10 cycles each	
Protection class (DIN EN 60529)		IP67 (plugged)	
Material		Aluminum die casting	
Weight		approx. 200 g	approx. 280 g
Compatibility		full-bridge sensor/LVDT (DTA series) and half-bridge sensor (LDR series)	
No. of measurement channels		1	2

^[1] Noise: AC RMS measurement via RC low-pass filter of the 1st order with $f_c = 5$ kHz

^[2] $V_+ = 5$ V: no voltage output available; current output: max. load 100 Ω ; $V_+ = 9$ V: voltage output: 0.5 V ... 4.5 V or 0 V ... 5 V; current output: max. load 250 Ω

^[3] Sensor side

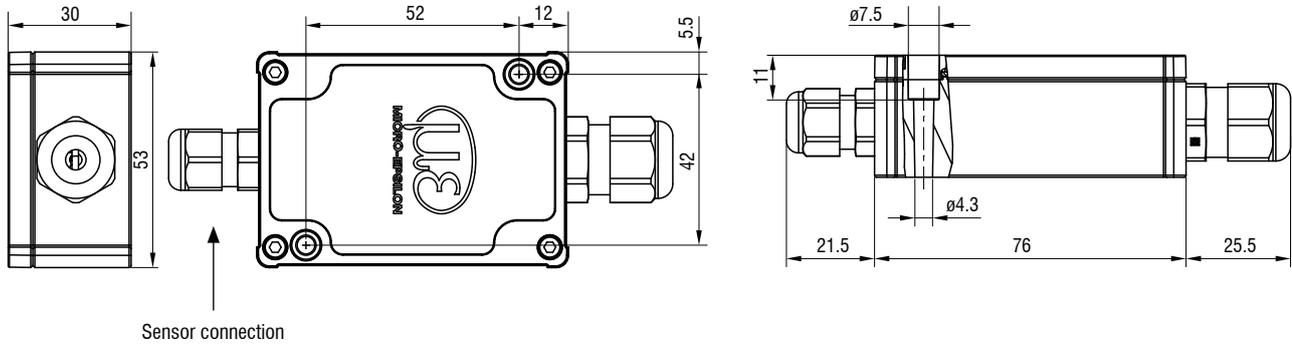
^[4] For PROFINET / EtherNet/IP / Ethernet / EtherCAT: Connection via interface module (see accessories)

^[5] 0 V \triangleq < 30 mV, 0 mA \triangleq < 35 μ A; for controllers with current output, the output signal is limited to approx. 21 mA

