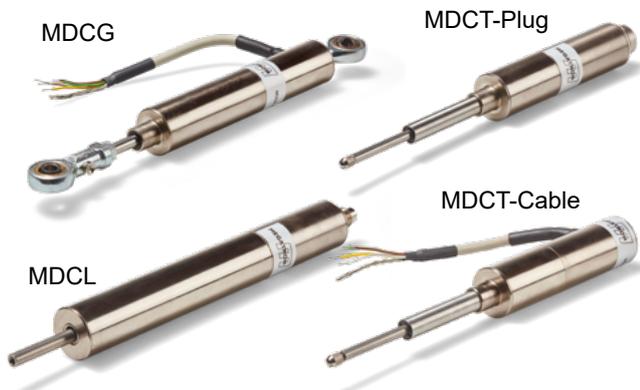


Data Sheet for Linear Sensors

Inductive Linear Transducer with integrated electronics

Series MDC



- With integrated electronics
- Probe, ball joints, loose push rod
- Measuring strokes from 2 to 200 mm
- Cable or plug connection
- Supply voltage ± 15 V or 24 V
- Output signals: 0..5 V / ± 5 V / 0..10 V / ± 10 V / 0..20 mA / 4..20 mA
- Protection grade IP65

The MDC series is ideally for distance monitoring and quality control. The sensors are available in three designs:

MDCG with ball joints

MDCT as a probe with spring return

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 MDCG (ball joints) in mm 1.)	± 1 (2)	± 2.5 (5)	± 5 (10)	± 10 (20)	± 25 (50)	± 50 (100)	± 100 (200)
Effective electrical travel MDCL (loose core) in mm 1.)	± 1 (2)	± 2.5 (5)	± 5 (10)	± 10 (20)	± 25 (50)	± 50 (100)	± 100 (200)
Effective electrical travel MDCT (as a probe) in mm 1.)	± 1 (2)	± 2.5 (5)	± 5 (10)	± 10 (20)	± 25 (50)	--	--
Independent linearity (best straight line) 1.)	$\pm 0.5\%$ ($\pm 0.25\%$)					$\pm 1\%$	
Output signal	0..5 V / ± 5 V / 0..10 V / ± 10 V / 0..20 mA / 4..20 mA						
Limit frequency	100 Hz						
Supply voltage	24 V ($\pm 20\%$) / ± 15 V ($\pm 5\%$)						
Power consumption (no load)	± 20 / 20 mA (± 40 / 40 mA @ current output)						
Output load	> 10 kOhm (voltage output) / <500 Ohm (current output)						
Temperature coefficient	$\pm 0.4\%$ F.S./10K						
Ripple	< 10 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°C (MDCG) / 0..+60°C (MDCT und MDCL)						
Storage temperature	-30 °C up to +80 °C						
Protection grade (IEC60529)	IP65						
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 MDCG	76 mm	87 mm	101 mm	140 mm	185 mm	320 mm	490 mm
Sensor length MDCL	76 mm	87 mm	101 mm	140 mm	185 mm	327 mm	497 mm
Sensor length MDCT	76 mm	87 mm	101 mm	140 mm	185 mm	--	--
Mass MDCG (cable 1 m ca.)	155 g	180 g	198 g	245 g	305 g	510 g	620 g
Mass MDCL (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 MDCT (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 integrated electronics

Series MDC

Order Code

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>					
Series:	MDC					
Design:						
With ball joints		G				
With loose core		L				
As a probe		T				
Effective electrical travel:						
2 mm				2		
5 mm				5		
10 mm				10		
20 mm				20		
50 mm				50		
100 mm (not version T)				100		
200 mm (not version T)				200		
Electrical connection:						
Plug 5-pole (not version G)					S	
Cable 1 m					K	
<i>Option cable 2 m</i>					<i>K2</i>	
<i>Option cable length in m</i>					<i>Kxx</i>	
Supply voltage						
±15 V					15	
24 V					24	
Output signal:						
0..5 V						05
0..10 V						10
±5 V						55
0..20 mA						20
4..20 mA						42
<i>Option 20..4 mA (inverted)</i>						<i>24</i>
<i>Option ±10 V</i>						<i>11</i>
Independent linearity:						
±0,5% / ±1% (depends on electrical travel)						-
<i>Option ±0.25 (not for ≥100 mm)</i>						<i>L0,25</i>

