

SERIES ASL



ASL instrument is designed for marine and on-land applications for liquid detection, pump control, water ingress alarm systems, overfilling protection on liquids with or without foam.

ASL works on Valcom® proprietary principle of distributed acoustic waves in a metal rod.

If the rod is not covered by the liquid the acoustic waves are dispersed freely without any interference. If liquid covers the rod the emission of acoustic waves is muffled and this interference is picked up by the piezoelectric sensor and converted into an on-off signal. These instruments have no moving parts, no vibration, no optical or capacitive detectors.

They are pure static instruments offering the maximum reliability.

APPLICATION FIELDS

- Systems in accordance to IMO and Coast Guard for high and overfill alarms on tankers;
- Water ingress detection on bulkcarriers;
- Pipes Overfill detection;
- System for high and low level detection in tanks, wells, etc.

TECHNICAL FEATURES

Electrical parameters

Supply: 12 ÷ 30 Vdc

Current output: ON-OFF 5 mA \ 13 mA

Frequency output: ON-OFF 1.2 kHz \ 3.8 kHz (± 30 %)

Relay output (NOT Ex): capacity: 1 A @ 30 Vdc
max switching power: 30 W \ 2.5 VA

Measurement performance

Repeatability: Vertical mounting < 3 mm
Horizontal mounting < 1 mm

Action: Direct or reverse (by jumper)

Environmental Conditions

Ambient temperature: -40 ÷ +85 °C
Ex T6, T85 °C: -40 °C ≤ Tamb ≤ 40 °C
Ex T5, T100 °C: -40 °C ≤ Tamb ≤ 55 °C

Process temperature: -40 ÷ +85 °C
Finned body T1: -60 ÷ +150 °C
Finned body T2: -200 ÷ +450 °C

Storage temperature: -40 ÷ +90 °C

Ingress protection degree: AISI 316 Housing: up to IP68
Other Housings: IP66

APPROVALS

Type approvals

Directive 2014/34/EU (ATEX)  II 1G Ex ia IIC T6, T5 Ga and  II 1D Ex ia IIIC T85 °C, T100 °C Da or
 II 1G Ex ia IIC T6, T5 Ga or
 II 1/2G Ex ia IIC T6, T5 Ga/

Directive 2014/68/EU (PED) Up to Category II, for fluids in Group 1

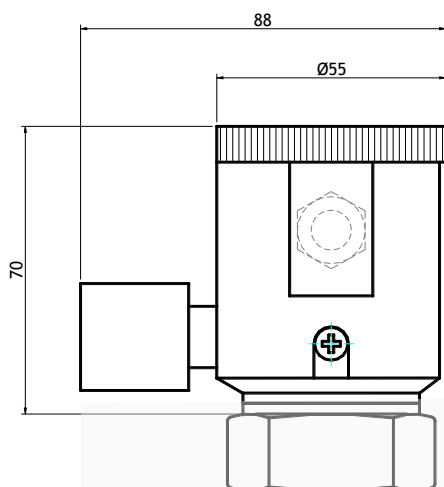
Directive 2014/30/EU (EMC) Adequate level of electromagnetic compatibility

IECEX Ex ia IIC T6, T5 Ga and IIIC T85 °C, T100 °C Da or
Ex ia IIC T6, T5 Ga or
Ex ia IIC T6, T5 Ga/Gb

Functional Safety SIL2 PFH [Hours⁻¹] = 9.8174·10⁻⁸
SFF = 80.00 % DC = λ_{DD} / (λ_{DD} + λ_{DU}) = 84.78 %

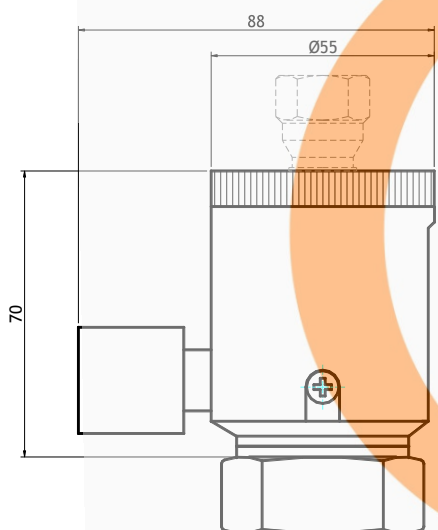
Marine type approval In compliance with applicable requirements of DNV GL and RINA approval systems

