RIL210

LEVEL SWITCH WITH 1 FLOAT

LEVEL

Immersion level controller with 1 or 2 control points

It can be used for dirty liquids, water, petroleum, cutting oils, and tolerates the presence of metal and ferrous particles, since the float does not hold a magnet and is integral with the rod.

The required length can be obtained simply by cutting the steel rod, using an ordinary pipe cutter; or the switching point can be varied by using a float with through hole allowing the required liquid control point to be modified whenever necessary.

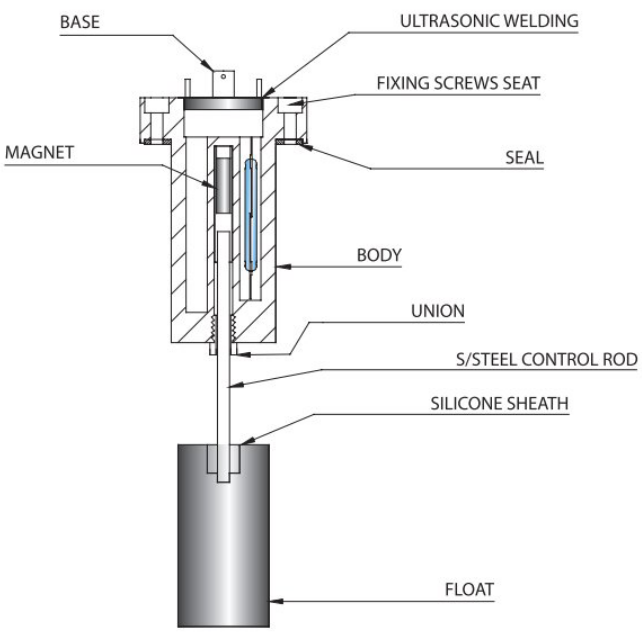
One float can operate just one Reed (min. or max. level), or two Reeds (min. and empty and extra max. level) thus meeting the most complex needs.

Total safety since the electrical part is completely separate in the tank side and perfectly sealed with respect to the external side by means of ultrasonic welding and resin coating of the pins.

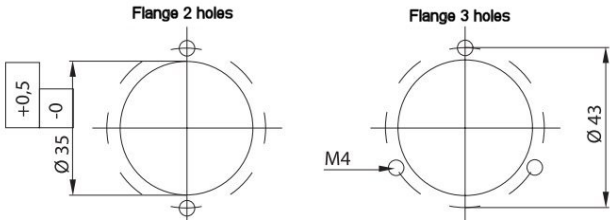
The nylon-glass body is very strong and very resistant with respect to chemicals, and is ideal as an insulating container for the Reed contacts.

The RIL210 come standard with rods suitable for control of a max. measurement of 500 or 1000mm. To obtain specific measurements, refer to the table on the next page.

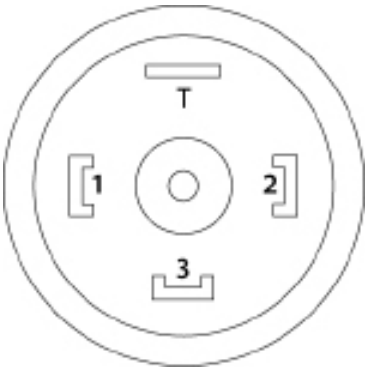
They can be ordered already arranged for the control of predetermined measurements.



Fixing diagram



Connection: Connector CE EN 175301-803-A IP65 PG.9/11



Through float

On request the float can be supplied with through hole and therefore be positioned in the required position without having to cut the rod (which can therefore be as long as the height of the tank).
If necessary, the liquid control point can be subsequently be modified as required by simply moving the float.

Connection rod cutting table

(N.B. : Carry out the cutting measurement with the rod in traction with respect to the body)