Accessory (not included in delivery):

- Mating connector #110906: M16 thread, 5-pole, IP67, straight, shielded (STE M16 5POL IP67 G S)
- Mating connector #114462: M16 thread, 5-pole, IP67, angled, shielded (STE M16 5POL IP67 W S)
- Mating connector with cable #127664: M16 thread, 5-pole, IP67, straight, shielded, 2 m (STK M16 5POL IP67 G GS 2M AWG24)
- Mating connector with cable #127665: M16 thread, 5-pole, IP67, angled, shielded, 2 m (STK M16 5POL IP67 W GS 2M AWG24)

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

- Mounting bracket #106656 - drawing see page 6
- Mounting flange #135132 - drawing see page 7
- Extension for push rod (50..315 mm) - drawing see page 7

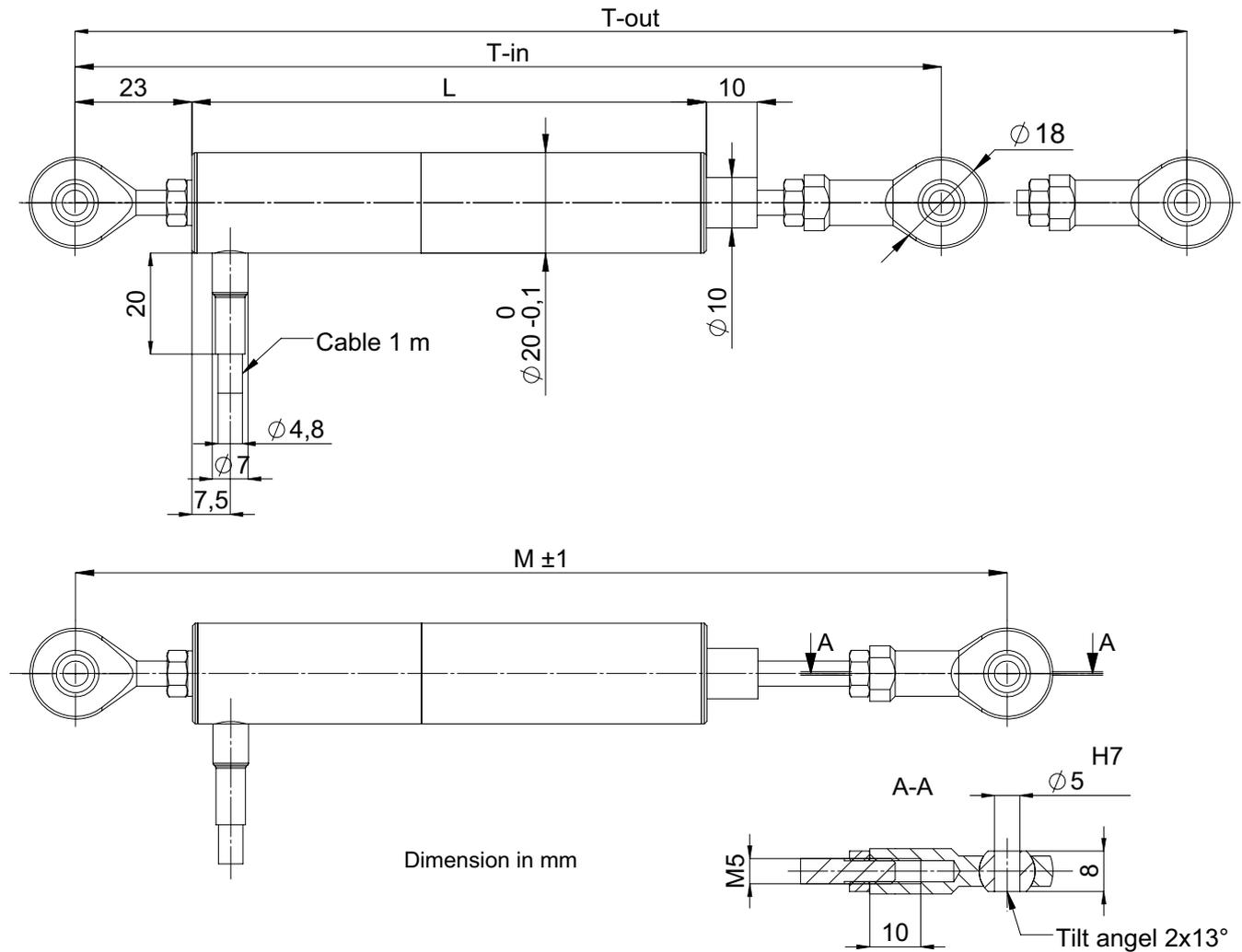
For higher quantities or on-going demand, additional options are available as described below on request for example:

- 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)
- Higher protection class IP67 / IP68, taking into account the customer's installation conditions. Only for options MDCG and MDCL

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

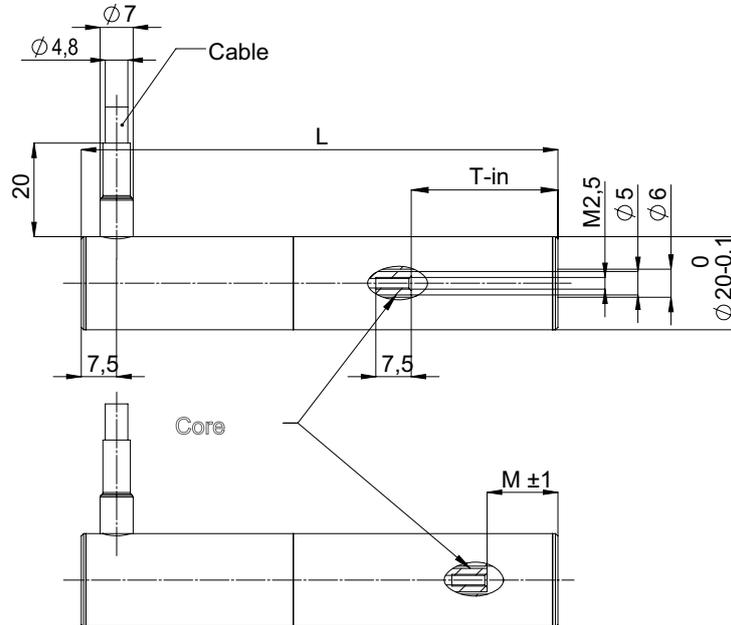


Sensor	MDC G	MDC G	MDC G	MDC G	MDC G	MDC G	MDC G
M [elec. zero position]	164 mm	173 mm	183 mm	219 mm	280 mm	443 mm	678 mm
T-in		163 mm	170 mm	204 mm	250 mm	384 mm	570 mm
T-out		182 mm	196 mm	235 mm	310 mm	515 mm	785 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm	320 mm	490 mm
Stroke	±1 mm	±2,5 mm	±5 mm	±10 mm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

