



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX BVS 14.0118** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 1 Issue 0 (2014-12-11)
Date of Issue: 2022-03-03
Applicant: **Endress+Hauser SE+Co. KG**
Hauptstraße 1
79689 Maulburg
Germany
Equipment: **Level limit switch Solicap M type FTI55* und FTI56***
Optional accessory:
Type of Protection: **Equipment protection by intrinsic safety "i", Equipment dust ignition protection by enclosure "t"**
Marking: Level limit switch Solicap M series FTI5*- 6*****H/5/7/8**** with intrinsic safe supply "ia"
Ex ia III C T see manual Da
Ex ia III C T see manual Da/Db
Ex ia III C T see manual Da/Dc
IP6X
Level limit switch Solicap M series FTI5*- 8*****H/1/2/4/5****
Ex ia/tc III C T see manual Da/Dc
Level limit switch Solicap M series FTI5*- 7***** H/1/2/4/5****
Ex ia/tb III C T see manual Da/Db

Approved for issue on behalf of the IECEx
Certification Body:

Dr Michael Wittler

Position:

Deputy Head of Certification Body

Signature:
(for printed version)

Date:
(for printed version)

03.03.2022

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2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Date of issue: 2022-03-03

Issue No: 1

Manufacturer: **Endress+Hauser SE+Co. KG**
Hauptstraße 1
79689 Maulburg
Germany

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/BVS/ExTR14.0113/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0003/09](#)



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Date of issue: 2022-03-03

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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Description:

The Level limit switch Solicap M series FTI55* and FTI56* consists of a sensor working on a capacitive Basis (rope- or rod probe) and an electronics enclosure.

The sensor circuit is intrinsically safe.

The sensor meets EPL Da, the electronics enclosure EPL Da, Db or Dc.

The Level limit switch can either be carried out in a compact version or in a version with separate housing.

Subject and type

See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: NO



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Updating to the current version of IEC 60079-0

Annex:

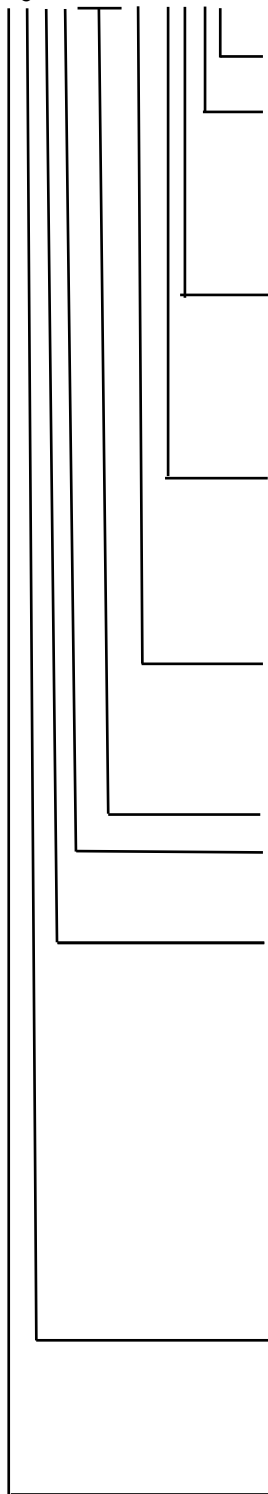
[BVS_14_0118_Endress_und_Hauser_Annex1.pdf](#)



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Annex
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Subject and type

