OPERATING MANUEL

Model : ELC

LEVEL SENSOR - Conductivity Type

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 :

ELC 09 , ELC 09f , ELC 09m
ELC 10 , ELC 10m
ELC 11 , ELC 11m
ELC 12 , ELC 13 , ELC 13x , ELC 14
ELC 20
ELC 20f

CE



Important Notes:

Used Symbols :

: Caution : Note : Disposal

- Please read this manual carefully before installation of the **conductivity type level switc**. User is responsible for accidents and losses arising from failure to comply with the warnings in this manual.
- In the event that **conductivity type level switc** 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

ELC conductivity type level switches are used for checking liquid level of tanks and boilers. As it does not have any movable part, it can be used in the critical ambient and in the liquids with solid particle, low density and high viscosity.

It is an economic and safe solution for air pressure tank applications, water level control of steam boilers and conductive tanks.

Ambient Conditions: **Relative Humidity:** 5-95 %RH **Ambient temperature:** 50C (It is not used under -5 C)

1.3. Working Principle

When liquid leved comes to the level of isolated electrode, current passage starts or stops between electrode and liquid. Strengthened this AC current may be assesed with a relay cirruit.

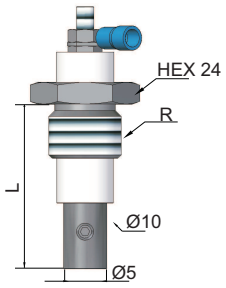
Advantages :

* Economical
* Easy to install
* Used at high temperatured

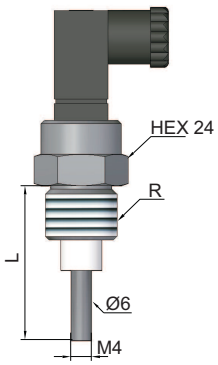
1.4. Technical Specifications and Pictures:

Technical Specifications :

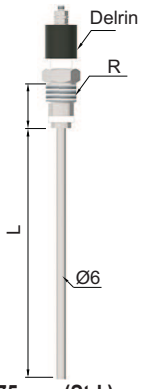
	ELC 09f	ELC 09	ELC 09m
Electrode Material	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel
Isolation of Electrode	PTFE	PTFE	Makaron
Connection Material	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel
Max. Working Temp.	180 °C	160 °C	60 °C
Max. Working Pressure	10 bar	16 bar	6 bar
Mechanical Connection	3/8" BSP / 1/2" BSP	3/8" BSP / 1/2" BSP	3/8" BSP (Std)
Electrical Connection (R)	Cable	DIN 43650C	Cable



L=40 mm (Std.)



L=50 mm (Std.)

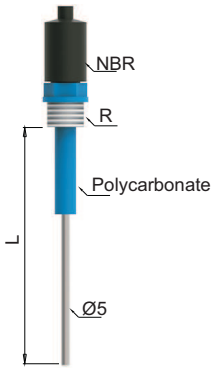


L=175 mm (Std.)

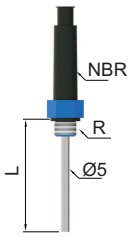
All dimensions are given in mm.

Technical Specifications :

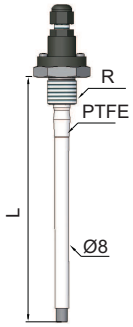
	ELC 10	ELC 10m	ELC 11 / ELC 11m	ELC 12
Electrode Material	304 Stainless Steel Opt.316 Stainless Steel		304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel
Isolation of Electrode	PP (Reinforced)		PTFE	PTFE
Connection Material	PP (Reinforced)		304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel
Housing	NBR		Delrin	Aluminum Injection IP 65
Max. Working Temp.	160 °C		225 °C	225 °C
Max. Working Pressure	10 bar		40 bar	16 bar
Mechanical Connection (R)	1/2" BSP(Std)	1/4" BSP(Std)	1/2" BSP(Std)	1/2" BSP(Std)
Electrical Connection	Cable		PG 7	Cable



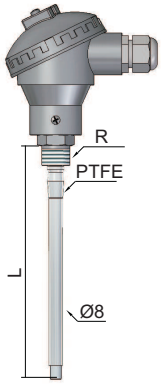
L= 150 mm (Std.)



