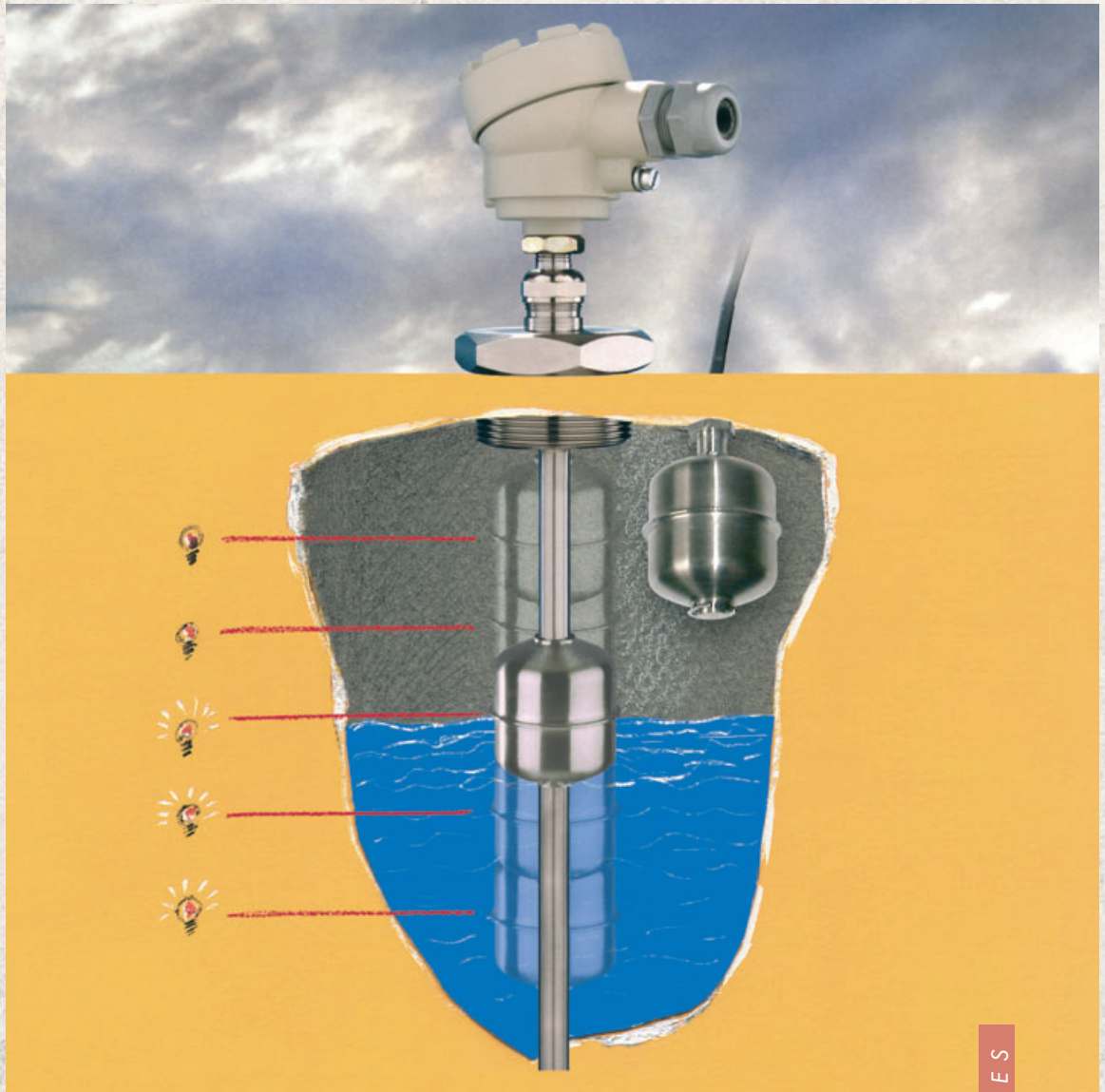


For liquids

NIVOPOINT

MAGNETIC FLOAT LEVEL SWITCHES



LEVEL SWITCHES

30 YEARS

LEVEL



OUR PROFESSION IS YOUR LEVEL

NIVOPOINT MAGNETIC FLOAT LEVEL SWITCHES

MAIN FEATURES

- Level switching without auxiliary power
- Maximum 5 switching points
- Stainless steel and plastic coated versions
- 150 °C medium temperature
- Mini version
- Wide variety of floats
- ATEX version

