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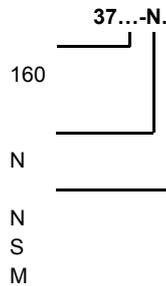
Type	old version	Function	Media Temp.	Electric Data	Remarks	Page
<a href="#">37160-NN</a>	37160	SPDT	-50°C...+150°C	230V/1A/60VA/60W	Standard	4
<a href="#">37160-NS</a>		SPDT	-50°C...+150°C	230V/1A/60VA/60W	with ss-cable gland	5
<a href="#">37160-NM</a>		SPDT	-50°C...+150°C	230V/1A/60VA/60W	with brass cable gland	6

**Type code**

**Switch Function**  
SPDT

**Version**  
new ss-switches with metric cable gland

**Execution**  
Standard with PA cable gland  
with ss-cable gland  
with brass cable gland

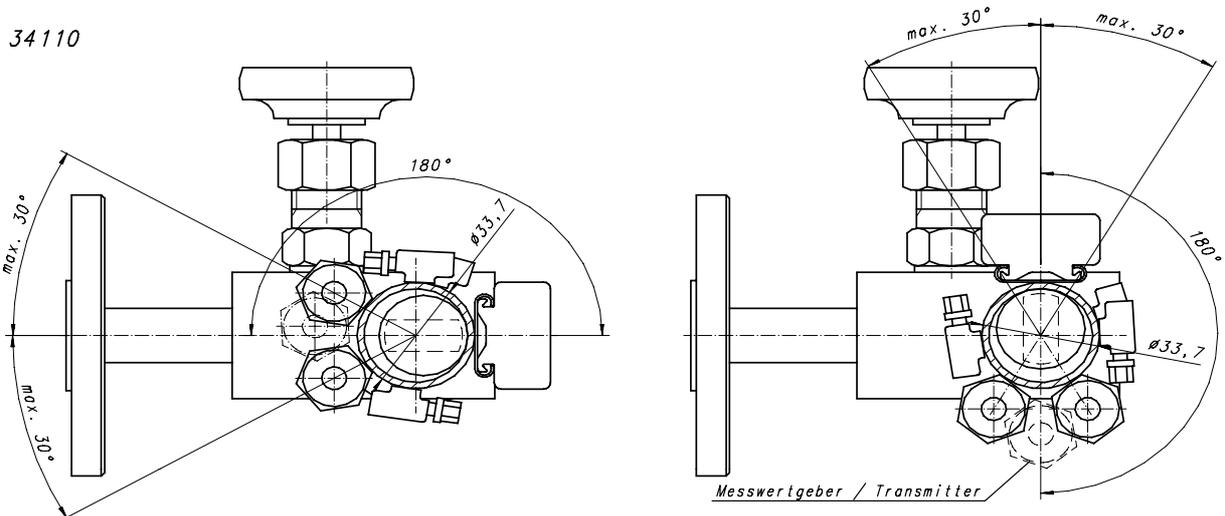
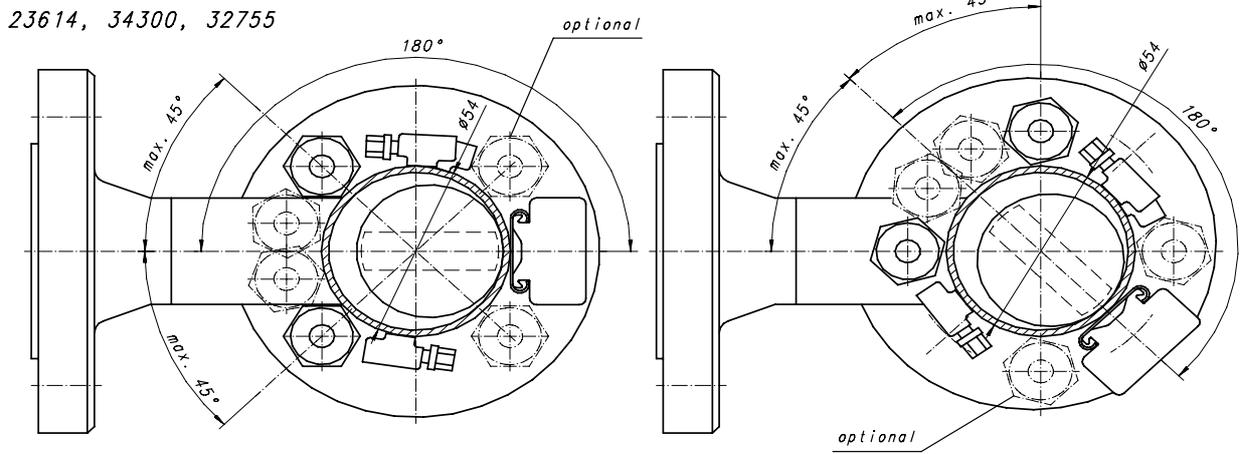
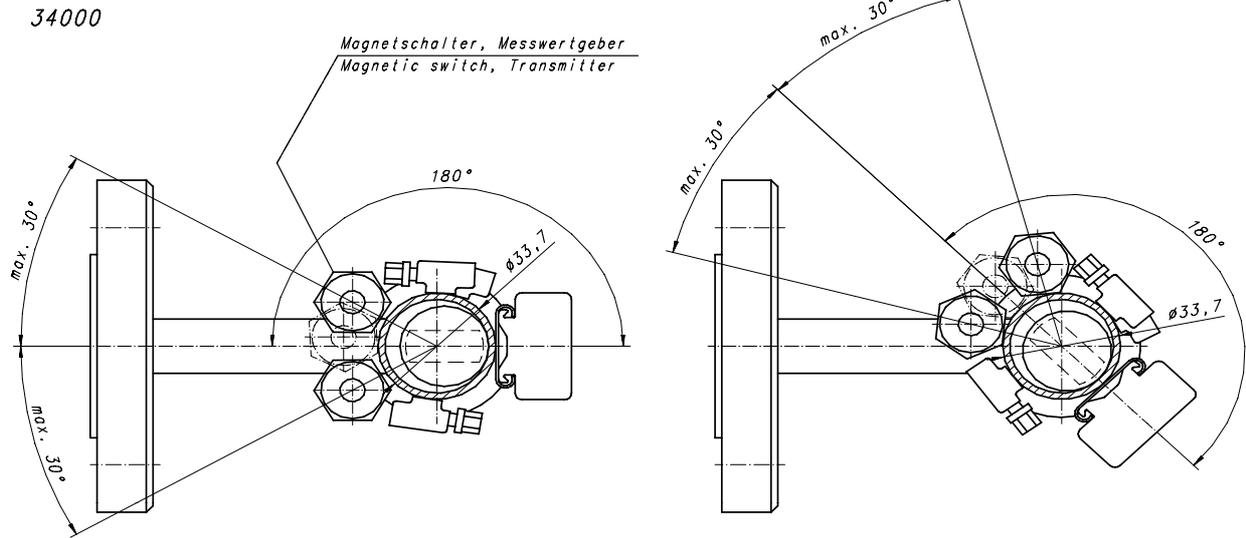


