

NIVOTRACK MI□-, MX□-, MY□-5□□ magnetostrictive level transmitters are an ideal solution for high-accuracy measurement of clean fluids. Integrating the transmitter into a process control system is easy due to the intelligent signal processing and communication software and the wide range of accessories offered.

OPERATING PRINCIPLE

The float, containing a magnetic disc, moves along the stem with a magnetostrictive wire in it. A pulse generated by the electronics travels along the magnetostrictive wire. When the pulse reaches the float's magnetic field, torsion develops. Reflected from the torsion point, the pulse creates an acoustic wave, which travels back along the wire. The transmitter's 4...20 mA output is proportional to the time between the excitation and detection.

FEATURES

- 2-wire integrated transmitter
- 1 mm resolution
- Distance and level measurement
- Standard and mini versions
- Stainless steel or Titanium floats
- IP65
- HART® communication
- Chemicals, solvents, hydrocarbons
- Level monitoring of tanks
- Interface measurement
- 5 years warranty

APPLICATIONS

- Level measurement of liquids, with min. 0.4 kg/dm³ density
- Chemical industry
- Power plants
- Oil industry
- Water industry



MIA-513

TECHNICAL DATA

		Rigid probe version		
		Standard (MI□)	Mini (MY□)	Plastic-coated (MX□)
Measured process value		Liquid level, distance		
Nominal length (L)		0.3...3.5 m	0.3...1.5 m	0.5...3 m
Material of the tube		1.4571 (316Ti) stainless steel		
Highest medium pressure ⁽¹⁾		25 bar (2.5 MPa)	16 bar (1.6 MPa)	3 bar (0.3 MPa)
Medium temperature ⁽¹⁾		-40...+90 °C		
Standard float diameter / material ⁽¹⁾		Ø54 × 60 mm cylindrical / 1.4404	Ø28 × 29 mm / 1.4404	Ø76 × 87 mm cylindrical / PVDF or PP
Medium density		See "Floats"		
Material of wetted parts		Stainless Steel: 1.4571, 1.4404		PFA, PVDF, PP
Ambient temperature		-40...+70 °C		
Output	Analog	4...20 mA (limit values: 3.9...20.5 mA)		
	Digital communication	HART® (lowest loop resistance: 250 Ω)		
Error indication		Output signal = 22 mA / 3.8 mA		
Output load		$R_L = (U_S - 12.5 \text{ V}) / 0.02 \text{ A}$, $U_S =$ power supply voltage		
Power supply		12.5...36 V DC		
Electrical protection		Class III		
Ingress protection		IP65		
Process connection		As per order code		
Electric connection (MI□-5□□-M types)		Hirschmann EN 175 301-803-A (DIN 43650)		
Weight		2.9 kg + measuring probe (0.6 kg/m)	2.9 kg + measuring probe (0.3 kg/m)	2.9 kg + measuring probe (0.7 kg/m)

⁽¹⁾ Properties of non-standard floats can be found in "Floats."

MEASUREMENT DATA

M□□-5□□-□	
Resolution (on HART® transmitted value)	1 mm
Nonlinearity (on HART® transmitted value)	±2 mm or ±0.085% F.S. whichever is greater
Hysteresis (under reference conditions)	±0.25 mm
Zero span (in LEVEL mode)	Anywhere within the active range
Measuring Range (reducing)*	Minimal distance: 32 mm; Maximum distance: see "Dimensions"
Temperature error	0.04 mm / 10 °C (between -25...+50 °C)
Current output resolution	0.4 µA
Current output accuracy	33 µA
Current output temperature error	6 ppm / °C

* Accuracy data is only valid with factory default settings!

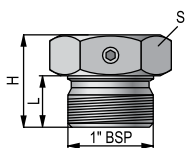
FLOATS

Type	MBA-505-2M-600-00 ⁽¹⁾	MBA-505-2M-800-00 ⁽¹⁾	MBA-505-2M-200-00 ⁽¹⁾	MBK-530-2M-400-00 ⁽²⁾	MBA-505-2M-900-00 ⁽²⁾	MGU-505-2M-200-00	MGU-506-1M-200-00	4w34bs-16yyyyy ⁽³⁾	
Type	MI□				MX□		MY□		
Dimensions									
Medium density (min.)	0.45 kg/dm ³	0.55 kg/dm ³	0.8 kg/dm ³	0.55 kg/dm ³	0.4 kg/dm ³	0.7 kg/dm ³	0.4 kg/dm ³	0.8 kg/dm ³	
Material	Titanium		1.4404	1.4435	1.4401	PVDF	PP	1.4404	
Medium pressure	20 bar (2 MPa)	25 bar (2.5 MPa)			6 bar (0.6 MPa)		3 bar (0.3 MPa)	10 bar (1 MPa)	

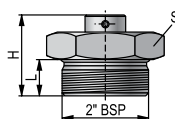
⁽¹⁾Designed for min. 2" process connection, order only with rigid probe. ⁽²⁾Flange is ordered separately. ⁽³⁾Designed for min. 1" process connection, order only with mini version.