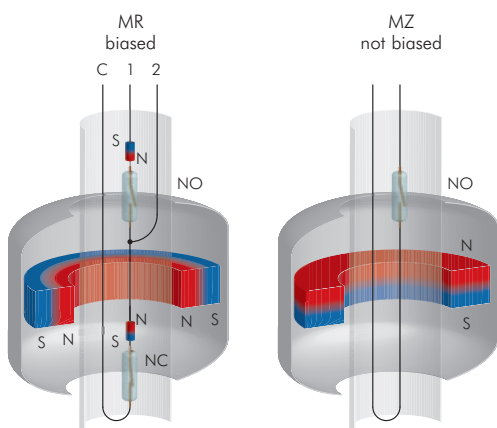
APPLICATIONS

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

GENERAL DESCRIPTION

NIVOPOINT magnetic float level switches are suitable for level detection, level switching and one- or multipoint level controlling tasks in normal as well as in hazardous areas. The device consists of a probe tube, a float incorporating a magnet and a housing containing the connection terminals. A maximum of 5 switches can be incorporated in the probe. A sliding sleeve on the top of the probe provides for a simultaneous ± 25 mm adjustment possibility of the positioning of the switches. The wetted parts of the level switch are made of stainless steel. The plastic coated versions are suitable for level detecting of aggressive liquids, and the ATEX certified versions are applicable for level switching of explosive materials. Floats and process connections can be selected according to the measured medium and the application.

The mini type **NIVOPOINT** magnetic float level switches are suitable for maximum level indication in small tanks. The small size and easy mounting of the switch allows maximum level detection in appliances or tanks using process connections made for different other purposes.



OPERATION

NIVOPOINT magnetic float level switches work on the basis of the interaction of the built-in magnet in the float and the reed switches in the probe. The float of **NIVOPOINT** level switch devices moves alongside the probe tube tracking the level of the measured liquid and activating the reed switches. When the float moves ahead the reed switches, it changes the default state (NO or NC) of the reed switches, which stay in self-holding state with the help of opposite polarized magnets next to the reed switches. When the liquid level decreases, the float moves ahead the reed switches again, breaks off the self-holding state and restores the previous state of the reed switches.

The mini type **NIVOPOINT** level switches do not contain biasing magnets. By tracking the level, the magnetic float activates the reed switch in the probe. The reed switch opens or closes according to the position of the magnetic float. The default state is meant with bottom positioned float, the normally opened or closed state of the reed switch can be changed by the inversion of the float.

DIMENSIONS

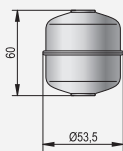
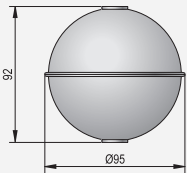
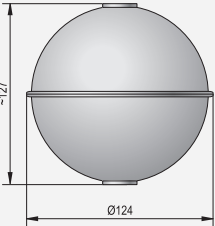
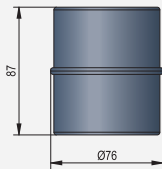
Standard type	Plastic coated type	Ex version	Mini type	
			1/4" BSP	2" BSP

TECHNICAL DATA

Type	Standard type	Plastic coated type	Explosion-proof type	Mini type
Insertion length	0.25 m ... 3 m			0.1 m ... 0.5 m
Material of wetted parts	1.4404 float / 1.4571	PVDF or PP float / PFA coated guiding tube	1.4404 float / 1.4571	1.4404 float / 1.4571
Max. process pressure	2.5 MPa (25 bar)	0.5 MPa (5 bar)	2.5 MPa (25 bar)	
Min. medium density	0.8 kg/dm³	0.4 / 0.7 kg/dm³	0.8 kg/dm³	0.8 kg/dm³
Float sizes	see: float selection table			
Medium temperature	-40 °C...+150 °C	-40 °C...+80 °C	see: temperature data for Ex versions table	-40 °C ... +120 °C
Ambient temperature	-40 °C...+100 °C			-20 °C ... +70 °C
Output	1...5 pcs reed-switches, one connecting point of each is common, NO/NC			1...3 pcs reed-switches, NO or NC depending on float orientation
Switching rate	120 W / VA, 250 V AC/DC, 3 A / reed relay, summary max. 9 A			120 W/VA 250 V AC/DC max. 3 A
Switching point	see: auxiliary data of the order codes table			40 mm ± 3 mm from the bottom of the protection tube
Switching differential	< 10 mm			
Dist. between reed-switches	Minimum 110 mm			
Electrical connection	Cable gland M 20x1.5, cable outer Ø: 6...12 mm		Cable gland M 20x1.5, cable outer Ø: 9.5...10 mm	0.5 m long*, 2 x 0.75 mm² cable with silicon sealing (outer Ø: 5 mm)
	terminal, 0.5 ... 2,5 mm² wire cross section			
Process connection	as per order code			
Gasket	Klingerit	–	Klingerit	
Electrical protection	Class I.			Class II.
Ingress protection	IP 65			IP 68
Certifications	–		 II 2 G EEx d IIC T3...T6	Bureau Veritas
Dimension of the housing	116 x 80 x 65 mm		124 x 80 x 65 mm	–
Mass	0.4 kg + 0.3 kg/fm		0.45 kg + 0.3 kg/fm	0.15 kg + cable: 0.05 kg/fm