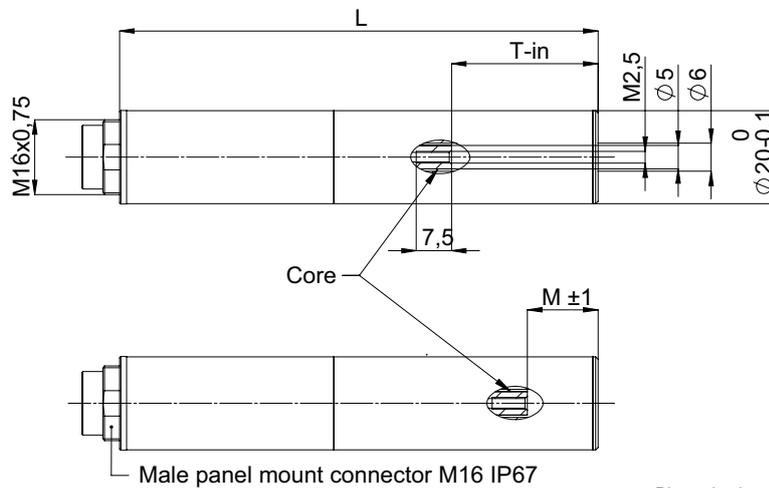
Connection		
Color of cable	Supply voltage ±15 V	Supply voltage 24 V
Yellow	- 15 V	N.C.
Brown	+ 15 V	+ 24 V
White	Signal GND	
Green	Output	
Grey	Excitation GND	
Shield	Housing	

Drawing

MDC L cable version



MDC L connector version

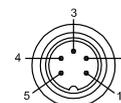


Male panel mount connector M16 IP67

Dimension in mm

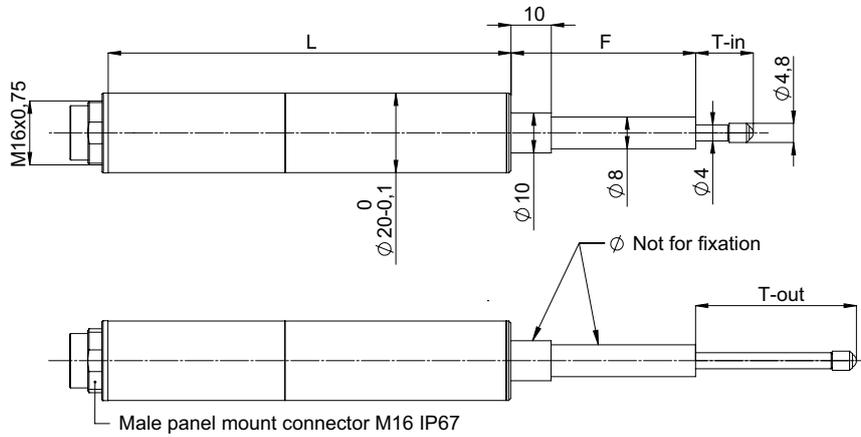
Sensor	MDC L	MDC L	MDC L	MDC L	MDC L	MDC L	MDC L
M [elec. zero position]	9 mm	11,5 mm	15 mm	18 mm	32 mm	81 mm	116 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm	327 mm	497 mm
T-in	17 mm	23 mm	30 mm	62 mm	80 mm	130 mm	230 mm
Stroke	± 1 mm	$\pm 2,5$ mm	± 5 mm	± 10 mm	± 25 mm	± 50 mm	± 100 mm

Connection			
Pin number	Color of cable	Supply voltage ± 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	