ACCESSORIES

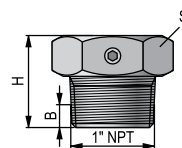
Threaded sliding sleeve					
Type	Process connection	S (mm)	H (mm)	L (mm)	B (mm)
MBH-105-2M-300-00	1" BSP	41	36	20	-
MBK-105-2M-300-00	2" BSP	60	55	24	-
MBL-105-2M-300-00	1" NPT	41	37	-	~10
MBN-105-2M-300-00	2" NPT	60	44.5	-	~11



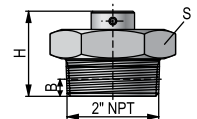
MBH-105-2M-300-00



MBK-105-2M-300-00



MBL-105-2M-300-00



MBN-105-2M-300-00

NIVOTRACK M-500 with rigid probe

5 years

2-wire integrated magnetostrictive level transmitter for liquids with stainless steel rod probe with 1 mm resolution

Version

M - 5 -

I Transmitter

Process connection

M I - 5 -

A	1" BSP
B	1" BSP, lower connection
C	2" BSP
F	2" BSP, lower connection
D	1" NPT
E	1" NPT, lower connection
G	2" NPT
H	2" NPT, lower connection
O	2½" TriClamp
S	2½" TriClamp, lower connection
P	3" TriClamp
R	4" TriClamp
U	Without process connection for sliding sleeve
L	* Without float, for NIVOFLIP (max. 3.5 m, max. +90 °C)
T	* Without float, for NIVOFLIP (max. 3.5 m, max. +200 °C)

* Probe length = center to center of NIVOFLIP + 300 mm or 400 mm as per float version and pressure rating

Housing

M I - -

5 Stainless steel

Probe length**

M I - 5 -

nn	0.5...1 m
oo	1.1...3 m; sold by the 0.1 m

nn = 05...10 : 0.5...1 m

oo = 11...30 : 1.1...3 m, ** 3...3.5 m as per special offer

Output / Resolution / Certificates / El. connection

M I - 5 -

K	***	4...20 mA + HART® / 1 mm / cable
L	***	4...20 mA + HART® / 1 mm / Ex ia G / cable
M		4...20 mA + HART® / 1 mm / DIN connector
N	***	4...20 mA + HART® / 1 mm / Ex ia G / DIN connector
O	***	4...20 mA + HART® / 1 mm / M12x1 connector
P	***	4...20 mA + HART® / 1 mm / Ex ia G / M12x1 connector

*** Under development

Need of IEC Ex is to be specified in the text part of the order.

Available on request (must be specified in the text of the order)

Ø96 mm stainless steel (1.4404) ball float (for min. 0.55 kg/dm³ liquids)

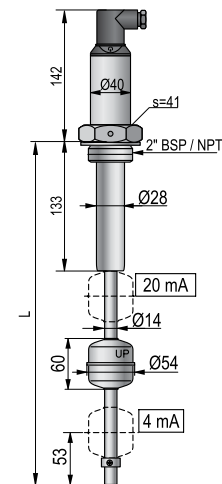
Ø124 mm stainless steel (1.4401) ball float (for min. 0.4 kg/dm³ liquids)

Ø53.5 mm titanium float (for min. 0.55 kg/dm³ liquids)

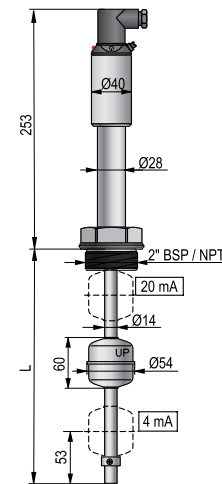
Ø50x100 mm titanium float (min. 0.45 kg/dm³)

Accessories sold separately; see relevant page for details

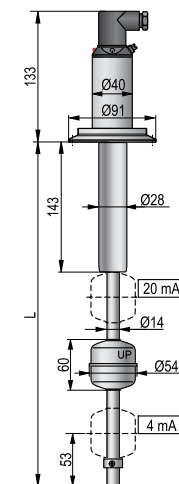
MBH-105-2M-300-00	Sliding sleeve, 1.4571, 1" BSP
MBK-105-2M-300-00	Sliding sleeve, 1.4571, 2" BSP
MBL-105-2M-300-00	Sliding sleeve, 1.4571, 1" NPT
MBN-105-2M-300-00	Sliding sleeve, 1.4571, 2" NPT
S A T - 3 0 4 - 0	HART®-USB modem
S A T - 5 0 4 - <input type="checkbox"/>	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - 2	HART®-USB/RS485 modem
S A K - 3 0 5 - 6	HART®-USB/RS485 modem / [Ex ia G]



MIC / MIG-5□□-M



MIF / MIH-5□□-M



MIP-5□□-M

NIVOTRACK M-500 mini version with rigid probe

5 years

2-wire integrated magnetostrictive level transmitter for liquids
mini version with stainless steel rod probe with 1 mm resolution

