FILSA®

ICS and ICS-V

Capacitive level indicator
for solids

Operating Instructions

Index **Page**

CE

 MI-ICS-EN-01

▶ **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 rod must not to be struck by the filling stream. Therefore the bulk material stream should be directed or redirected accordingly, or install a stable deflector or protective cover. Also, this protection roof or cover has to be installed in the detection of minium levels in silos or vessels where heavy loads due to the nature of the materials or the emptying system may damage the rod.
8. For a proper function in side mountings, the device should be installed with a 20 º to 30 º slope from the horizontal onto the silo wall to to facilitate the flow of the material and to prevent the material from remaining over the probe.
9. For a proper function, the device should be installed with a distance of minimum 300 mm from the silo walls.
10. Switch off the power supply, before disconnecting the device.

Operating instructions

1. Specification

1.1 Intended use

The capacitive levels indicators ICC and ICC-V with the control unit ICU are to be used to control the maximum or minimum level of bulk solids in silos or vessels.

The model ICS has a Stainless Steel rod recovered of PTFE and the devices can have a shaft up to 2.000 mm length depending of the product to control.

The model ICS-V is for vertical mounting and has a Stainless Steel cable rope that can be Polypropylene recovered under request and a Stainless Steel counterweight. The devices can have a rope shaft up to 15.000 mm length depending of the product to control.

Both models have a insensitive rod between the probe and the proccess connection to avoid the possibility of settle of the product over the probe and false signals. It is not recommended for sticky solids or products that have the tendency to settle over probe.

1.2 Function

The rod must to be exposed to the material. When the level of product reaches the rod, the control unit ICU reverses the signal due to a change of the capacity of the environment.
When the product disappear from the detection range, the signal turns to the initial position.
These devices have inside the housing a regulation system that allow the adjustment of the sensitivity due to a nut in the electronic module.

1.3 Technical data

Manufacturer	Talleres Filsa, S.A.U.	
Address	Bernat Metge, 33 08100 Mollet del Vallès (Barcelona)	
Name	Capacitive level indicator	
Type	**ICS**	ref: **2150**
	ICS-V	ref: **2150-0-001**
	ICS-V rec. PP	ref: **2150-0-002**
	Unit ICU	ref: **2151-...**
Supply voltage ICU		
2151-230	230 V AC (50 ... 60 Hz)	
2151-115	115 V AC (50 ... 60 Hz)	
2151-024	24 V AC (50 ... 60 Hz)	
2151-2122	24 V DC	
Maximum voltage ICS & ICS-V	18 V DC	
Power consumption ICU	1 VA	
Cable entry	DIN 43650 connector	
Relay output	1 NO + 1 NC	
Function status	Under voltage: green LED	
	Relay enabled: red LED	
Product temperature	-10 °C ... +70 °C	
(Under request up to 150 ºC)		
Ambient temperature ICU	-10 °C ... +60 °C	
Protection	IP65 according DIN EN60529	
Weight	1.15 kg depending on the model	
Weight ICU	0.25 kg	

1.4 Materials

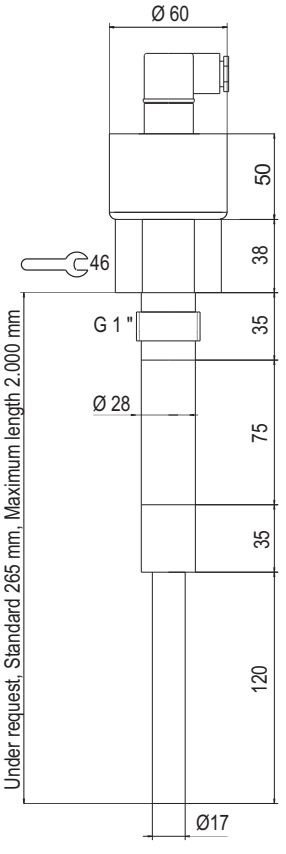
Housing	Polypropylene
Rod	Stainless Steel 1.4305
Rod cover	PTFE
Cable	Stainless Steel

(Under request Polypropylene recovered)

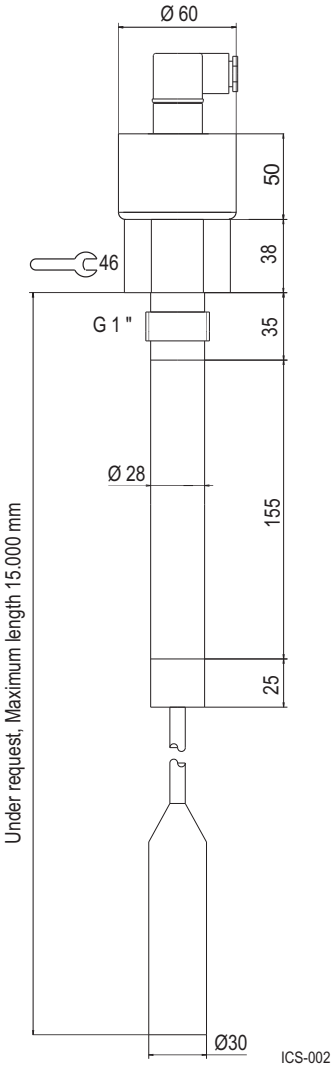
1.5 Dimensions

Approximate measures are given in mm.