CONTROL VALUE L= (mm)	ROD CUTTING FOR MIN.LEVEL A= (mm)	CONTROL VALUE L1= (mm)	ROD CUTTING FOR MAX.LEVEL B= (mm)
90	62 H= 35		
100	62 H= 45		
110	62 H= 55		
120	116		
140	137		
160	158		
180	179	90	62 H1= 35
200	200	100	62 H1= 45
220	221	120	131
240	242	140	152
260	263	160	173
280	284	180	194
300	305	200	215
320	326	220	236
340	347	240	257
360	368	260	278
380	389	280	299
400	410	300	320
420	431	320	341
440	452	340	362
460	473	360	383
480	494	380	404
500	515	400	425
520	511	420	421
540	532	440	442
560	553	460	463
580	574	480	484
600	595	500	505
620	616	520	526
640	637	540	547
660	658	560	568
680	679	580	589
700	700	600	610
720	721	620	631
740	742	640	652
760	763	660	673
780	784	680	694
800	805	700	715
820	826	720	736
840	847	740	757
860	868	760	778
880	889	780	799
900	910	800	820
920	931	820	841
940	952	840	862
960	973	860	883
980	994	880	904
1000	1015	900	925

Advantages of the range

1- These electromagnetic level gauges in Kits can be obtained in the required length "L" simply by cutting the control rod with an ordinary pipe cutter and press fitting the float in the cutting place (see table for cutting).

2- The control rod can commutate the signal of 1 or 2 Reeds in sequence (with single or exchange contact).

3- The float does not hold magnets, therefore the Level can also be used in the presence of dirty liquids or ferrous particles.

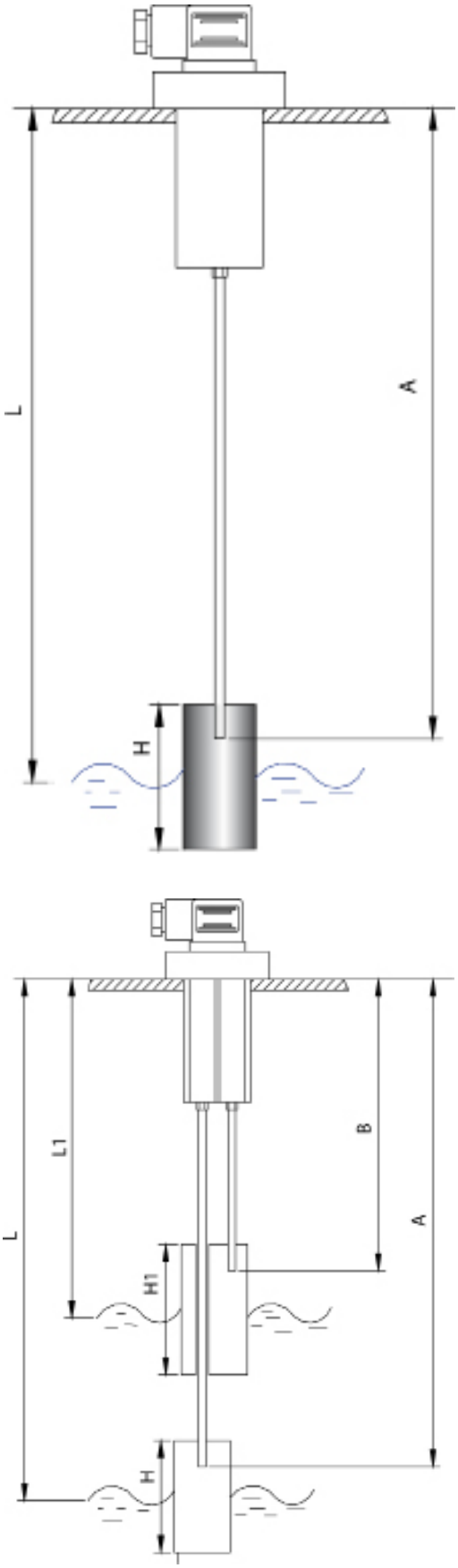
H = 35 (L = 90 mm)

H = 45 (L = 100 mm)

H = 55 (L = 110 mm)

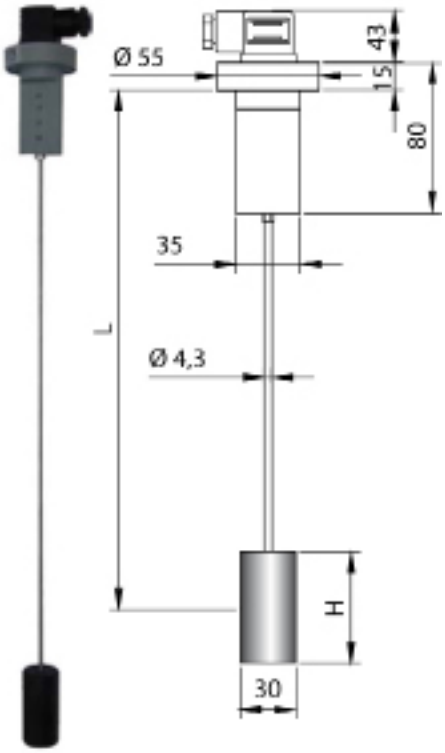
H = 60 (L = 120 - 500 mm)

