



# More Precision

**induSENSOR** // Linear inductive displacement sensors





**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**



**Robust design IP67**



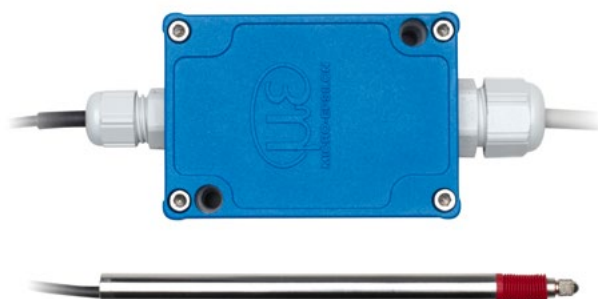
**Analog (U/I) / RS485/ Ethernet /  
EtherCAT / PROFINET / EtherNet/IP**

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 large 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 | $\pm 5$ mm                |
| Linearity       | 30 $\mu$ m                |
| Resolution      | $\sim 1.2$ $\mu$ m        |
| Output          | Analog and RS485          |

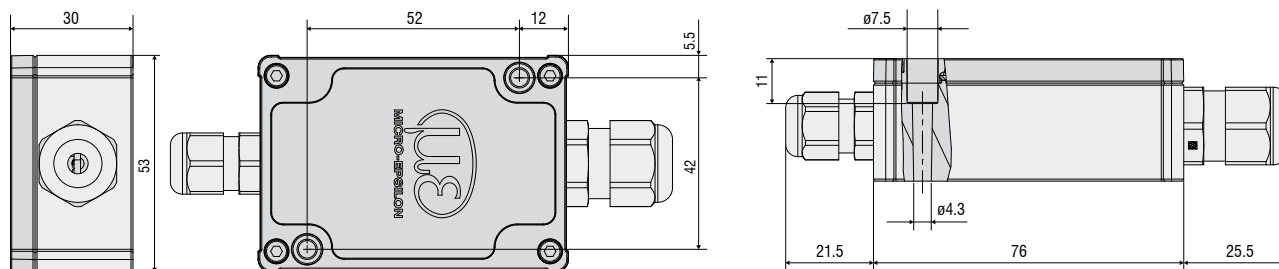


| Model                           |            | MSC7401                                                                                                                                                                                                                                            | MSC7802                                                    |
|---------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Resolution <sup>1)</sup>        | DTA series | 13 bits (0.012 % FSO) at 50 Hz<br>12 bits (0.024 % FSO) at 300 Hz                                                                                                                                                                                  |                                                            |
|                                 | LDR series | 12 bits (0.024 % FSO) at 50 Hz<br>11 bits (0.048 % FSO) at 300 Hz                                                                                                                                                                                  |                                                            |
| Frequency response (-3dB)       |            | 300 Hz (adjustable only via software)                                                                                                                                                                                                              |                                                            |
| Linearity                       |            | $\leq \pm 0.02\%$ FSO                                                                                                                                                                                                                              |                                                            |
| Temperature stability           | DTA series | $\leq 100$ ppm FSO/K                                                                                                                                                                                                                               |                                                            |
|                                 | LDR series | $\leq 125$ ppm FSO/K                                                                                                                                                                                                                               |                                                            |
| Supply voltage                  |            | 14 ... 30 VDC (5 ... 30 VDC <sup>2)</sup> )                                                                                                                                                                                                        |                                                            |
| Max. current consumption        |            | 40 mA                                                                                                                                                                                                                                              | 80 mA                                                      |
| Input impedance <sup>3)</sup>   |            | $> 100$ kOhm                                                                                                                                                                                                                                       |                                                            |
| Digital interface               |            | RS485 / PROFINET <sup>4)</sup> / EtherNet/IP <sup>4)</sup> / Ethernet <sup>4)</sup> / EtherCAT <sup>4)</sup>                                                                                                                                       | RS485 / PROFINET <sup>4)</sup> / EtherNet/IP <sup>4)</sup> |
| Analog output <sup>4)</sup>     |            | (0)2 ... 10 V; 0.5 ... 4.5 V; 0 ... 5 V ( $R_a > 1$ kOhm) or 0(4) ... 20 mA (load $< 500$ ohm)                                                                                                                                                     |                                                            |
| Connection                      |            | Sensor: screw terminal AWG 16 up to AWG 24; with ferrule up to AWG 28 or 5-pin M9 connector (cable see accessories)<br>Supply/signal: screw terminal AWG 16 up to AWG 24; with ferrule up to AWG 28 or 5-pin M12 connector (cable see accessories) |                                                            |
| Mounting                        |            | 2x mounting holes for M4                                                                                                                                                                                                                           |                                                            |
| Temperature range               | Storage    | $-40 \dots +85$ °C                                                                                                                                                                                                                                 |                                                            |
|                                 | Operation  | $-40 \dots +85$ °C                                                                                                                                                                                                                                 |                                                            |
| Shock (DIN EN 60068-2-27)       |            | 40 g / 6 ms in 3 axes, 2 directions and 1000 shocks each<br>100 g / 5 ms in 3 axes, 2 directions and 9 shocks each                                                                                                                                 |                                                            |
| Vibration (DIN EN 60068-2-6)    |            | $\pm 1.5$ mm / 5 ... 57 Hz in 3 axes, 10 cycles each<br>$\pm 20$ 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                                                          |

