OPERATING MANUEL

Model : ECAP

LEVEL TRANSMITTER

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 :

ECAP 101 , ECAP 102 , ECAP 103 , ECAP107
ECAP 202 , ECAP 203 , ECAP 204 , ECAP 205 , ECAP 20S
ECAP 304 , ECAP 305 , ECAP 306 , ECAP30S
ECAP 408A , ECAP 408B , ECAP 408T , ECAP 408Tp

CE EAC

Important Notes:

Used Symbols :

: Caution : Note : Disposal

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

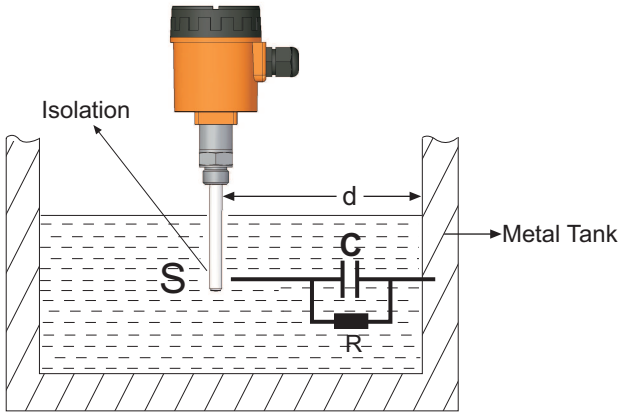
1.2. Information about Areas of Use

ECAP level transmitter is a capacitive level sensor for level measurement of conductive liquid, low conductive liquid, granulated materials with solid particles, adhesive and acid/basic liquids. When a material comes between electrode rod and tank wall, a capacitance change occurs and when this change exceed adjustment threshold, contact output is delivered. Full-empty calibration can be performed easily and safely. Different designs and different solution related to industrial level measurement are offered especially for machinery manufacturers.

Ambient Conditions : **Relative Humidity:** 5-98 %RH **Ambient Temperature:** 60°C (It is not used under -20 °C)

1.3. Working Princible

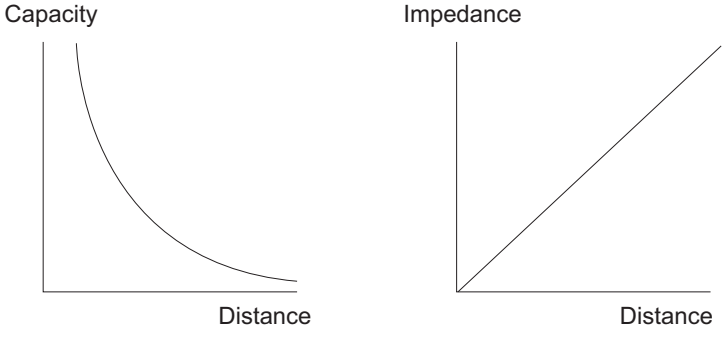
Capacitance definition, assuming two parallel conductive plates are used;



$$C = \frac{\varepsilon_o.\varepsilon_r.S}{d}$$

C: Capacity , Farad
S: Surface Area , m2
d: Distance , m

However, there are scarcely any sensor type which this definition can be pratically utilized. Above Formula can no longer bi reliable especially when residual areas increase due to large distance (d) (which is usually the case). Thus, measuring impedance for distance measurements give more accurate results than capacitance measurement.



Impedance definition $Z = R + jL\omega + (jC\omega)^{-1}$ R is defined as real component and represent ambient conductivity.

jLw second component is defined as inductive reactance. This component is present even if we perform capacitive measurement. However we neglect this. Since we evaluate results based on electrostatic properties of the environment, no error will occur. Resulting impedance definition is $Z= R + (jC\omega)^{-1.}$

Measurement is made by charge transfer in our capacitive sensors. Total impedance is defined as Z = V / I.
I (current) I = Q/t
Q (Coulomb)
T (sec)

Capacitive reactance we desire to measure is $(jC\omega)^{-1.}$ Meaning that charge and impedance have the same phase.
To summarize, charge transferred to medium is directly proportional with capacitive reactance.
For sensors manufactured as coaxial;

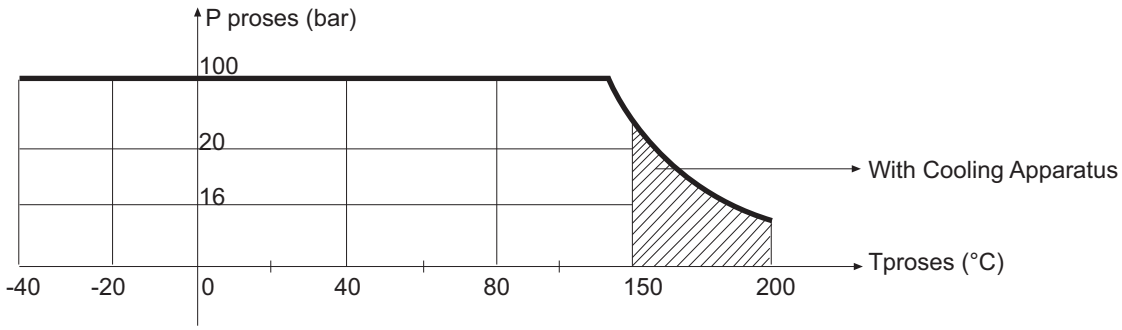
a: Central electrode radius
b: Outer screen radius
L: length

$C= \frac{2.\pi.\varepsilon_o.\varepsilon_r}{\ln (b/a)} .L$ Impedance is calculated by this definition

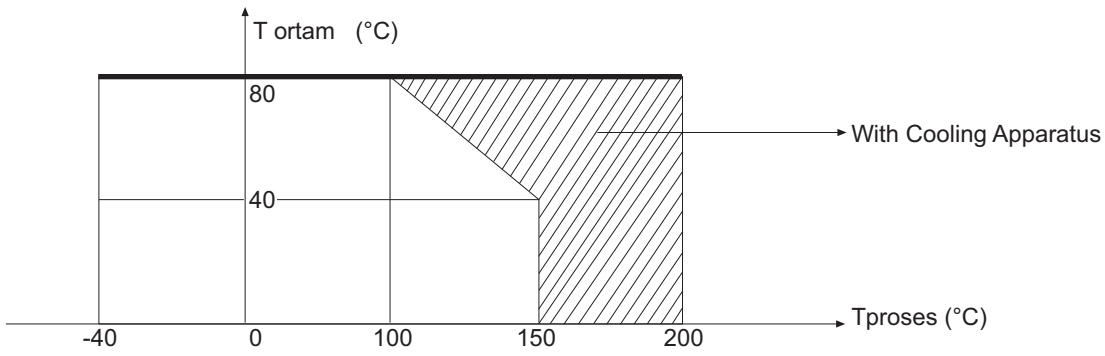
Üretimde olan tüm modellerimizde uzunluğa bağlı olarak 10 KHz...250KHz aralığında uyarım uygulanmaktadır. ($\omega= 2 \times \pi \times f$)
İletkenlik bileşeni (R) etkisinin doğrusallık hatasına sebebiyet vermesi elektronik devre tasarımı ve mekanik tasarım ile engellenmiştir.
1ppm değerinden az ve sıfır kabul edilebilir bir değere düşürülmüştür.