L= 75 mm (Std.)

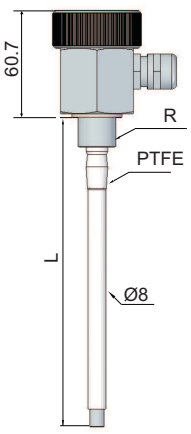


L= 150 mm (Std.)
L= 75 mm (ELC 11m)

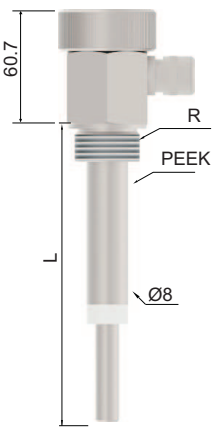


L= 150 mm (Std.)

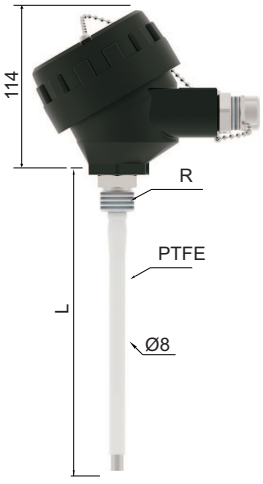
	ELC 13	ELC 13	ELC 14	ELC 20f
Electrode Material	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel
Isolation of Electrode	PTFE	PEEK	PTFE	PTFE
Connection Material	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel
Housing	304 Stainless Steel Opt.316 Stainless Steel	304 Stainless Steel Opt.316 Stainless Steel	Aluminium Enj IP 66	-
Max. Working Temp.	225 °C	240 °C	225 °C	220 °C
Max. Working Pressure	16 bar	25 bar	16 bar	30 bar
Mechanical Connection (R)	1/2" BSP (Std)	1" BSP (Std)	1/2" BSP (Std)	3/8" BSP / 1/2" BSP (Std)
Electrical Connection	Cable	Cable	Cable	Cable



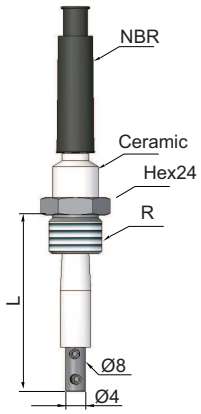
L= 150 mm (Std.)



L= 150 mm (Std.)



L= 150 mm (Std.)



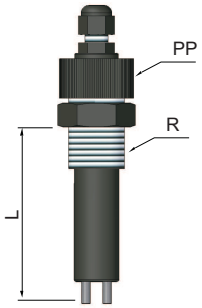
L=80 mm (Std.)

All dimensions are given in mm.

Technical Specifications :

ELC 20

Electrode Material	304 St.St. Opt.316 St.St , Titanium
Body Material	PP
Max. Working Temp.	85 °C
Max. Working Pressure	10 Bar
Mechanical Connection (R)	3/4" BSP Male Thread
Electrical Connection	2 m. Cable , PG 7



L=85 mm
(Stable)

LEVEL CONTROL RELAY

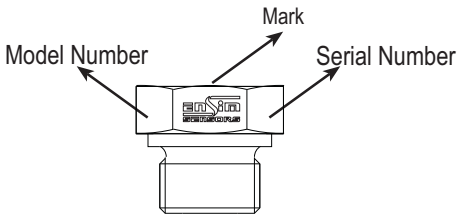


SK-P3
4 pcs. 5 A

Independent Relay



SK-P4
1 pc. 5 A Start - Stop Relay
+
2 pcs. 5 A Min. - Max. Relay



1.6. Label Information :



1.7. Target Group

This operating manual has been prepared for qualified technical personnel.