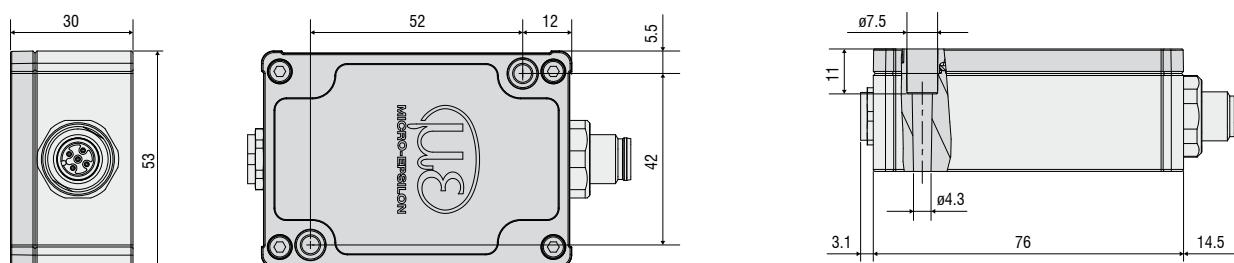
FSO = Full Scale Output

<sup>1)</sup> Noise: AC RMS measurement via RC low-pass filter of the 1st order with  $f_c = 5$  kHz<sup>2)</sup> With technical restrictions of the output signal (load and signal span)<sup>3)</sup> Sensor side<sup>4)</sup> Connection via interface module (see accessories)<sup>5)</sup>  $0 \text{ V} \triangleq < 30 \text{ mV}$ ,  $0 \text{ mA} \triangleq < 35 \mu\text{A}$ ; with controllers including a current output, the output signal is limited to approx. 21 mA