This data sheet set applies to Weka type 37160/xx magnetic switches manufactured after June 2008. Switches made before this time have Blue rather than Grey conductors to common terminal of switch.

**Mounting**

**Normal:** Valid is the indicated switching function on the type label (float below switch)  
 Installation 180 °C opposite of the indication rail with the permitted tolerance according to the tube diameter  
 Cable exit downwards

**Variation:** Each of the following variants leads to a reversion of the indicated switching logic  
 Mounting with cable exit upwards  
 Mounting adjacent to the indication rail



**Caution:**

Read this information before installing level indicators that have magnetic switches.

Use of magnetic switches with inappropriate contact ratings can result in damage to the magnetic switches and malfunctioning of level indicators.

For Ex rated magnetic switches (311x0-NI / -ND) it is necessary to adhere to the specified limit values of electrical parameters of the circuit.

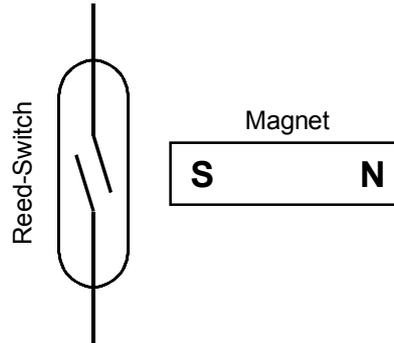
**Construction:**

The key element of a Weka magnetic switch module or sub-assembly is a reed switch.

A reed switch consists of two pieces of special flattened wire (the reeds or "paddles") hermetically sealed in a glass capsule. The reed switch is actuated by the magnetic field of the float. The glass capsule is filled with an protective gas that ensures high electrical life expectancy of millions of switching cycles.

**Contact rating (resistive loads):**

	Typ	Contact rating
N/O or N/C switches	31130 -NN	max. 250V max. 1A max. 220VA max. 160W
	31130 -NW	
	31130 -NA	
	31130 -NK	
	31130 -NI	
	31130 -ND	
	31130 -NS	
Changeover switches	31160 -NN	Also 37160-N* max. 250V max. 1A max. 60VA max. 40W
	31160 -NW	
	31160 -NA	
	31160 -NK	
	31160 -NI	
	31160 -ND	
	31160 -NS	



These values apply only for resistive loads.  
For inductive loads, see below.

**Note:**

None of the specified values may be exceeded.

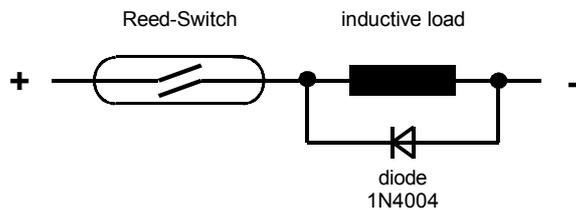
**Caution:**

For many resistive load applications, the electrical circuit can have inductance and / or capacitance. Voltage spikes of 6 to 7 times the normal values can occur when switching off inductive loads. This can sometimes result in the contacts getting welded together, destroying the switch.

Examples of inductive loads are transformers, solenoid operated devices (valves, contactors), some types of wound-filament lamps, etc.

**Protecting magnetic switches used with inductive loads:**

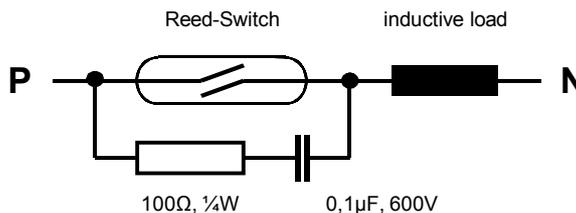
**Figure 1 (D.C.)**



**For D.C. applications:**

A diode connected across the load coil short circuits the reverse voltage spike that occurs when the supply is switched off, thus protecting the switch contacts.

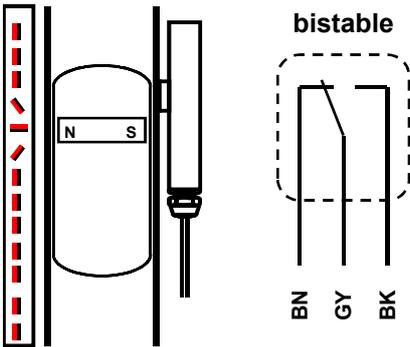
**Figure 2 (A.C.)**



**For A.C. applications:**

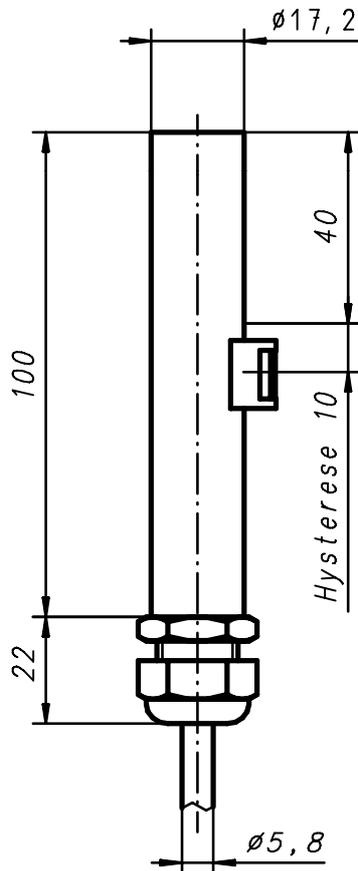
A resistor and capacitor in series connected across the switch forms a high impedance path at normal A.C. frequencies. This impedance turns low at high frequencies, diverting spikes currents from the switch.

