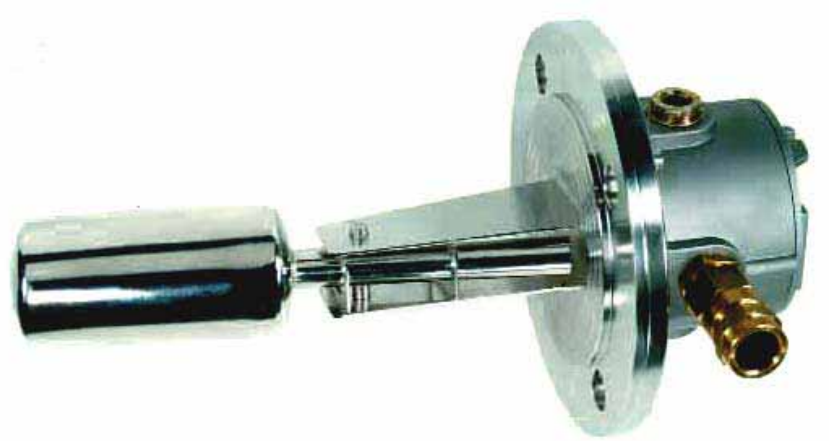
instrumentación
para fluidos

# Level Detector

**Series**

**LC-40 ADF**

# Instructions Manual



**Technical Data**

- Mounting: Vertical / Side mounting.
- Fittings: EN 1092-1 DN-65 Flanges
  Others on demand
- Minimum liquid density: 0.45 kg/l
- Liquid viscosity: maximum 3.000 mPa.s
- Repeatability: ±3 mm of the level .
- Materials: EN 1.4404 (AISI-316L)
  On demand: PTFE, PVC, PP, PVDF
- Electrical housing: Metal alloy aluminium without copper
- Pressure: PN-16
  On demand: PN-40 ... PN-400
- Liquid temperature:
  Depends on the material, see page 3
- Ambient temperature range: -20…+40 ºC
- Degree of protection: IP67
- Complies with 97/23/EC Directive for pressure vessels. CE

⚠ This equipment is considered as being a pressure accessory and **NOT** a safety accessory as defined in the 97/23/EC directive, Article 1, paragraph 2.1.3.

**Operation**

The changes in level are followed by the float mounted on a pivoted arm.

On the opposite end from the float there is a sealed permanent magnet which acts on another magnet, situated in the inside of the electrical housing, that acts on the limit switches.

**Applications:**

- Liquid storage tanks
- Hot water storage.
- Control of steam condensates storage tanks .
- On-Off of pumps.
- Maximum and minimum level control.

**RECEPTION**

The LC-40 level detectors are supplied individually packed for protection during transport .

On reception of the level detector, check:

- That the float pivots freely in the fork that supports it.
- That the pivot shaft has the two split pins, one on each end.

**Important:**

If the operation of the limit switches is checked before installation, this must be done in a non hazardous area.

To check the limit switch, unscrew the electrical housing cover to gain access to the electrical connections.

Move manually the float from the bottom stop to the top stop of the fork.

The signal at the electrical connection terminals will vary according to the float's position (with the AMM and AMR this can be checked using a multimeter).

Once the correct working of the complete system has been checked, mount the level detector as described below.

**MOUNTING**

The models designed to be mounted in the side of the tank should be installed in a position so that the float can move freely in a vertical plane.

The LC-40V y LC-40VR models require installation in the top of the tank.

**Important:**

Check that the working pressure is not above that specified on the instrument's identification label. Check that the ambient and liquid temperatures are within the limits specified on pages 2 & 3.

**Limit switch characteristics and connections.**

Maximum ambient temperature: 40 ºC

AMM: Vmax: 250 V
Imax: 3 A

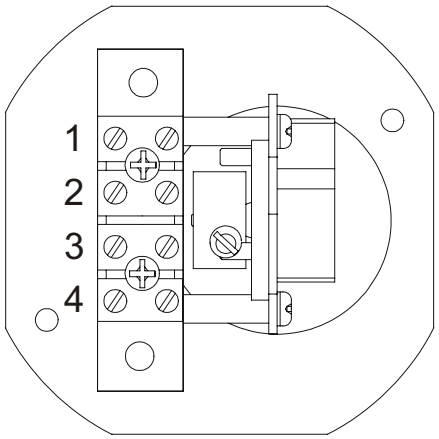
1. Earth
2. Common
3. Normally closed
4. Normally open

AMD: Vnom: 8.2 VDC
Max. level I > 2.2 mA
Min. level I < 1.1 mA

1. Earth
2. Positive
3. Negative
4. Not connected

AMR: Vmax: 250 V
Imax: 0.5 A
Pmax: 60 VA

1. Earth
2. Common
3. Normally closed
4. Normally open



**MAINTENANCE**

Mechanical:

Maintain the pivot shaft clean and remove dirt from the fork.