HOUSING MATERIAL AND TYPE



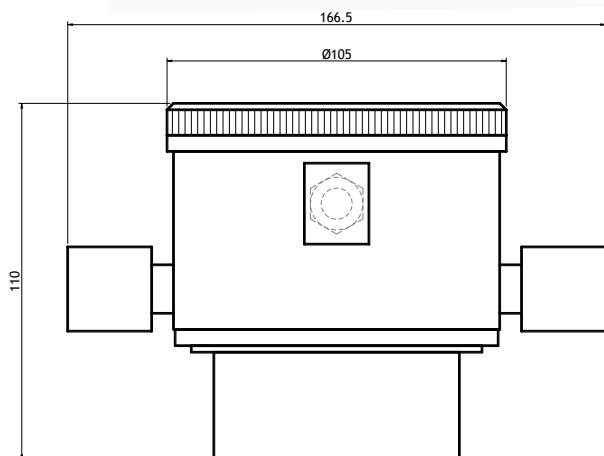
- **Material:** AISI 316 (Ø 55)
- **Zone:** II 1GD
- **EPL:** Ga, Da
- **Protection Degree:** IP68
- **Code:** A01 (without PT)
A02 (with PT)

- **Material:** Titanium (Ø 55)
- **Protection Degree:** IP66
- **Code:** T01 (without PT)
T02 (with PT)



- **Material:** AISI 316 (Ø 55)
- **Zone:** II 1GD
- **EPL:** Ga, Da
- **Protection Degree:** IP68
- **Code:** A03 (without PT)
A04 (with PT)

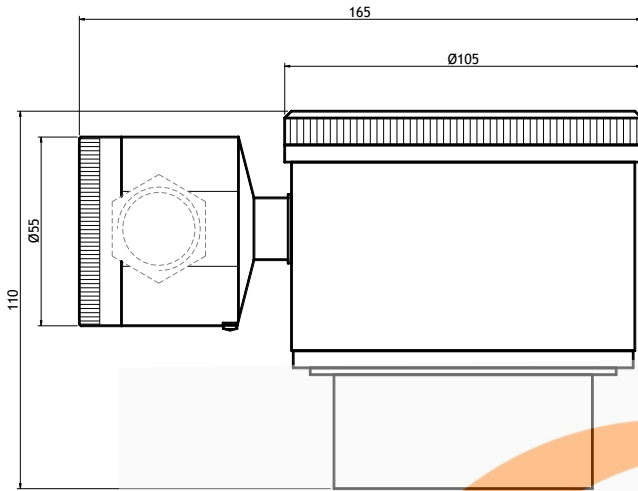
- **Material:** Titanium (Ø 55)
- **Protection Degree:** IP66
- **Code:** T03 (without PT)
T04 (with PT)



- **Material:** AISI 316 (Ø 100)
- **Zone:** II 1GD
- **EPL:** Ga, Da
- **Protection Degree:** IP68
- **Code:** A05 (without PT)

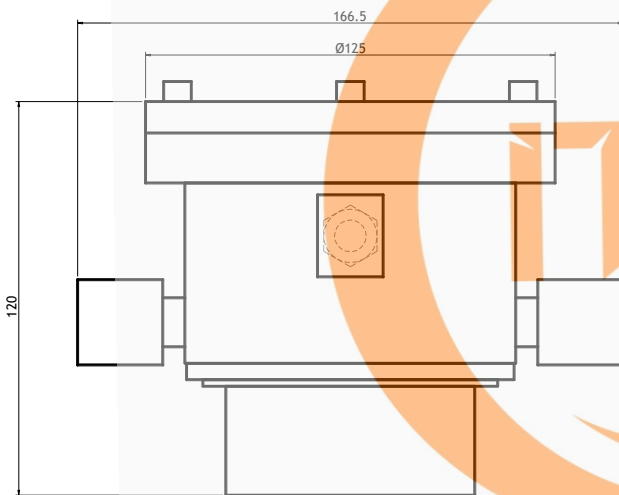
- **Material:** AISI 316 (Ø 100)
- **Zone:** II 1GD
- **EPL:** Ga, Da
- **Protection Degree:** IP68
- **Code:** A06 (with PT)

