



### Safety Precautions:

- Installation, initial start-up and maintenance may only be performed by trained personnel! All applicable European and national regulations regarding installation of electrical equipment must be adhered to.
- The device may only be connected to supply power which complies with the specifications included in the technical data and on the serial plate!
- The device must be disconnected from all sources of power during installation and maintenance work!
- The device may only be operated under the conditions specified in the operating instructions!
- In areas exposed to explosion hazards always use Zener-barriers or ex-certificated isolating amplifiers!

### Functions Description:

Bypass-magnetic level gauges combine in simple ways the optical display on site with a level control or measurement.

The magnet in the float turns at increasing level the magnet flap of the magnet flap strip from white to red.

### Technical Data:

<b>Material:</b>	Stainless steel 316L (1.4404), Stainless steel 304, Titanium, Hastelloy	
<b>Pipe:</b>	Standard: Ø60,3x2mm (others on request)	
<b>Pressure:</b>	Max. 250bar	
<b>Temperature:</b>	Max. 450°C	
<b>Centre-to-centre distance (C):</b>	up to 5500mm one-piece, longer versions segmented	
<b>Magnet flap indicator:</b>	Polycarbonate and aluminium / Perspex-glass, stainless steel	
<b>Process connection:</b>	DN15 - DN32 / PN16	B= 75mm
	ANSI ½" - 1¼" 150# RF	B= 85mm
	Stud for welding or thread ½" - 1"	B= 75mm
	DN40- DN50 und ANSI 1½" - 2" and 1"-pipe	B= 130mm
	(others on request)	
<b>Cleanout drain:</b>	¼", ½" or ¾" BSP or NPT ¼" or ½" with ball valve	
<b>Gasket:</b>	PTFE, Aramid, Graphite	
<b>Ventilation:</b>	¼", ½" or ¾", BSP or NPT, flange DN25 / PN16	
<b>Float:</b>	Density min. 0,38kg/dm³	



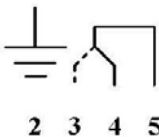
### Technical Data (continued):

**Length A:**                      Density min. 0,94kg/dm<sup>3</sup>      A= 210mm  
    Density min. 0,83kg/dm<sup>3</sup>      A= 245mm  
    Density min. 0,72kg/dm<sup>3</sup>      A= 295mm  
    Density min. 0,66kg/dm<sup>3</sup>      A= 350mm


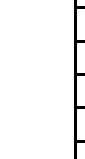
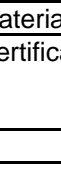
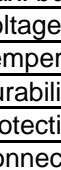
**Type plate:**                      Stainless steel

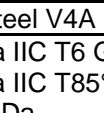
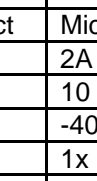
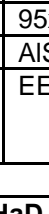
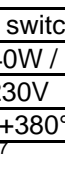
**Certifications:**                Material EN 10204 3.1  
    Pressure tests  
    GL or LRS-certificate  
    NACE MR 01.75 / ISO 15156  
    II 1/2 G c IIB T1 ...T4  
    LCIE 08 ATEX 6015 X

**Options:**                              4 - 20mA Output, HART-protocol, Profi- and Field-BUS-system

Type	HLS-15	LMS-Ha1	LMS-Ha2
			
Function	Switch over contact 	Switch over contact 	Switch over contact 
Contact type	bistable reed contact	Micro switch	bistable reed contact
Max. burden	2,5A / 60W / 60VA	2A / 40W / 100VA	0,8A / 60W / 40VA
Voltage	10 - 230V	10 - 230V	10 - 230V
Temperature	-25...+95°C	-50...+380°C	-40...+150°C
Durability	1x 10 <sup>9</sup>	1x 10 <sup>7</sup>	1x 10 <sup>8</sup>
Protection rate	IP66 / IP67 / IP68	IP67	IP65
Connection	5m cable	M16-cable gland	M16- cable gland
Dimensions	65x25x15mm	95x65x54mm	100x75x40mm
Material	Plastics	AISi	AISi
Options	Temperature up to 130°C	M20-cable gland	-

**Technical Data (continued):**

Type	HLS-25i	LMS-Ha1E
		
Function	Switch over contact 	Switch over contact 
Contact type	bistabiler Reedkontakt	Micro switch
Max. burden	0,25A / 1,3W / 1,3VA	0,5A / 20W / 30VA
Voltage	10 - 30V	10 - 24V
Temperature	-25...+100°C	-50...+380°C
Durability	1x 10 <sup>9</sup>	1x 10 <sup>7</sup>
Protection rate	IP66 / IP67 / IP68	IP67
Connection	5m cabel	M20- cable gland blue
Dimensions	80x25x20mm	95x65x54mm
Material	Stainless Steel V4A	AISi
Certifications	II 1GD Ex ia IIC T6 Ga II 1GD Ex ia IIC T85°C IP66 / IP67 Da	EEx i "simple aparatus"

Typ	HLS-25d	LMS-HaD
		
Function	Switch over contact 	Switch over contact 
Contact type	bistabile reed contact	Micro switch
Max. burden	2,5A / 60W / 45VA	2A / 40W / 100VA
Voltage	10 - 230V	10 - 230V
Temperature	-25...+100°C	-40...+380°C
Durability	1x 10 <sup>9</sup>	1x 10 <sup>7</sup>
Protection rate	IP66 / IP67 / IP68	IP66 / IP67 / IP68
Connection	5m PVC-Kabel	¾" NPT o. M20x1,5 max. 1,5mm <sup>2</sup>
Dimensions	90x25x20mm	130x130x90mm
Material	Edelstahl V4A	Aluminium
Certifications	II 2GD Ex d IIC T6 Gb II 2GD Ex tb IIIC T85°C Db	II 2G Ex d IIC T3...T4 Gb II 2D Ex tb IIIC T135°... T200°C Db
Options		Stainless steel housing , 2x change over contact

**Technical Data (continued):**
**Reed contact chain P-10**

With the reed contact chain P-10 the actual level of the tank can be detected as 4 - 20mA signal.

