# OPERATING MANUEL

## Model : ECASe

### CAPASITIVE LEVEL SWITCH

Information in this manual is reviewed and completely reliable. Responsibility is not assumed due to any typing error.
Products in this manual are available only for information purpose and they may be changed without notice.







## Models :

**ECASe 101**

**ECASe 203**

CE EAC

## Important Notes:

### Used Symbols :

 **: Caution**

 **: Note**

 **: Disposal**

- Please read this manual carefully before installation of the **capasitive level switch**. User is responsible for accidents and losses arising from failure to comply with the warnings in this manual.
- In the event that **capasitive level switch** is broken, take measures in order to prevent accidents and losses which can occur in its system.
- There is not any fuse and circuit breaker on the instrument; they should have been added to the system by the user.
- This manual should be stored in an easily accessible place for subsequent use.
- The manufacturer's liability cannot exceed the purchase price of the device according to the law.
- Do not make any modification on the instrument and do not try to repair it. Reparation should be made by authorized service staff.
- Do not operate the system before making assembly in compliance with the assembly chart related to the instrument.
- Products which do not contain label and serial number are considered to be excluded from the warranty scope.
- The instrument's useful life, determined and announced by the ministry, is 10 years.

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## 1. General Information :

**1.1. Material Acceptance**

Check that there is no damage on the packages during the transportation immediately after the material acceptance. If packages are damaged, open the packages immediately and check whether products are affected or not, if there is any damage, send your complaint report to the transporter company and its photocopy to the address of our company.

**1.2. Information about Areas of Use**

ECASe level switch is a capacitive level sensor for level measurement of conductive liquid, low conductive liquid.
When product comes over the sensor, a capacitance change occurs and when this change exceed adjustment threshold, contact output is delivered.
Designed for difficult process conditions. Refrigerated models can be manufactured for high temperature and pressure conditions.
Calibrations of triggering point and relay operation range can be performed by the user under workplace conditions. It can be connected horizontally or vertically.

**Application Areas**

Liquid tanks, food machines, cooling liquid tanks, shipping, glycol tanks, brine, waste water tanks.

Oil tanks, CO2 liquid tanks, high temperature tanks, non-conductive liquids.

Ambient Conditions: Relative Humidity: 0-98 %RH Ambient temperature: 60C (It is not used under -20 C)
Capacitance definition, assuming two parallel conductive plates are used;

**1.3. Advantages :**

Easy assembly and sensitivity adjustment.
Not affected by foam, liquid splash and probe coating.
Can be mounted upside.

**1.4. Technical Specifications and Material Knowledge**

| | |
|---|---|
| Measurable Metarial | Conductive liquids, refrigerants<br>Non-conductive liquids<br>Solids particulate materials<br>**Model** Adhesive and acid/basic liquids |
| Supply | 24 VDC |
| Signal Output | 1 NA / NK x5 A / 250 VAC Relay |
| Min.Di-Electric Constant | **Serial Number** 1,6 $\varepsilon_r$ |
| Connection Material | 304 St.St. Opt. 316 St.St. |
| Isolation Material | PTFE, PFA Opt. Peek, Ceramic |
| Housing Material | PBT (Std.)<br>Ops. Aluminum Injection, Stainless Steel |
| Working Pressure | (-) 1 bar...100 bar (Depending on the model.) |
| Working Temperature | (-)40/(+)150°C (Depending on the model)<br>200°C with cooling apparatus<br>230°C with PEEK isolation<br>400°C with ceramic isolation |
| Ambient Temperature | (-) 20 °C...(+) 60 °C |
| Display | With LED-Power and Contact LED |
| Isolation | Max. 500 V |
| Power Consumption | Max. 1 W |
| Electrical Connection | Terminal |
| Protection Class(EN60529) | PBT - IP 66 , Alüminyum , Pas. Çelik IP 65 |
| Test | EMC, Low Voltage |
| Max. Tensile Force | Max. 40 Nm |
| Weight | 285 g. for ECAS 101 |

### 1.5. Target Group

This operating manual has been prepared for qualified technical personnel.

### 1.6. Security Notes



Please consider below notes for avoiding hazardous cases around operator and it's environment.

Only users that authorized in work safety and whom also have read the manual should setup this equipment.
Work safety , accident avoid regulations and national/local setup standards must be meet.
Equipment should only be used in stated specifications.
Equipment must only be mounted while there is no pressure.