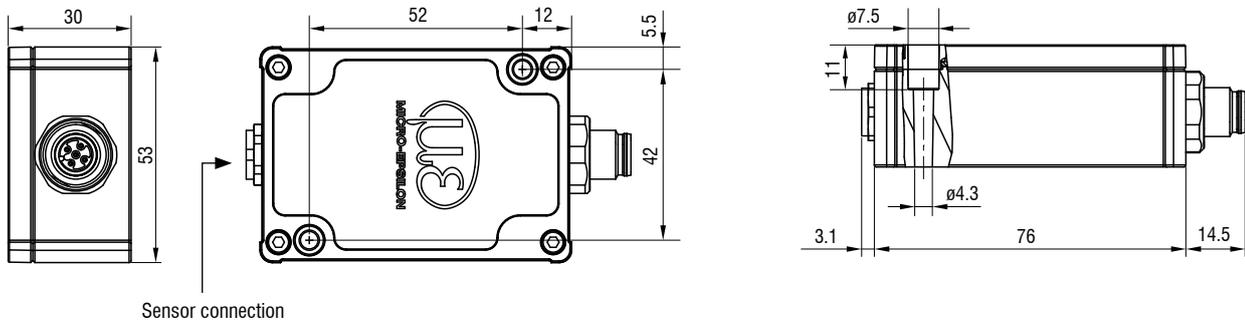
Dimensions

induSENSOR MSC7401 / MSC7802

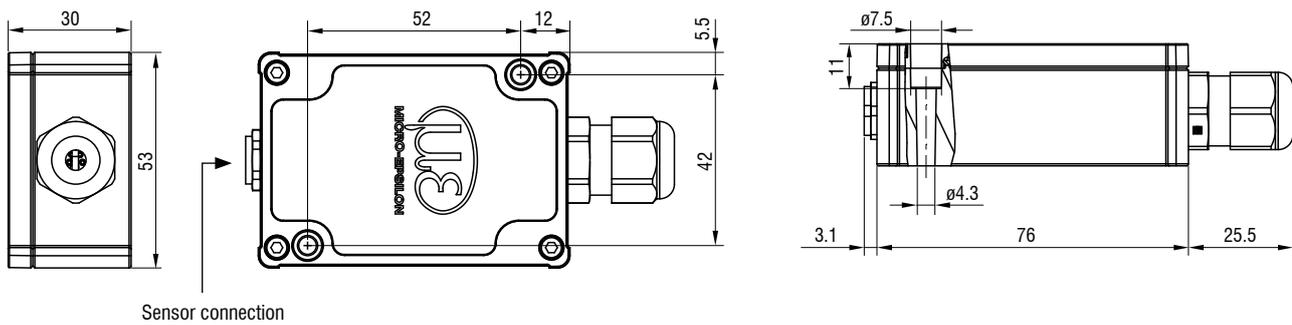
MSC7401



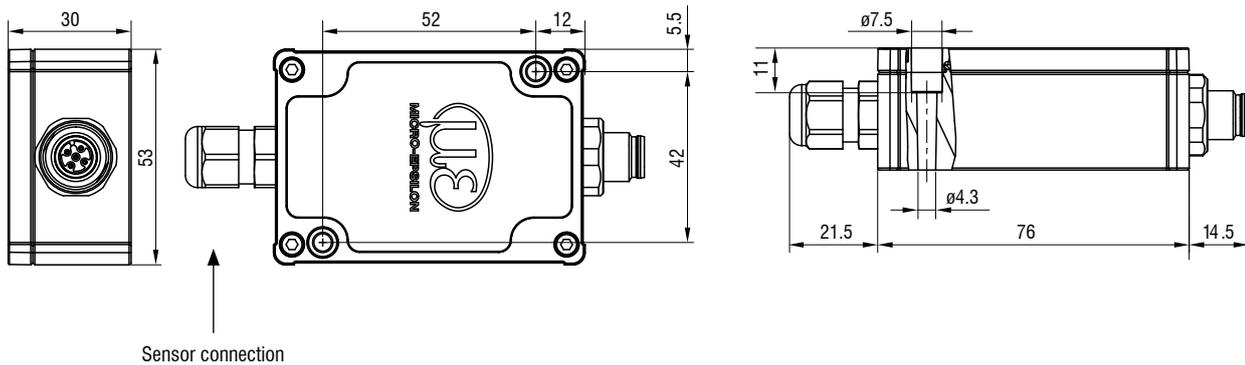
MSC7401 (010)