Type	Standard	EEx i (intrinsically safe)	EEx d (pressure proof capsuled)
<b>Certification</b>		II 1G Ex ia II C T1...T6	II 2G Ex db IIC T5...T6 Gb    2D Ex tb T100°C ...350°C
<b>Power supply</b>	8 - 35V DC	8 - 30V DC	8 - 30V DC
<b>Electrical Connection</b>			
<b>Temperature</b>	-50...+350°C	-50...+350°C	-50...+350°C
<b>Accuracy</b>	5mm	5mm	5mm
<b>Material</b>	1.4404 (316L)	1.4404 (316L)	1.4404 (316L)
<b>Max. Length</b>	5,5m	5,5m	5,5m
<b>Material connection head</b>	ABS or Aluminium	Alum. or Stainless steel	Aluminium
<b>Protection rate</b>	IP67	IP67	IP66/67 u. IP68
<b>Connection</b>	M16x1,5	M20x1,5	3/4" NPT, M20x1,5
<b>Output</b>	4 - 20mA / 2-wire	4 - 20mA / 2-wire	4 - 20mA / 2-wire
<b>Options</b>			
	Higher temperature	Higher temperature	Higher temperature
	Higher accuracy	Higher accuracy	Higher accuracy
	Local display	Local display	Local display
	M20x1,5	M20x1,5	¾" NPT, M20x1,5
	HART	HART	HART
	PROFIBUS	PROFIBUS	PROFIBUS
	FIELDBUS	FIELDBUS	FIELDBUS
	LCD-Display	LCD-Display	LCD-Display
	Output (V or Ohm)	Output (V or Ohm)	Output (V or Ohm)
	Stainless steel housing	Stainless steel housing	Stainless steel housing

**Note.**  
 For all electrical mounting contacts and reed contact chains observe the max. permissible operating temperatures. This maximum temperatures are based on the condition that **natural convection** is not limited by additional heat insulation or possible containment/housing.

**CE Mark:**

The device fulfills the legal requirements of applicable EU-guidelines

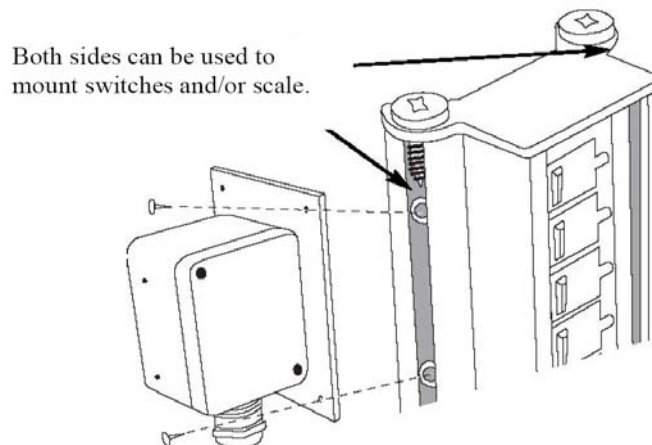
**Intended Purpose:**

Utilized media must be of low viscosity, any may not contain any solid matter or magnetic particles. Utilized media may not tend to become tacky, resinous, encrusted or to crystallize, thus assuring free movement of the float. Magnetic particles may accumulate at the float, resulting in erroneous level indication and other malfunctions.

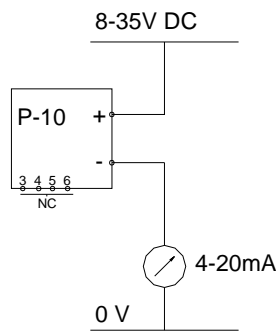
**Use only original floats!**

**Mounting:**

- Check center-to-center distance
- Remove the lower cover flange and seal
- Slide the float into the standpipe with the "Top" symbol pointing up
- Reinstall the sealing disc
- Securely tighten the lower cover flange screws with a 17mm open-end spanner or ring spanner
- Tighten the 13mm drain screw, making sure that it seals properly
- If included, close the discharge stopcock before filling
  
- Using suitable seals, mount the device to the tank in a stress-free fashion with appropriate nuts and screws
- Fill the tank
- Aerate the POINTER with the vent plugs if necessary
- Tighten the upper vent plug
- Check for leaks after filling
  
- Pressure-tests may only be operated with removed floats

**Mounting of limit switches:****Elektrical Connection:**

The power supply 8-35V will be attached to the +-clamp, on the ---clamp the 4-20mA signal will be put out.



Note: The clamps 3,4, 5 and 6 are used for internal use of the manufacturer.

### Maintenance:

- MAGTOP magnetic flap indicators are maintenance-free to a great extent

#### If cleaning should become necessary:

- Depressurize the system, or close the shut-off valves
- **Observe safety precautions for tanks containing hazardous or hot liquids!**
- Loosen the upper vent screw before emptying
- Empty via the drain screw or the discharge stopcock
- Carefully remove the lower flange, making sure that the float does not fall out of the standpipe
- Clean as required
- Reassemble as described under "Installation" above
- Inspect flange seal and replace if necessary