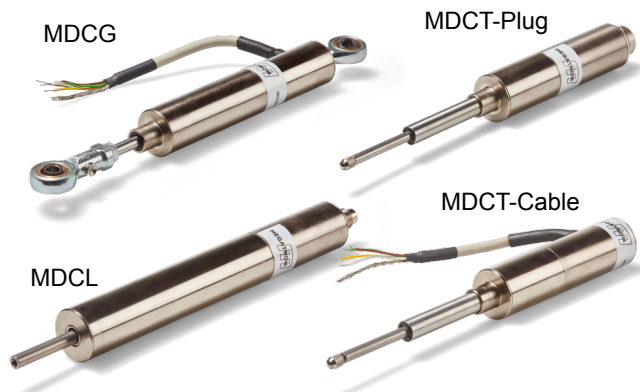


# Data Sheet for Linear Sensors

## Inductive Linear Transducer (with electronics)

Series MDC



- With integrated electronics
- Probe, ball joints, loose push rod (loose core)
- Measuring strokes from 2 to 200 mm
- Cable or plug connection
- Supply voltage  $\pm 15\text{ V}$  or  $24\text{ V}$
- Output signals:  $0..5\text{ V} / \pm 5\text{ V} / 0..10\text{ V} / \pm 10\text{ V} / 0..20\text{ mA} / 4..20\text{ mA}$
- Protection grade IP65 (optional IP67/68)

The MDC series consists of three designs: MDCG with ball joints, MDCT as a probe with spring return and MDCL with a loose push rod.

Electrical Data	MDC-2	MDC-5	MDC-10	MDC-20	MDC-50	MDC-100	MDC-200
Effective electrical travel <b>MDCG</b> (ball joints) in mm 1.)	$\pm 1$ (2)	$\pm 2,5$ (5)	$\pm 5$ (10)	$\pm 10$ (20)	$\pm 25$ (50)	$\pm 50$ (100)	$\pm 100$ (200)
Effective electrical travel <b>MDCL</b> (loose core) in mm 1.)	$\pm 1$ (2)	$\pm 2,5$ (5)	$\pm 5$ (10)	$\pm 10$ (20)	$\pm 25$ (50)	$\pm 50$ (100)	$\pm 100$ (200)
Effective electrical travel <b>MDCT</b> (as a probe) in mm 1.)	$\pm 1$ (2)	$\pm 2,5$ (5)	$\pm 5$ (10)	$\pm 10$ (20)	$\pm 25$ (50)	--	--
Independent linearity (best straight line) 1.)	$\pm 0,5\%$ ( $\pm 0,25\%$ )					$\pm 1\%$	
Output signal	$0..5\text{ V} / \pm 5\text{ V} / 0..10\text{ V} / \pm 10\text{ V} / 0..20\text{ mA} / 4..20\text{ mA}$						
Limit frequency	100 Hz						
Supply voltage	$24\text{ V} (\pm 20\%) / \pm 15\text{ V} (\pm 5\%)$						
Power consumption (no load)	$\pm 20 / 20\text{ mA} (\pm 40 / 40\text{ mA} @ \text{current output})$						
Output load	$> 10\text{ kOhm}$ (voltage output) / $< 500\text{ Ohm}$ (current output)						
Temperature coefficient	$\pm 0,4\%$ F.S./10K						
Ripple	$< 10\text{ mV RMS}$						

Mechanical Data, Environmental Conditions, Miscellaneous	MDC-2	MDC-5	MDC-10	MDC-20	MDC-50	MDC-100	MDC-200
Operational temperature	$0..+70^\circ\text{C}$ (MDCG) / $0..+60^\circ\text{C}$ (MDCT und MDCL)						
Storage temperature	$-30..+80^\circ\text{C}$						
Protection grade (IEC60529)	IP65 (optional IP67 / IP 68 for MDCG and MDCL)						
Vibration (IEC 68-2-6, Test Fc)	10 g (2..2000 Hz)						
Shock (IEC 68-2-27, Test Ea)	100 g, 2 ms						
Sensor length <b>MDCG</b>	76 mm	87 mm	101 mm	140 mm	185 mm	320 mm	490 mm
Sensor length <b>MDCL</b>	76 mm	87 mm	101 mm	140 mm	185 mm	327 mm	497 mm
Sensor length <b>MDCT</b>	76 mm	87 mm	101 mm	140 mm	185 mm	--	--
Mass <b>MDCG</b> (cable 1 m ca.)	155 g	180 g	198 g	245 g	305 g	510 g	620 g
Mass <b>MDCL</b> (cable 1 m/plug ca.)	110/65 g	125/100 g	151/125 g	215/190 g	280/255 g	480/455 g	710/685 g
Mass <b>MDCT</b> (cable 1 m/plug ca.)	130/110 g	145/130 g	165/145 g	215/195 g	285/265 g	--	--
Material housing	Steel nickel plated						
Material push rod / Core material	Stainless steel / Nickel-Iron-Alloy						
Electrical connection	Round cable 1 m / plug 5-pin (not for MDCG)						
Mounting parts (included in delivery)	2 pc. ball joints (MDCG), probe (MDCT), loose push rod (MDCL)						