Excitation applied between 10KHz…250KHz based on length for all our models. (ω=2xpxf)
Linearity error that may be caused by conductivity component (R) effect is prevented by electronic circuit design and mechanical design. Reduced to a level lower than 1ppm, acceptable as zero.

Process Pressure / Temperature Chart



Environment Pressure / Temperature Chart



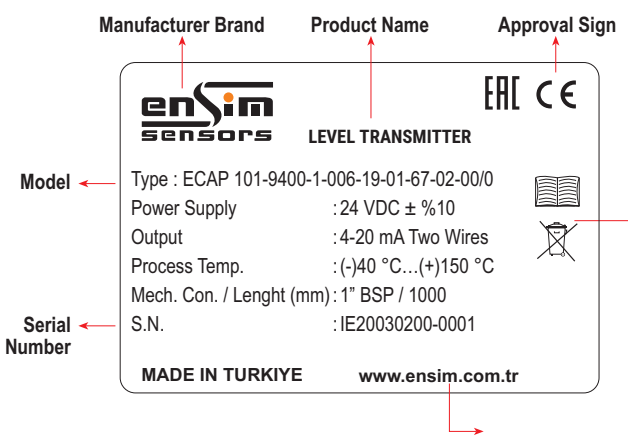
1.4. Technical Specifications and Material Information

Technical Specifications:

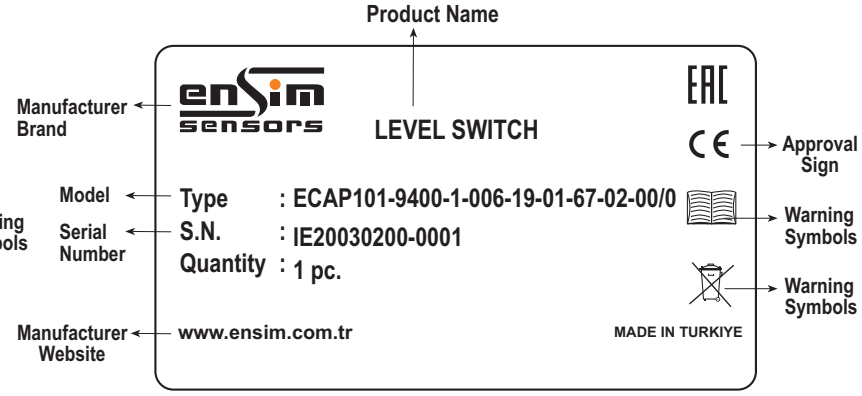
Measurable Metarial	Conductive liquids Low conductive liquids Solids particulate materials Adhesive and acid/basic liquids
Supply	9-36 VDC
Signal Output	4-20 mA two wire Std. 0-20 mA - 4-20 mA, 0-10 V three wire Opt.
Accuracy	± % 0,5 , ± % 0,8 , ± % 1
Linearity	% 0,5
Capacity Range	1pF...3nF
Min. Di-Electric Constant	1,6 ε_r
Connection Metarial	304 St.St. Opt.316 St.St.
Isolation Material	PFA Std. Opt. PEEK, PTFE , Rubber, FKM
Housing Material	PBT Std., Ops. Aluminium, St.St.
Working Pressure	(-) 1 bar...100 bar (Depending on the model)
Working Temperature	(-) 40 ˚C / (+) 150 ˚C (Depending on the model) 200 ˚C with cooling apparatus (-) 196° For Cryogenic Tank (-) 50 ˚C...(+) 80 ˚C For NBR FKM (-) 30 ˚C...(+) 200 ˚C 400 ˚C with ceramic isolation
Ambient Temperature	(-)20 ˚C / (+) 60 ˚C
Display	With LED-Power and Contact LED
Isolation	Max. 500 W
Power Consumption	Max. 50m W
Electrical Connection	Terminal
Protection Class(EN60529)	PBT-IP 66 , Aluminium , St.St. IP 65
Test	EMC, Low voltage
Max.Tensile Force	Max. 40 Nm
Weight	295 g. for ECAP 101 250 mm

1.5. Label Information

Product Label



Box Label





1.6. Target Group

This operating manual has been prepared for qualified technical personnel.

1.7. 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.

1.8. 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:
*Capacitive Level Transmitter
*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 transmitter 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 transmitter should be placed in completely vertical position on the line.
*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, level transmitter 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

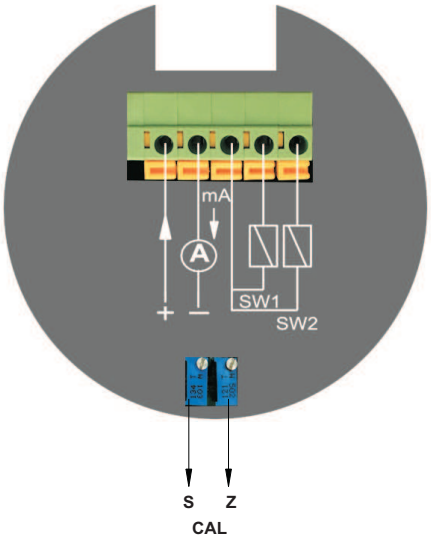
*Use appropriate O-Ring or gasket for tightness.
*Ensure that its surface is clean and smooth.
*Assemble the instrument manually.
*Connect the contacts as shown in the figure.
(G1/8" ve G 1/4" for max. 10 Nm , G1/2" or max. 15 Nm , G1"or max. 20 Nm, G2"or max. 30Nm)



2.5. Electrical Installation

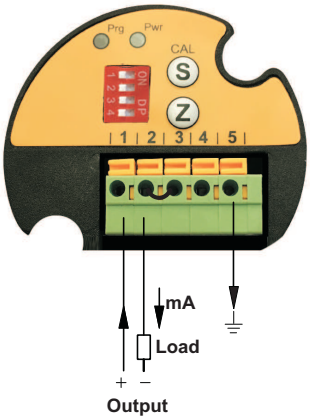
Make the electrical connection of the instrument according to details on its label, table and cable figures in this manual