HOUSING MATERIAL AND TYPE



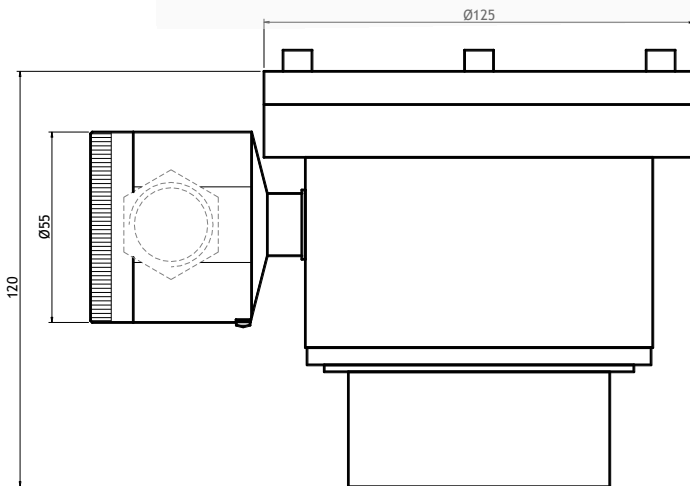
- **Material:** AISI 316 (Ø 100)
- **Zone:**  II 1G
- **EPL:** Ga
- **Protection Degree:** IP66
- **Code:** A07 (without PT)

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- **Material:** AISI 316 (Ø 100)
 - **Zone:**  II 1G
 - **EPL:** Ga
 - **Protection Degree:** IP66
 - **Code:** A08 (with PT)



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- **Material:** AISI 316 (Ø 100)
 - **Zone:**  II 1G
 - **EPL:** Ga
 - **Protection Degree:** IP66
 - **Code:** A09 (without PT)

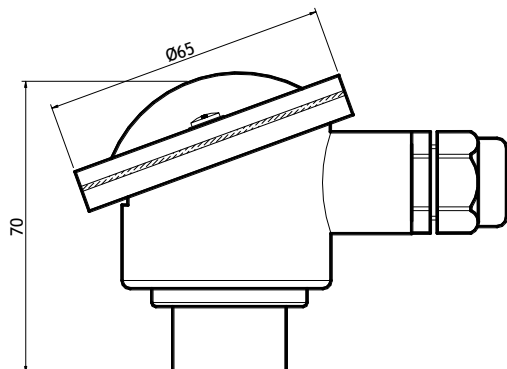
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- **Material:** AISI 316 (Ø 100)
 - **Zone:**  II 1G
 - **EPL:** Ga
 - **Protection Degree:** IP66
 - **Code:** A10 (with PT)



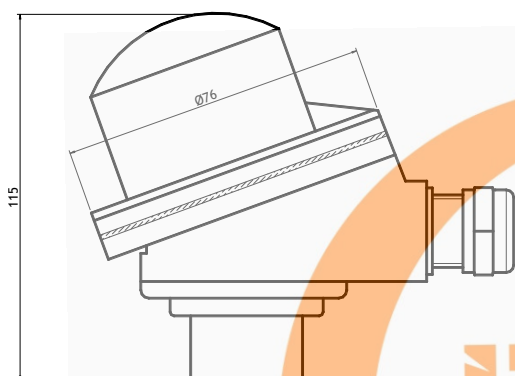
-
- **Material:** AISI 316 (Ø 100)
 - **Zone:**  II 1G
 - **EPL:** Ga
 - **Protection Degree:** IP66
 - **Code:** A11 (without PT)

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- **Material:** AISI 316 (Ø 100)
 - **Zone:**  II 1G
 - **EPL:** Ga
 - **Protection Degree:** IP66
 - **Code:** A12 (with PT)

