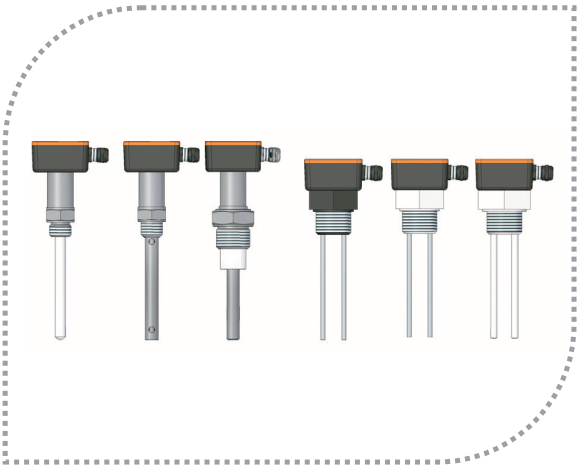
ECASm level switch is a capacitive level sensor for level measurement of conductive liquid, low conductive liquid, granulated materials with solid particles, adhesive and acidic/basic liquids.
When product comes over the sensor, a capacitance change occurs and when this change exceed adjustment threshold, 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.

Grain stores, cement, sand feed, flour, milk powder, organic and plastic granule.

Sticky hot and high viscosity liquid, acid and chemical liquids.

ECASm

CAPACITIVE LEVEL SWITCH

ECASm 101
ECASm 203
ECASm 305
ECASm 408B , 408T , 408Tm

Avantajları :

* Optionally high temperature-resistant design
* Easy assembly and sensitivity adjustment.
* Not affected by foam, liquid splash and probe coating.

CE

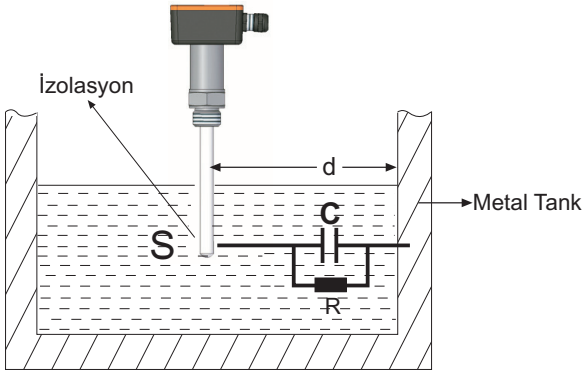
Technical Specifications:

Measurable Matarial	Conductive liquids, refrigerants Low conductive liquids Solids particulate materials Adhesive and acid/basic liquids
Supply	24 VDC
Signal Output	1 NONC x5 A/250VAC Relay
Min.Di-Electric Constant	1,6 ε_r
Connection Material	304 St.St. Opt. 316 St.St.
Isolation Material	PFA Opt. PTFE, Delrin, Peek, Ceramic
Housing Material	Aluminium Injection (std.)
Working Pressure	Max. 150 bar (Depending on the model)
Working Temperature	Max.150 ˚C (230˚C with PEEK isolation) (200˚C with cooling apparatus)
Ambient Temperature	(-)20...(+)60˚C
Display	With LED-Power and Contact LED
Power Consumption	Max. 1 W
Electrical Connection	Terminal
Protection Class(EN60529)	Aluminium
Test	EMC, Low Voltage
Weight	190 gr. for ECASm 101
Max. Tensile Force	Max. 40 NM

Working Principle :

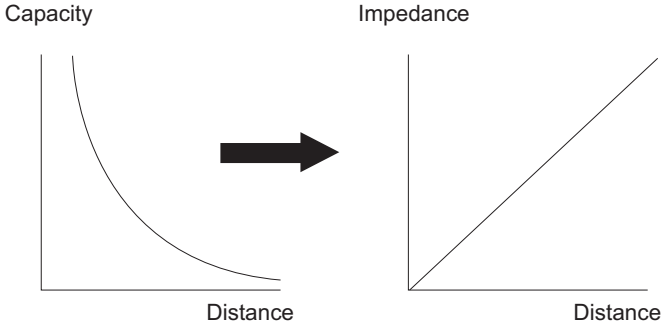
Capacitance definition, assuming two parallel conductive plates are used;