H = 90 (L = 501 - 1000 mm)

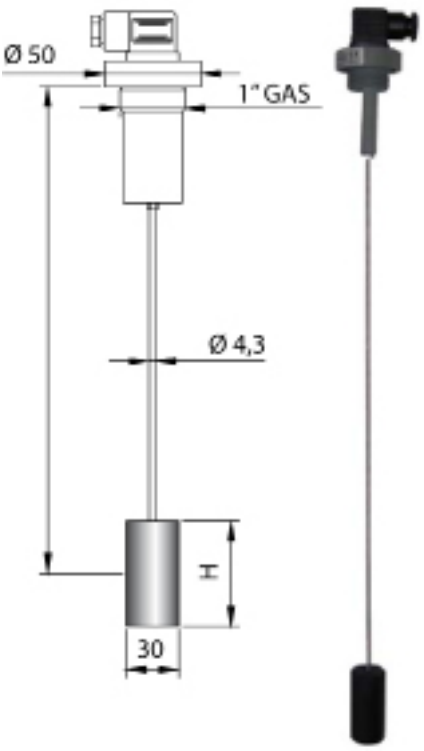


L-L1 = 100 mm
A-B = 90 mm
H = 35 (L = 90 mm)
H = 45 (L = 100 mm)
H = 55 (L = 110 mm)
H = 60 (L = 120 - 500 mm)
H = 90 (L = 501 - 1000 mm)
H1 = 35 (L1 = 90)
H1 = 45 (L1 = 100)
H1 = 70 (L1 = 120 - 1000 mm)

RIL210/ G1-F (FLANGE)



RIL210 / G1-1"GAS



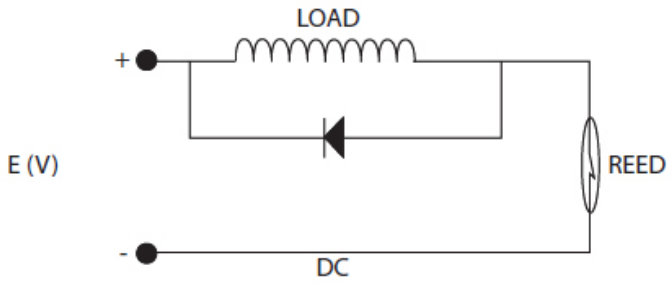
Model	CONNECTION	ELECTRICAL CONTACTS					REED	EXCHANGE REED	TEMPERATURE	PRESSURE
RIL210	FLANGE 3 or 2 HOLES	S1 Closed in absence of liquid	S1A Closed in presence of liquid	S2 Exchange	S3 Minimun empty	S4 Special Minimun empty	3A. 60W 60 V.A. 230VDC 250VAC	1A. 20W 20 V.A. 150VDC 150VAC	-20 ÷ +80°C (on request) -20 ÷ +120°C	10 Bar
	1" GAS									
	1" 1/4 GAS									
	1" 1/4 GAS									

IMPORTANT

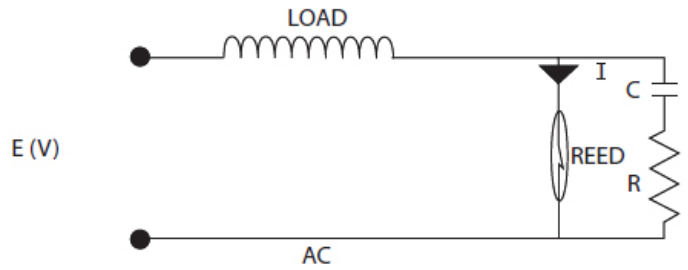
The electrical characteristics of the reed contacts, given in the descriptive tables, are supplied by the manufacturer. If the level indicator is connected to an inductive, resistive or capacitive load or lamp, permanent or temporary sticking of the contact may occur for particular load values, thus compromising its proper operation. It is advisable to appraise the nature of the load before connecting the level indicator. After identifying the type of load the level indicator will be connected to, a contact protection circuit must be included between the indicator and load, according to the following notes:

INDUCTIVE LOAD

When the reed contacts are used to control inductive loads such as motors, solenoid valves or solenoids, due to the very nature of the load, they are subject to voltage peaks (transients) during normal operation. These peaks can cause direct damage to the reed contact, significantly reducing its service life. With continuous operation, protection of the contact is relatively easy by simply installing a diode in parallel with the load. The polarity must be respected.