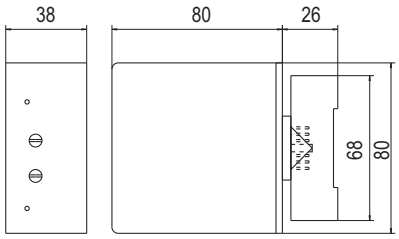
ICS



ICS-V



ICU

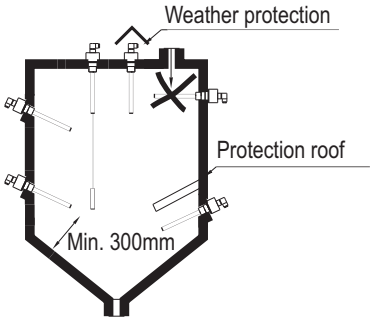


ICS-003

2. Installation

2.1 Preparing for use

- Read the Safety Instructions and the Operation Instructions before using the controller.
- The rod must not to be struck by the filling stream. Therefore the bulk material stream should be directed or redirected accordingly, or install a stable deflector or protective cover. Also, this protection roof or cover has to be installed in the detection of minium levels in silos or vessels where heavy loads due to the nature of the materials or the emptying system may damage the rod.



ICS-004

- For a proper function in side mountings, the device should be installed with a 20 º to 30 º slope from the horizontal onto the silo wall to to facilitate the flow of the material and to prevent the material from remaining over the probe.
- For a proper function, the device should be installed with a distance of minimum 300 mm from the silo walls.

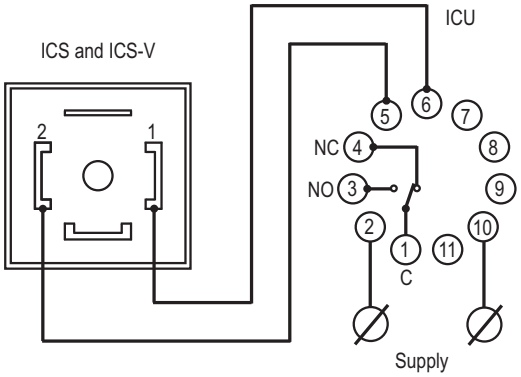
2.2 Mechanical connection

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 appropiate support to fix it.

2.3 Electrical connection

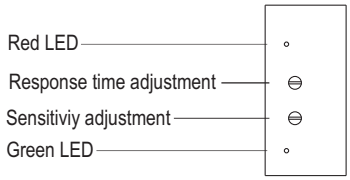
Connection diagram



ICS-005

Cable gland

- Fasten the cable gland or the DIN connector after making the electrical connection.
- Fix and fasten the screw nut of the cable gland or the screw of the DIN connector to ensure the water-tightness.



ICS-006

Sensitivity adjustment with rod uncovered

Connect the ICS or ICS-V to the unit control ICU and verify if the supply voltage is appropiated.

1- Verify that the rod is not exposed to the product.

2- Turn the response time adjustmen to “0”.

3- The red LED must be illuminated.

4- The green LED must be illuminated. Otherwise turn the sensitivity adjustment clockwise until the green LED will be illuminated.

5- Now turn slowly the sensitivity adjustment counterclockwise until the green LED will switch off. Make an extra turn to avoid fluctuations.

Sensitivity adjustment with rod covered

Connect the ICS or ICS-V to the unit control ICU and verify if the supply voltage is appropiated.

1- Verify that the rod is exposed to the product and covered.

2- Turn the response time adjustment to “0”.

3- The red LED must be illuminated.

4- The green LED must be switched off. Otherwise turn the sensitivity adjustment unterclockwise until the green LED will be switched off.

5- Now turn slowly the sensitivity adjustment clockwise until the green LED will be illuminated. Make an extra turn to avoid fluctuations. When the product will not cover the rod, the green LED will be switched off and the relay will be disengaged.

Response time adjustment

When the sensitivity adjustment is done and it is needed a delay of the relay output from the unit control ICU, the response time can be adjusted from 0 to 10 seconds.

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 rod 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.