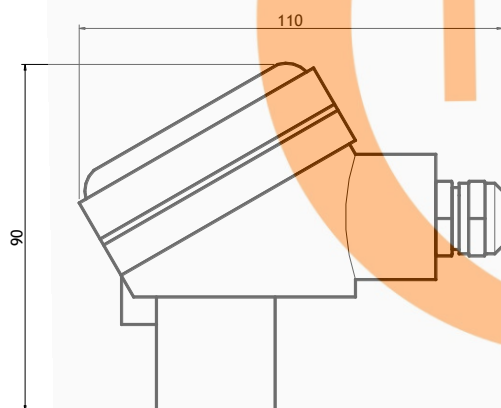
HOUSING MATERIAL AND TYPE



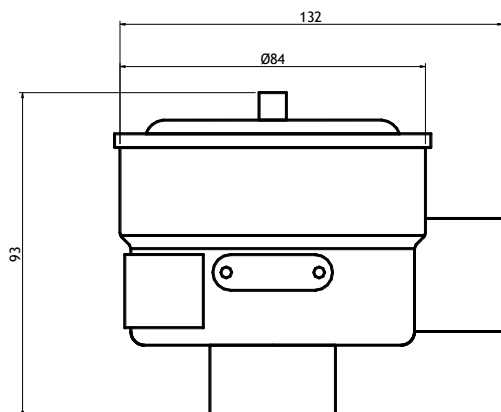
- **Material:** Aluminum
- **Zone:** II 1/2G
- **EPL:** Ga/Gb
- **Protection Degree:** IP66
- **Code:** D01



- **Material:** Aluminum
- **Zone:** II 1/2G
- **EPL:** Ga/Gb
- **Protection Degree:** IP66
- **Code:** D02



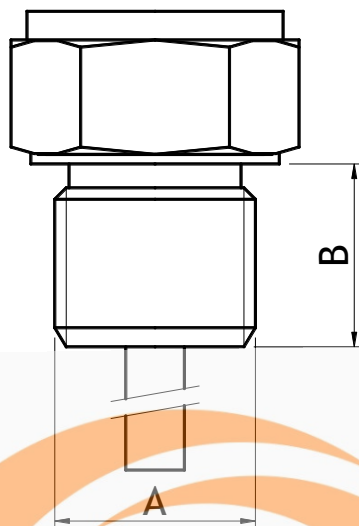
- **Material:** Aluminum
- **Zone:** II 1/2G
- **EPL:** Ga/Gb
- **Protection Degree:** IP66
- **Code:** D03



- **Material:** Aluminum
- **Zone:** II 1/2G
- **EPL:** Ga/Gb
- **Protection Degree:** IP66
- **Code:** D04

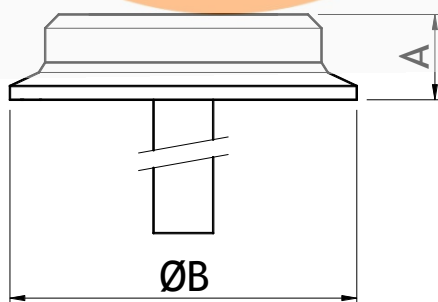
PROCESS CONNECTIONS

Standard screws



Code	A	B [mm]	Ex. Ch.
S01	1/2" G-M	20	41
S02	1/2" NPT-M	20	41
S03	3/4" G-M	22	41
S04	3/4" NPT-M	21	41
S05	1" G-M	22	41
S07	1" NPT-M	24.5	41
S08	1" 1/2 G-M	20	46
S10	2" G-M	25	41
M2	M27x1.5	22	41