* available to order with different cable length

FLOAT SELECTION

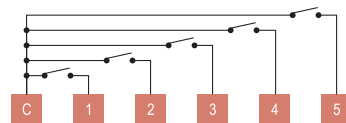
Type	MRC-105-7M-600	MRC-105-7M-700	MRC-105-7M-800	MPP-105-3M-200	MPP-105-3M-900
	MZS-101-3M-700 ⁽¹⁾				
Dimensions					
Standard type	■ (2)	■	■		
Plastic type				■ (2)	■
Ex type	■ (2)	■	■		
Mini type	■				
Medium density (min.)	0.8 kg/dm ³	0.55 kg/dm ³	0.4 kg/dm ³	0.7 kg/dm ³	0.4 kg/dm ³
Material	1.4404			PVDF	PP
Medium pressure	2.5 MPa (25 bar)	1.6 MPa (16 bar)	2.5 MPa (25 bar)	0.6 MPa (6 bar)	0.3 MPa (3 bar)

(1) Mini type (2) Standard float, can be ordered with different float as per the float selection table

TEMPERATURE DATA FOR EX VERSIONS

Class	T6	T5	T4	T3
Max. ambient temperature from -20 °C	+80 °C	+95 °C	+85 °C	+70 °C
Max. medium temperature from -20 °C	+85 °C	+100 °C	+135 °C	+150 °C

WIRING



INSTALLATION

A NIVOPOINT level switch equipped with Ø52 mm 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 1/4" BSP or 2" BSP connections. These level switches are to be mounted into a tank from inside and fixed with a nut from outside.

ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

NIVOPOINT magnetic float level switches

NIVOPOINT M

Type	Code	Switch ⁽⁵⁾	Code	Code	Insertion length	Code	Float / Ex	Code	
Standard	R	1 pc NO / NC	1	0	0 m	0 m	0	Ø 52 ⁽⁶⁾	3
Plastic	P ⁽²⁾	2 pcs NO / NC	2	1	1 m	0.1 m	1	Ø 52 / Ex ⁽⁶⁾	7
		3 pcs NO / NC	3	2	2 m	0.2 m	2		
		4 pcs NO / NC	4	3	3 m	0.3 m	3		
		5 pcs NO / NC	5			0.4 m	4		
						0.5 m	5		
						0.6 m	6		
						0.7 m	7		
						0.8 m	8		
						0.9 m	9		

Process conn. ⁽³⁾	Code
1" BSP	A
2" BSP	C
1" NPT	D
2" NPT	G
DN 80 PN 16 PP / DIN	P ⁽⁴⁾
DN 100 PN 16 PP / DIN	R ⁽⁴⁾

Type	Diam. / Material
MRC-105-7M-600-00	Ø 52 mm / 1.4404
MRC-105-7M-700-00	Ø 92 mm / 1.4404

Floats

⁽¹⁾ The order code of an Ex version should end in „Ex“

⁽²⁾ Not available in Ex version

⁽³⁾ See: flanges selection

⁽⁴⁾ Only for plastic version instruments

⁽⁵⁾ The order should contain the positions of the switching points and the default operation mode (NO/NC) as per filling the auxiliary data table. Special versions can be ordered with multiple, independent contacts. The limit of the terminal points is 6.

⁽⁶⁾ Depends on the order: as per the float selection table

Process conn. (3)	Code
1" BSP	A
2" BSP	C
1" NPT	D
2" NPT	G
DN 80 PN 16 PP / DIN	P (4)
DN 100 PN 16 PP / DIN	R (4)

Floats

Type	Diam. / Material
MRC-105-7M-600-00	Ø 52 mm / 1.4404
MRC-105-7M-700-00	Ø 92 mm / 1.4404
MRC-105-7M-800-00	Ø 124 mm / 1.4404
MPP-105-3M-200-00	Ø 76 mm / PVDF
MPP-105-3M-900-00	Ø 76 mm / PP
MZS-101-3M-700-00	Ø 52 mm / 1.4404

Flanges:

MFT

Standard / Material	Code	Size DIN/ANSI	Code	Pressure DIN/ANSI	Code	Inner size	Code
DIN / Carbon steel	1	DN 100 / 4"	3	PN 25 / 300 psi	2	1" BSP	2
DIN / 1.4571	2	DN 125 / 5"	4			2" BSP	3
ANSI / Carbon steel	5					1" NPT	5
ANSI / 1.4571	6					2" NPT	6

NIVOPOINT magnetic float level switches (Mini type)

NIVOPOINT M

Type	Code	Connection	Code	Switch	Code	Insertion length	Code	Float	Code
Mini type	Z	1/4" BSP	S	1 pc NO / NC	1	0.1 m	1	Ø 52	3
		2" BSP	C	2 pcs NO / NC	2	0.2 m	2		
				3 pcs NO / NC	3	0.3 m	3		
						0.4 m	4		
						0.5 m	5		

Auxiliary Data

Switching point (3)	Default oper. mode (4)		
		NO	NC
L1 (1) ... mm		☐	☐
L2 ... mm		☐	☐
L3 ... mm		☐	☐
L4 ... mm		☐	☐
L5 (2) ... mm		☐	☐

- (1) L-L1 > 80 mm, L = insertion length
 (2) L5 > 85 mm
 (3) Min. distance of the switching points: 110 mm.
 (4) Default operation mode (NO/NC) is meant with bottom positioned float.