NIVETEC Instrumentação e Controle

Catálogo

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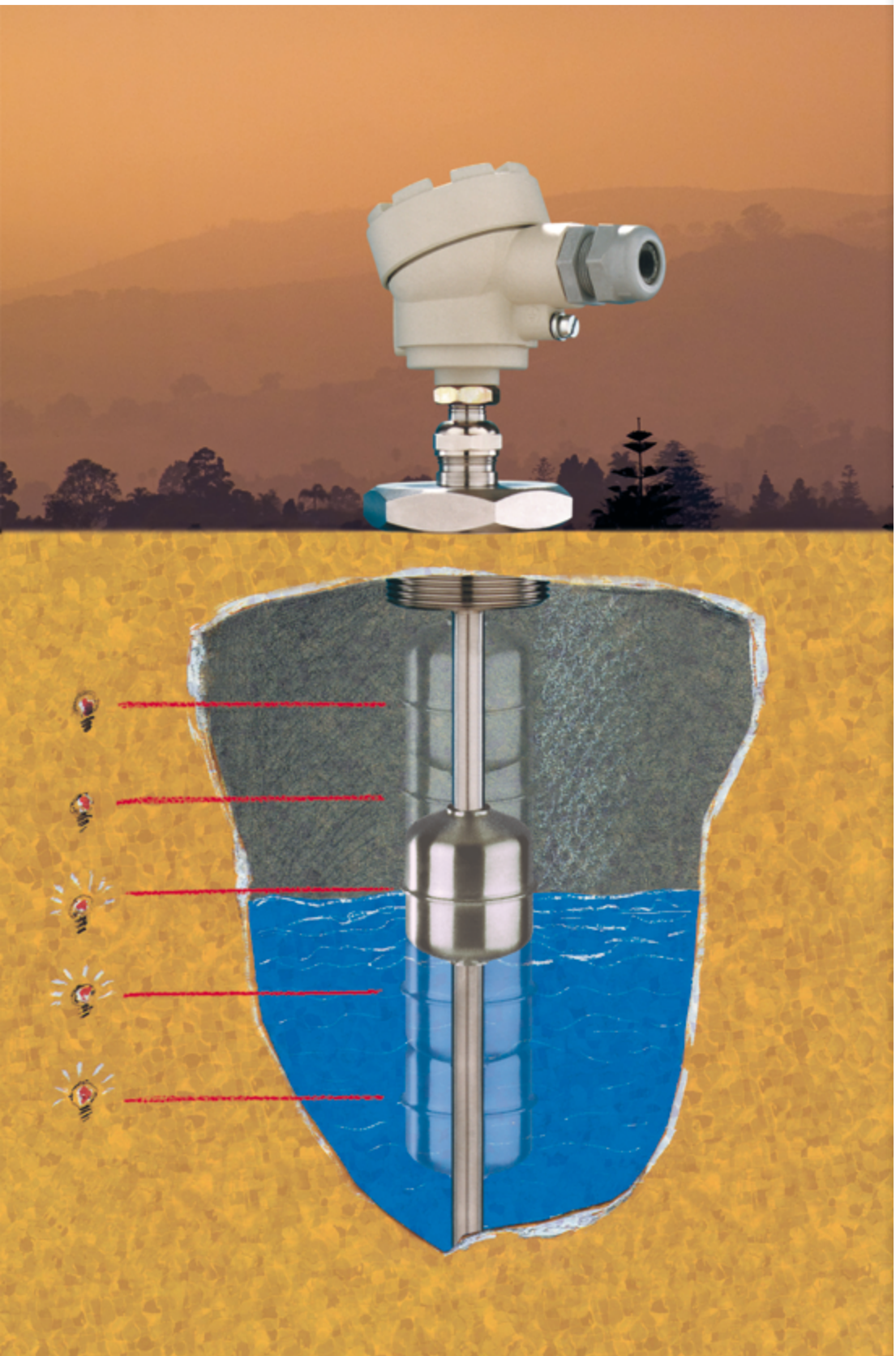
NIVOPOINT

MAGNETIC TRACKING LEVEL SWITCHES

NIVETEC



NIVELCO

LEVEL SWITCHES

NIVOPOINT magnetic float level switches are suitable for single and multi-point level controlling tasks in non-hazardous and hazardous areas. The device consists of a probe tube, a float incorporating a magnet, and the housing that contains the connection terminals. Up to 5 switches can be connected to the probe. A sliding-sleeve on the top of the probe provides a simultaneous ±25 mm *(±0.98")* adjustment possibility of the positioning of the switches. The wetted parts of the level switch are made of stainless steel. Plastic-coated versions are suitable for measuring aggressive liquids, and ATEX certified variants can be used with explosive materials. The measured medium and application determine floats and process connections.

