

ILV-660

Vibrating level indicator
for solids

Operating Instructions

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- ▶ **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.
9. 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.
10. The most sensitive part of the controller is the probe, do not hit or deform the probe it, the device can become useless.
11. Switch off the power supply, before disconnecting the device.

Instrucciones de uso

1. Descripción

1.1 Indicaciones para su aplicación

The vibrating level indicator ILV-660 is 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 0.05 t/m³ and a maximum grain size of 10 mm.

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

1.2 Funcionamiento

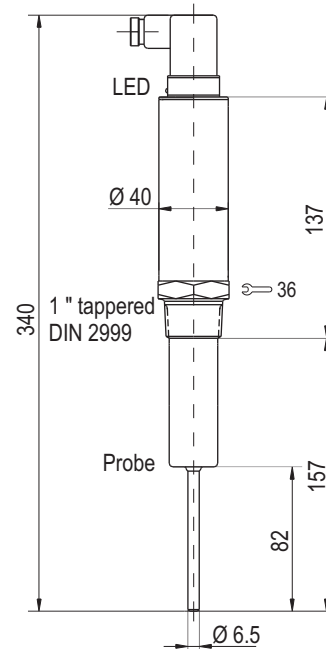
The probe must to be exposed to the material. The probe of these controllers is activated to its resonant frequency by a piezoelectric system. When the product covers the probe, the vibration is dampened and the control unit reverses the signal. When the product disappears from the fork, it returns to the normal vibrating state and the signal turns to the initial position. The device has a insensitive rod between the probe and the process connection to avoid the possibility of settle of the product over the probe up to 75 mm.

1.3 Technical data

Manufacturer	Talleres Filsa, S.A.U.
Address	Bernat Metge, 33 08100 Mollet del Vallès (Barcelona)
Name	Vibrating level indicator
Type	ILV-660 ref: 2190-0-600
Supply voltage	24 V DC ± 10 %
Power consumption	1 W
Density of the product	From 0.05 t/m ³
Maximum pressure	+10 bar
Cable entry	DIN43650 connector
Transistor output	PNP or NPN depending on the connection 350 mA / 24 V DC
Function status	Relay enabled: red LED
Resonance frequency	460 Hz
Response time	
Detecting level	1 s
Starting vibrating	2 ... 5 s
Product temperature	-20 °C ... +70 °C
Ambient temperature	-20 °C ... +60 °C
Protection	IP65 according DIN EN60529
Weight	0.73 kg
Max. load upon the probe	80 N
1.4 Materials	
Housing and probe	Stainless Steel 1.4301

1.5 Dimensions

Approximate measures are given in mm.

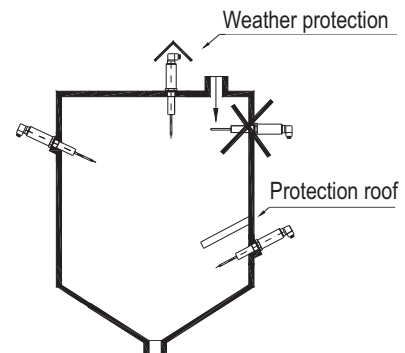


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2. Installation

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.
- 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.



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2.2 Mechanical connection

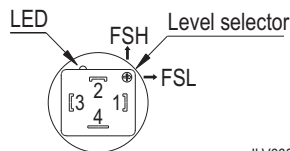
The device can be mounted horizontally or vertically depending on the model.

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

2.3 Electrical connection

Connection diagram

Terminal	PNP	NPN
1	+24 VDC = 3	- of load
2	+ of load	⊕ = 4
3	+24 VDC	+24 VDC
4	⊕	⊕

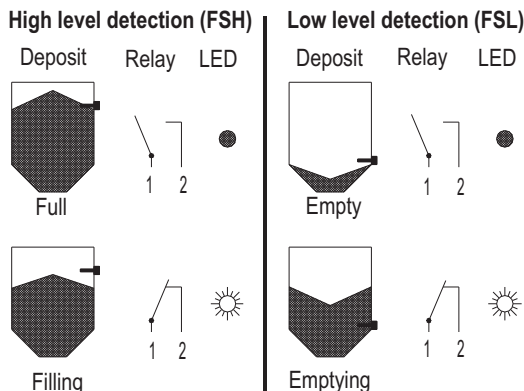


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Level selector: To connect the device or the level selection adjustment, take out the cap of the DIN connector and, if it is necessary the sealing gasket. Turn the selector to detect high or low level:

High level detection: Selector in position FSH. For high level detection, the relay is disengaged when the probe is covered of product or there is no supply. Red LED switched off.

Low level detection: Selector in position FSL. For low level detection, the relay is disengaged when the probe is uncovered of product or there is no supply. Red LED switched off.



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DIN connector

- Fasten the DIN connector after making the electrical connection.
- Fix and fasten the screw of the DIN connector to ensure 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

- 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!