Level limit switch Solicap M
Series FTI55- 6 * * * * * * * * * * * * * * * * * *



- Additional option
without relevance for explosion protection
- Type of probe
 - 1 = compact version
 - 2 = 2000mm L4cable, separate housing
 - 3 = ... mm L4cable (max. length 6m), separate housing
 - 4 = 80 inch L4cable, separate housing
 - 5 = ... inch L4cable (max. length 6m), separate housing
- Cable entry
 - A = M20 x 1.5 (with cable entry)
 - B = G $\frac{1}{2}$
 - C = $\frac{1}{2}$ NPT
 - D = $\frac{3}{4}$ NPT
 - G = M20 x 1.5
- Enclosure
 - 1 = F15 316L
 - 3 = F17 Alu
 - 4 = F13 Alu
 - 5 = T13 Alu
 - 6 = F27 stainless steel
- Electronics
 - H = FEI50H, 4...20mA HART + Display
 - 5 = FEI55, 8/16mA
 - 7 = FEI57S, 2-wire PFM
 - 8 = FEI58, NAMUR
- Process connection
- Insulation
 - 2 = 75 mm L2, partial insulated PPS
 - 3 = 3 inch L2, partial insulated PPS
- Active probe length L1 (500... max. 22000 mm/
20... max. 870 inch);
tension weight
 - A = mm steel
 - B = 325 mm steel
 - C = mm steel, 316L
 - D = 325 mm steel, 316L
 - E = 600 mm steel
 - H = inch steel
 - K = 13 inch steel
 - M = inch, 316L
 - N = 13 inch 316L
 - P = 24 inch steel
- Inactive length (100... max. 2000 mm/4... max. 80 inch)
 - A = no inactive length
 - B = active build-up protection 125 mm
 - 1 = mm, 316L
 - 5 = inch, 316L
- Certificate
 - 6 = Da, Da/Db, Da/Dc

Certificate No.:

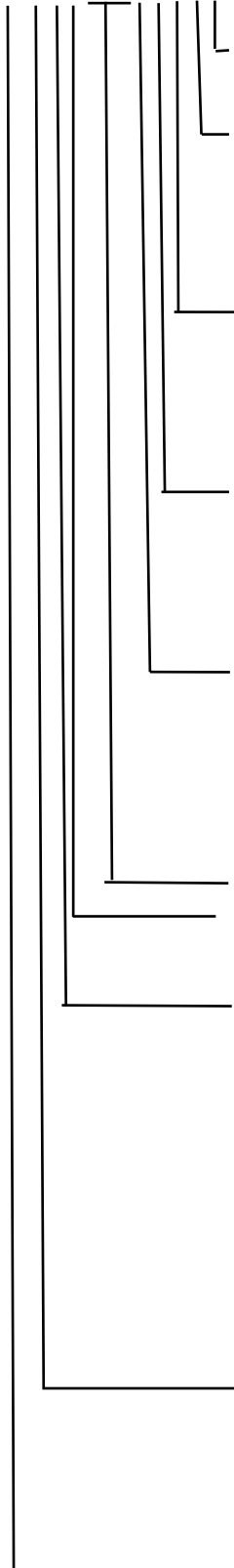
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Level limit switch Solicap M

Series FTI55- 7/8 * * * * * * * * * *



Additional option
without relevance for explosion protection

Type of probe
1 = compact version
2 = 2000 mm L4cable, separate housing
3 = ... mm L4cable (max. length 6m), separate housing
4 = 80 inch L4cable, separate housing
5 = ... inch L4cable (max. length 6m), separate housing

Cable entry
A = M20 x 1.5 (with cable entry)
B = G $\frac{1}{2}$
C = $\frac{1}{2}$ NPT
D = $\frac{3}{4}$ NPT
G = M20 x 1.5

Enclosure
1 = F15 316L
3 = F17 Alu
4 = F13 Alu
5 = T13 Alu
6 = F27 stainless steel

Electronics
H = FEI50H, 4...20mA HART + Display
(only with enclosure T13)
1 = FEI51, 2-wire AC
2 = FEI52, 3-wire PNP
4 = FEI54; relay, AC 19...253 V, DC 19...55 V
5 = FEI55, 8/16mA (only with enclosure T13)