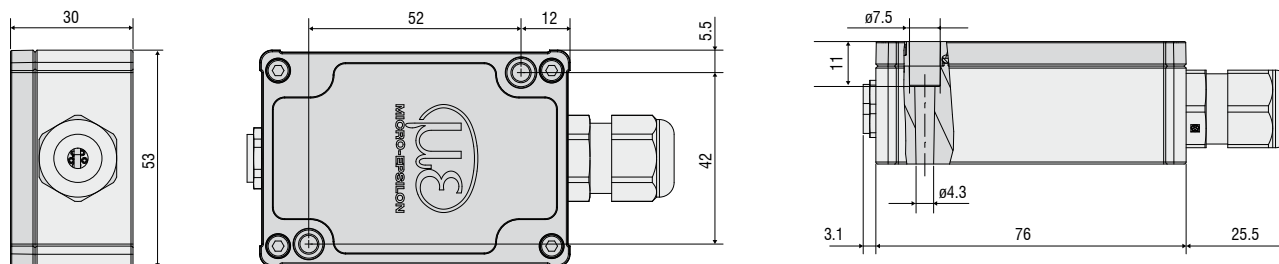
MSC7401



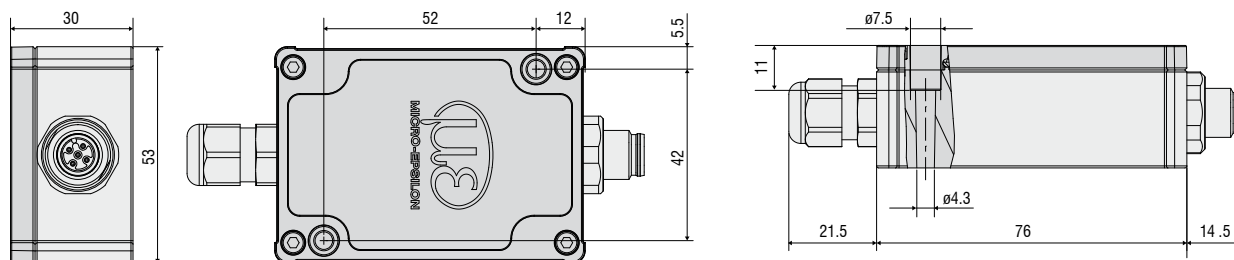
MSC7401(010)



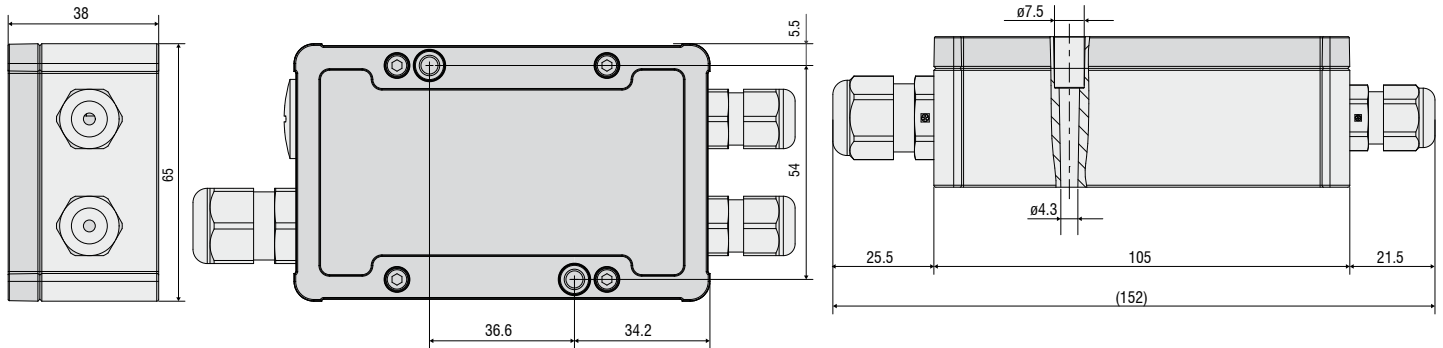
MSC7401(020)



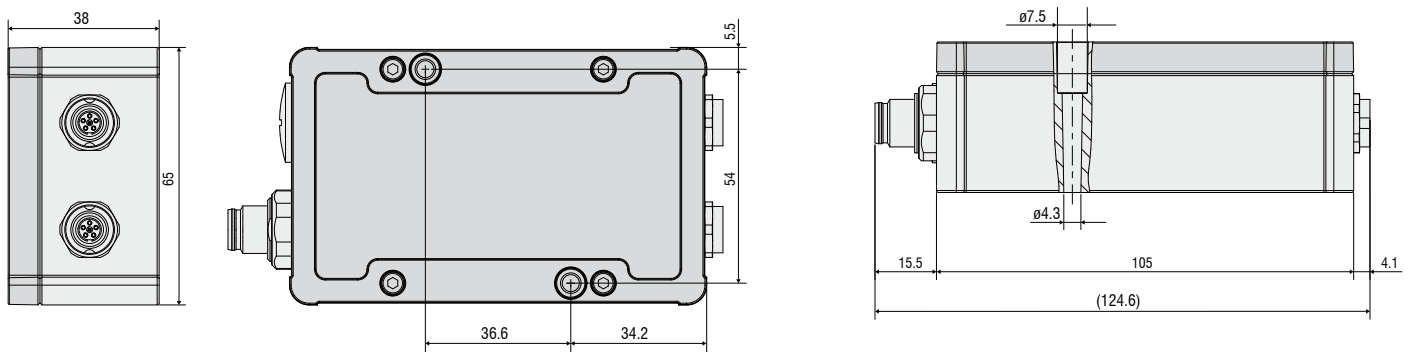
MSC7401(030)