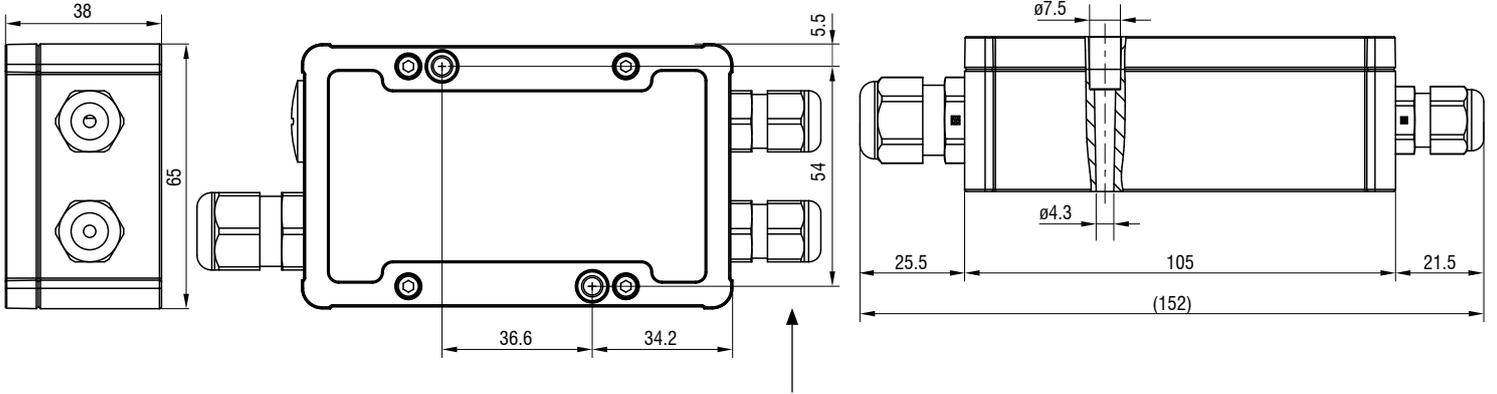
MSC7401 (020)



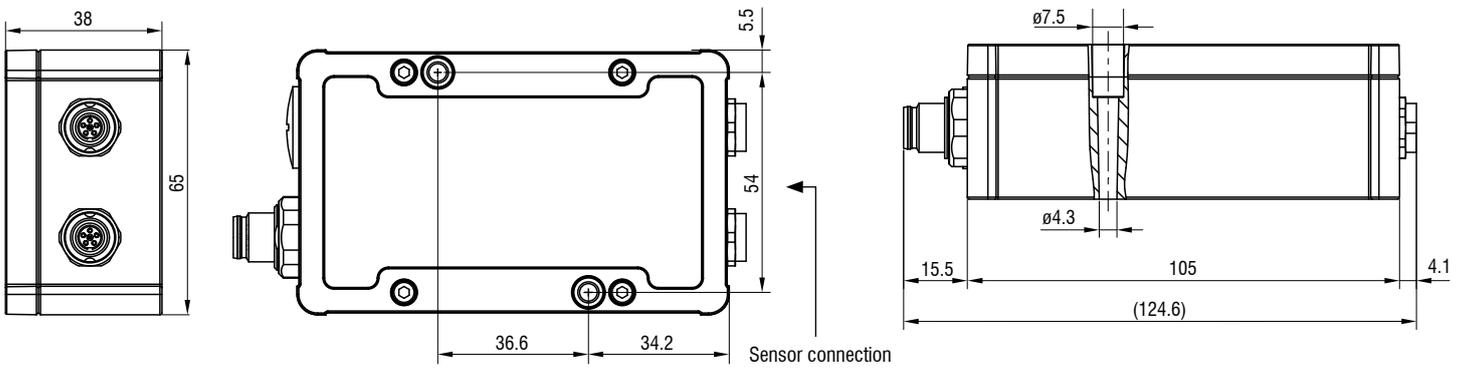
MSC7401 (030)