The mini version of the NIVOPOINT magnetic float level switch is suitable for small tanks. The small size and easy installation make it perfect for detecting the maximum, minimum, or intermediate level using the tank's or device's connection stubs made for other purposes.

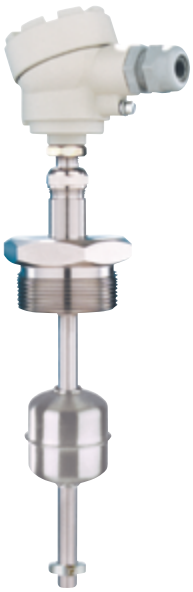
FEATURES

- Level switching without auxiliary power
- Up to 5 switching points
- Stainless steel and plastic-coated versions
- +150 °C (+302 °F) process temperature
- Mini version
- Wide variety of floats
- Ex variant
- IP65 / IP68
- 5 years warranty

MZS–100
(mini version)

MP☐–100
(plastic-coated
version)

MZC–300
(mini version)



MR☐–100
(standard version)

APPLICATIONS

- Multi-point level switching
- For controlling pumps, valves
- Level detection of aggressive liquids
- Level switching of explosive liquids

CERTIFICATES

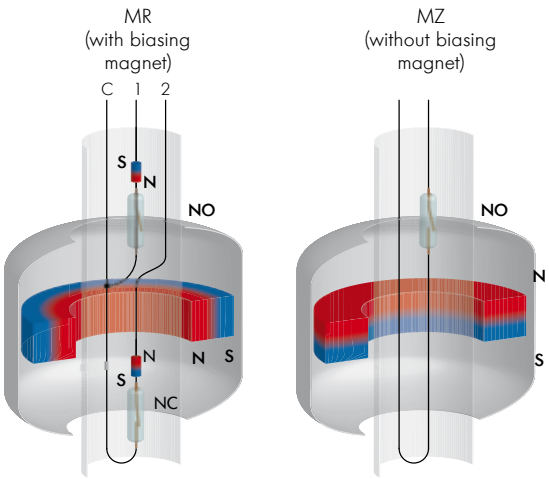
- ATEX (Ex d IIC)
- Bureau Veritas (BV) (only for MZ☐ types)

TEMPERATURE DATA FOR Ex VERSIONS

Class	T6	T5	T4	T3
Highest ambient temperature from −40 °C (−40 °F)	+65 °C (+149 °F)	+80 °C (+176 °F)	+95 °C (+203 °F)	
Highest medium temperature from −40 °C (−40 °F)	+80 °C (+176 °F)	+95 °C (+203 °F)	+130 °C (+266 °F)	+150 °C (+302 °F)

OPERATION

NIVOPOINT magnetic float level switches use the interaction between a magnet in the float and the reed switches in the probe. The float moves along the stem, following the level of the liquid and activating the reed-switches. As the float moves along the reed switches, it changes their state *(NO / NC)*, and they stay triggered until the liquid's level falls, and the float moves along the reed switches again, breaking off the self-holding state and restoring the previous state of the reed-switches. The mini version does not contain biasing magnets. By following the level, the magnetic float activates the reed switches in the probe. The reed switches opens or close according to the position of the magnetic float. The default state is when the float is at the bottom position.



