

# Operating Instructions

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- ▶ **Read these Safety Instructions before using the switch for the first time and follow the Operating instructions.**

### **Safety instructions**

1. The installation, initial operation and maintenance should only be carried out by a qualified expert with electrical know-how.
2. Comply with the local and statutory rules and/or the VDE0100.
3. Before electrical connection, check the specifications on the data plate and the technical data of this manual.
4. A fuse must be connected in series to the supply voltage, according to the Standard and Normative documents.
5. Protect the signal contacts of the limit switch against voltage peaks when inductive or capacitive loads are connected.
6. The device may be put into operation only if the electrical connection is correct. To secure the type of protection, the sealing cap and the gasket must be placed correctly and the screw nut of the cable gland has to be fixed and fastened to the cable entry.
7. The earth connection of the device has to be installed in such a way that mechanical damage will be excluded.
8. The controller has to be mounted in a horizontal plane, the membrane has to be placed with a maximum 5 ° slope from the horizontal.
9. Do not handle or modify the adjusting point of the device. It has been adjusted at the factory. .
10. For a proper function the membrane must not to be struck by the filling stream, being hitted or dented.
11. Switch off the power supply, before disconnecting the device.

## Operating instructions

### 1. Specification

#### 1.1 Intended use

The overpressure indicator observes the pressure as a limit switch in silos and vessels. It is used to prevent the overpressure that can be in the containers due to the pneumatic pressure filling systems or the blocking of the filters or air outlets. This signal prevents the formation of cracks, dents and deformations that in many cases leaves the silo out of service.

#### 1.2 Function

The operation of these devices is very simple. A very large Stainless Steel membrane, to avoid the dust and dirt causing obstructions, is sensitive to the air pressure and transmits this to a rod which actuates a micro switch. The controller is adjusted at 400 mm w.c. (0.04 bar). Other pressures are available under request.

#### 1.3 Technical data

<b>Manufacturer</b>	Talleres Filsa, S.A.U.
<b>Address</b>	Bernat Metge, 33 08100 Mollet del Vallès (Barcelona)
<b>Name</b>	Pendulum level indicator
<b>Type</b>	<b>KP</b> ref: <b>2230</b>
<b>Actuation pressure</b>	+400 mm.c.a. (+0.04 bar)
(Other pressures under request)	
<b>Ambient pressure</b>	Atmospherical
<b>Maximum pressure</b>	+0.5 bar
<b>Cable entry</b>	M20x1.5
<b>Maximum voltage</b>	250 V AC
<b>Contact function</b>	1 NO + 1 NC
<b>Capacity of the contact</b>	15 A / 250 V AC (for resistive loads)

For inductive or capacitive loads reduce at 50%

<b>Ambient temperature</b>	-15 °C ... +60 °C
<b>Protection</b>	IP65 according DIN EN60529 with condensation protection valve
<b>Weight</b>	1.05 kg

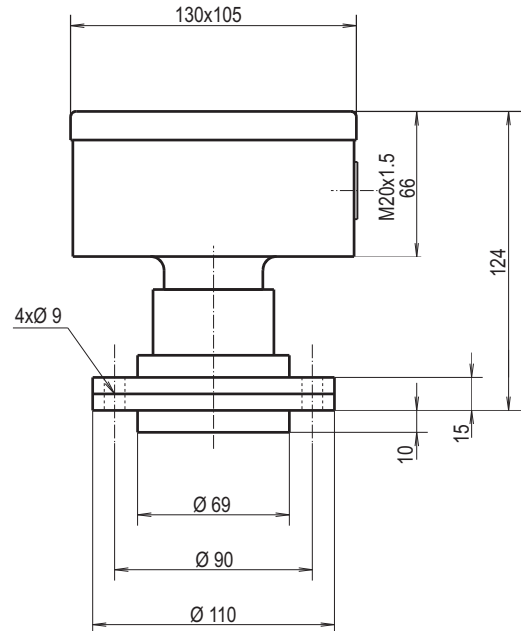
#### 1.4 Materials

<b>Housing</b>	Glass reinforced ABS
<b>Flange connection</b>	Aluminium
<b>Membrane</b>	Stainless Steel 1.4301
<b>Fixing gasket</b>	Rubber
<b>Welded counterflange</b>	Stainless Steel 1.4305

### 1.5 Dimensions

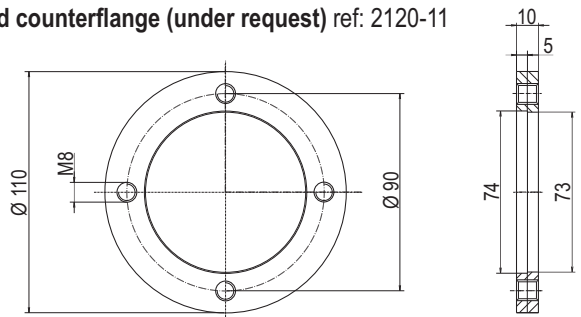
Aproximate measures are given in mm.

#### Controller



KP-001

#### Welded counterflange (under request) ref: 2120-11



KP-002

## 2. Installation

### 2.1 Preparing for use

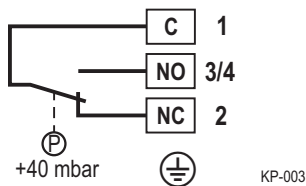
- Read the Safety Instructions and the Operating Instructions before using the controller.
- Verify if you have got all the parts:
  - Housing.
  - Fixing gasket.
- Verify and inspect the device and membrane to detect possible damage to the membrane during the transport or installation.
- The membrane must not be struck by the filling stream.

## 2.2 Mechanical connection

Drill a Ø 71 mm hole and 4 holes in the top of the silo or vessel and mount the indicator using screws, rods, fasteners, nuts M6 or using the counterflange under request making sure of the horizontal position of the membrane.

## 2.3 Electrical connection

### Connection diagram



### Cable gland

- After electrical connection, tighten the cable gland.
- Screw the cap nut, until the cable entry is closed tightly to ensure the water-tightness.

## 3. Use

### 3.1 Commissioning

- Put the level indicator into operation only, if the installation and the electrical connection have been done correctly.

### 3.2 Normal operation

- Use the level indicator in its intended application only.
- Comply with the specifications on the data plate and the technical data of this manual.
- If the controller is damaged, disconnect it immediately.
- It is forbidden to make changes to the device. This violates the Normative.

### 3.3 Inexpert handling

- Ignoring the Safety instructions and the operating instructions.
- Not intended use.
- Making changes or handling the controller.
- Violation against applicable Law and Standards.
- Using non original parts.

## 4. Maintenance, servicing and spare parts

### 4.1 Maintenance

- If used correctly, no specific maintenance is required.

### 4.2 Servicing

- Check and review the state of the housing, the membrane and the correct commutation of the electrical contact, as well.

### 4.3 Spare parts

- There are no spare parts for this controller.

## 5. Storage

- Store the controller in a dry and dust-free environment.

## 6. Disposal

- Switch off the power supply, before disconnecting the device.
- The controller can be recycled.
- The disposal applies to the valid environmental Guidelines according to the location of the carrier and the local manufacturing conditions.

FILSA constantly strives to improve its products and reserves the right to modify designs, materials and data without prior notice.

Keep this manual for further questions!