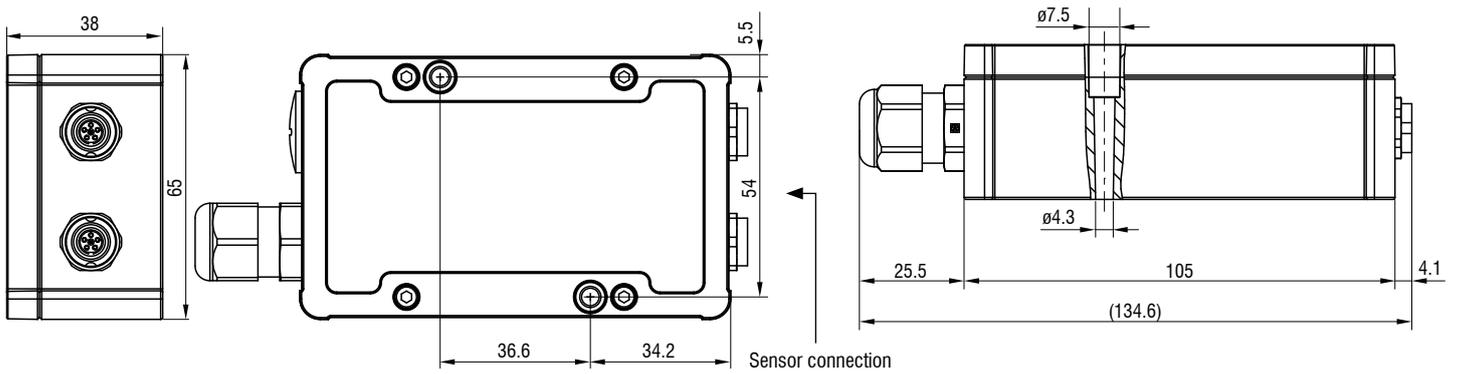
MSC7802



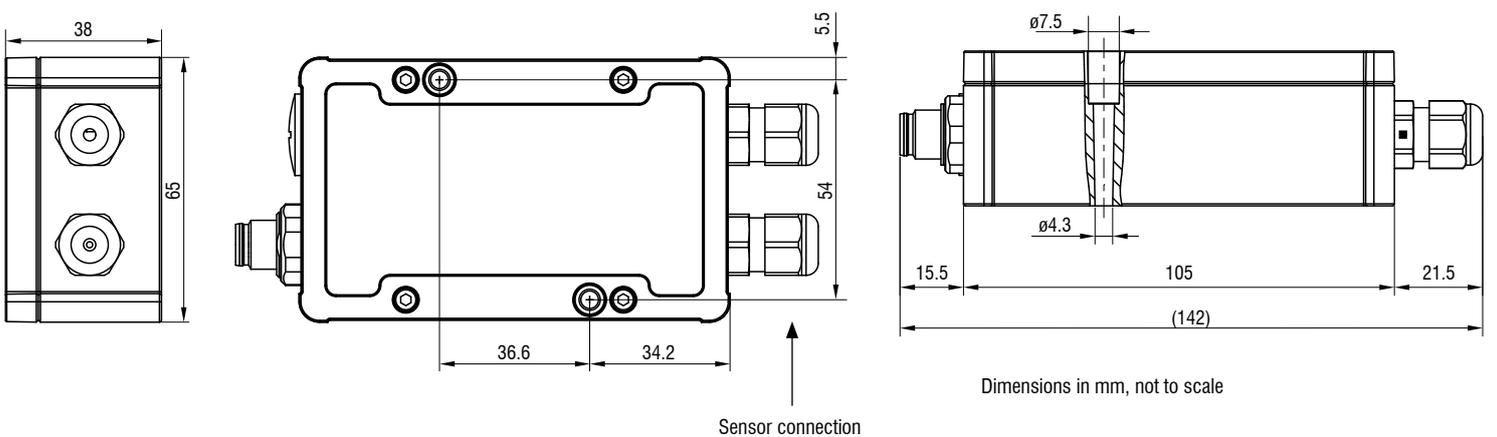
MSC7802(010)



MSC7802(020)



MSC7802(030)



Dimensions in mm, not to scale

Accessories and connection possibilities

induSENSOR MSC

Accessories for MSC7401 / MSC7602 / MSC7802

Connection cables

- PC7400-6/4 Supply and output cable, 6 m
- PC5/5-IWT Supply and output cable, 5 m (only MSC7401 / MSC7802)
- IF7001 Single-channel USB/RS485 converter for MSC7xxx
- MSC7602 connector kit