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

# Data Sheet for Linear Sensors

Inductive Linear Transducer (with electronics)

Series MDC

## Order Code

Description	Selection: standard=black/bold, possible options=grey/cursive						
<b>Series:</b>	<b>MDC</b>						
<b>Design:</b>							
<b>With ball joints</b>		<b>G</b>					
<b>With loose core</b>		<b>L</b>					
<b>As a probe</b>		<b>T</b>					
<b>Effective electrical travel:</b>							
<b>2 mm</b>				<b>2</b>			
<b>5 mm</b>				<b>5</b>			
<b>10 mm</b>				<b>10</b>			
<b>20 mm</b>				<b>20</b>			
<b>50 mm</b>				<b>50</b>			
<b>100 mm (not version T)</b>				<b>100</b>			
<b>200 mm (not version T)</b>				<b>200</b>			
<b>Electrical connection:</b>							
<b>Plug 5-pole (not version G)</b>					<b>S</b>		
<b>Cable 1 m</b>					<b>K</b>		
<i>Option cable 2 m</i>					<i>K2</i>		
<i>Option cable length in m</i>					<i>Kxx</i>		
<b>Supply voltage</b>							
<b>±15 V</b>						<b>15</b>	
<b>24 V</b>						<b>24</b>	
<b>Output signal:</b>							
<b>0..5 V</b>							<b>05</b>
<b>0..10 V</b>							<b>10</b>
<b>±5 V</b>							<b>55</b>
<b>0..20 mA</b>							<b>20</b>
<b>4..20 mA</b>							<b>42</b>
<i>Option ±10 V</i>							<i>11</i>
<b>Independent linearity:</b>							
<b>±0,5% / ±1% (depends on electrical travel)</b>							-
<i>Option ±0,25 (not for ≥100 mm)</i>							<i>L0,25</i>
<b>Protection class:</b>							
<b>Standard IP65</b>							-
<i>Option IP67 (not for version T)</i>							<i>IP67</i>
<i>Option IP68 (not for version T)</i>							<i>IP68</i>

### Accessory (not included in delivery):

- Mating connector (STEM16) #110906: M16 thread, 5-pole, IP67, straight, shielded (STE M16 5POL IP67 G S)
  - Mating connector (STEM16) #114462: M16 thread, 5-pole, IP67, angled, shielded (STE M16 5POL IP67 W S)
  - Mating connector with cable (STKM16) #127664: M16 thread, 5-pole, IP67, straight, shielded, 2 m (STK M16 5POL IP67 G GS 2M AWG24)
  - Mating connector with cable (STKM16) #127665: M16 thread, 5-pole, IP67, angled, shielded, 2 m (STK M16 5POL IP67 W GS 2M AWG24)
  - Mounting bracket #106656: take a look at drawing in document
  - Mounting flange - take a look at drawing in document
  - Extension for armature (50..315 mm) - take a look at drawing in document
- More connectors with and without cable on request. Take a look at data sheet STEM16 for connector without cable or STKM16 for connector with cable.