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

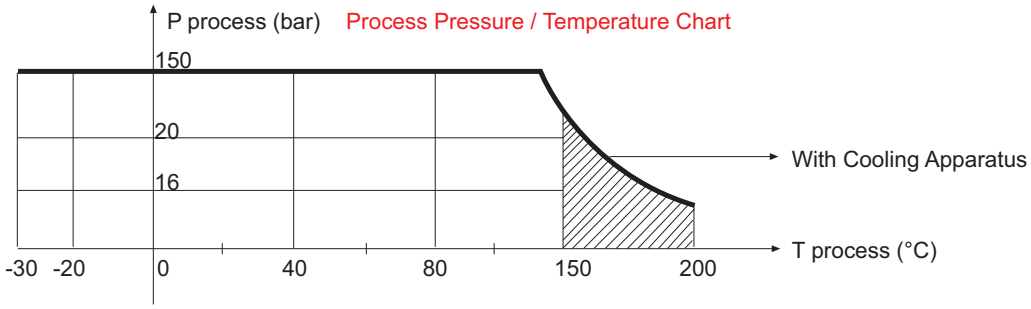


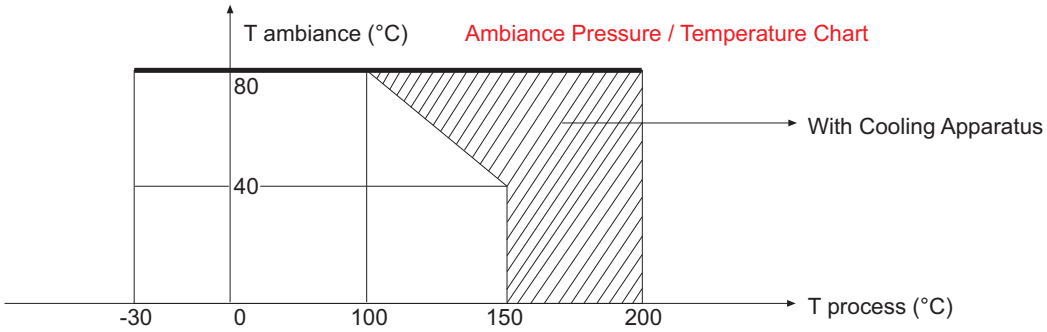
C: Capacity , Farad
S: Surface Area , m2
d: Distance , m

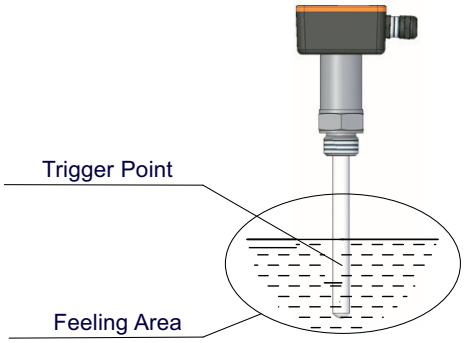
However, there are scarcely any sensor type which this definition can be pratically utilized. Above Formula can no longer bi reliable especially when residual areas increase due to large distance (d) (which is usually the case). Thus, measuring impedance for distance measurements give more accurate results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