There is no preventive maintenance for the electrical part.

**WORKING TEMPERATURES RANGES FOR THE DIFFERENT MATERIALS**

| MATERIALS | LIQUID TEMPERATURE RANGE |
|---|---|
| EN 1.4404 (AISI-316L) | -50 ºC…...150 ºC |
| PVC | 0 ºC…...50 ºC |
| PP | -20 ºC…...90 ºC |
| PTFE | -20 ºC…...150 ºC |
| PVDF | -20 ºC.....150 ºC |

The liquid working temperatures are given for an ambient temperature of 20ºC.

## 5. CHARACTERISTICS WITH REGARDS TO SAFETY

Equipment conforms to the following directives and norms.

| | |
|---|---|
| 97/23/CE | Pressure Equipment |
| 73/23/EEC | Low voltage. |
| 89/336/EEC | Electromagnetic compatibility |
| 94/9/EC (ATEX) | Equipment & protective systems intended for use in potentially explosive atmospheres |
| EN 50014 | Electrical apparatus for potentially explosive atmospheres. General requirements. |
| EN 50018 | Electrical apparatus for potentially explosive atmospheres. Flameproof enclosures “d”. |
| EN 50281-1-1 | Electrical apparatus for use in the presence of combustible dust. Part 1-1 electrical apparatus protected by enclosures. |

This instrument, since it belongs to Group II, is destinated to be used in areas where there is a hazard of explosive atmospheres forming, except for mining installations.
Since it is category 2G it can be used in ambients where there is a probability of formation of explosive atmospheres due to gases, vapours, mists or powder in suspension.

**IMPORTANT**

- The respective national regulations, as well as the general engineering rules that apply to the installation and operation of apparatus in explosive atmospheres must be observed .
- The end user is responsible for the safe use of this equipment.
- Modification or reparation of the flameproof housing is not permitted.
- The opening of the housing always shall be done without voltage. The housing is considered to be closed when the lid is completely screwed down and the grub screw in its locking position.
- Only approved EExd IIC cable glands with the same thread as the housing should be used.
- The flameproof seals of the housing should kept greased to avoid corrosion, water ingress and seizing. Clean rests of grease and corrosion, do not use sharp objects that can damage the surface of the seal, and grease using a chemically and thermally stable grease with a drip point > 200ºC.

- In applications with combustible dust, make sure that layers of more than 5 mm do not form.
- For the models with non-metallic float, the occurrence of electrostatic risks, must be taken into account. They should not be used in locations where formation of electrostatic charge can occur. During maintenance, these parts should always be cleaned using a damp cloth.

**Important:** The instrument can be installed in a tank in which the **inside** is considered to be zone 0, because the part that is inside the tank (the float mechanism) is a simple Non electrical equipment without ignition sources.

**MARKING**


The marking of the equipment shows the following characteristics:

- Manufacturer
- Model
- EC marking
- Serial Number (year of construction and number)
- Notified body
- Flameproof marking
- Address of manufacturer

**WARRANTY**

Tecfluid S.A. GUARANTEES ALL ITS PRODUCTS FOR A PERIOD OF 24 MONTHS, after consignment, against all defects in materials and workmanship.

This warranty does not cover failures which can be imputed to misuse, use in an application different to that specified in the order, the result of service or modification by un-authorized persons, bad handling or accident.

This warranty is limited to cover the repair or replacement defective parts which have not been damaged by misuse.

This warranty is limited to the repair of the equipment and all further and eventually following damages are not covered by this warranty.

Any consignment of equipment to our factory or distributor must be previously authorised. The consignment should be done with the equipment well packed, clean of any liquids, grease or hazardous materials. Tecfluid S.A. will not accept any responsibility for damage done during transport.

Together with the equipment, a note should be enclosed indicating the failure observed, the name, address and telephone number of the sender.

TECFLUID, S.A.
Narcís Monturiol, 33
E-08960 Sant Just Desvern
Tel. + 34 933 724 511 - Fax + 34 934 734 449
E-mail: tecfluid@tecfluid.com
Internet: www.tecfluid.com