**External electrical connections**



- Installed opposite the indication rail
- Cable exit downwards

**Dimensions**



**Function**

**Magnetic switch for  
WEKA Visual Level Indicators**

The switch module is attached to the float chamber, diametrically opposite the indication rail, with cable-exit below (see data sheet 20010501). The float magnet activates the reed contact when the liquid in the float chamber reaches that level. The switching logic is reversible by installing the switch module adjacent to the indication rail, or alternatively by inverting the switch module with cable-exit upwards.

Please refer to the safety guidelines.

**Product code**

<b>37160-NN/3</b>	<b>with 3m cable</b>
<b>37160-NN/5</b>	<b>with 5m cable</b>
<b>37160-NN/10</b>	<b>with 10m cable</b>
<b>37160-NN/20</b>	<b>with 20m cable</b>

**Switching logic**

**Change over, bistable**

**Contact rating**

max.	230V
max.	1A
max.	60VA
max.	60W

**Enclosure**

IP68 - 5bar (EN 60529)

**Material**

Housing	Stainless steel 316 /316L
Cable gland	PA6, grey, 3...8mm
Seal	Perbunan (NBR)
Cable	LiYY, grey, $\phi$ 5.8mm
Shield	not shielded
Cable cores	3 x 0,75mm <sup>2</sup>
Core colours	BK, GY, BN
Tag label	Polyester, yellow, black writing

**Operating conditions**

Media temperature	Ambient temperature
-50°C...+150°C	-20°C...+80°C

Media temperature  
Ambient temperature

Temperature of liquid within the float chamber  
Temperature of air around the magnetic switch

**Fixation**

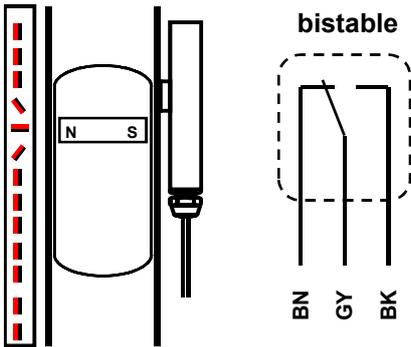
If ordered together with a VLI fixation is included in the delivery  
If fixation is ordered separately please indicate tube diameter

for tube diameter	30...40mm	Article no.	80648
for tube diameter	40...57mm and 57...80mm	Article no.	84043

**Remarks**

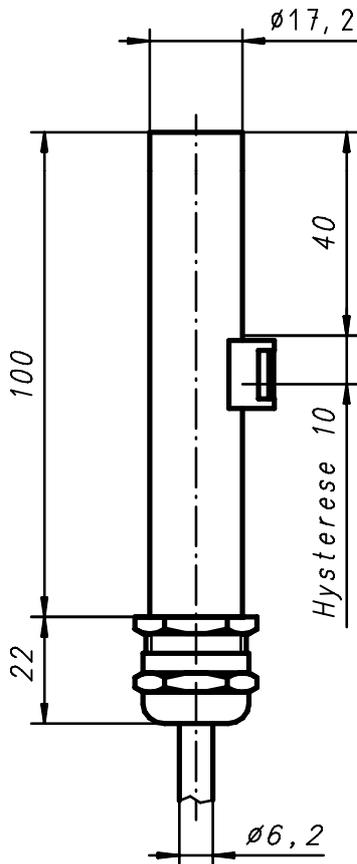
The switch is maintenance free.

**External electrical connections**



- Installed opposite the indication rail
- Cable exit downwards

**Dimensions**



**Function**

**Magnetic switch for WEKA Visual Level Indicators**

The switch module is attached to the float chamber, diametrically opposite the indication rail, with cable-exit below (see data sheet 20010501). The float magnet activates the reed contact when the liquid in the float chamber reaches that level. The switching logic is reversible by installing the switch module adjacent to the indication rail, or alternatively by inverting the switch module with cable-exit upwards.