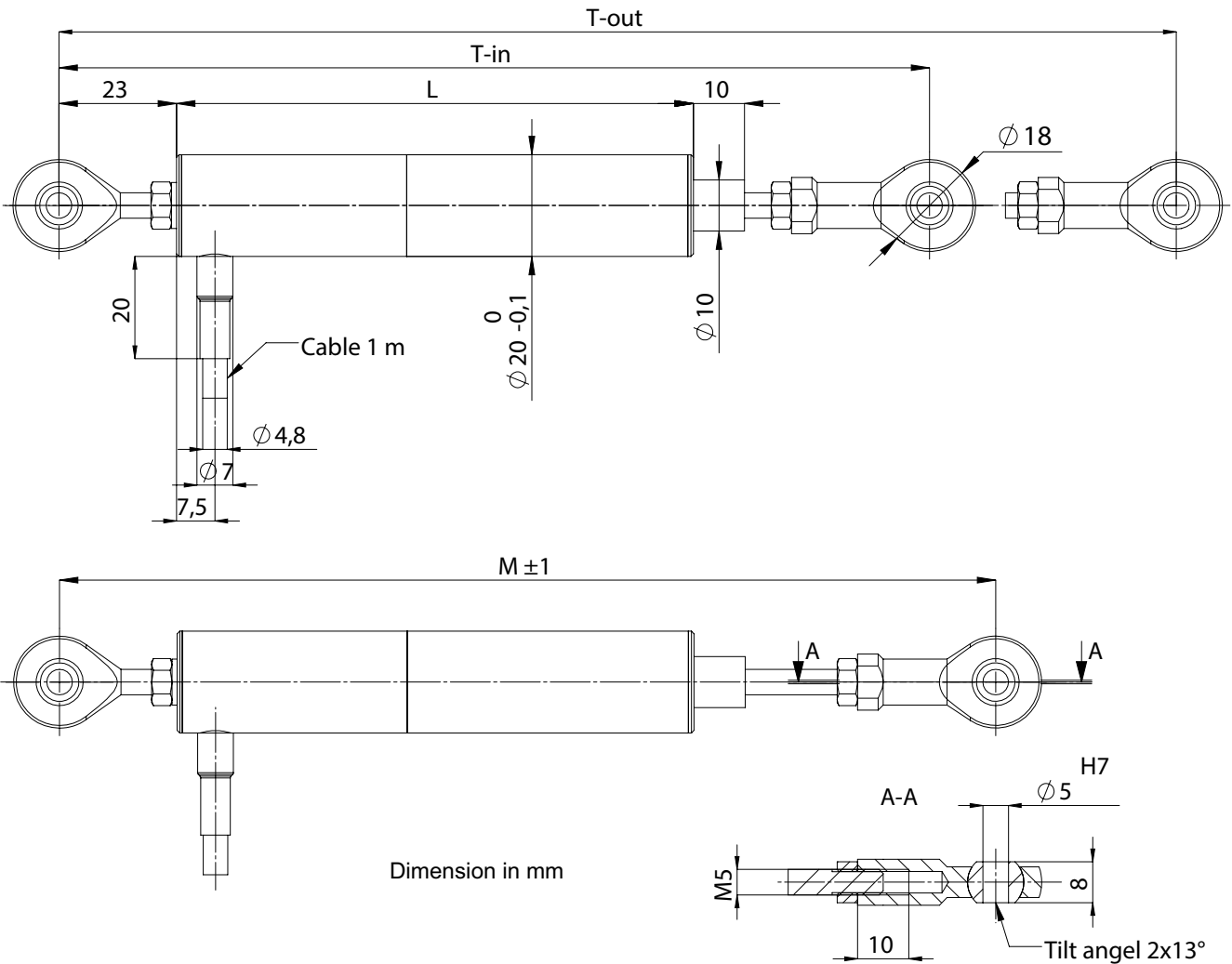
### For higher quantities or on-going demand, additional options are available as described below on request for example:

- Cable assemblies with and without connector, for example version „KD“ (cable connection with through hole - only for design L in IP65)
- Special probe, special axis length and much mores
- Extended temperature range (-25°C .. +85°C)

Please note for the type with >100 mm displacement: For a horizontal installation, the sensor housing must be stabilized additionally. An axial alignment must be ensured. Otherwise the sensor could bend due to its own weight! We recommend to use 3 mounting brackets.