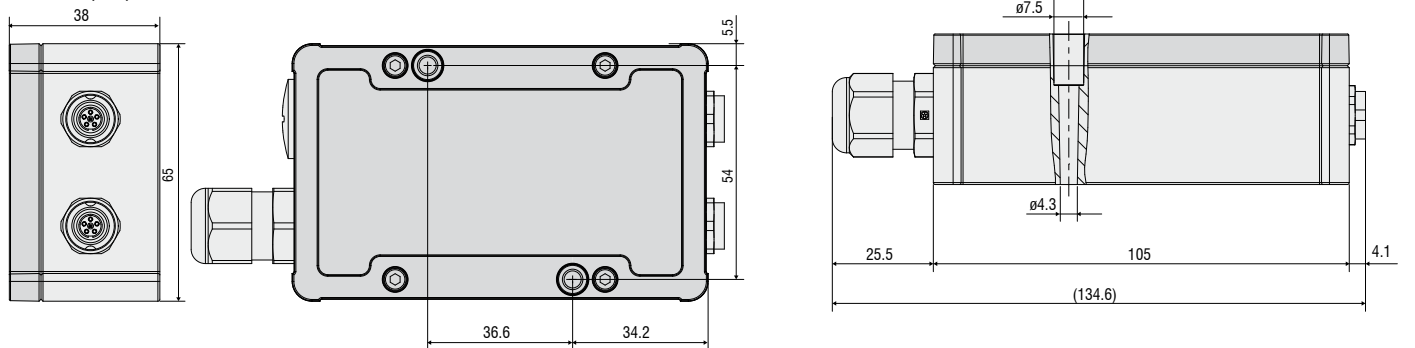
MSC7802



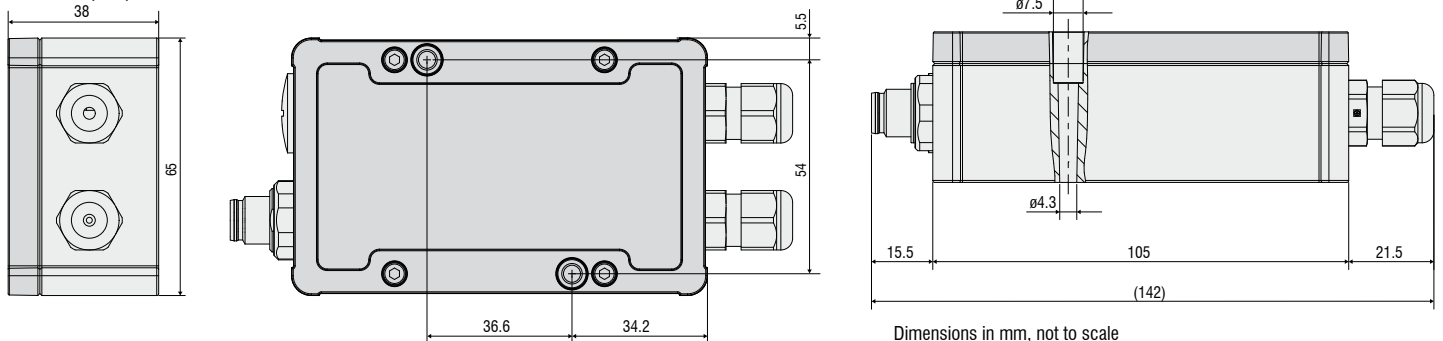
MSC7802(010)



MSC7802(020)



MSC7802(030)



Dimensions in mm, not to scale

## 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