

# 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.
7. The earth connection of the device has to be installed in such a way that mechanical damage will be excluded.
8. For a proper function, the paddle must not touch the pipe and it is necessary to ensure the free movement of the paddle. The paddle could be cut if it is necessary. .
9. For a proper function, the device must be installed in straight pipes with a minimum length at least of five times the diameter and far from valves or filters to avoid turbulence.
10. For a proper function, if the device is installed vertically, it is necessary to make an adjustment of the sensitivity to balance the paddle weight.
11. Switch off the power supply, before disconnecting the device.

## Operating instructions

### 1. Specification

#### 1.1 Intended use

The flow switches are used to control the flow in tubes and pipes in which waters, oil, chemical products, etc. are used.

The devices are supplied with 4 paddles kit for pipes to use it in pipes with a diameter from 1" to 8".

#### 1.2 Function

When the liquid flow of the pipe pulls the Stainless Steel paddle actuates a microswitch. This microswitch is inside the plastic housing where there is an adjustment of the sensitivity.

#### 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>	Flow switch	
<b>Type</b>	<b>LIT-1</b>	ref: <b>2604</b>
	<b>LIT-1 INOX</b>	ref: <b>2604-1</b>

#### Maximum pressure

**LIT-1** +11 bar

**LIT-1 INOX** +30 bar

**Cably entry** M20x1.5

**Maximum voltage** 250 V AC

**Contact function** 1 NA + 1 NC

**Capacity of the contact** 15 A / 24 ... 250 V AC  
(resistive load)

For capacitive or inductive loads reduce at 50%

**Temperature range** -40 °C ... +120 °C

**Max. ambient temperature** +60 °C

**Increasing flow speed** 1.0 m/s ... 172.5 m/s

**Decreasing flow speed** 0.6 m/s ... 165.7 m/s

**Protection** IP65 according DIN EN60529

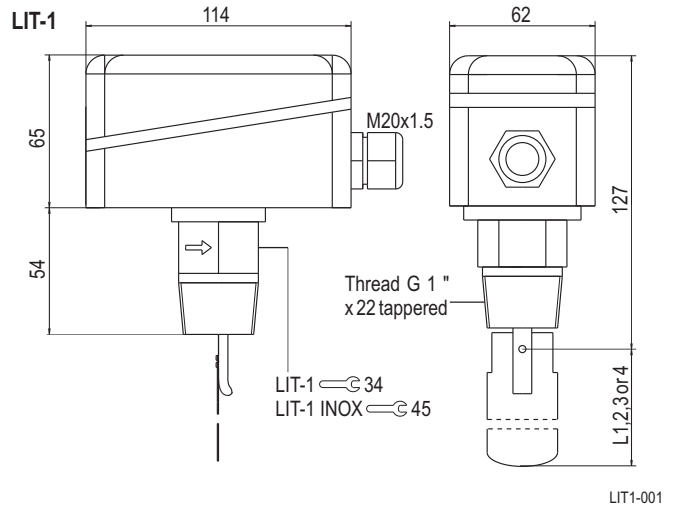
**Weight** 0.95 kg

#### 1.4 Materials

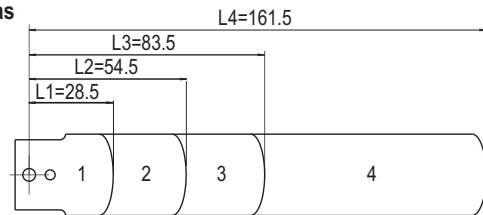
<b>Base</b>	ABS
<b>Cap</b>	Transparent Polycarbonate
<b>Paddle</b>	Stainless Steel 1.4404 AISI 316L
<b>Process connection</b>	
<b>LIT-1</b>	Brass
<b>LIT-1 INOX</b>	Stainless Steel 1.4404 AISI 316L

#### 1.5 Dimensions

Approximate measures are given in mm.



#### Lengüetas



LIT1-001

LIT1-002

## 2. Installation

### 2.1 Preparing for use

- Read the Safety Instructions and the Operation Instructions before using the controller.
- Take the switch and the paddle kit, out the packaging box.
- For a proper function, the paddle must not touch the pipe and it is necessary to ensure the free movement of the paddle. The paddle could be cut if it is necessary. .
- For a proper function, the device must be installed in straight pipes with a minimum length at least of five times the diameter and far from valves or filters to avoid turbulence.
- For a proper function, if the device is installed vertically, it is necessary to make an adjustment of the sensitivity to balance the paddle weight.

### 2.2 Mechanical connection

The switch can be side or vertically mounted and the arrow in the process connection has to be faced to the flow.

The thread of the switch is G 1" tapered. Mount the indicator in a screwed pipe, screwed into a "T" or into a welded coupling of pipes with a diameter from 1" to 8".

The indicator can be used in pipes with higher diameter depending on the application.

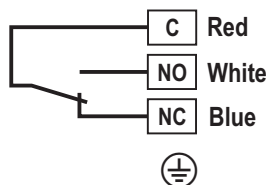
Verify the paddle length. The little one is used for 1 " pipes (25 mm), the second for 2 " (50 mm) and the third for 3 " (80 mm). There is a paddle with 161.5 mm length that can be used for larger pipes. Only one paddle has to be used at the same time (see table LIT1-003).

Pipe diameter	Paddle to use	Increasing flow	Decreasing flow
DIN mm	N	m <sup>3</sup> /h	m <sup>3</sup> /h
25	1	1.0 ... 2.1	0.6 ... 2.0
32	1	1.3 ... 3.0	0.8 ... 2.8
40	1	1.7 ... 4.0	1.1 ... 3.7
50	1,2	3.1 ... 6.1	2.2 ... 5.7
65	1,2	4.0 ... 7.0	2.7 ... 6.5
80	1,2,3	6.2 ... 11.4	4.3 ... 10.7
100	1,2,3	14.7 ... 29.0	11.4 ... 27.7
100	4	8.0 ... 18.4	6.1 ... 17.3
125	1,2,3	28.4 ... 55.6	22.9 ... 53.6
125	4	12.9 ... 26.8	9.3 ... 25.2
150	1,2,3	43.1 ... 85.1	35.9 ... 81.7
150	4	16.8 ... 32.7	12.3 ... 30.6
200	1,2,3	85.1 ... 172.5	72.6 ... 165.7
200	4	46.5 ... 94.2	38.6 ... 90.8

LIT1-003

## 2.3 Electrical connection

Connection diagram



Cable gland

- Fix and fasten the screw nut of the cable gland to make sure of the water-tightness.

Sensitivity adjustment

- The flow switch has a regulation system that allows the adjustment of the sensitivity. Turn the screw to reduce the sensitivity and increase the strain of the flow to activate the microswitch. Clockwise insensitive. The device is adjusted at the maximum sensitivity, minimum flow 1 m<sup>3</sup>/h, 16 l/min.



LIT1-005

## 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 device 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 float switch.  
 - 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 paddle and the correct commutation of the electrical contact, as well.

### 4.3 Spare parts

- Use only original parts.  
 - The only spare part for this device is the paddle kit.

## 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.