TECHNICAL DATA

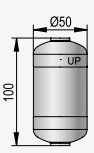
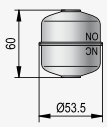
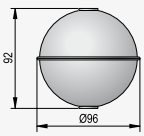
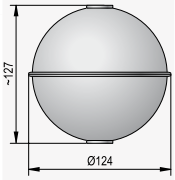
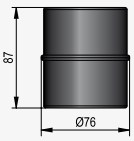
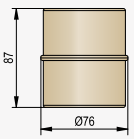
	Version			
	Standard (MR)	**Plastic-coated (MP)**	**Explosion-proof (MR [Ex])**	**Mini (MZ)**
Insertion length	0.25…3 m (0.85…10 ft)[1]			0.1…1.5 m (4…60")
Material of wetted parts	1.4404 (316L) float / 1.4571 (316Ti)	PVDF or PP float / PFA or PP-coated probe tube	Titanium / 1.4404 (316L) / 1.4435 (316L) float; 1.4571 (316Ti) probe tube	
Max. process pressure	25 bar (363 psi)	6 bar (88 psi)	25 bar (363 psi)	
Min. medium density	0.8 kg/dm³	0.4 / 0.7 kg/dm³	0.8 kg/dm³	
Float sizes	See "Floats"			
Process temperature	−40…+150 °C (−40…+302 °F)	−40…+80 °C (−40…+176 °F)	See temperature data for Ex versions table	−40…+120 °C (−40…+248 °F)
Ambient temperature	−40…+95 °C (−40…+203 °F)			−20…+70 °C (−4…+158 °F)
Output	1…5 reed-switches, one connecting point of each is common NO/NC			1…3 reed-switches, NO/NC depending on float orientation
Switching rate	120 W / VA, 250 V AC/DC, 3 A Reed-relay, 9 A maximum altogether			120 W / VA; 250 V AC / DC; max. 3 A
Switching point	See auxiliary table of order codes			up to 3 *(to be specified when ordering)*
Switching differential	< 10 mm (< 0.4")			max. Δ8 mm (max. Δ0.315")
Distance between reed-switches	minimum 110 mm (4.33")			minimum 90 mm (3.54")
Electrical connection	M20×1.5 cable gland, cable diameter: Ø6…12 mm (Ø0.25…0.5")		M20×1.5 cable gland[2], cable diameter: Ø7…12 mm (0.28…0.47")	0.5 m (1.65 ft) long[3] cable with silicon insulation
	Terminal, 0.5…2.5 mm² (AWG20…14) wire cross section			
Process connection	As per order code			
Seal	Klingerit (only for BSP)	–	Klingerit (only for BSP)	
Electrical protection	Class I (protective cable 4 mm² [AWG12])			Class II (reinforced insulation)
Ingress protection	IP67			IP68 (20 m [65.6 ft])
Certification	–		ATEX: ⟨Ex⟩ II 1/2G Ex db IIC T6…T3 Ga/Gb	Bureau Veritas (BV)
Housing dimensions	116 × 80 × 65 mm (4.55 × 3.15 × 2.55")		124 × 80 × 65 mm (4.88 × 3.15 × 2.55")	–
Weight	0.4 kg + 0.3 kg/m (0.88 lb + 0.2 lb/ft)		0.45 kg + 0.3 kg/m (1 lb + 0.2 lb/ft)	~0.15…2.5 kg (0.33…5.5 lb) *(depending on order)* + cable: 0.03 kg/m (0.02 lb/ft)

[1] 3…4 m (9.8…13.1 ft) as per special offer, Ex version not available.

[2] The type MR□–□□□–8 Ex devices are shipped without cable glands

[3] Available with different cable length.

FLOATS

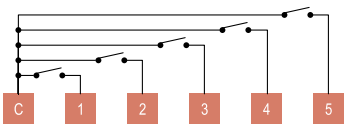
	MRC–106–7M–900–00	MRC–105–7M–900–00 MZS–101–3M–900–00[2]	MRC–105–7M–600–00[1] MZS–101–3M–700–00[2]	MRC–105–7M–700–00[1] MZS–101–3M–800–00[2]	MRC–105–7M–800–00	MPP–105–3M–200–00[1]	MPP–105–3M–900–00
Dimensions							
Medium density (min.)	0.45 kg/dm³	0.55 kg/dm³	0.8 kg/dm³	0.55 kg/dm³	0.4 kg/dm³	0.7 kg/dm³	0.4 kg/dm³
Material	Titanium		1.4404 (316L)	1.4435 (316L)	1.4401 (316)	PVDF	PP
Medium pressure	20 bar (290 psi)	25 bar (362.5 psi)				6 bar (87 psi)	3 bar (43.5 psi)
Device type: Standard **(MR)**	■	■		■	■		
Device type: Plastic-coated **(MP)**						■	■
Device type: [Ex] **(MR)**	■	■		■	■		
Device type: Mini **(MZ)**		■		■			