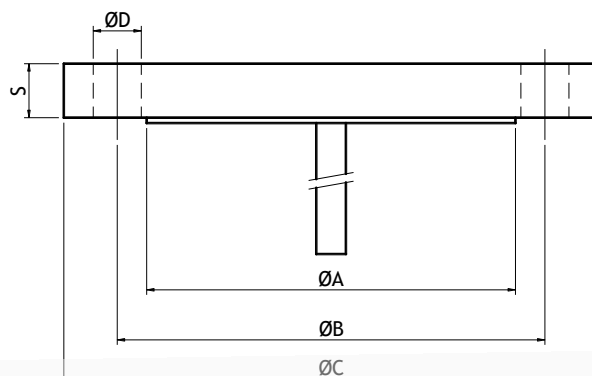
Triclamp



Code	DN	A [mm]	B [mm]
T01	1" 1/2	15.5	50.4
T02	2"	15.5	64
T03	2" 1/2	15.5	77.4

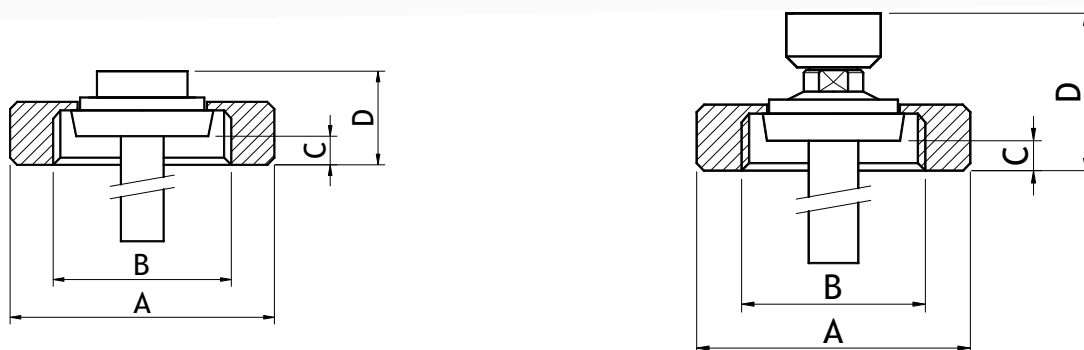
PROCESS CONNECTIONS

Standard flanges



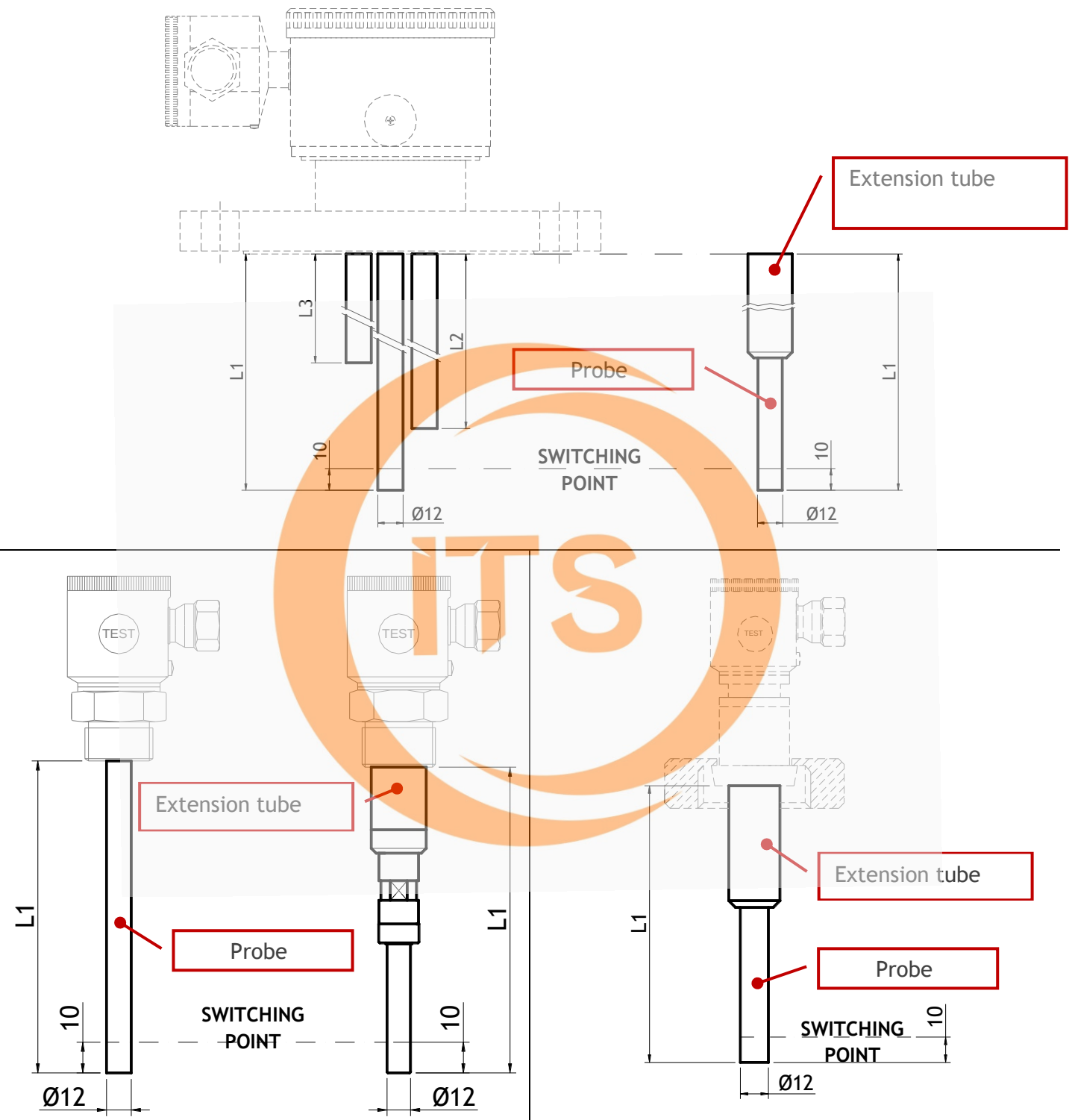
Code	DN	PN	ØA [mm]	ØB [mm]	ØC [mm]	ØD [mm]	S [mm]
F01	25	10/16	68	85	115	14	16
F02	25	40	68	85	115	14	18
F03	40	10/16	88	110	150	18	16
F04	40	40	88	110	150	18	16
F05	50	10/16	102	125	165	18	18
F06	50	40	102	125	165	18	20
F08	65	10/16	122	145	185	18	18
F10	80	10/16	138	160	200	18	20
F29	2"	ANSI 150	92	120.6	152.4	19	19
F30	2"	ANSI 300	92	127	165.1	19	22.2
F31	2"	ANSI 600	92	120.6	152.4	19	25.4
F34	3"	ANSI 150	127	152.4	190.5	19	23.8
F61	JIS 100A	5K	-	165	200	19	16
F62	JIS 50A	10K	-	120	155	19	16
F64	JIS 50A	20K	-	120	155	19	18