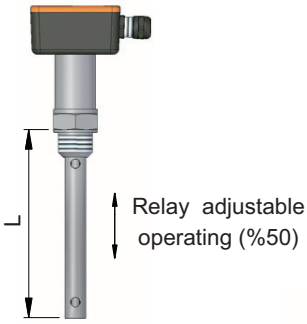


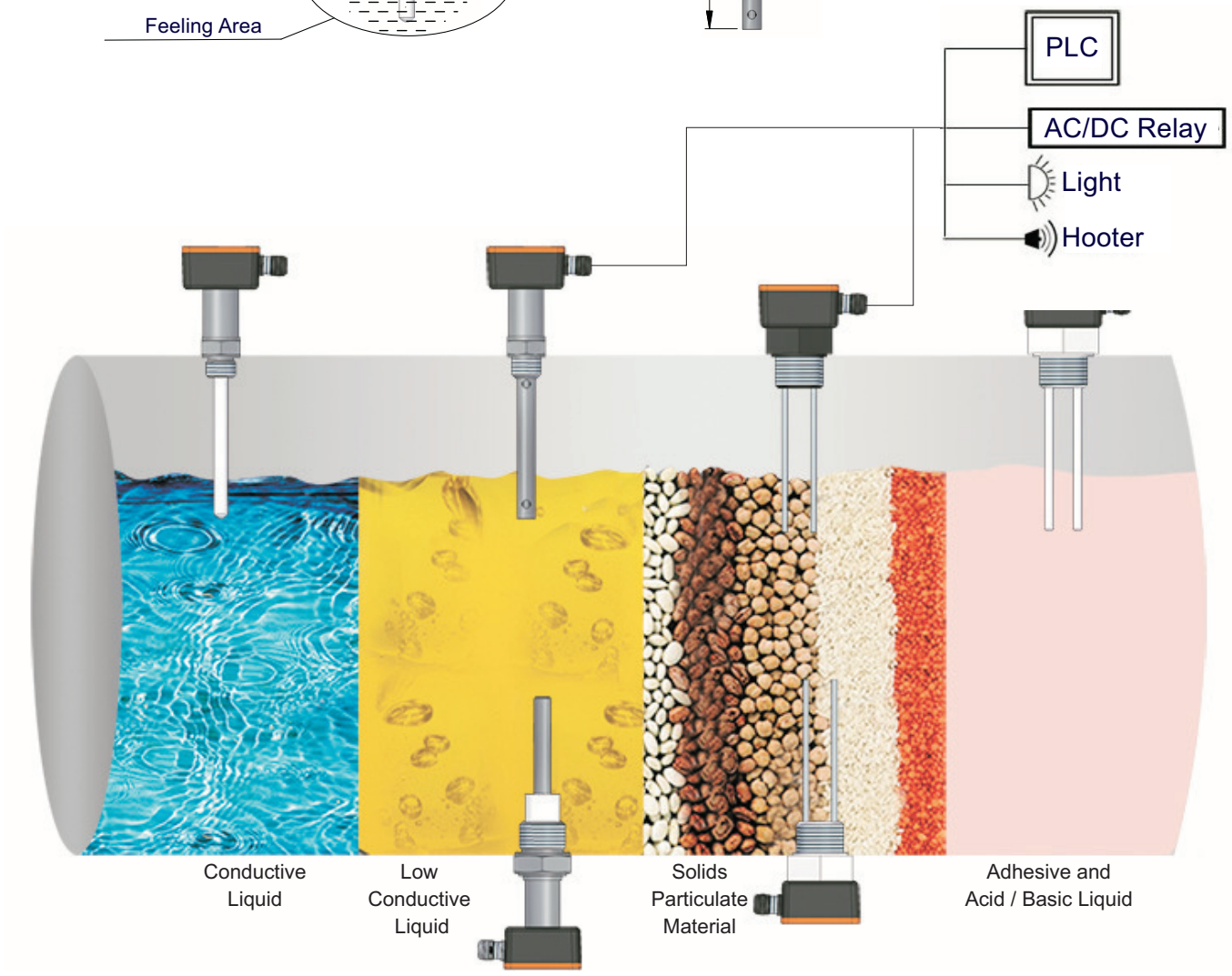
Excitation applied between 10KHz…250KHz based on length for all our models.(φ =2xpxf) Linearity error that may be caused by conductivity component (R) effect is prevented by electronic circuit design and mechanical design. Reduced to a level lower than 1ppm, acceptable as zero.









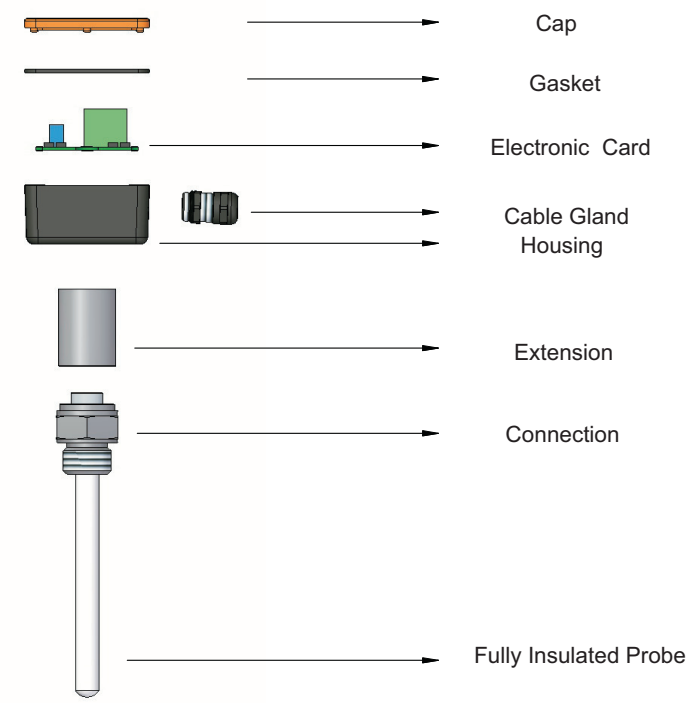


Electronic Unit with Cable:

Electronic unit and sensor component can be separated by a cable protected against exterior conditions for easy calibration on site. Cable provides easy assembly for user by its property not affecting capacitive measurement.