1.8. Security Notes

The following notes must be observed to avoid hazards to the operator and her/his surroundings.

Installation, use and maintenance of this device should only be done by people who have read the user manual and are knowledgeable about occupational sa
Occupational safety rules, accident prevention regulations and national installation standards must be obeyed
The product should only be used within its specifications!
You can only mount the device when there is no pressure!

1.9. 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:
*** Level Sensor**
* This operating manual

2. Installation :

2.1. General Notes

Installation of the instrument should be made only by authorized personnel.
Do not apply force to the instrument during the installation!
Do not use the level indicator with a greater pressure than recommended pressure.
Do not forget that instrument is precise, carry it carefully and prevent to be damaged.
It should be guaranteed that there are not any magnetic particles.

2.2. General Installation Stages

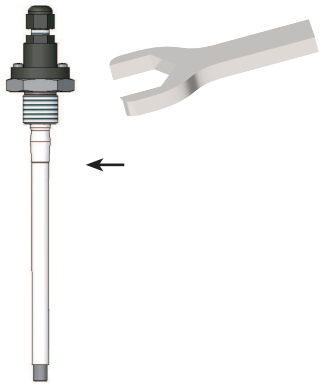
*Remove **Level Sensor** from the box carefully
*Check whether gasket is appropriate for fluid or not. If is not appropriate, contact with the producer.
*Then, apply below mentioned explanations according to structure of the design.

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.
***Level Sensor** must be placed upright or horizontal.
*In the operating conditions, **Level Sensor** may be hot according
to situation of fluid, in this case, do not touch the indicator, otherwise your skin is damaged.

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 G1/2" max. 20 Nm , For G2" max. 20 Nm)



2.5. Electrical Installation

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

2.6. Order Form : Please consider sample models when coding!..

1 MODEL ELC

Small Boiler Type.....09f
Small Type with Socket.....09
Textile Type.....09m
Economic Type.....10
Economic Mini Type.....10m
High Temperature Type.....11
HighTemperature Type with Aluminum Housing...12
High Temperature Type With Stainless Steel Housing 13
High Temperature Type With Stainless Steel Housing 13x
High Temperature IP 65.....14
Boiler Type.....20f
Water Leakage Type.....20

2 CERTIFICATE

None.....0
(EN10204-3-1) Material Certification 1

3 CONNECTION

1/4"BSP 0002
3/8"BSP 0003
1/2"BSP 0004
3/4" BSP.....0005
1" BSP.....0006
DN25, ANSI 300.....1106
Special.....x

4 CONNECTION MATERIAL

304 Stainless Steel.....001
316 Stainless Steel.....002
PP 021
Special.....x

5 ELECTROD MATERIAL

304 Stainless Steel.....001
316 Stainless Steel.....002
Titanum.....009
Special.....x

6 HOUSING

None.....0
Stainless Steel Housing , B13x.....506
Aluminum Housing , B96x.....853
Aluminum Housing , B22x.....750
Special.....x

7 ELECTRICAL CONNECTION

Polyamide Small Socketed P01.....51
PVC Cable (Max. 105 °C).....81
Silicon Cable (Max. 200 °C).....82
With Cable.....99
Special.....x

8 OPTIONAL

None...../ 0
Level Control Device...../ SK-P3
Level Control Device...../ SK-P4
Special...../ x

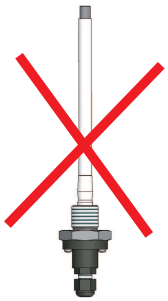
SAMPLE :

ELC 09f-0-0002-001-001-0-99-0
ELC 09f - 3/8” BSP Connection and Electrod - 304 Stainless Steel - Cable Output

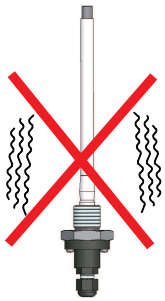
2.7.