### Drawing

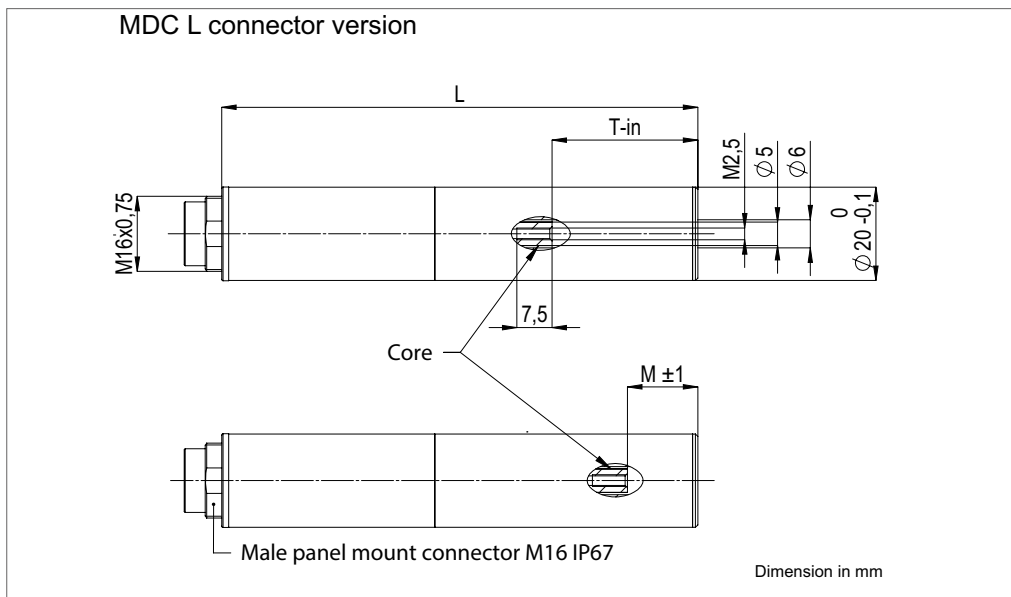
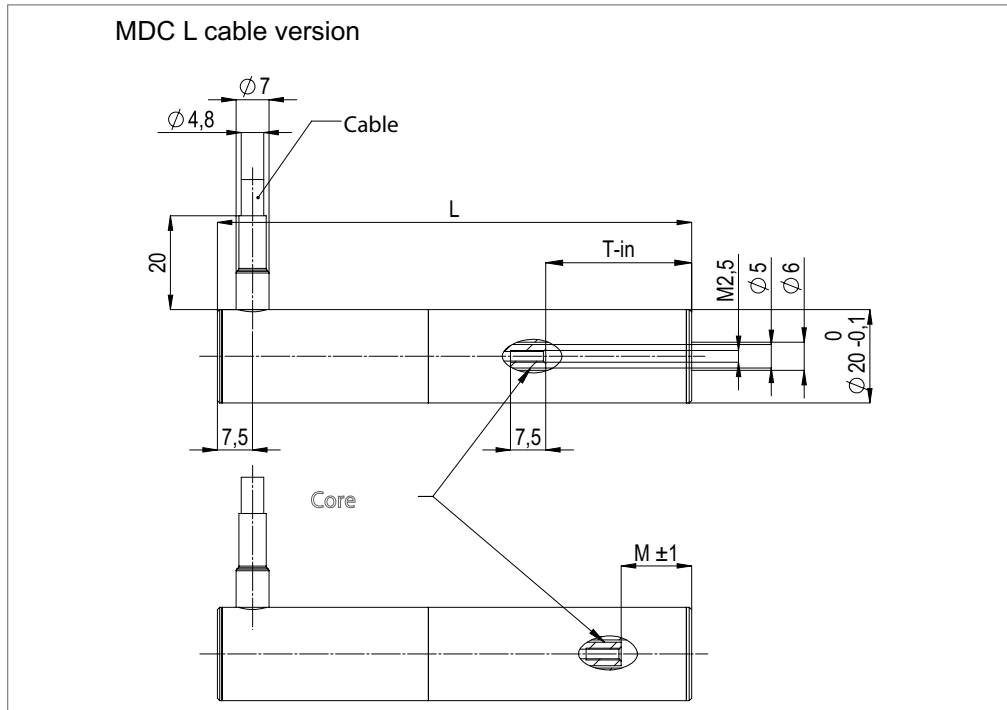
### MDC G



Sensor	MDC G	MDC G	MDC G	MDC G	MDC G	MDC G	MDC G
M [elec. zero position]	164 mm	173 mm	183 mm	219 mm	280 mm	443 mm	678 mm
T-in		163 mm	170 mm	204 mm	250 mm	384 mm	570 mm
T-out		182 mm	196 mm	235 mm	310 mm	515 mm	785 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm	320 mm	490 mm
Stroke	±1 mm	±2,5 mm	±5 mm	±10 mm	±25 mm	±50 mm	±100 mm

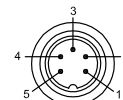
Connection		
Color of cable	Supply voltage ±15 V	Supply voltage 24 V
Yellow	- 15 V	N.C.
Brown	+ 15 V	+ 24 V
White	Signal GND	
Green	Output	
Grey	Excitation GND	
Shield	Housing	