Process connection
Insulation
2 = 75 mm L2, partial insulated PPS
3 = 3 inch L2, partial insulated PPS
Active probe length L1 (500... max. 22000 mm/
20... max. 870 inch);

tension weight
A = mm steel
B = 325 mm steel
C = mm steel, 316L
D = 325 mm steel, 316L
E = 600 mm steel
H = inch steel
K = 13 inch steel
M = inch, 316L
N = 13 inch 316L
P = 24 inch steel

Inactive probe length (100... max. 2000 mm/
4... max. 80 inch)
A = no inactive probe length
B = active build-up protection 125 mm
1 = mm, 316L
5 = inch, 316L



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Certificate No.:

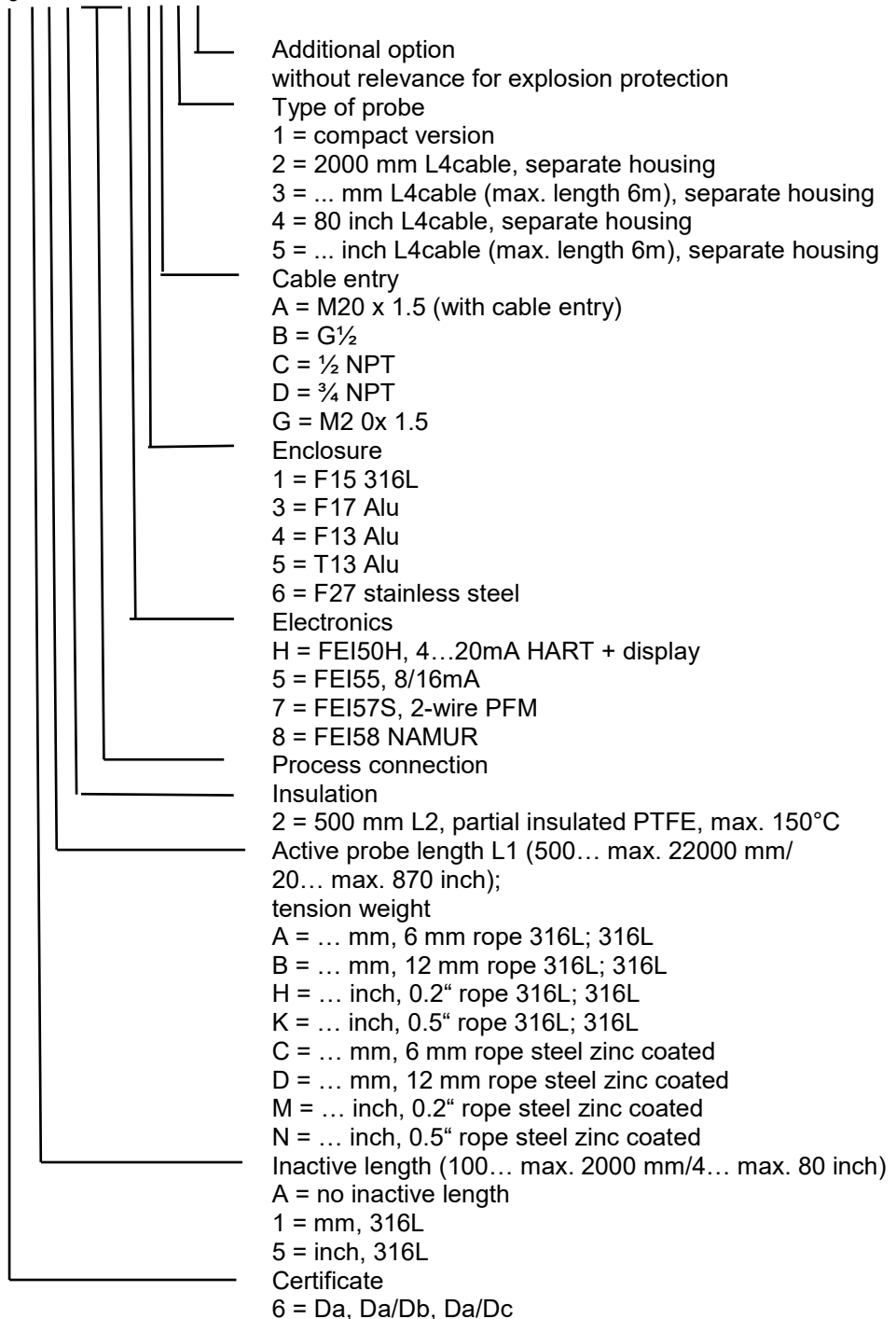
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Certificate
 7 = Da/Db
 8 = Da/Dc