MSC7602 connector kit

Service

Connection, adjustment and calibration including manufacturer certificate

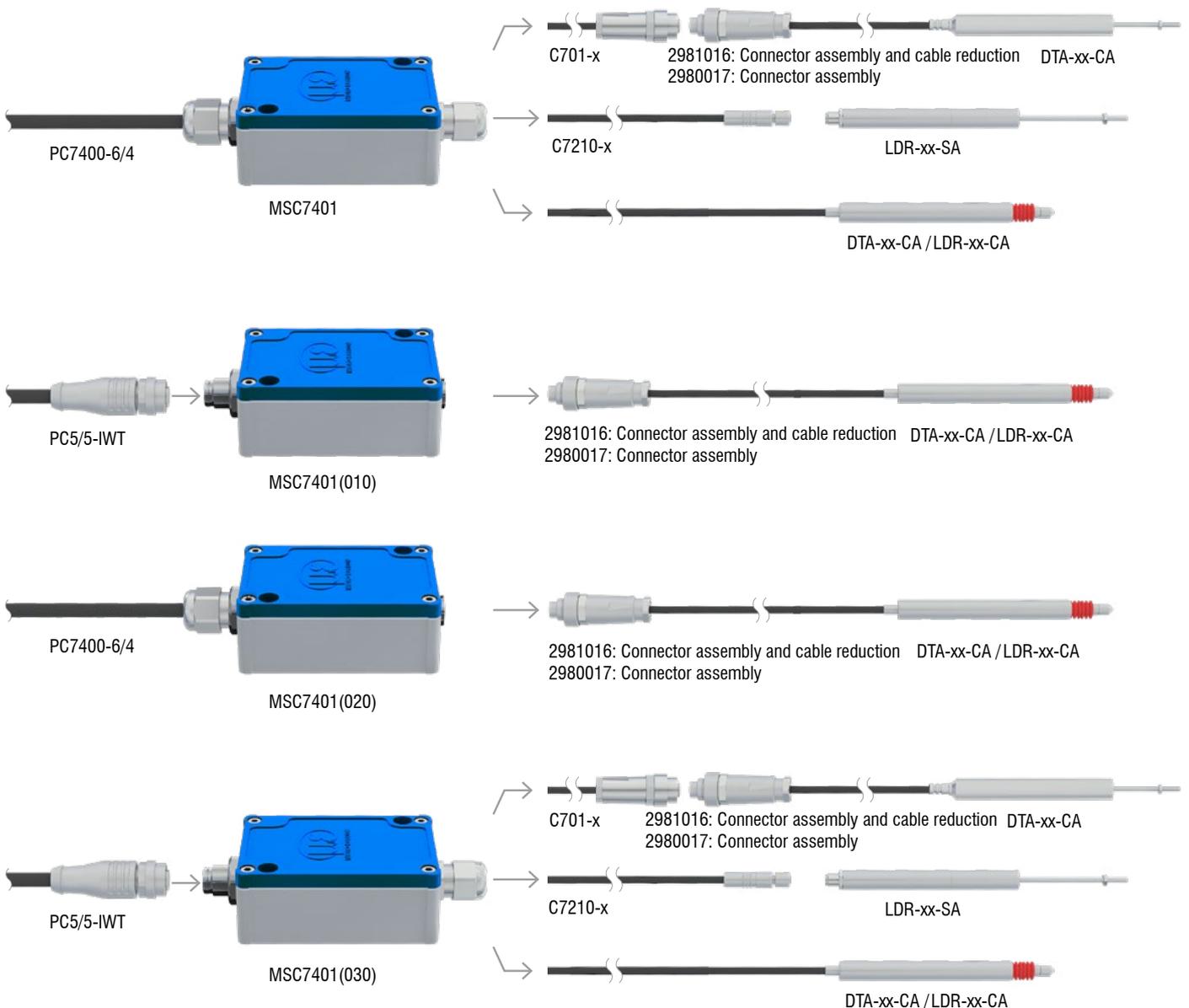
Interface modules

- IF2035-EIP DIN rail interface module for Ethernet/IP (multi-channel)
- IF2035-PROFINET DIN rail interface module for PROFINET (multi-channel)
- IF2035-EtherCAT DIN rail interface module for EtherCAT (multi-channel)
- IF1032/ETH Interface module for Ethernet/EtherCAT (single channel) (only MSC7401 / MSC7802)