B010 Aluminium Housing
(For Double Cell)

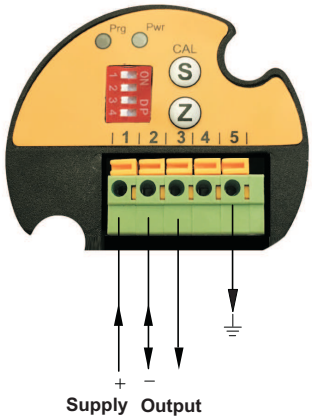


4-20 mA Two Wire + 2 PNP NO

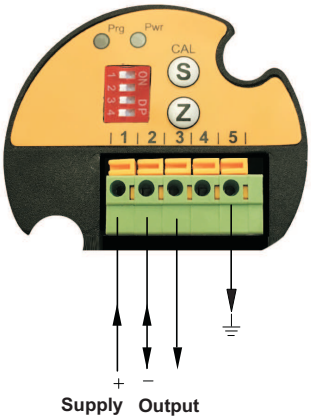
4-20 mA Two Wire



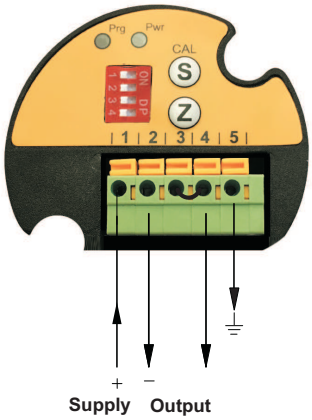
4-20 mA Three Wire

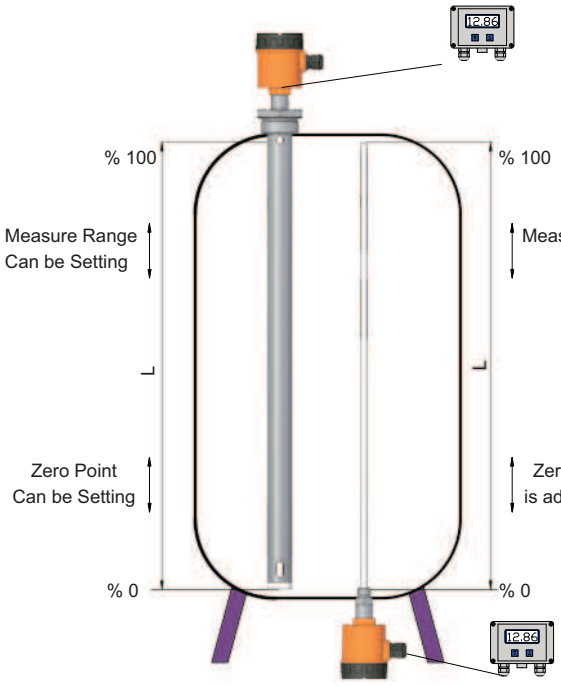


0-20 mA Three Wire



0-10 V Three Wire





* Measuring range and zero point can be set 1/10 during probe.

*Can be mounted upside down

Identification of Calibration Buttons :

Z (Starting Range-Zero) : Measurement starting point - 4 mA

Zero adjustment (zero): 4 mA adjustment is performed at factory exit, assuming tank is completely empty. If adjustment is needed again, 4 mA output adjustment can be performed by Z calibration after the tank is filled until initial level.

S (Measuring Range-Span): Measuring peak point - 20 mA

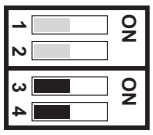
Measurement field (span) adjustment: 20 mA is adjusted at factory exit, assuming tank is filled up to length of electrode. If adjustment is needed again, 20 mA output adjustment can be performed by S calibration after filling the tank up to a desired level.

Switch Settings of Output Signal :

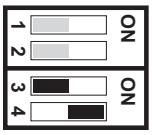
When setting output signal, only the 3rd and 4th switches are active and configuration is defined only if the circuit energized.

Power Supply : 9-36 VDC Max. Load Resistance : (R_L) = (Vsup – 3) / 0.02 [Ω]

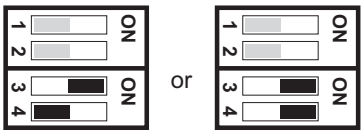
Changes are not effective during normal operation.



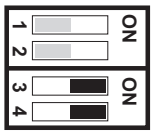
4-20 mA Two Wire



4-20 mA Three Wire



0-20 mA Three Wire



0-10 V Three Wire

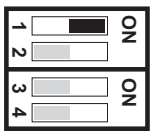
Calibration :

Only the switch 1 is active at first. When SW1 brought into “ON” position, red led light starts winking with 1 second interval.

Zero level adjust SW1 is on position): Z button must be kept presoed until the green led is flashed.

Span level adjust (SW1 is on position): S button must be kept presoed until the green led is flashed.

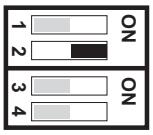
After calibration, when SW1 brought into off position, it saves settings to memory and turn back into normal working condition.



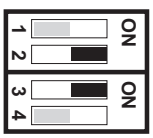
S → Span Level

Z → Zero Level

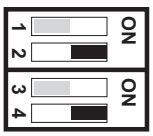
Shifting Span Point :



Make SW2 ON
It becomes active when SW2 brought into ON position.

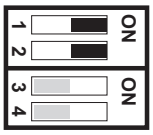


Make SW3 ON while SW2 ON.
If SW3 brought into ON position, while SW2 is in ON position.
The span point that's set before, shifts upper.
When it came to the desired value,
the switch should be taken to the off position.

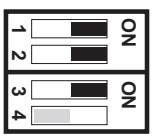


Make SW4 ON while SW2 ON.
If SW4 brought into ON position, while SW2 is in ON position.
The span point that's set before, shifts down, towards. When it came to the desired value,
the switch should be taken to the off position.

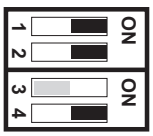
Shifting Zero Point :



Make SW2 ON before SW1 ON.
It becomes active when SW2 brought into ON position and then SW1 brought into ON position.