Level limit switch Solicap M
 Series FTI56- 6 *****





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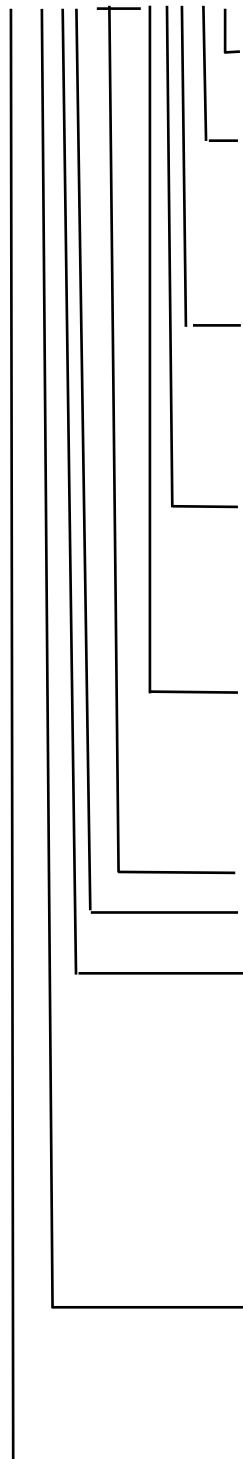
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Level limit switch Solicap M

Series FT156- 7/8 *****



Additional option
without relevance for explosion protection

Type of probe

1 = compact version

2 = 2000 mm L4cable, separate housing

3 = ... mm L4cable (max. length 6m), separate housing

4 = 80 inch L4cable, separate housing

5 = ... inch L4cable (max. length 6m), separate housing

Cable entry

A = M20 x 1.5 (with cable entry)

B = G $\frac{1}{2}$

C = $\frac{1}{2}$ NPT

D = $\frac{3}{4}$ NPT

G = M20 x 1.5

Enclosure

1 = F15 316L

3 = F17 Alu

4 = F13 Alu

5 = T13 Alu

6 = F27 stainless steel

Electronics

H = FEI50H, 4...20mA HART + display

1 = FEI51, 2-wire AC

2 = FEI52, 3-wire PNP

4 = FEI54; relay, AC 19...253 V, DC 19...55 V

5 = FEI55, 8/16mA

Process connection

Insulation

2 = 500 mm L2, partial insulated PTFE, max. 150 °C

Active probe length L1 (500... max. 22000 mm/

20... max. 870 inch);

tension weight

A = ... mm, 6 mm rope 316L; 316L

B = ... mm, 12 mm rope 316L; 316L

H = ... inch, 0.2" rope 316L;316L

K = ... inch, 0.5" rope 316L;316L

C = ... mm, 6 mm rope steel zinc coated

D = ... mm, 12 mm rope steel zinc coated

M = ... inch, 0.2" rope steel zinc coated

N = ... inch, 0.5" rope steel zinc coated

Inactive probe length (100... max. 2000 mm/

4... max. 80 inch)

A = no inactive probe length

1 = mm, 316L



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5 = inch, 316L

Certificate

7 = Da/Db

8 = Da/Dc



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Parameters

Electrical data

FT15*- 6 * * * * * H * * * * *

with electronics insert type FEI50H with display type D62

Input-/signal circuit (terminals 1 – 2)