### 1.7. Package and package contents

Please check whether you have taken delivery of below listed content completely or not and check its conformity with criterions in your order:
***Capasitive Level Switch**
*This operating manual

## 2. Installation :

### 2.1. General Notes :

The device installation is in 2014 / 34 / EU criteria to ensure the safety of atmosphere and people from explosions, must only be done by staff who knows the safeguards.
Do not apply force to the instrument during the installation!
Do not use the **Capacitive Level Switch** with a greater pressure than recommended pressure.
Do not forget that instrument is precise, carry it carefully and prevent not to be damaged.
It should be guaranteed that there are not any magnetic particles.
The Max. working pesure should not be exceeded.

### 2.2. General Installation Stages

*Remove **Capacitive Level Switch** from the box carefully
*Check whether gasket is appropriate for fluid or not. If is not appropriate, contact with the producer.
*Then, apply below mentioned explanations according to structure of the design.

### 2.3. Special Notes

*Please ensure that there is no mechanical stress on the shaft following installation. Such case will cause slipping in thecharacteristic curve.
***Capacitive Level Switch** must be placed upright or horizontal.
*Allocate valve certainly in the process connection while instrument is used.
*Allocate blowdown valve under bottom flange for blowdown.
*If instrument is mounted outside and if there is any danger of lightning or
excessive pressure, take preventive measures by taking necessary measures.
*In the operating conditions, **Capacitive Level Switch** may be hot according
to situation of fluid, in this case, do not touch the indicator, otherwise your skin is damaged.
*The grounding product must be done properly. (can be done outside or in housing)

### 2.4. Installation For Mechanical Connections

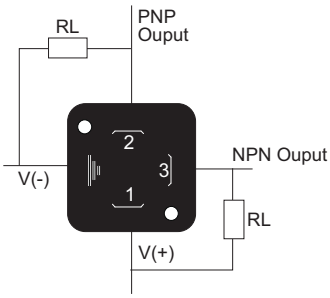
*Use appropriate O-Ring or gasket for tightness.
*Ensure that its surface is clean and smooth.
*Assemble the instrument manually.
*Connect the contacts as shown in the figure.
(For stainless steel models max. 30Nm)

## 2.5. Electrical Installation

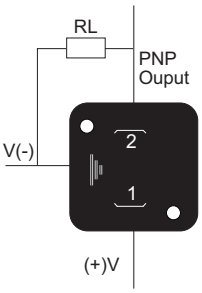
Make the electrical connection of the instrument according to details on its label, table and cable figures in this manual