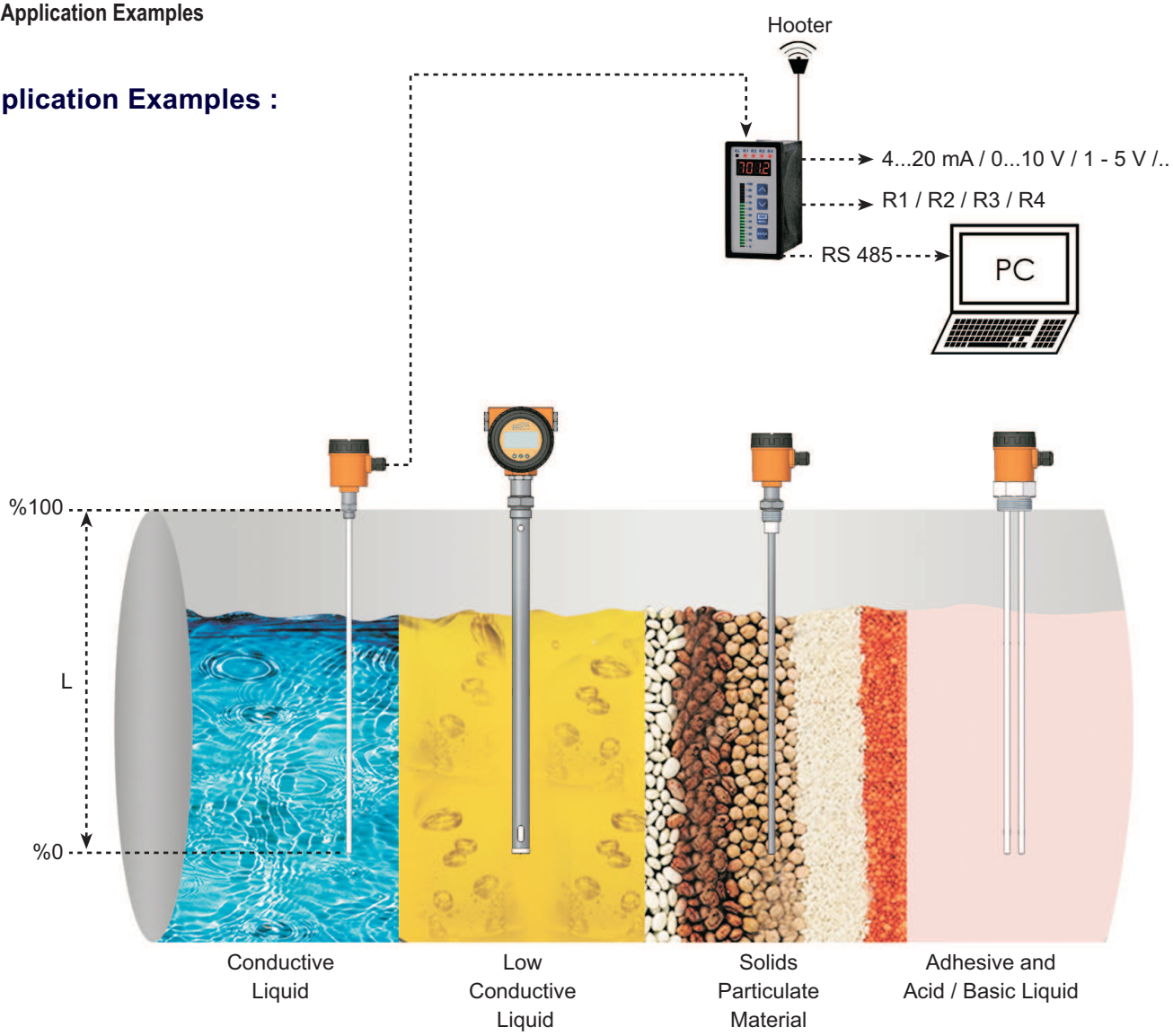


Make SW3 ON while SW2+SW1 ON.
If SW3 brought into ON position, while SW2+SW1 are in ON position.
The span point that's set before, shifts upper.
When it came to the desired value,
the switch should be taken to the off position.



Make SW4 ON while SW2+SW1 ON.
If SW4 brought into ON position, while SW2+SW1 are in ON position.
The zero point that's set before, shifts down.
When it came to the desired value,
the switch should be taken to the off position.

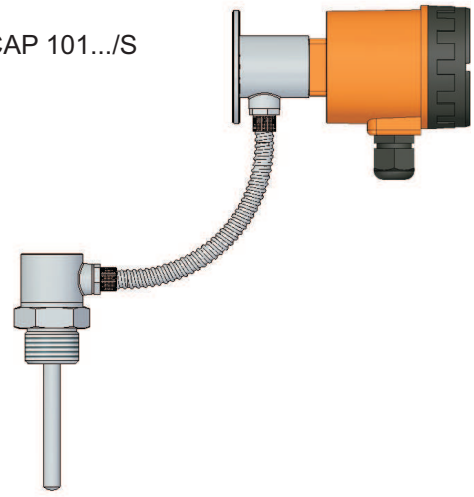
Application Examples :



Electronic Unit with Cable:

Electronic unit and sensor component can be separated by a cable that protected against exterior conditions for easy calibration on site. Thanks to the properties of cable, easy assembly for user is possible without affecting capacitive measurement.

ECAP 101.../S



Protection Case:

ECAP 101.../S

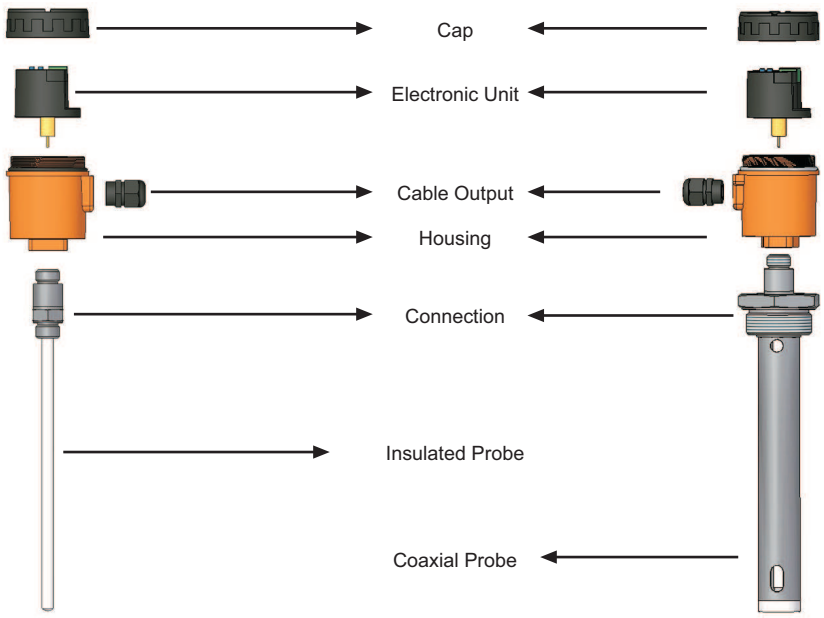
Material : 304 Stainless Steel
Welded manufacturing
Opens - Closes Hinged
To Protect Against external conditions.