Power supply intrinsically safe

Voltage	U_i	DC	30	V
Current	I_i		120	mA
Power	P_i		1	W
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		2.4	nF

Probe circuit (connector D900), type of protection Ex ia IIC

Voltage	U_o		9.93	V
Current	I_o		21.1	mA
Power	P_o		60	mW

Display-circuits (connector X300), type of protection Ex ia IIC

Voltage	U_o	DC	11.77	V
Current	I_o		65	mA
Power	P_o		190	mW

FT15*- 6 * * * * * 7 * * * * *

with electronics insert type FEI57S

Input / signal circuit (terminals 1 – 2)

Power supply intrinsically safe

Voltage	U_i	DC	16.1	V
Current	I_i		100	mA
Power	P_i		1	W
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		2.4	nF

Probe circuit (connector X300), type of protection Ex ia IIC

Voltage	U_o		9.93	V
Current	I_o		34	mA
Power	P_o		100	mW

FT15*- 6 * * * * * 5 * * * * *

with electronics insert type FEI55

Input / signal circuit (terminals 1 – 2)

Power supply intrinsically safe

Voltage	U_i	DC	36	V
Current	I_i		100	mA
Power	P_i		1	W
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		2.4	nF

Probe circuit (connector X300), type of protection Ex ia IIC

Voltage	U_o		9.93	V
Current	I_o		34	mA
Power	P_o		101	mW



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FT15*- 7/8 * * * * * 4 * * * * *

with electronics insert type FEI54

Input circuit (terminals 1 (L+) – 2 (L-))

Voltage		DC	19...55	V
		AC	19...253	V
Max.voltage	U _m	AC	253	V
Relay contact circuits (terminals 3 – 5 and 6 - 8)				
Voltage		AC	253	V
Current			6	A
Power (cos φ ≥ 0.7)			750	VA
or				
Voltage		DC	30/125	V
Current			6 / 0.2	A
Probe circuit (connector X300), type of protection Ex ia IIC				
Voltage	U _o		9.93	V
Current	I _o		36	mA
Power	P _o		99	mW

FT15*- 7/8 * * * * * 2 * * * * *

with electronics insert type FEI52

Input circuit (terminals 1 (L+) – 2 (L-)) and
Signal circuit (terminals 3 – 2)

Voltage		DC	10...55	V
Max. voltage	U _m	AC	253	V
Probe circuit (connector X300), type of protection Ex ia IIC				
Voltage	U _o		9.93	V
Current	I _o		36	mA
Power	P _o		99	mW

FT15*- 7/8 * * * * * 1 * * * * *

with electronics insert type FEI51

Input circuit (terminals 1 (L+) – 2 (L-))

Voltage		AC	19...253	V
Max.voltage	U _m	AC	253	V
Sensor circuit (connector X101), type of protection Ex ia IIC				
Voltage	U _o		9.93	V
Current	I _o		36	mA
Power	P _o		99	mW



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FTI56- 6 * * * * * 8 * * * * *
with electronics insert type FEI58

Input circuit (terminals 1 (L+) – 2 (L-))

Power supply intrinsically safe

Voltage	U_i	DC	18	V
Current	I_i		52	mA
Power	P_i		170	mW
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		negligible	

Sensor circuit (connector X201), type of protection Ex ia IIC

Voltage	U_o		9.93	V
Current	I_o		27.4	mA
Power	P_o		130	mW

Thermal data

Series FTI5*- 6***** (intrinsic safe supply),
probe in EPL Da, electronics enclosure in EPL Da, Db or Dc

Ambient temperature range of the electronics enclosure and probe -50 °C...+70 °C

Max. surface temperature T T80 °C T₅₀₀ 130 °C

Series FTI5*- 7/8***** (non-intrinsic safe supply),
probe in EPL Da, electronics enclosure in EPL Db or Dc