Welding Nuts



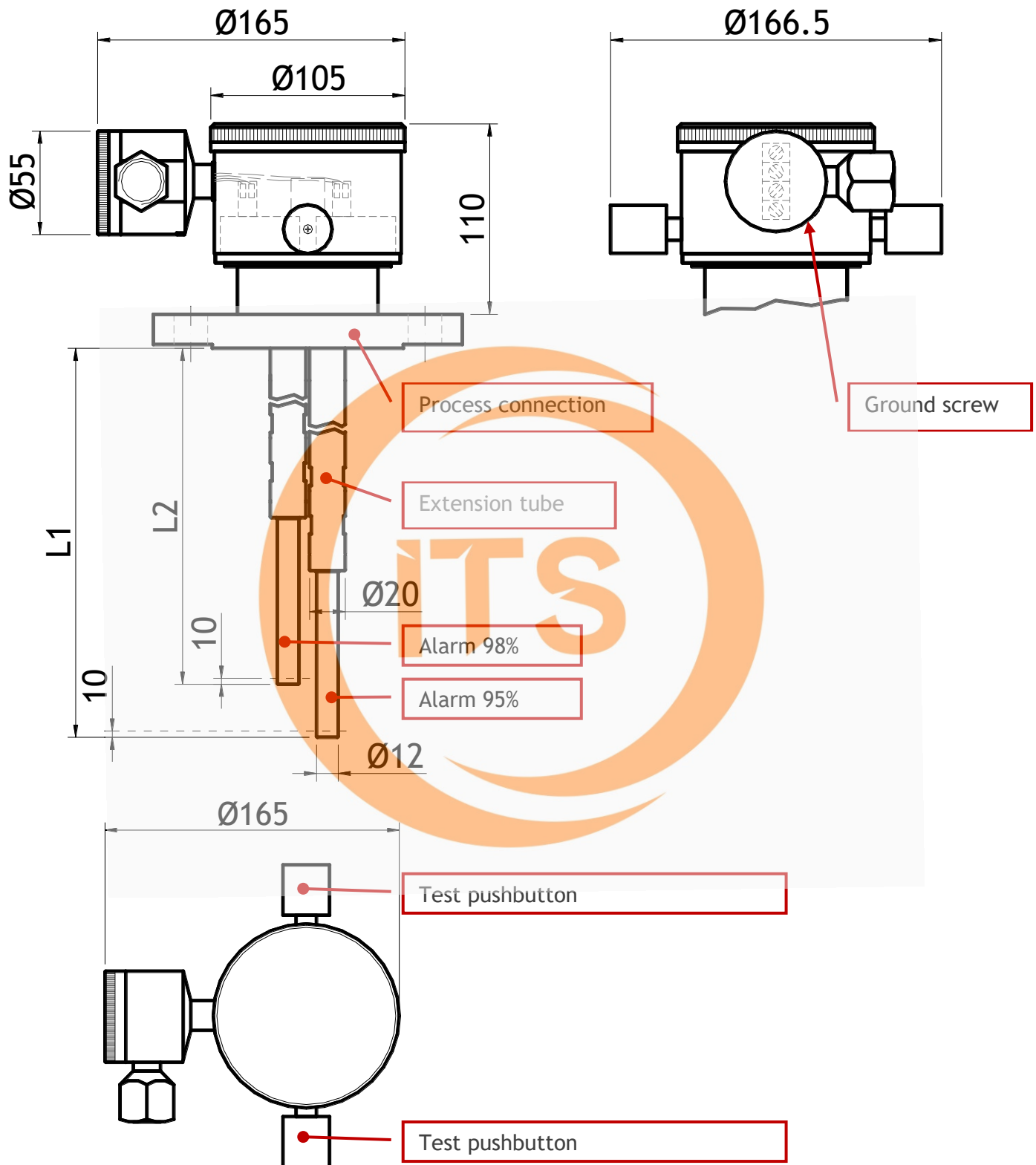
Code	A [mm]	B [mm]	C [mm]	D [mm]
G01	25	63	8	21
G02	40	78	8	21
G03	50	92	8	22