Housing :



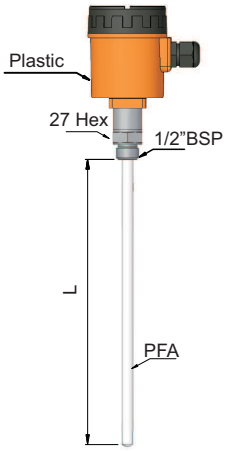
ORDER CODE	TYPE	MATERIAL	PROTECTION CLASS	TEMPERATURE (˚C)	SIZE a x b x c (mm)
5030	B10p	Plastic (PBT)	IP 65	(-) 40...(+) 150	96 x 77
5310	B11p	Plastic (PVDF)	IP 65	(-) 40...(+) 120	96 x 77
5046	B20p	Plastic (PBT)	IP 65	(-) 40...(+) 150	132 x 104
5109	B10x	Aluminium	IP 65	(-) 40...(+) 150	96 x 77
5150	B20x	Aluminium	IP 66	(-) 40...(+) 200	132 x 104
5308	B22x	Aluminium	IP 66	(-) 40...(+) 150	114x102
5081	B010	Aluminium (Double Cell)	IP 68	(-) 40...(+) 100	91 x 116
5265	B101x	Stainless Steel	IP 65	(-) 40...(+) 150	108 x 79



Sample Models:

ECAP 101

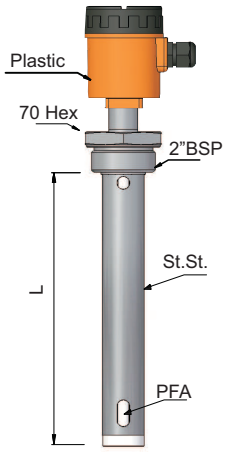
Fully Insulated Conductive Tank



Max. 4 m.
(-) 1 bar...(+) 100 bar
(-) 40 °C...(+) 150 °C

ECAP 102

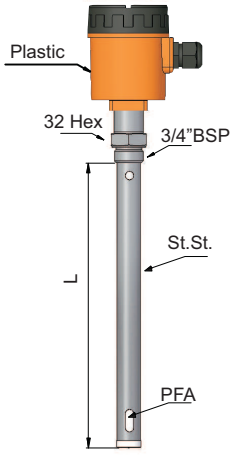
Fully Insulated Coaxial Probe Insulated Tank



Max. 4 m.
(-) 1 bar...(+) 100 bar
(-) 40 °C...(+) 150 °C

ECAP 103

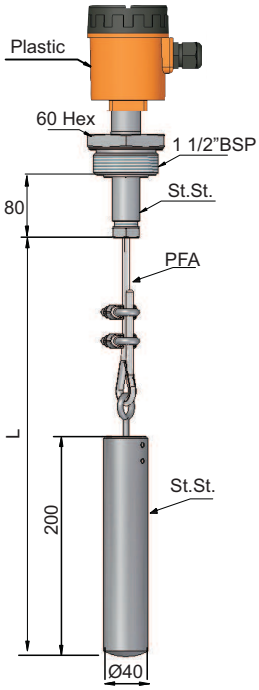
Fully Insulated Coaxial Probe Insulated Tank



Max. 1 m.
(-) 1 bar...(+) 100 bar
(-) 40 °C...(+) 150 °C

ECAP 107

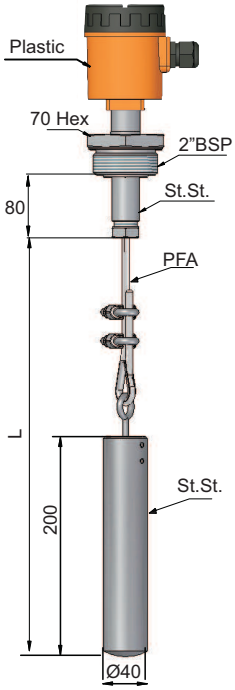
Fully Insulated Rope Conductive Tank



Max. 16 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

ECAP 107

Fully Insulated Rope Conductive Tank



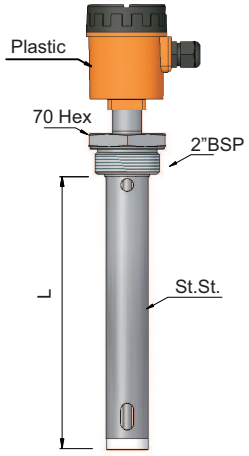
Max. 32 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

LOW CONDUCTIVE LIQUIDS

Sample Models:

ECAP 202

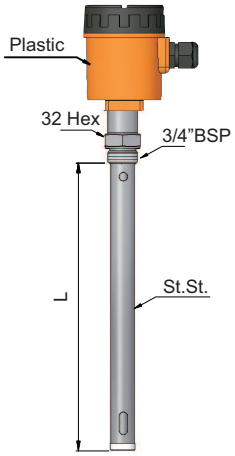
Partly Insulated Coaxial Probe
Conductive / Insulating Tank



Max. 4 m.
(-) 1 bar...(+) 100 bar
(-) 40 °C...(+) 150 °C

ECAP 203

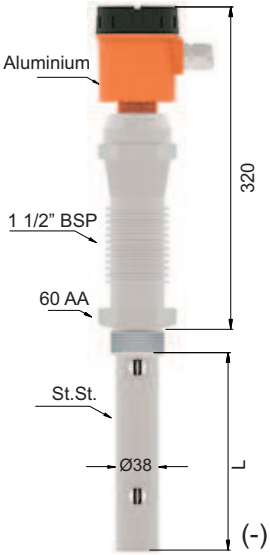
Partly Insulated Coaxial Probe
Conductive / Insulating Tank



Max. 1 m.
(-) 1 bar...(+) 100 bar
(-) 40 °C...(+) 150 °C

ECAP 20S

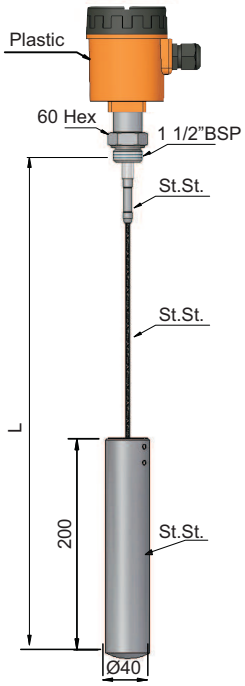
Partly Insulated Coaxial Probe
Conductive / Insulating Tank