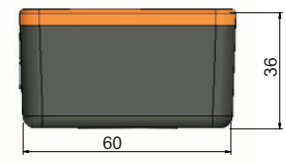
Sample Model:

Parts:



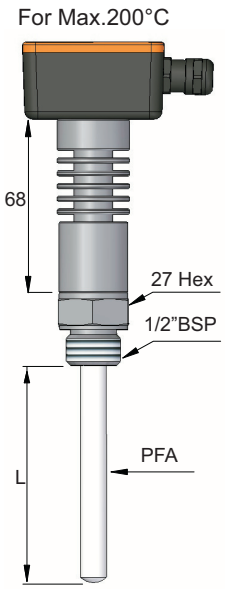
Housing :

TYPE	MATERIAL	PROTECTION CLASS	TEMPERATURE (°C)	SIZE a x b x c (mm)
B035	Aluminium	IP 65 With Seal	-30...+150	60 x 36



B035

Cooling :



Infication and Calibration :

· **RlyLED (Red):** Means “Relay Active” during normal operation; means operation continues during calibration. Light is continuous during normal operation mode – if relay is active – and flashes during calibration mode. It is red colored

· **PwrLED (Green):** Means there is no sensor failure during normal operation, and means “desired measurement values are saved in memory” during calibration. Operates by flashing. If light is continuous, it indicates failure. Green colored.

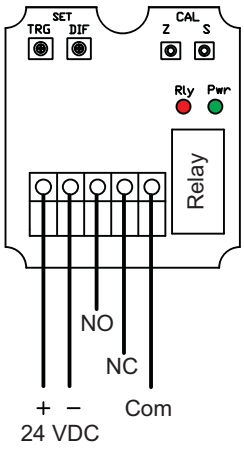
· **CAL - S Button:** Used to acquire “High Level-span-“value during calibration

· **SET - TRG Pot:** Used to acquire “Low Level-zero-“value during calibration

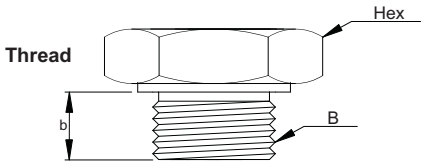
· **SET - DIF Pot:** Adjusts relay triggering point between Zero-Span values.

· **CAL - Z Button:** Adjusts “Release” level of the relay activated by “TRG Pot”. Highest adjustable value is equal to half (50%) of the operation region specified by “Z and S”. Meaning that, when DIF Pot is at 100% and relay is pulled, the level to release it shall be reduced as half of the total scale

Electrical Connection :



Mechanical Connection :



(ISO 228-1)

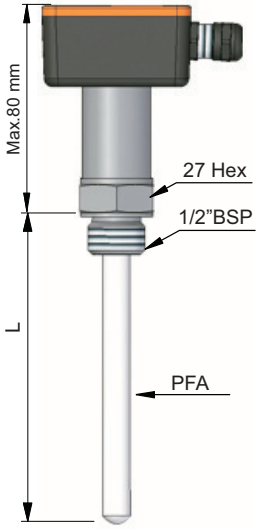
Dimension B	Hex (mm)	Screw Lenght b (mm)
3/8" BSP	27	14
1/2" BSP	27	14
3/4" BSP	32	14
1" BSP	36	23
1 1/4" BSP	51	23
1 1/2" BSP	60	23
2" BSP	70	23
M14	27	12
M16	27	14
M18	27	14
1/2" NPT	27	16
3/4" NPT	27	23
1" NPT	27	23

Sample Models :