PROBE AND EXTENSION TUBE



Switching point is fixed at 10 mm above the bottom part of the probe
Extension tube available $\varnothing 20$, $\varnothing 22$ and $\varnothing 28$

DIMENSIONAL DRAWINGS



ORDERING CODE

ASL Ultrasonic level switch

01 Number of alarms

S Single
D Double
T Triple

02 Probe length L1

___ if 27 mm < L1 < 999 mm then ___ = 027 ÷ 999 Example 056 = 56 mm
 A__ if 1000 mm < L1 < 1999 mm then A__ = A00 ÷ A99 Example A42 = 1420 mm ÷ 1429 mm
 B__ if 2000 mm < L1 < 2999 mm then B__ = B00 ÷ B99 Example B42 = 2420 mm ÷ 2429 mm
 Z__ On request
 N00 Not present

03 Probe length L2

___ if 27 mm < L1 < 999 mm then ___ = 027 ÷ 999 Example 056 = 56 mm
 A__ if 1000 mm < L1 < 1999 mm then ___ = A00 ÷ A99 Example A42 = 1420 mm ÷ 1429 mm
 B__ if 2000 mm < L1 < 2999 mm then ___ = B00 ÷ B99 Example B42 = 2420 mm ÷ 2429 mm
 Z__ On request
 N00 Not present

04 Probe length L3

___ if 27 mm < L1 < 999 mm then ___ = 027 ÷ 999 Example 056 = 56 mm
 A__ if 1000 mm < L1 < 1999 mm then A__ = A00 ÷ A99 Example A42 = 1420 mm ÷ 1429 mm
 B__ if 2000 mm < L1 < 2999 mm then B__ = B00 ÷ B99 Example B42 = 2420 mm ÷ 2429 mm
 Z__ On request
 N00 Not present

05 Housing material and type

(See tables on pages 3-4-5)

06 Process connection

(See tables on pages 6-7)

07 Process gasket material

D FKM Viton
E FEP Seal
G PTFE
N None

08 Wetted parts material

A AISI 316
D AISI 316 Mo > 2.5 %
Q Titanium
I Hastelloy B
K Hastelloy C

09 Extension tube

X__ Pipe Ø 20 mm (X 01 < X__ < X 06)
 X__ Pipe Ø 22 mm (X 07 < X__ < X 12)
 X__ Pipe Ø 28 mm (X 13 < X__ < X 18)
 Z__ On request
 N00 None

Examples are shown in below table



	L < 1 mt	L < 2 mt	L < 3 mt	L < 4 mt	L < 5 mt	L < 6 mt
Ø 20 mm	X 01	X 02	X 03	X 04	X 05	X 06
Ø 22 mm	X 07	X 08	X 09	X 10	X 11	X 12
Ø 28 mm	X 13	X 14	X 15	X 16	X 17	X 18

On substitution of "X" you have to insert the "WETTED PARTS MATERIAL" code (A, B, Q, I, K, D)

Example: Wetted Parts Material: Titanium Extension Tube Ø: 22 mm L < 3 mt → Code Q - Q09