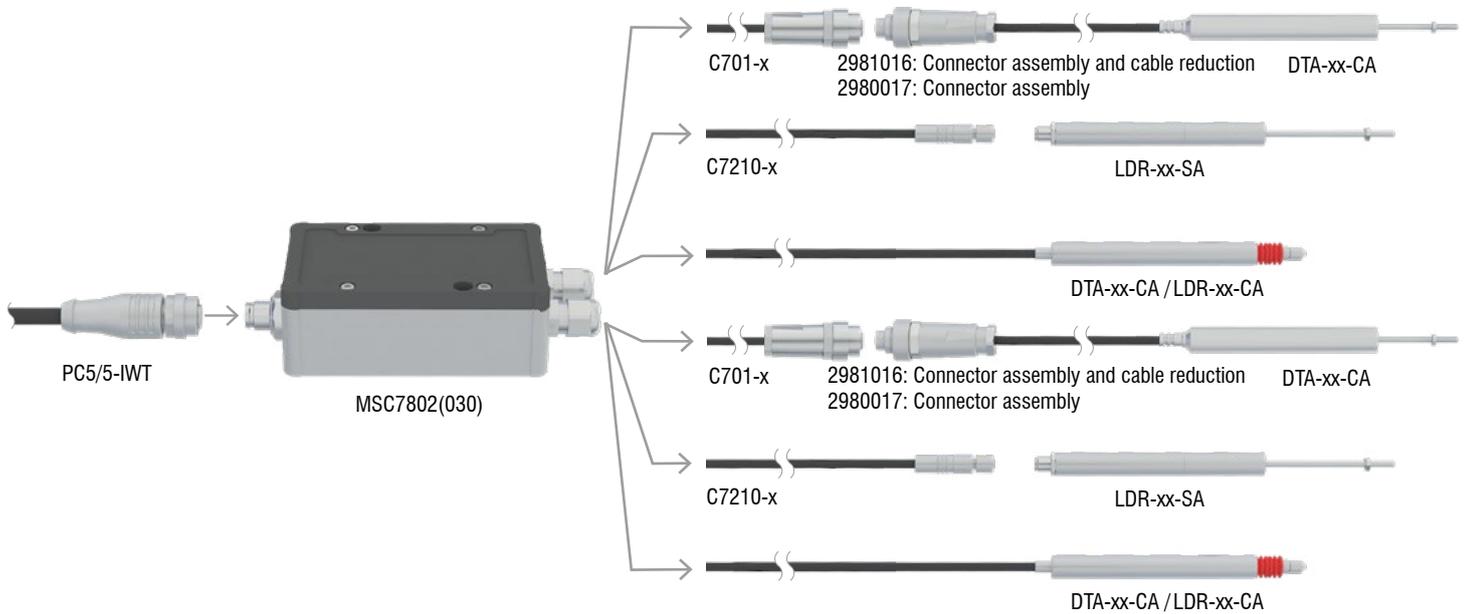
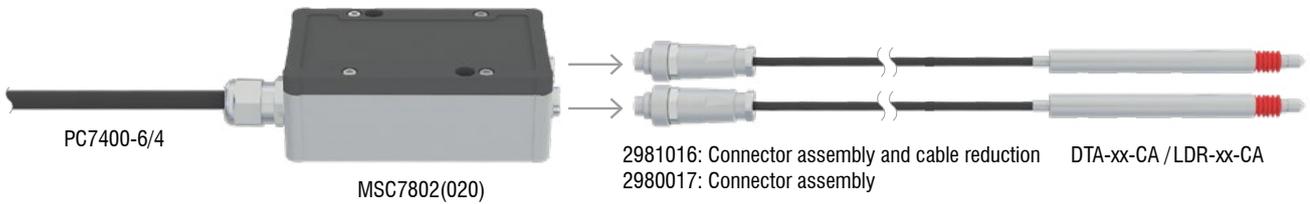
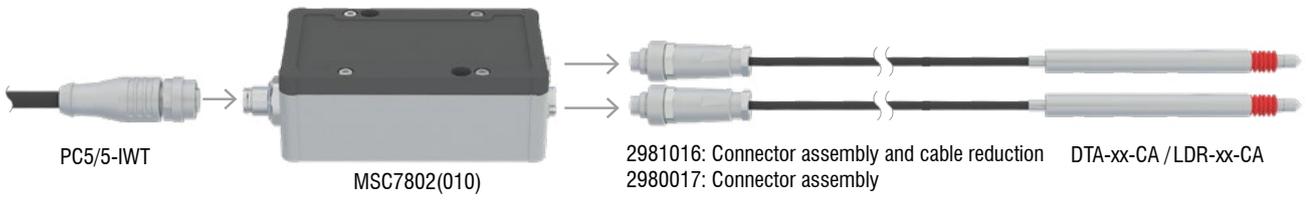
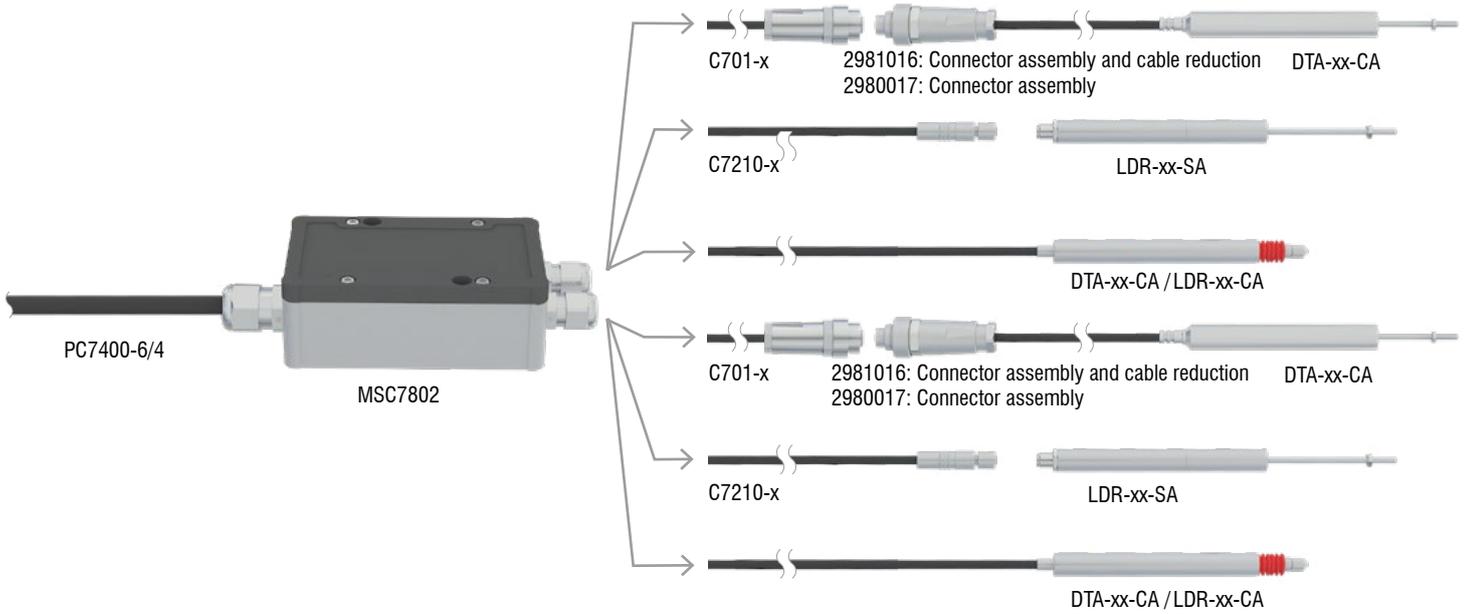
Power supply units

- PS2401/100-240/24V/1A Universal power supply unit with open ends

Connection options MSC7401



Connection options MSC7802



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 quality assurance



Optical micrometers, fiber optics, measuring and test amplifiers



Color recognition sensors, LED Analyzers and inline color spectrometers



3D measurement technology for dimensional testing and surface inspection