CONDUCTIVE LIQUIDS

ECASm 101

Fully Insulated Probe
Conductive Tank

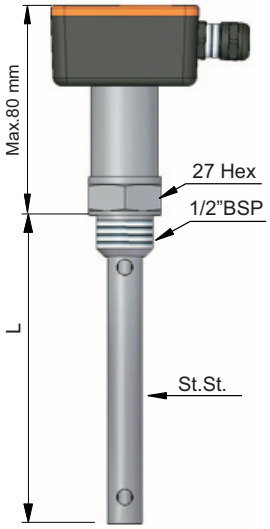


L= 50/100 mm (Std.)
Max.500mm
-1...+150 bar
Max.150°C

LOW CONDUCTIVE LIQUIDS

ECASm 203

Coaxial Probe
Conductive / Insulating Tank

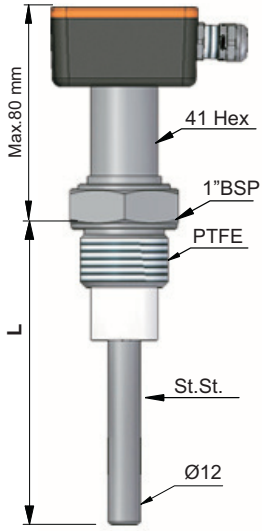


L= 50/100 mm (Std.)
Max.500mm
-1...+150 bar
Max.150°C

SOLID PARTICLE LIQUIDS

ECASm 305

Partly Insulated Probe
Conductive Tank

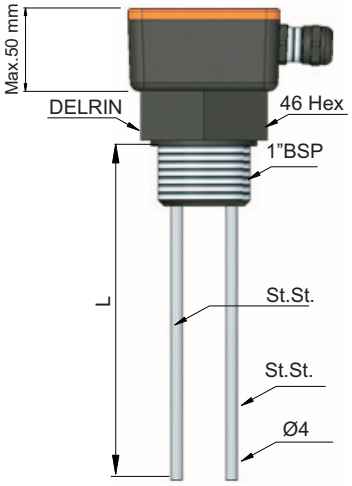


L= 50/100 mm (Std.)
Max.1000mm
-1...+60 bar
Max.150°C

SOLID PARTICLE LIQUIDS

ECASm 408P

Double Probe
Conductive / Insulating Tank

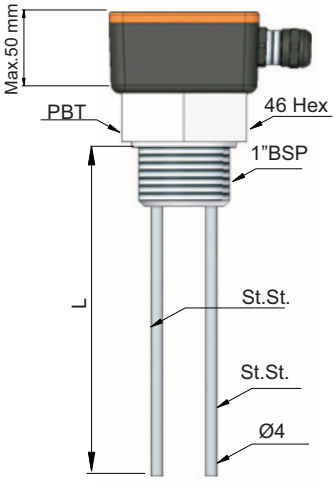


L=100 mm (Std.)
Max.1000mm
-1...+25 bar
Max. 80°C

SOLID PARTICLE LIQUIDS

ECASm 408B

Double Probe
Conductive / Insulating Tank

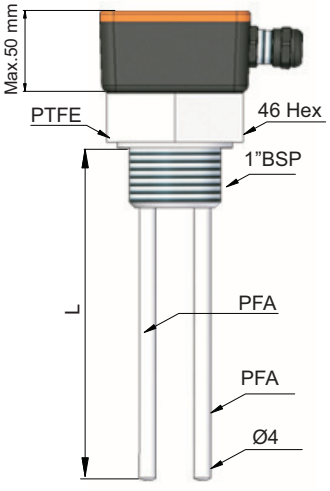


L=100 mm (Std.)
Max.1000mm
-1...+25 bar
Max. 120°C

YADHESIVE AND ACID / BASIC LIQUIDS

ECASm 408Tm , 408T

Double Probe
Conductive / Insulating Tank



L=100 mm (Std.)
Max.1000mm
-1...+25 bar
Max. 150°C

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

1 MODEL ECASm

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

2 CERTIFICATE

No 0

3 PROBE TYPE

Single Probe - Insulated (Max 500mm) 1
Coaxial Probe (Max 500mm) ..... Ø10.....3
Single Probe - Partly Insulated (Max.1000m m) 5
Double Probe - Without Partly Insulated (Max.1000mm).....8B
Double Probe - Double Insulated (Max.1000mm).....8T
Double Probe - Double Fully Insulated (Max.1000mm).....8Tm
Special.....x

4 STEM LENGHT

50 mm 0
100 mm (Standard).....1
Special.....x

5 PROCESS TEMPERATURE

150°C Standard 0
200°C with Cooling Apparatus 1
80°C For Plastic (Delrin) Model.....2
120°C For Plastic (PVDF) Model 3
150°C For Plastic (PBT) Model.....4

6 CONNECTION

Theread (ISO 228-1)

3/8" BSP.....03
1/2" BSP.....04
3/4" BSP.....05
1" BSP.....06
1 1/4" BSP.....07
1 1/2" BSP.....08
2" BSP 09
1/2" NPT 12
3/4" NPT 13
1" NPT 14
Special.....x

7 OUTPUT

Relay Output.....11
Double Relay Output (Independent).....27
Special.....x

8 HOUSING

Aluminium B035
Special.....x

9 INSULATION MATERIAL

PTFE.....10
PEEK.....11
Ceramic.....12
Polyamide.....13
PBT.....14
PFA.....17
Rubber.....18
FKM.....19
Special.....x

10 CONNECTION MATERIAL

316 Stainless Steel.....02
Brass.....03
Delrin.....09
PTFE.....10
PBT.....14
PVDF.....15
Polypropylene.....16
Special.....x

11 OPTIONAL

No...../ 0
Seperable Electronic Unit...../ S

SAMPLE

ECASm - 101 -1 - 1 - 06 - B035 - 17 - 02 / 0 For Cond. Liquid, L=100mm, 1/2" BSP, With Cooling Apparatuds

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