Please refer to the safety guidelines.

<b>Product code</b>	<b>37160-NS/3</b>	<b>with 3m cable</b>
	<b>37160-NS/5</b>	<b>with 5m cable</b>
	<b>37160-NS/10</b>	<b>with 10m cable</b>
	<b>37160-NS/20</b>	<b>with 20m cable</b>

**Switching logic**

**Change over, bistable**

<b>Contact rating</b>	max.	230V
	max.	1A
	max.	60VA
	max.	60W

**Enclosure**

IP68 - (EN 60529)

**Material**

Housing	Stainless steel 316 /316L
Cable gland	Stainless steel, 1.4436, 5...10mm
Seal	FPM
Cable	LiYY, grey, Ø 5.8mm
Shield	not shielded
Cable cores	3 x 0,75mm <sup>2</sup>
Core colours	BK, GY, BN
Tag label	Polyester, silver, black writing

**Operating conditions**

Media temperature	Ambient temperature
-50°C...+150°C	-20°C...+80°C

Media temperature	Temperature of liquid within the float chamber
Ambient temperature	Temperature of air around the magnetic switch

**Fixation**

If ordered together with a VLI fixation is included in the delivery

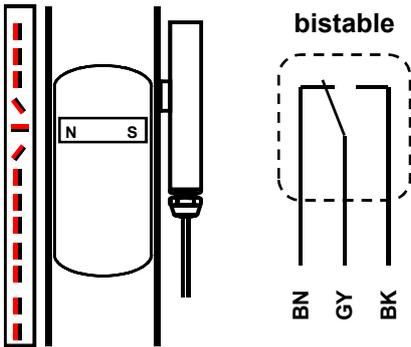
If fixation is ordered separately please indicate tube diameter

for tube diameter	30...40mm	Article no.	80648
for tube diameter	40...57mm and 57...80mm	Article no.	84043

**Remarks**

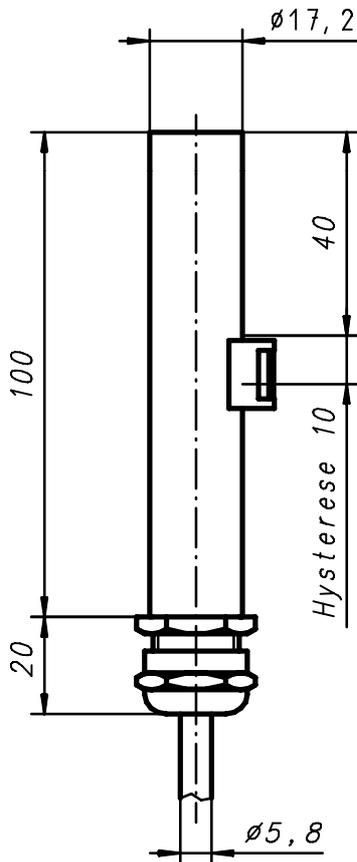
The switch is maintenance free.

**External electrical connections**



- Installed opposite the indication rail
- Cable exit downwards

**Dimensions**



**Function**

**Magnetic switch for  
WEKA Visual Level Indicators**

The switch module is attached to the float chamber, diametrically opposite the indication rail, with cable-exit below (see data sheet 20010501). The float magnet activates the reed contact when the liquid in the float chamber reaches that level. The switching logic is reversible by installing the switch module adjacent to the indication rail, or alternatively by inverting the switch module with cable-exit upwards.

Please refer to the safety guidelines.

**Product code**

<b>37160-NM/3</b>	<b>with 3m cable</b>
<b>37160-NM/5</b>	<b>with 5m cable</b>
<b>37160-NM/10</b>	<b>with 10m cable</b>
<b>37160-NM/20</b>	<b>with 20m cable</b>

**Switching logic**

**Change over, bistable**

**Contact rating**

max.	230V
max.	1A
max.	60VA
max.	60W

**Enclosure**

IP68 - 5bar (EN 60529)