IP65
DIN 43650

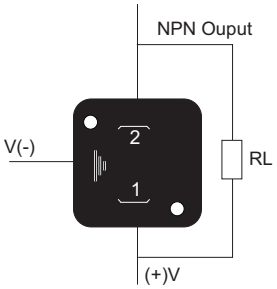
NPN / PNP




PNP

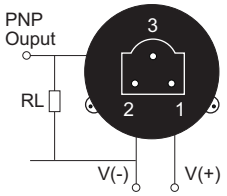



NPN



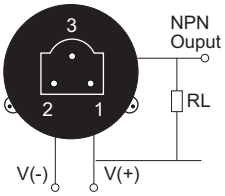

DIN 72585

PNP



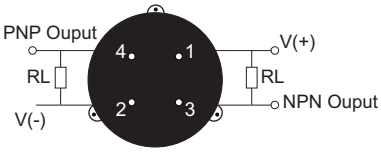

1 : V(+)
2 : V(-)
3 : PNP Ouput

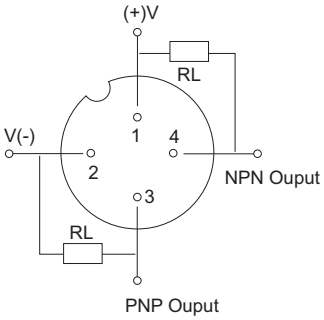
NPN



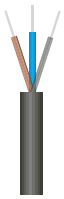

1 : V(+)
2 : V(-)
3 : NPN Ouput

NPN / PNP



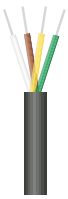





3 Wire

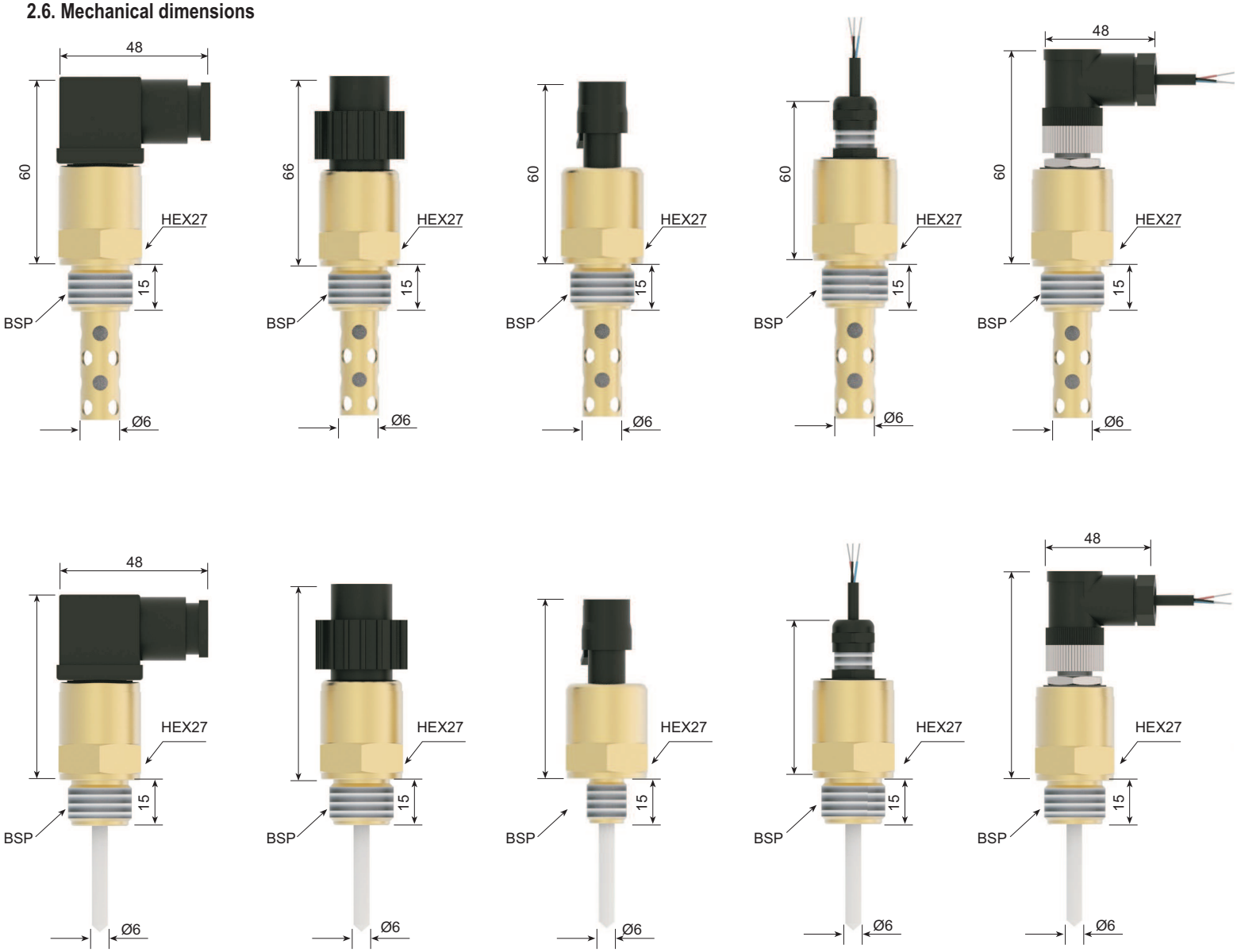
| | | |
|---|---|---|
| 1 : | Brown | V(+) |
| 2 : | Blue | V(-) |
| 3 : | Black | NPN or PNP Ouput |



4 Wire

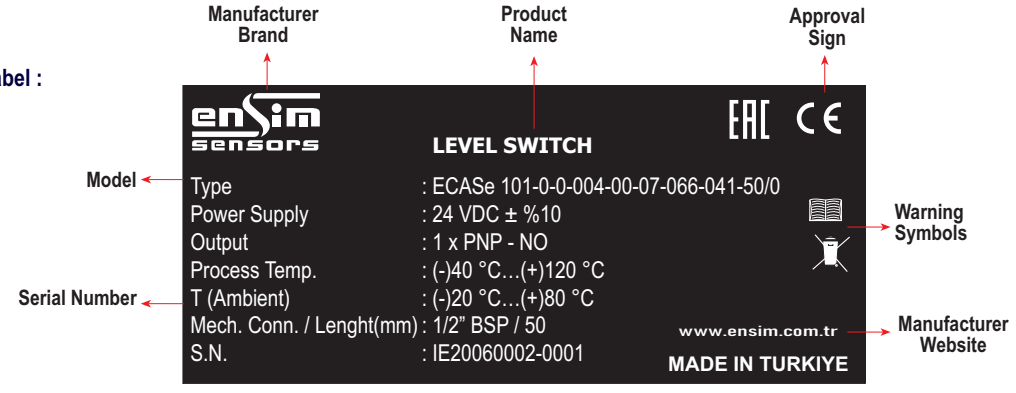
| | | |
|---|---|---|
| 1: | White | V(+) |
| 2: | Brown | V(-) |
| 3: | Yellow | PNP |
| 4: | Green | NPN |