WARNING !!!

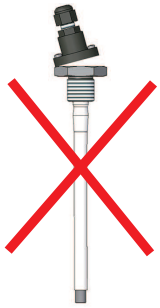
Please pay attention to following matters in order to operate your flow switch properly.



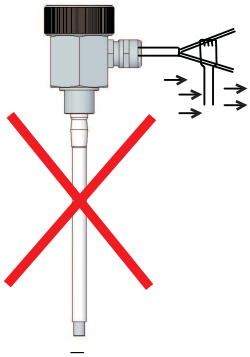
Do not connect the switch in reverse. Their characteristics may vary.



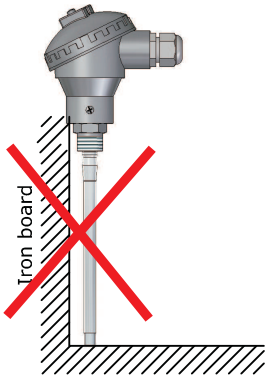
Vibration might be caused instability.



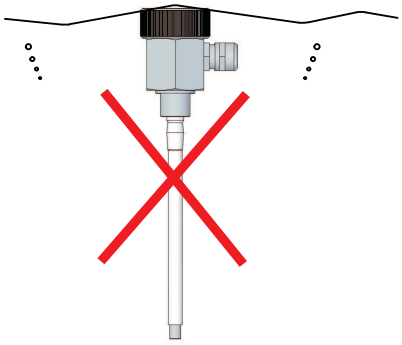
When opening the upper part of the housing not to break the connection plastic please note.



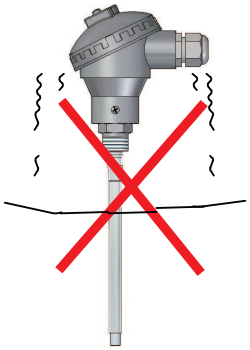
Do not pull the cable strongly, otherwise the characteristics might be changed.



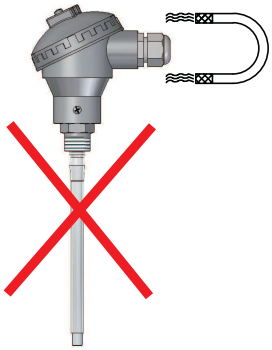
Please keep away from magnetic materials like iron board ; otherwise the characteristics might be affected



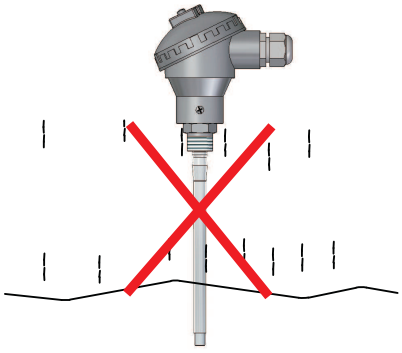
In case vapour splash cable potting points,insulation problem may cause.



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



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



Fluids that can damage the material keep away.

3. Failure Delection

Breakdown	Probable cause	Failure detection \ Correction
Fluid is leaking	-Pressure was applied above its value. -Product was subjected to sudden pressure.	-Inform authorized service. -Choose a model suitable for pressure.
High Resistance Output	-Probes have short-circuited - The wires used in process is not suitable - Dirt has stacked on probes due to maintenance neglect	- The nut on probe thread have overly screwed inside of housing - Proper connection cable should be used. - According to liquid, periodic maintenance should be sustained.
Probe Does Not Produce Resistance Output	- Liquid might not be contacted. - Plugs of the probe might be too relaxed. - There migh be a break in process wire. - Probe might be dissolved due to chemical substance.	- Liquid contact should be checked. - Plugs should be checked. - Process wire should be checked. - Contact with the manufacturer.

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 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 year 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. 37 Sok. No:78/A 34888 Ataşehir - İSTANBUL / TÜRKİYE

Phone : +90 216 50 50 555 / 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.