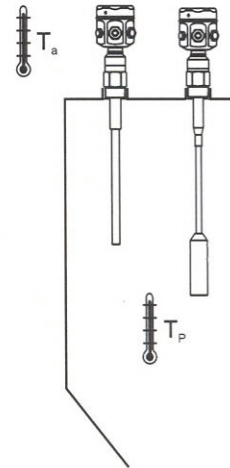
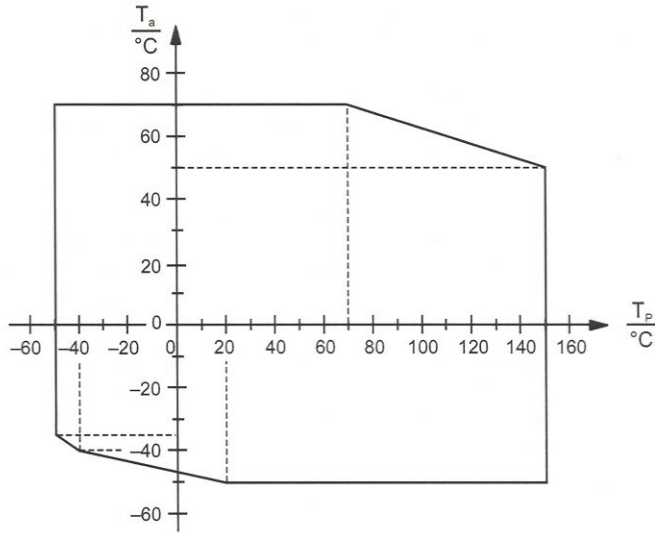
Max. surface temperature T T90 °C

Compact version

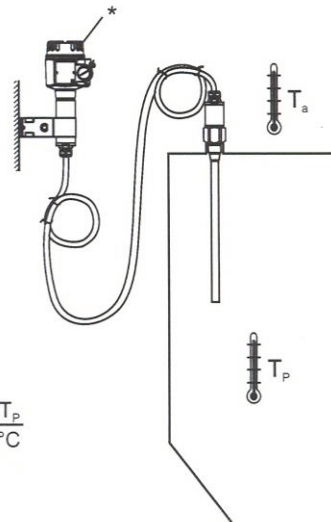
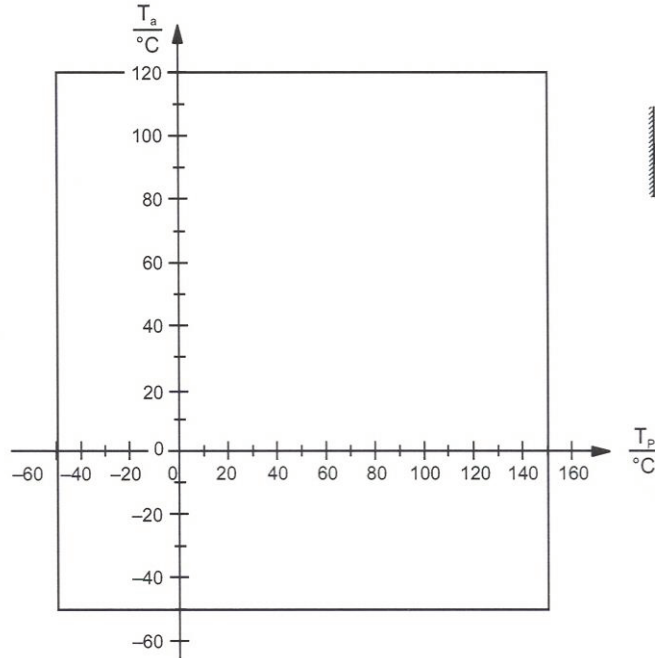
T_a = ambient temperature

T_p = process temperature

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Version with separate housing
 T_a = ambient temperature
 T_p = process temperature



* Permitted temperature range at the separate housing

$-40\text{ °C} \leq T_a \leq +70\text{ °C}$