ORDERING CODE

10 Electrical connection

- 17 AISI 316 axial cable gland
- 19 AISI 316 cable gland PG9 IP67 (Housing A01 \ A02)
- 20 AISI 316 cable gland PG13 IP67 (Housing A01 \ A02)
- 29 Titanium cable gland PG9 IP67 (Housing A01 \ A02)
- 30 Titanium cable gland PG13 IP67 (Housing A01 \ A02)
- 31 Titanium cable gland PG16 - F (Housing T01 \ T02)
- 36 Nipple AISI 316 1/2" G - F (Housing A01 \ A02)
- 37 Nipple AISI 316 1/2" NPT - F (Housing A01 \ A02)
- 39 Nipple AISI 316 M 20 x 1.5 F (Housing A01 \ A02)
- 40 Nipple AISI 316 M 24 x 1.5 F (Housing A01 \ A02)
- 41 Nipple AISI 316 M 3/4" G - F (Housing A01 \ A02)
- 76 Brass g. PG 13.5 on 1/2" NPT - F (Housing D01 \ D02)
- 77 Nylon g. PG 13.5 on 1/2" NPT - F (Housing D01)
- 78 Nylon g. PG 13.5 on 1/2" NPT - F (Housing D01)

11 Type of cable for extension

- A__ Cable PE 3 poli Ø 7.2 (-30 ÷ +60°C) L = __ mt (A__ = A01 ÷ A99)
- _A_ Cable PE 3 poli Ø 7.2 + RILSAN (-30 ÷ +60°C) L = __ mt (_A_ = 0A1 ÷ 9A9)
- _A_ Cable PE 3 poli Ø 7.2 (-30 ÷ +60°C) + PTFE L = __ mt (_A_ = 01A ÷ 99A)
- C__ Cable TPR 6 poli Ø 6.8 (-40 ÷ +125°C) L = __ mt (C__ = C01 ÷ C99)
- _C_ Cable TPR 6 poli Ø 6.8 (-40 ÷ +80°C) + RILSAN L = __ mt (_C_ = 0C1 ÷ 9C9)
- _C_ Cable TPR 6 poli Ø 6.8 (-40 ÷ +125°C) + PTFE L = __ mt (_C_ = 01C ÷ 99C)
- N00 Without cable

12 Electrical output

- A Current output 2 wire on-off welded bridge pos. A (5 - 13 mA)
- B Current output 2 wire on-off jumper pos. A (5 - 13 mA)
- C Current output 2 wire on-off welded bridge pos. B (5 - 13 mA)
- D Current output 2 wire on-off jumper pos. B (13 - 5 mA)
- E Relay and current on-off welded bridge pos. A (13 - 5 mA)
- F Relay and current on-off jumper pos. A (13 - 5 mA)
- G Relay and current on-off welded bridge pos. B (13 - 5 mA)
- H Relay and current on-off jumper pos. B (13 - 5 mA)
- I Frequency output 2 wire on-off

13 Ex type approval

- C1 IECEx Ex ia IIC T6 \ T5 Ga, IIIC T85°C \ T100°C Da
- C2 IECEx Ex ia IIC T6 \ T5 Ga
- C3 IECEx Ex ia IIC T6 \ T5 Ga/Gb
- A1  II 1G Ex ia IIC T6, T5 Ga and  II 1D Ex ia IIIC T85°C, T100°C Da
- A2  II 1G Ex ia IIC T6, T5 Ga
- A5  II 1/2G Ex ia IIC T6, T5 Ga/Gb
- N0 No Ex certification

14 Marine type approval

- R RINA \ DNV
- N None

15 Options and accessories

- 22 PED Certificate
- 21 SIL Certificate
- M3 Test Magnet
- T1 Finned body T1: -60 ÷ +150°C
- T2 Finned body T2: -200 ÷ +450°C
- NN No options

ACCESSORIES



Cod. M3 Test
Magnet



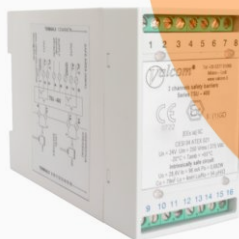
Cod. HMI
Alarm control panel



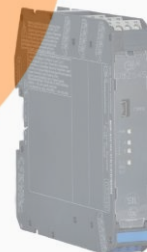
Cod. M9
Process connection with sliding nipple



Cod. T2
Finned body up to 450°C



Cod. TSU
Galvanic isolation barrier



Cod. D1010
Analog Signal Converter and Trip Amplifiers



Cod. VCN
Electrical connectors

and MORE

- Pneumatic remote test
- 90° probe
- Wall mounting bracket

