

# Operating Instructions

Index	Page
<b>Safety instructions</b> .....	02
<b>Operating instructions</b>	
<b>1. Specification</b> .....	03
1.1 Intended use	
1.2 Function	
1.3 Technical data	
1.4 Materials	
1.5 Dimensions	
<b>2. Installation</b> .....	03
2.1 Preparing for use	
2.2 Mechanical connection .....	04
2.3 Electrical connection	
<b>3. Use</b> .....	04
3.1 Commissioning	
3.2 Normal operation	
3.3 Inexpert handling	
<b>4. Maintenance, servicing and spare parts</b> .....	04
4.1 Maintenance	
4.2 Servicing	
4.3 Spare parts	
<b>5. Storage</b> .....	04
<b>6. Disposal</b> .....	04



▶ **Read these Safety instructions before using the device 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 probe must not be hit by the filling stream. To avoid this, deflect the filling stream or install a deflection screen or a protection roof. It is also recommended to install a protection roof when the controllers are used as empty-indicator or medium-indicator in silos where vaults could be formed or where high loads above it could exist.
8. For a proper function, the device should be installed with a 20 ° to 30 ° slope from the horizontal onto the silo wall to facilitate the flow of the material and to prevent the material from remaining over the probe. The correct position of the probe is when the marks in the process connection are up and down. With this position the product can flow between the fork and prevent damage to the probe due to the material weight.
9. The most sensitive part of the controller is the probe, do not hit or deform the probe, the device can become useless.
10. Switch off the power supply, before disconnecting the device.

## Operating instructions

### 1. Specification

#### 1.1 Intended use

The vibrating level indicator ILV are to be used to control the maximum or minimum level of bulk solids in silos or vessels.

It is recommended for dusty and powdery, granulated and grainy bulk goods like dust, flour, grain, sand, plastic, etc. with a minimum bulk density from 0.06 t/m<sup>3</sup>.

It is not recommended for sticky solids or products that have the tendency to settle over the fork.

#### 1.2 Function

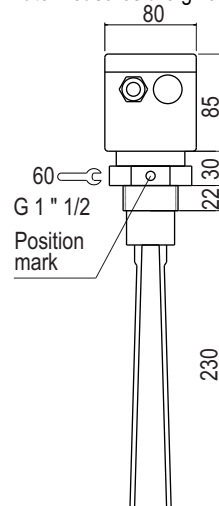
The fork probe must be exposed to the material. The probe of these controllers is activated to its resonant frequency by a piezoelectric system. When the product covers the probe, the vibration is dampened and the control unit reverses the signal. When the product disappears from the fork, it returns to the normal vibrating state and the signal turns to the initial position.

#### 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>	Vibrating level indicator
<b>Type</b>	<b>ILV</b> ref: <b>2190-...</b>
<b>Supply voltage</b>	
<b>2190-230-001</b>	230 V AC (50 ... 60 Hz)
<b>2190-115-001</b>	115 V AC (50 ... 60 Hz)
<b>2190-024-001</b>	24 V AC (50 ... 60 Hz)
<b>2190-2122-001</b>	18 ... 36 V DC
<b>Power consumption</b>	1 VA
<b>Density of the product</b>	From 0.06 t/m <sup>3</sup>
<b>Maximum pressure</b>	+25 bar
<b>Cable entry</b>	2 of M20x1.5
<b>Relay output</b>	1 NO + 1 NC 1 A / 250 V AC
<b>Function status</b>	Under voltage: green LED Relay enabled: red LED
<b>Product temperature</b>	-20 °C ... +80 °C
<b>Ambient temperature</b>	-20 °C ... +60 °C
<b>Protection</b>	IP65 according DIN EN60529
<b>Weight</b>	1.36 kg
<b>1.4 Materials</b>	
<b>Housing</b>	Polycarbonate
<b>Probe</b>	Stainless Steel 1.4305

#### 1.5 Dimensions

Approximate measures are given in mm.

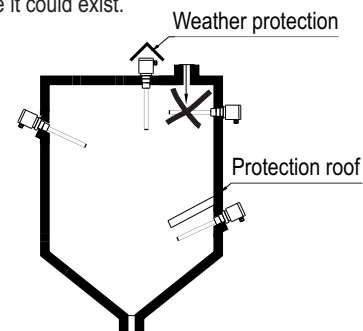


ILV-001

## 2. Installation

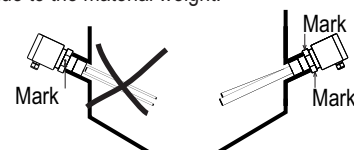
#### 2.1 Preparing for use

- Read the Safety instructions and the Operating instructions before using the controller.
- The probe must not be hit by the filling stream. To avoid this, deflect the filling stream or install a deflection screen or a protection roof. It is also recommended to install a protection roof when the controllers are used as empty-indicator or medium-indicator in silos where vaults could be formed or where high loads above it could exist.



ILV-002

- For a proper function, the device should be installed with a 20° to 30° slope from the horizontal onto the silo wall to facilitate the flow of the material and to prevent the material from remaining over the probe.
- The correct position of the probe is when the marks in the process connection are up and down. With this position the product can flow between the fork and prevent damage to the probe due to the material weight.



ILV-003

## 2.2 Mechanical connection

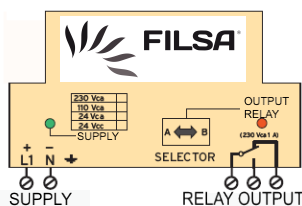
The device can be mounted horizontally or vertically depending on the model.

The normal installation is by screwing the device onto the deposit wall, with a mounting flange or with an appropriate support to fix it.

When the controller is fixed and mounted, the housing can be orientated 300 ° using a 60 spanner to turn it and holding the process connection to place the cable gland correctly

## 2.3 Electrical connection

### Connection diagram



ILV-004

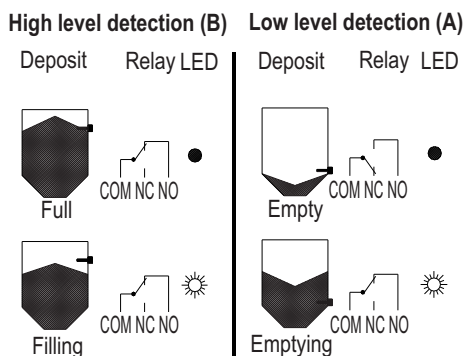
The green LED shows that there is supply between the terminals L1(+) y N(-).

The red LED shows that the controller detects product. Independently of the detection adjustment, when the product will cover the rod, the red LED will be switched on.

**Level selector:** With the selector (A-B) inside the module, it can be selected the function of the device depending on the position of the selector.

**High level detection:** Selector in position B. For high level detection, the relay is disengaged when the probe is covered of product.

**Low level detection:** Selector in position A. For low level detection, the relay is disengaged when the probe is uncovered of product.



ILV-005

### Cable gland

- Fasten the cable gland after making the electrical connection.
- Fix and fasten the screw nut of the cable gland to make sure of the water-tightness.

## 3. Use

### 3.1 Commissioning

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

### 3.2 Normal operation

- Use the controller 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 of 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 probe and the correct commutation of the electrical contact, as well.

### 4.3 Spare parts

- Use original spare parts.
- The only possible spare part for these controllers is the electronic module.

## 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.