Max. 4 m.
(-) 1 bar...(+) 25 bar
(-) 40 °C...(+) 400 °C

ECAP 204

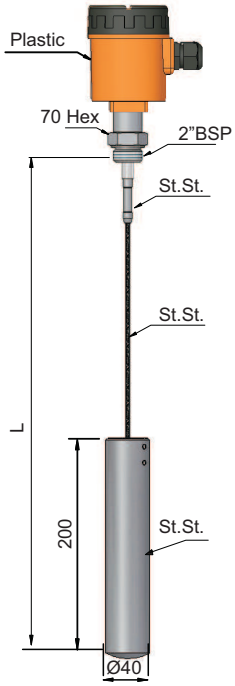
Partly Insulated Rope
Conductive Tank



Max 16 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

ECAP 204

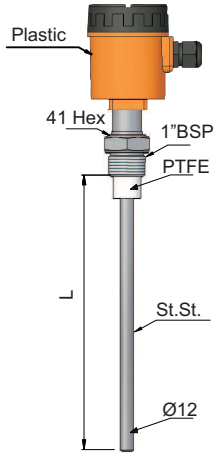
Partly Insulated Rope
Conductive Tank



Max. 32 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

ECAP 205

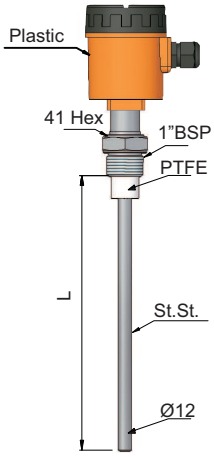
Partly Insulated Probe
Conductive Tank



Max. 6 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

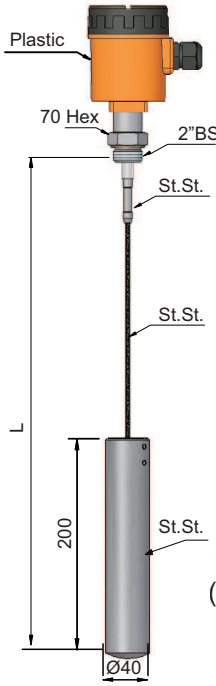
Sample Models:

ECAP 305
Partly Insulated Probe Conductive Tank



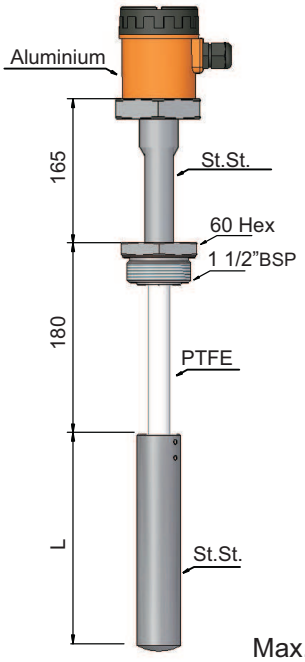
Max. 6 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

ECAP 304
Partly Insulated Rope Conductive Tank



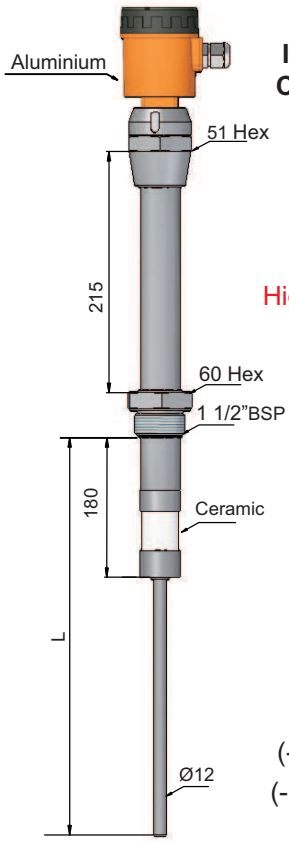
Max. 32 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

ECAP 306
PTFE Insulated Probe Conductive Tank



Max. 1 m.
(-) 1 bar...(+) 25 bar
(-) 40 °C...(+) 200 °C

ECAP 30S
Ceramic Partly Insulated Probe Conductive Tank

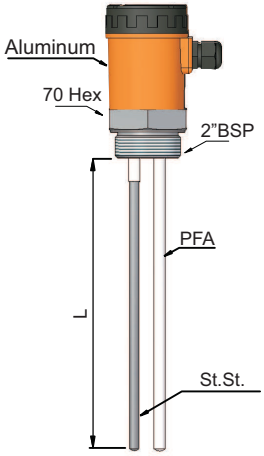


High Temperature Version

Max. 4 m.
(-) 1 bar...(+) 25 bar
(-) 40 °C...(+) 400 °C

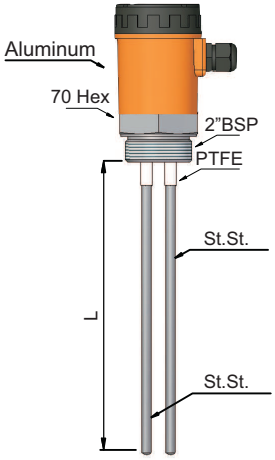
Sample Models:

ECAP 408A
Double Probe (Single Fully Insulated)
Conductive / Insulating Tank



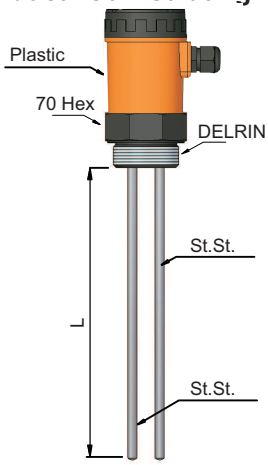
Max. 4 m.
(-) 1 bar...(+) 100 bar
(-) 40 °C...(+) 150 °C

ECAP 408B
Double Partly Insulated Probe
Conductive / Insulating Tank



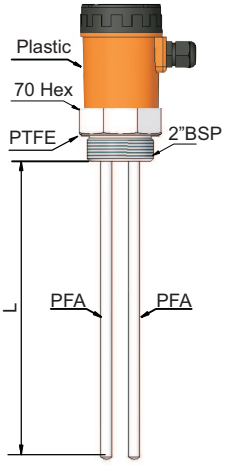
Max. 6 m.
(-) 1 bar...(+) 60 bar
(-) 40 °C...(+) 150 °C

ECAP 408B
Double Partly Insulated Probe
Conductive / Insulating Tank



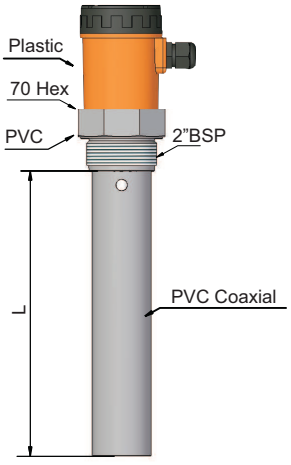
Max. 6 m.
(-) 1 bar...(+) 25 bar
(-) 20 °C...(+) 80 °C