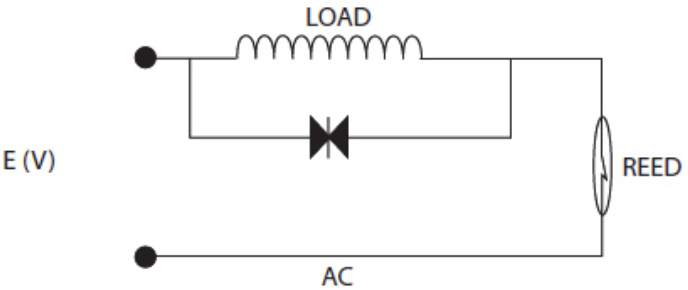
When the circuit is alternating, the diode cannot be used. Therefore an arc suppression unit must be used; in general this is a block of resistances and capacitances connected together in series and in parallel with the reed.



$$C = \frac{I^2}{10} \quad [\mu F]$$

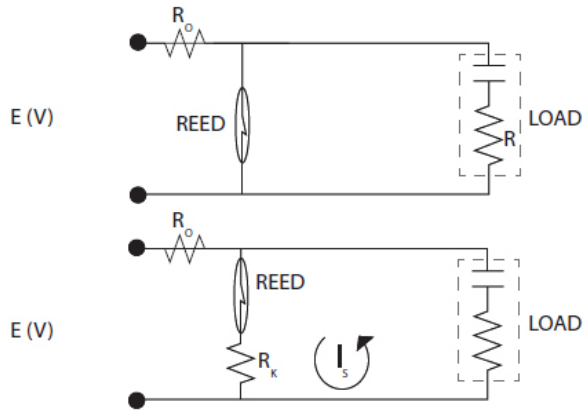
$$R = \frac{E}{10I\ (I + \frac{E}{50})} \quad [\Omega]$$

When the contact remains open for a long time, it is advisable to install a varistor in parallel with the load.



CAPACITIVE AND RESISTIVE LOAD

Unlike the inductive load, in this case it is the current peaks caused by the charge and discharge of the capacitances that can cause faults in the reed contacts. When a capacitive load is commutated (e.g. even just the capacity of the cables) a discharge of strength depending on the capacity and length of the cables (considered as a series of resistances) passes through the reed contact.
The discharge current can be limited by a resistance in series with a capacitor, all in parallel with the load. The sizing of the resistance and the capacitance depends on the characteristics of the circuit. In any case the values can be determined in the most effective way to minimise the effects of this discharge. The figure shows typical examples of circuits protecting against charge / discharge current peaks.



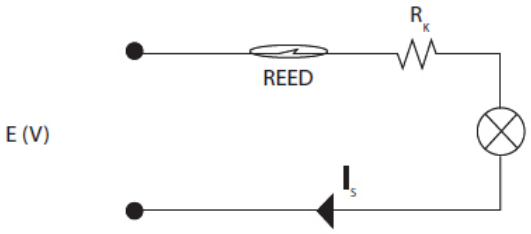
Where R is generally between 50 Ω e 500 Ω

Where R_K is the limiting resistance of current peaks.
To determine R_K, the following equation is used

$$I_S = \frac{\text{V stored in load}}{R_K\ [K\Omega]} < 0{,}1\ A$$

LAMP

In fact, when the lamp filament is cold, i.e. the lamp is off, its resistance is approximately 10 times smaller than when it is hot. This means that if a reed contact is used to commutate a lamp, when it closes, even for just a short time, a current 10 times larger than that which would circulate during operation passes through the reed contact. If this value exceeds the maximum permissible, the contact could become damaged or its life expectancy reduced. This overcurrent can be limited by installing a resistance of adequate value in series with the lamp.



Where R_K must be such so that

$$0{,}5\ A < I_S < 1\ A \quad \text{con } I_S = \frac{E\ (V)}{R_K\ [\Omega]}$$

Another possibility is to connect a resistance in parallel with the reed, so that the lamp filament is preheated, and therefore not have extra current when the contact closes.