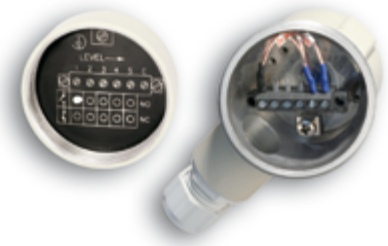
[1] Standard float *[2] Mini version*

INSTALLATION

A **NIVOPOINT** level switch equipped with Ø53.5 mm (2.1") cylindrical float can be installed into the tank through a 2" BSP process connection. Units with larger floats need to be flanged unless a mounting of the float by accessing the interior of the tank is allowed. Mini type level switches may feature ¼" BSP or 2" BSP connections. These level switches are to be mounted into a tank from inside and fixed with a nut from outside.

WIRING





ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

NIVOPOINT – magnetic float level switches

NIVOPOINT M■■–■■■–■[1]

Type	Code
Standard	R
Mini	Z

Process connection	Code
1" BSP	A
2" BSP	C
1" NPT	D
2" NPT	G
¼" BSP (inner thread)[2]	S
2½" TriClamp	O
3" TriClamp	P
4" TriClamp	R

Switching points[3]	Code
1 switch	1
2 switches	2
3 switches	3
4 switches	4
5 switches	5

Code	Probe length[4]		Code
0	0 m	0 m	0
1	1 m	0.1 m	1
2	2 m	0.2 m	2
3	3 m	⋮	⋮
		0.9 m	9

Ex version	Code
None	3
Ex d G[5]	7

[1] The order code of an Ex version should end in "Ex".

[2] For mini version only.

*[3] The order should contain the positions of the switching points and the default operation mode (NO/NC) as per filling the "**Additional data**" table. Special versions can be ordered with multiple, independent contacts. The limit of the terminal points is up to 6 (max. 3 connection points for mini version).*

[4] Insertion length: for standard version: 0.3…3 m (0.98…9.85 ft) (3…4 m [9.85…13.1 ft] on request, Ex version not available); for mini version: 0.1…1.5 m (0.33…4.92 ft); for plastic-coated version: 0.5…3 m (1.64…9.85 ft).

[5] Not available for Mini version.

NIVOPOINT MP – plastic-coated magnetic float level switches

NIVOPOINT MP■–■■■–3

Process connection	Code
DIN DN80, PN16	P
DIN DN100, PN16	R

Switching points[3]	Code
1 switch	1
2 switches	2
3 switches	3
4 switches	4
5 switches	5

Code	Probe length[4]		Code
0	0 m	0 m	0
1	1 m	0.1 m	1
2	2 m	0.2 m	2
3	3 m	⋮	⋮
		0.9 m	9

[6] Min. distance of the switching points: 110 mm (4.35")

[7] Default operation mode (NO / NC) is meant with bottom positioned float.

[8] L–L1 ≥ 80 mm (3.15"), L = insertion length

[9] L5 ≥ 85 mm (3.35")

Additional data

Switching point[6]		Default operation mode[7] NO	NC
L1[8]	… mm	☐	☐
L2	… mm	☐	☐
L3	… mm	☐	☐
L4	… mm	☐	☐
L5[9]	… mm	☐	☐

Floats[10]

Type	Size / Material	Type	Size / Material
MRC–105–7M–600–00	Ø53.5 mm (2.1") / 1.4404	MZS–101–3M–700–00	Ø53.5 mm (2.1") / 1.4404
MRC–105–7M–700–00	Ø96 mm (3.78") / 1.4435	MZS–101–3M–800–00	Ø96 mm (3.78") / 1.4435
MRC–105–7M–800–00	Ø124 mm (4.88") / 1.4401	MPP–105–3M–200–00	Ø76 mm (3") / PVDF
MRC–105–7M–900–00	Ø53.5 mm (2.1") / Titanium	MPP–105–3M–900–00	Ø76 mm (3") / PP
MRC–106–7M–900–00	Ø50 mm (1.9") / Titanium		

[10] Must be specified in the text of the order:
For type MP only Ø76 mm (3") PP / PVDF float,
For type MZ only Ø96 mm (3.78") or Ø53.5 mm (2.1") / 1.4404 float

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