ECAP 408T
Double Fully Insulated Probe
Conductive / Insulating Tank



Max. 1 m.
(-) 1 bar...(+) 25 bar
(-) 40 °C...(+) 150 °C

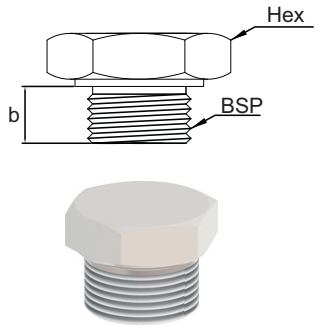
ECAP 408Tp
Double Fully Insulated
PVC Coaxial Probe
Conductive / Insulating Tank



Max. 1 m.
(-) 1 bar...(+) 6 bar
(-) 0 °C...(+) 60 °C

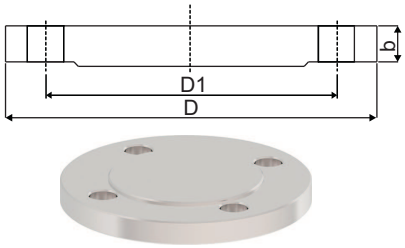
2.8. Mechanical Connection

Thread



Order Code	(ISO228-1) Dimension B	Hex [mm]	Thread b (mm)
0001	1/8” BSP	17	12
0002	1/4” BSP	17	12
0003	3/8” BSP	24	20
0004	1/2” BSP	27	14
0005	3/4” BSP	32	14
0006	1” BSP	41	23
0008	1 1/4” BSP	51	23
0009	1 1/2” BSP	60	23
0012	2” BSP	70	23

Flanged

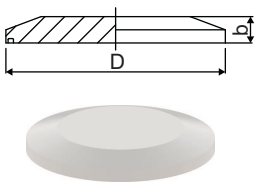


Order Code	(ISO1092-1) PN 16	D (mm)	D1 (mm)	b (mm)
0502	DN 25	165	85	16
0503	DN 32	140	100	16
0505	DN 50	165	125	18
0507	DN 80	200	160	20
0508	DN 100	220	180	20

Order Code	(ISO1092-1) PN 40	D (mm)	D1 (mm)	b (mm)
0702	DN 25	115	85	18
0703	DN 32	140	100	20
0705	DN 50	165	125	20
0707	DN 80	200	160	20
0708	DN 100	235	190	24

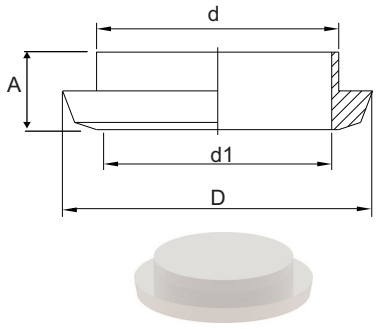
Order Code	(ANSI B16.5) 150 LBS	D (mm)	D1 (mm)	b (mm)
1005	DN 50	152,4	121	19
1006	DN 65	177,8	139,7	22,2
1007	DN 80	190,5	152,4	23,8
1008	DN 100	228,6	157,2	23,8

Clamp



Order Code	(ISO2852) Measurement	D (mm)	b (mm)
1501	DN 32	50,5	15
1502	DN 50	64	17
1503	DN 65	91	17

Dairy



Order Code	Measurement	Measurement	D (mm)	d1 (mm)	A (mm)
1600	DN 40	DN 40	56	48	13
1601	DN 50	DN 50	68	61	14
1602	DN 100	DN 100	121	114	20

Order Form : Please consider sample models when coding.

1 MODEL ECAP

Conductive Liquids.....1
Non-Conductive Liquids 2
Solids Particulate Materials.....3
Adhesive and Acid / Basic Materials.....4

2 CERTIFICATE

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

3 PROBE TYPE (MAX. LENGHT)

Single Probe - Insulated (Max. 4 m.) 1
Single Probe - Coaxial (Max. 4 m.) Ø 38 2
Single Probe - Thin Coaxial (Max. 1 m.), Ø 21 3
Rope - Non-Insolated (Max. 32 m.) 4
Single Probe - Non-Insolated (Max. 6 m.) 5
Single Probe - High Temperature (Max. 4 m.) 6
Rope - Insulated (0 ... 32 m.)..... 7
Double Probe - Single Insulated (Max. 4 m.) 8A
Double Probe - Non-Isolated (Max. 6 m.) 8B
Double Probe - Double Insulated (Max. 4 m.) 8T
Double Probe - Double Insulated, PVC Coaxial (Max. 4 m.) .. 8Tp
Double Probe Thin - Double Insulated (Max. 1 m.) 8Tm
Ceramic Insulated Probe (Max. 4 m.) .....S
Special..... x

4 PROBE DIAMETER (mm) Ø

Ø 10 mm (Std.).....10
Ø 8 mm 08
Ø 12 mm.....12

5 STEM LENGHT (mm) L

.....mm

6 PROCESS TEMPERATURE

150 °C (Standard).....0
200 °C with Cooling Apparatus 1
(-) 196 °C For Cyrogenic Tank 2
230 °C with Peek Insulated 3
400 °C with Seramic Insulated 4

7 CONNECTION

Thread (ISO 228-1)	Clamp (ISO 2852)	ISO Flange(1092-1)	ISO Flange (1092-1)	ASA Flanged (B16.5)
1/2" BSP.....0004	DN 32 - PN 16...1501	DN 25 - PN 16...0502	DN 25 - PN 40...0702	DN 50 - 150lb ... 1005
3/4" BSP 0005	DN 50 - PN 16...1502	DN 32 - PN 16...0503	DN 32 - PN 40...0703	DN 65 - 150lb ... 1006
1" BSP.....0006	DN 65 - PN 16...1503	DN 50 - PN 16...0505	DN 50 - PN 40...0705	DN 80 - 150lb ... 1007
1 1/2" BSP.....0010		DN 80 - PN 16...0507	DN 80 - PN 40...0707	DN 100 - 150lb ... 1008
2" BSP.....0012		DN 100 - PN 16...0508	DN 100 - PN 40...0708	
1/2" NPT.....0203				
3/4" NPT.....0204				

8 OUTPUT

4-20 mA two wires.....19
4-20 mA three wires.....20
0-10 V three wires.....21
0-20 mA three wires.....22
3 - 180 ohm 23
10-180 ohm 24
240-33 ohm 25
4-20 mA two wires+relay 26
Special.....x

9 HOUSING

Plastic Housing , B10p 050
Plastic Housing , B11p 053
Plastic Housing , B20p 103
Aluminium Housing , B10x 503
Aluminium Housing, B20x 603
Aluminium H ousing , B22x 750
Aluminium, Double Cap B010x.....851
Stainless Steel Housing , B101x.....800
Special.....x