## 2.6. Mechanical dimensions




## 2.6. Label Information

**Label :**



## 2.7. Order Form :

### Order Form : Please consider sample models when coding.

**1 MODEL ECASe**

Conductive Liquids.....1
Low Conductive Liquids .....2

**2 CERTIFICATE**

No .....0
(EN10204-3-1) Material Certification.....1

**3 PROBE TYPE**

Single Probe - Insulated (Max 500 mm) .....1
Coaxial Probe (Max 500 mm) ..... Ø 10.....3
Special.....x

**4 STEM LENGHT (mm) L**

50 mm (Std).....0
Special.....x

**5 PROCESS TEMPERATURE**

Standard Max.120 °C.....0

**6 CONNECTION**

Rekor (ISO 228-1)

1/4" BSP.....0002
3/8" BSP.....0003
1/2" BSP.....0004
3/4" BSP.....0005
1" BSP.....0006
1 1/4" BSP.....0008
1 1/2" BSP.....0009
2" BSP.....0012
1/4" NPT.....0201
1/2" NPT.....0203
3/4" NPT.....0204
1" NPT.....0205
M14 x 1,5 mm .....0305
M16 x 1,5 mm .....0306
M18 x 1,5 mm .....0307
Special.....x

**7 OUTPUT**

NPN - NO Contact .....00
NPN - NC Contact .....01
PNP - NO Contact .....03
PNP - NC Contact .....04
Special.....x

**8 DELAY TIME (Max. 30 sec.)**

7 sn. .....07
Special.....xx

**9 INSULATION MATERIAL**

PTFE.....066
PVDF (Std.).....064

**10 CONNECTION MATERIAL**

Brass (Std) .....041
304 Stainless Steel.....001
316 Stainless Steel.....002
Special.....x

**11 ELECTRICAL CONNECTION**

Polyamide Large Socket P01 ..... 50
PVC Cable (Max.105 °C).....81
Special.....x

**12 OPTIONAL**

No...../ 0
Vibro Seal (For Thread Sealing)...../ V
Special...../ x

**SAMPLE**

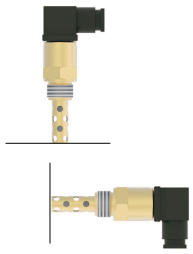
ECASe 101-0-0-004-00-07-066-041-50/0

For Conductive Liquids, L=100 mm, 1/2"BSP, With Cooler Apparatus, 7 sec. Delayed

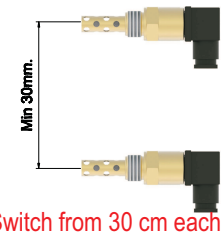
2.8.

## WARNING !!!

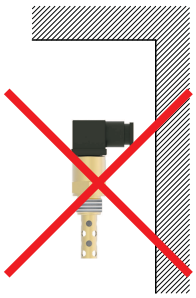
**Please pay attention to following matters in order to operate your flow switch properly.**



Connect the switches vertically or horizontally.



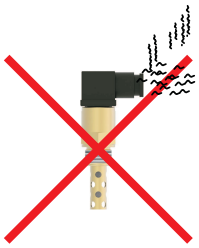

Switch from 30 cm each other
do not connect close



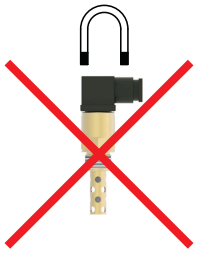
Please keep away from magnetic materials like iron board ; otherwise the characteristics might be affected



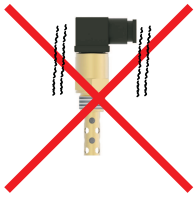
Please do not drop ,
otherwise the characteristics
might be changed.



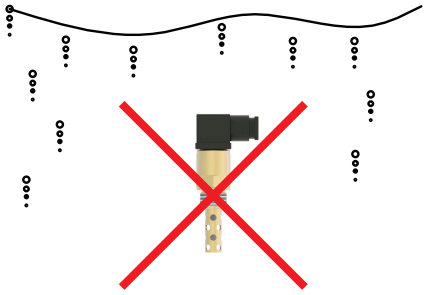
Please do not dip cables
potting into liquids,otherwise
instulation problem may cause.



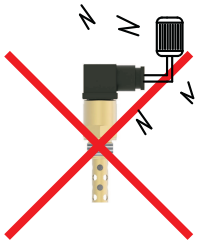
Do not fasten switch reversely ,
otherwise its characteristics
might be changed.