**Material**

Housing	Stainless steel 316 /316L
Cable gland	Brass, nickel-plated, 5...10mm
Seal	Perbunan (NBR)
Cable	LiYY, grey, $\varnothing$ 5.8mm
Shield	not shielded
Cable cores	3 x 0,75mm <sup>2</sup>
Core colours	BK, GY, BN
Tag label	Polyester, silver, black writing

**Operating conditions**

Media temperature	Ambient temperature
-50°C...+150°C	-20°C...+80°C

Media temperature  
Ambient temperature

Temperature of liquid within the float chamber  
Temperature of air around the magnetic switch

**Fixation**

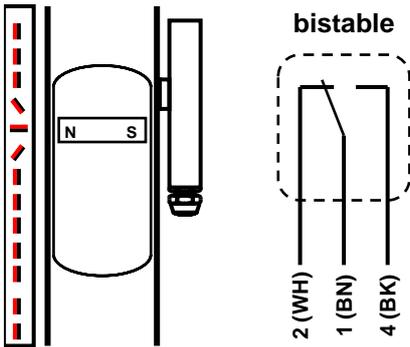
If ordered together with a VLI fixation is included in the delivery  
If fixation is ordered separately please indicate tube diameter

for tube diameter	30...40mm	Article no.	80648
for tube diameter	40...57mm and 57...80mm	Article no.	84043

**Remarks**

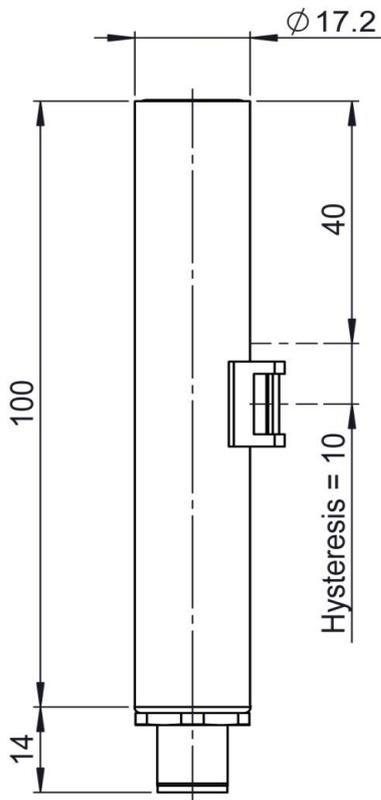
The switch is maintenance free.

**External electrical connections**



- Installed opposite to indication rail
- Connector downwards
- () colours for IEC 61076-2-101 cabling

**Dimensions**



**Instruction manual**

**Function Magnetic switch for WEKA VLI**

The magnetic switch is mounted outside of the float chamber opposite to the indication rail. The switching logic can be reversed by inverting the switch module with connector upwards or by installing the switch module adjacent to the indication rail where technically authorised (see datasheet 20010501). The magnet inside the float activates the reed switch, when the liquid in the float chamber reaches that level.

Please refer to the safety guidelines.

**Product code 31160-NP**

**Switching logic Change-over, bistable SPDT**

**Contact rating**  
 max. 230V  
 max. 1A  
 max. 60VA  
 max. 60W

**Enclosure IP68 - 5bar (EN 60529)**

**Material**  
 Housing Stainless steel 316 /316L  
 Connector M12 A, IEC 61076-2-101  
 Zinc die-cast, Nickel plated  
 PA (Polyamide)

**Pins 1, 2 & 4 in a standard M12 connector are used**

Type label Polyester: white, black printing

**Operating conditions**

Media temperature	Ambient temperature
-50°C...+150°C	-20°C...+80°C

Media temperature Temperature of liquid within the float chamber  
 Ambient temperature Temperature of air around the magnetic switch

**Accessorie counter plug**

acc. price list  
 material PA (Polyamide), IP67  
 for cable diameter 6...8mm  
 screwed terminals 0.75qmm  
 straight or angled



**Fixation**

When ordering level indicators with switches, hose clamps are included.  
 When ordering switches as spare parts, hose clamps are never included and must be ordered separately.  
 In case of ordering hose clamps pipe size must be indicated:

For pipe diameter 30...40mm Article no. 80648  
 For pipe diameter 40...57mm and 57...80mm Article no. 84043

**Note**

The switch is maintenance free.