10 INSULATION MATERIAL

PBT.....065
PTFE.....066
PFA.....067
PEEK.....068
Polyamide.....069
Seramic.....070
Rubber.....081
FKM.....084
Steel Shielded Cable (Max. 350 °C).....48
Special.....x

11 CONNECTION MATERIAL

304 Stainless Steel 001
316 Stainless Steel 002
Brass.....041
PVC.....061
Polypropylene.....062
Delrin.....063
PVDF.....064
PBT.....065
PTFE.....066
Special.....x

12 ELECTRICAL CONNECTION

With Terminal.....00
Special.....x

13 OPTIONAL

None...../ 0
With By - Pass Tube..... / T
Shetter (For the outside of the tank) 304 St. St..../ K6
Seperable Electronic Unit...../ S
Double Cell Digital Display...../ EDS02
Wall Apparatus...../ W
Special.....x

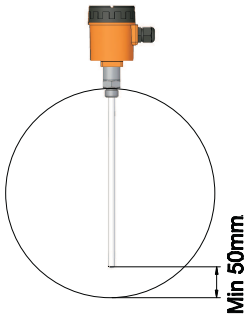
SAMPLE

ECAP 101-10-300-0-006-21-050-066-002-00/0
For conductive liquids, L= 300 mm, 1" BSP , 0-10 V, Aluminium housign , Ø 10 Probe

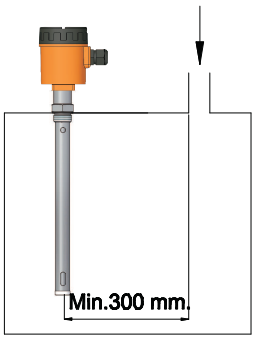
2.10.

WARNING !!!

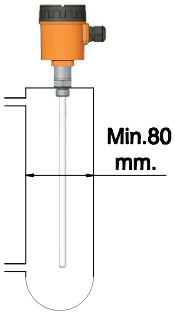
Please pay attention to following matters in order to operate your flow switch properly.



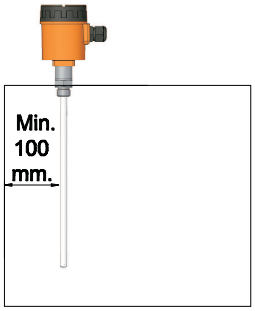
Mount from above and center of the tank



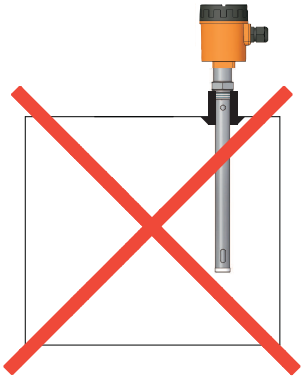
Keep distance with loading junction



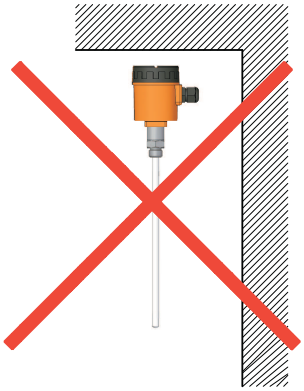
By-pass tube diameter should be 80mm at least



Distance between tank's surface and the probe should be greater than 100mm



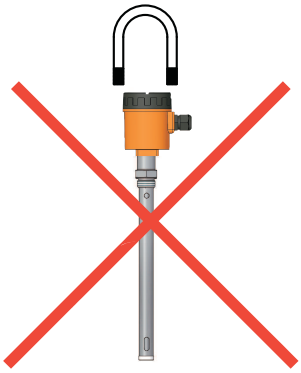
Transmitter's neck connector should not be around the measuring tube to avoid any stacking of bulk material.



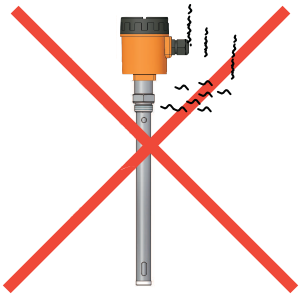
Please keep away from magnetic materials like iron board ; otherwise the characteristics might be affected



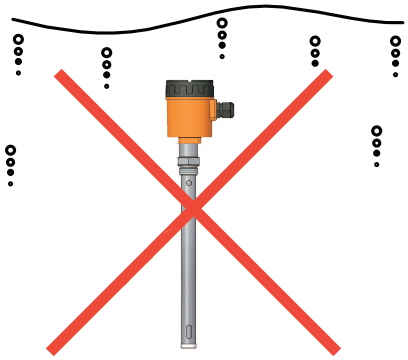
Do not remove the float from connection part. Because its pin might be damaged.



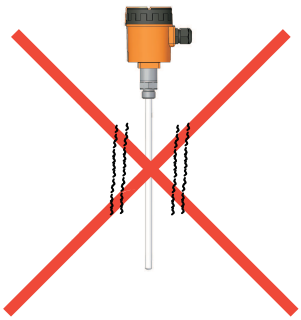
Do not fasten switch reversely , otherwise its characteristics might be changed.



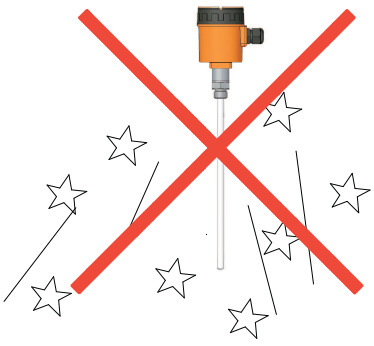
Please do not dip cables potting into liquids,otherwise instulation problem may cause.



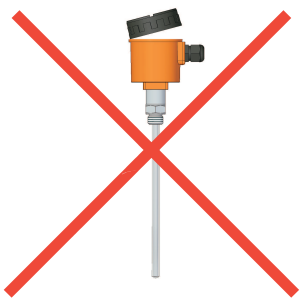
In case vapour splash cable potting points,insulation problem may cause.



Vibration might be caused instability.



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



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

3. Failure Delection

Your device must be repair only at an outhorized serviced.

Breakdown	Probable cause	Failure detection\correction
Calibration point shifted.	-It has not been set as correctly	-Please set as specified as specified as outhorized service in the user manuel. -Please contact with authorize.
It doesn't give output signal.	-Supply has been connected as wrongly. -Two wire loop circuit is not completed. -Load is open curciut.	-Check it or contact with authorized services. -Check it or contact with authorized services. -Please contact with authorized services.

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 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.