Version

M - 5 -

Y Transmitter mini

Process connection

M Y - 5 -

- A 1" BSP
- B 1" BSP, lower connection
- C 2" BSP
- F 2" BSP, lower connection
- D 1" NPT
- E 1" NPT, lower connection
- G 2" NPT
- H 2" NPT, lower connection
- J 1½" TriClamp
- K 1½" TriClamp, lower connection
- M 2" TriClamp
- N 2" TriClamp, lower connection
- O 2½" TriClamp
- S 2½" TriClamp, lower connection
- P 3" TriClamp
- R 4" TriClamp

Housing

M Y - -

5 Stainless steel

Probe length

M Y - 5 -

- nn 0,5...1 m
- oo 1,1...1,5 m; sold by the 0.1 m

nn = 05...10 : 0,5...1 m
oo = 11...15 : 1,1...1,5 m

Output / Resolution / Certificates / EI. connection

M Y - 5 -

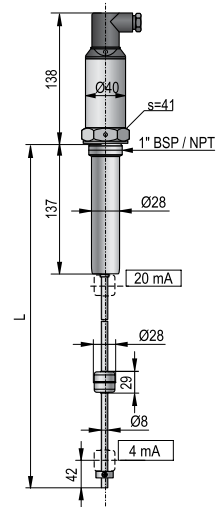
- K * 4...20 mA + HART® / 1 mm / cable
- L * 4...20 mA + HART® / 1 mm / Ex ia G / cable
- M 4...20 mA + HART® / 1 mm / DIN connector
- N * 4...20 mA + HART® / 1 mm / Ex ia G / DIN connector
- O * 4...20 mA + HART® / 1 mm / M12x1 connector
- P * 4...20 mA + HART® / 1 mm / Ex ia G / M12x1 connector

* Under development

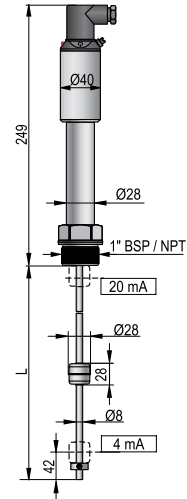
IEC Ex compliance is optional; it must be specified in the order.

Accessories sold separately; see relevant page for details

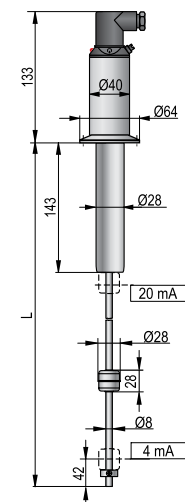
- S A T - 3 0 4 - 0 HART®-USB modem
- S A T - 5 0 4 - HART®-USB/Bluetooth® modem
- S A K - 3 0 5 - 2 HART®-USB/RS485 modem
- S A K - 3 0 5 - 6 HART®-USB/RS485 modem / [Ex ia G]



MYA / MYD-5□□-M



MYB / MYE-5□□-M



MYM-5□□-M

NIVOTRACK M-500 with plastic-coated rigid probe **5 years**

2-wire integrated magnetostrictive level transmitter for liquids with plastic-coated stainless steel rod probe with 1 mm resolution

Version

M	□	U	-	5	□	□	-	□
X								Transmitter

Process connection

M	X	□	-	5	□	□	-	□
U								Without process connection for sliding sleeve

Housing

M	X	U	-	□	□	□	-	□
5								Stainless steel

Probe length

M	X	U	-	5	□	□	-	□
n	n							0.5...1 m
o	o							1.1...3 m; sold by the 0.1 m

nn = 05...10 : 0,5...1 m
oo = 11...30 : 1,1...3 m

Output / Resolution / Certificates / El. connection

M	X	U	-	5	□	□	-	□
K	*							4...20 mA + HART® / 1 mm / cable
L	*							4...20 mA + HART® / 1 mm / Ex ia G / cable
M								4...20 mA + HART® / 1 mm / DIN connector
N	*							4...20 mA + HART® / 1 mm / Ex ia G / DIN connector
O	*							4...20 mA + HART® / 1 mm / M12x1 connector
P	*							4...20 mA + HART® / 1 mm / Ex ia G / M12x1 connector

* Under development

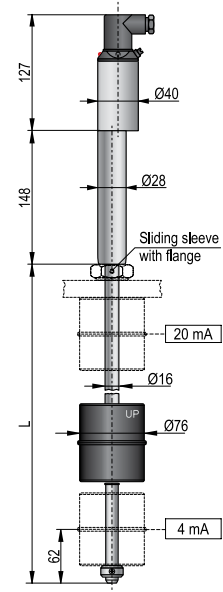
The material of the float (PVDF or PP) should be given in text of the order. The standard float material is PVDF.

Process connection

MGH-105-2M-300-00	Sliding sleeve: 1" BSP
MGL-105-2M-300-00	Sliding sleeve: 1" NPT
M F T - 3 2 1 - 2	PP flange DN80, PN16 + 1" BSP sliding sleeve must be ordered
M F T - 3 3 1 - 2	PP flange DN100, PN16 + 1" BSP sliding sleeve must be ordered

Accessories sold separately; see relevant page for details)

S A T - 3 0 4 - 0	HART®-USB modem
S A T - 5 0 4 - □	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - 2	HART®-USB/RS485 modem
S A K - 3 0 5 - 6	HART®-USB/RS485 modem / [Ex ia G]



MXU-5□□