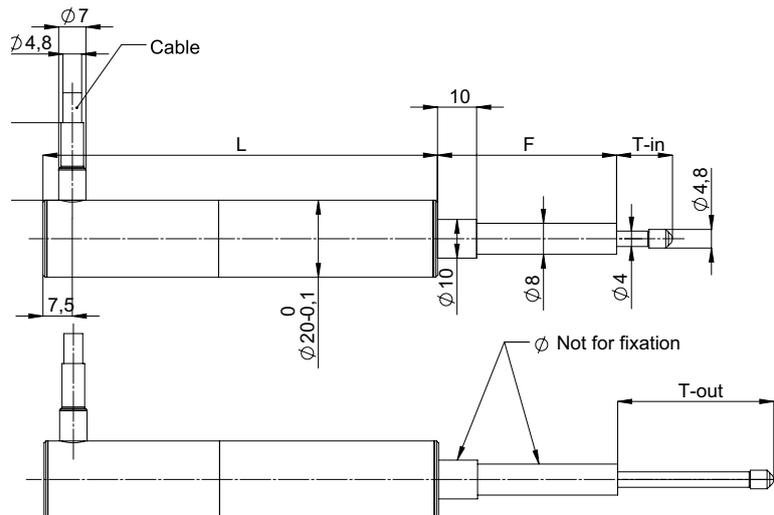


Drawing

MDC T connector version

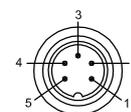


MDC T cable version



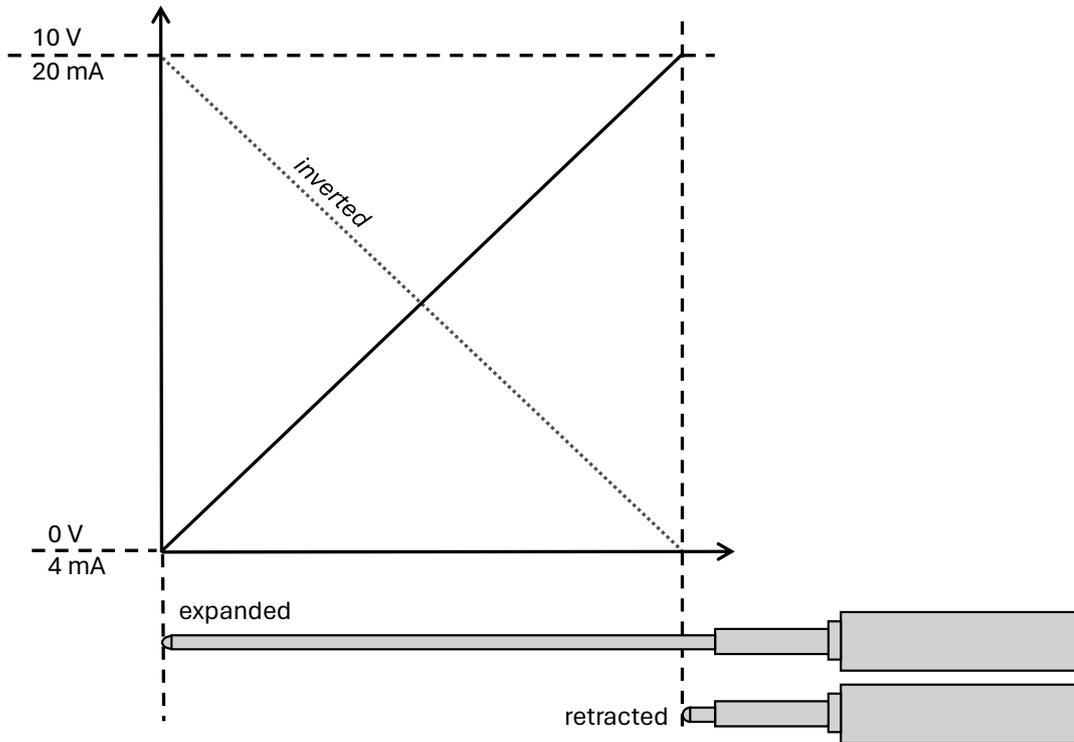
Sensor	MDC T				
M [elec. zero position]	26 mm	23,5 mm	20 mm	16,5 mm	40 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm
F	46 mm	46 mm	46 mm	46 mm	83 mm
T-out	40 mm	40 mm	40 mm	40 mm	77 mm
T-in	25,5 mm	21,5 mm	14,5 mm	7,5 mm	17,5 mm
Stroke	±1 mm	±2,5 mm	±5 mm	±10 mm	±25 mm

Connection				
Pin number	Color of cable	Supply voltage ±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

Signal details



Drawing mounting bracket (LVDT-MONTAGEBLOCK, #106656)