### Drawing



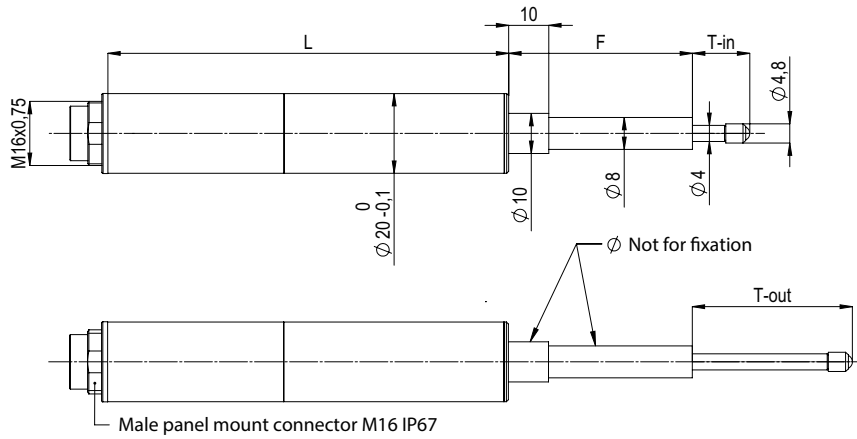
Sensor	MDC L	MDC L	MDC L	MDC L	MDC L	MDC L	MDC L
M [elec. zero position]	9 mm	11,5 mm	15 mm	18 mm	32 mm	81 mm	116 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm	327 mm	497 mm
T-in	17 mm	23 mm	30 mm	62 mm	80 mm	130 mm	230 mm
Stroke	$\pm 1$ mm	$\pm 2,5$ mm	$\pm 5$ mm	$\pm 10$ mm	$\pm 25$ mm	$\pm 50$ mm	$\pm 100$ mm

Connection			
Pin number	Color of cable	Supply voltage $\pm 15$ V	Supply voltage 24 V
1	Yellow	- 15 V	N.C.
2	Brown	+ 15 V	+ 24 V
3	White	Signal GND	
4	Green	Output	
5	Grey	Excitation GND	
	Shield	Housing	

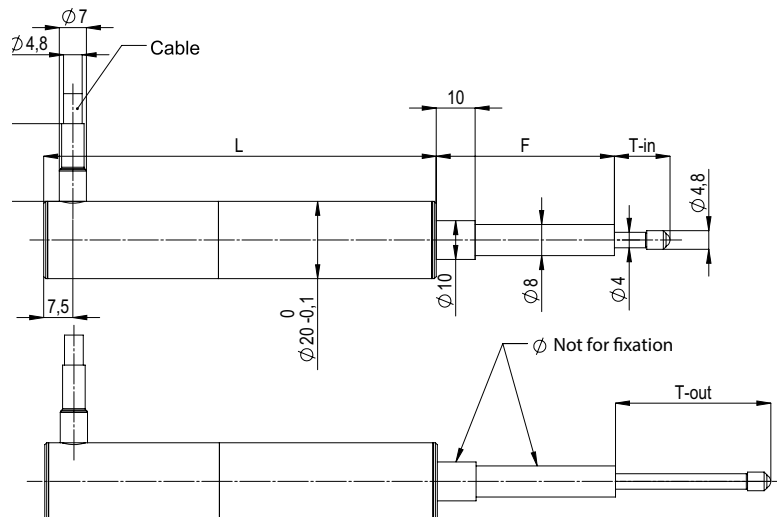


### Drawing

#### MDC T cable version

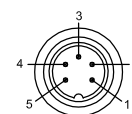


#### MDC T connector version



Sensor	MDC T	MDC T	MDC T	MDC T	MDC T
M [elec. zero position]	26 mm	23,5 mm	20 mm	16,5 mm	40 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm
F	46 mm	46 mm	46 mm	46 mm	83 mm
T-out	40 mm	40 mm	40 mm	40 mm	77 mm
T-in	25,5 mm	21,5 mm	14,5 mm	7,5 mm	17,5 mm
Stroke	$\pm 1$ mm	$\pm 2,5$ mm	$\pm 5$ mm	$\pm 10$ mm	$\pm 25$ mm

Connection			
Pin number	Color of cable	Supply voltage $\pm 15$ V	Supply voltage 24 V
1	Yellow	- 15 V	N.C.
2	Brown	+ 15 V	+ 24 V
3	White	Signal GND	
4	Green	Output	
5	Grey	Excitation GND	
	Shield	Housing	



Dimension in mm

## Drawing mounting bracket