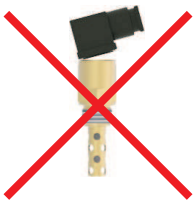
Vibration might be caused instability.



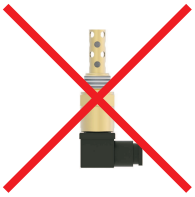
Do not fasten switch reversely ,
otherwise its characteristics
might be changed.



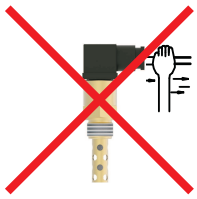
Excess current , to be drawn as
a result of direct connection to motor,
may burn relay of switch



Do not remove the plastic parts
of the bottom of the switch body ,
do not loosen.



Do not connect the switch in reverse.
Their characteristics may vary.



Do not pull the cable strongly,
otherwise the characteristics
might be changed.

## 3. Failure Delection

Your device must be repair only at an outhorized serviced.

| Breakdown | Probable cause | Failure detection\correction |
|---|---|---|
| Relay does not output | * The applied process may not be suitable for the probe<br>* Grounding connection might be poor or disconnected<br>* The low voltage might be supply.<br>* Grounding might be done correctly. | * Proper probe structure and product detection must be perfomed.<br>* The grounding connection check.<br>* Supply must be checked.<br>* Please check grounding line. |
| Relay provides continuous output. | * The applied process may not be suitable for the probe.<br>* The Teflon coating on the product probe might be damaged.<br>* Grounding might be done correctly. | * Proper probe structure and product detection must be perfomed.<br>* Protection of external coatings of probes.<br>* Please check grounding line. |
| Non-Calibration | * Trimpot might be deformed.<br>* The applied process may not be suitable for the probe.<br>* Grounding might be done correctly. | * Please apply to service.<br>* Proper probe structure and product detection must be perfomed.<br>* Please check grounding line. |

If you find an error, try to eliminate it by using this table or send the instrument to our service address for repair.

The instrument should be repaired only by authorized service! Serial number shall be indicated to the authorized service center.

## 4. Disassembly of Instrument

Instrument should be disassembled while feeding and pressure is not available!

## 5. Service

The instrument does not require maintenance. If it is desired, residue accumulated inside should be blown according to kind of fluid and instrument can be cleaned with soft cleaning solutions. Measures should be taken during the disassembly.

## 6. Re-Calibration

During long period usage of capacitive level switch, there might be deviations on measurements. In those cases, recalibration is recomended. Re-calibration could be made by your technical staff or you could send to manufacturer company. According to IEC 60017, ex proof devices must be go through detailed inspection every 3 yearS from purchase date.Respobsibility of inspections are belong to the user ( IEC: International Electrotechnical Commission)

## 7. Repair – Manufacturer Address

If irreparable breakdowns occur, the instrument should be sent to us for repair purpose. Before this, the instrument should be cleaned carefully and packaged so as not to be broken. Furthermore, you should also add a detailed explanation which describes the breakdown while instrument is sent. If your instrument contacts with harmful substances, decontamination report should be also sent additionally. In the event that instrument does not have any decontamination report or our service department has doubts about instrument, repair process will not start until an acceptable report is sent.

If the instrument contacts with hazardous substances, necessary measures should be taken for decontamination!
Service -Manufacturer Company Name and Address:

**LONCA MAK. SAN. TİC. A.Ş. Ferhatpaşa Mah. Gazipaşa Cad. No: 104A Ataşehir - İSTANBUL - TÜRKİYE**
**Tel:+90 216 50 50 555 Faks:+90 216 515 45 84 E-Mail: lonca@ensim.com.tr Web: www.ensim.com.tr**

## 8. Disposal

The instrument should be disposed according to 2002/96/EC and 2003/108/EC European Directives (waste electrical and electronic instruments).
Waste electrical and electronic equipment should not be mixed with domestic wastes!

If the instrument has contacted with harmful substances, special attention should be paid for its disposal!

## 9. Terms of Warranty

The instrument has warranty legally for 24 months after delivery date. Warranty demands are not accepted in case of inappropriate operation, damage on the instrument or any modification on the instrument.

## 10. Terms of Return

In the return of materials, user should send an open list related to damage or problem, malfunction of the material to be returned or its operation in the different modification, with the instrument. If it is required to return the material, used in the dangerous, corrosive or toxic fluid, in this case, used part should be cleaned very carefully. Security of personnel should be ensured. All products to be returned should be sent to our company address, which we have stated.