Instruction Manual

Alfa Laval Temperature transmitter (TE67G)

TE91K020-EN5
ESE01749EN
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1. EC Declaration of Conformity

The designated company

Alfa Laval Kolding A/S
Company name

Albuen 31, 6000 Kolding, Denmark
Address

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Phone no.

hereby declare that

Alfa Laval Temperature Transmitter	TE67Gxxxxxxxxx
Denomination	Type

valid for serial numbers from 2019-00001 and subsequent serial numbers.

is in conformity with the EMC directive 2004/108/CE

and the following EU directives:
- EN61000-6-2, EN61000-6-3, Pressure Directive 2014/68/EU, 1935/2004, 2023/2006

The person authorised to compile the technical file is the signer of this document.

Global Product Quality Manager Pumps, Valves, Fittings and Tank Equipment	Lars Kruse Andersen	
Title	Name	Signature

April 1, 2019	Kolding
Date	Place

This Declaration of Conformity replaces Declaration of Conformity dated 2019-02-01

2. Safety

Unsafe practices and other important information are emphasized in this manual.
Warnings are emphasized by means of special signs. All warnings in the manual are summarized on this page.
Pay special attention to the instructions below so that severe personal injury or damage to the transmitter is avoided.

2.1 Important information

Always read the manual before using the temperature transmitter.

WARNING
Indicates that special procedures must be followed to avoid severe personal injury.

CAUTION
Indicates that special procedures must be followed to avoid damage to the temperature transmitter.

NOTE
Indicates important information to simplify or clarify procedures.

2.2 Warning signs

General warning:

Dangerous electrical voltage:

Caustic agents:

Unsafe practices and other important information are emphasized in this manual.
Warnings are emphasized by means of special signs. All warnings in the manual are summarized on this page.
Pay special attention to the instructions below so that severe personal injury or damage to the transmitter is avoided.

2.3 Safety instructions

This instrument is built and tested according to the current EU-directives and packed in technically safe condition.
In order to maintain this condition and to ensure safe operation, the user must follow the hints and warnings given in this instruction.

During the installation the valid national rules have to be observed. Ignoring the warnings may lead to severe personal injury or substantial damage to property.

The product must be operated by trained staff. Correct and safe operation of this equipment is dependent on proper transport, storage, installation and operation.

All electrical wiring must conform to local standards. In order to prevent stray electrical radiation, we recommend twisted and shielded input cables, as also to keep power supply cables separated from the input cables. The connection must be made according to the connecting diagrams.

Before switching off the supply voltage check the possible effects on other equipment and the processing system.
Ensure that the supply voltage and the conditions in the environment comply with the specification of the device.

This instruction manual is part of the device, must be kept nearest its location, always accessible to all employees.
 The contents of this instruction manual reflect the version available at the time of printing. It has been issued to our best knowledge. However, errors may have occurred. Alfa Laval Kolding A/S is not liable for any incorrect statements and their effects.

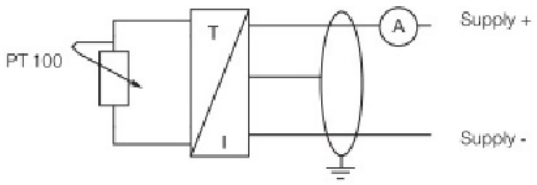
– Technical modifications reserved – Limitation of liability
By non-observance of the instruction manual, inappropriate use, modification or damage, no liability is assumed and warranty claims will be excluded.

3. General Description

3.1 Working principle of the temperature transmitter

The TE67G temperature transmitters are all based on a Pt100 sensing element, also known as an RTD sensor element (Resistance Temperature Detector). The Pt100 sensor consists of a small platinum resistor, which has the electrical resistance of 100Ω at 0°C. The Pt100 sensor is located at the end of the sensortip and can be offered both as a normal response or a fast response tip if needed. From the Pt100 sensor 2 silver wires connects the sensor to the build-in transmitter or the ceramic socket in the stainless steel housing. The TE67G delivers a 4..20 mA. output or a Pt100 output depending on the output selection in the ordering key. The transmitter is delivered with a fixed temperature range but a HART® option is also available.

The TE67G temperature transmitter is offered with 2 different housings, either a 55 mm or an 80 mm field housing in stainless steel. The 80 mm housing can be chosen as a bottom or rear connection and furthermore offers the possibility to have a local display. Both housings are very well suited for sanitary applications.
All process connections are standard hygienic connections with high cleanability and bacteria tightness, as an option wetted parts can be electropolished down to Ra <0.4µm. The design of the sensor tip ensures low response times and accurate measurements.



3.2 Accuracy of the temperature transmitter

The total accuracy of the instrument is a combination of the Pt100 sensor and the built-in transmitter.
The accuracy of the Pt100 sensor is defined by the DIN/EM/IEN 60751 standard.

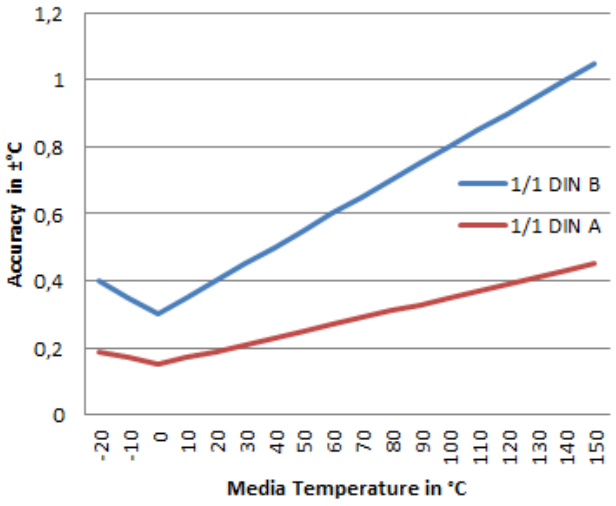
The DIN/EM/IEN 60751 is devided into a Class A and a Class B.
The table below shows the accuracy of the Pt100 sensor (not the transmitter).

Class	Accuracy definition	@ 0°C.	@ 100°C.
1/1 DIN B	± (0,3+0,005 x t) °C	± 0,3 °C.	± 0,8 °C.
1/1 DIN A	± (0,15+0,002 x t) °C	± 0,2 °C.	± 0,35 °C.

The TE67G can be delivered with a normal or a high accuracy built-in transmitter.

Normal accuracy = < 0,25 °C.
High accuracy = < 0,1 °C.

The accuracy of the transmitter has to be added to the accuracy of the Pt100 sensor to calculate the total accuracy.

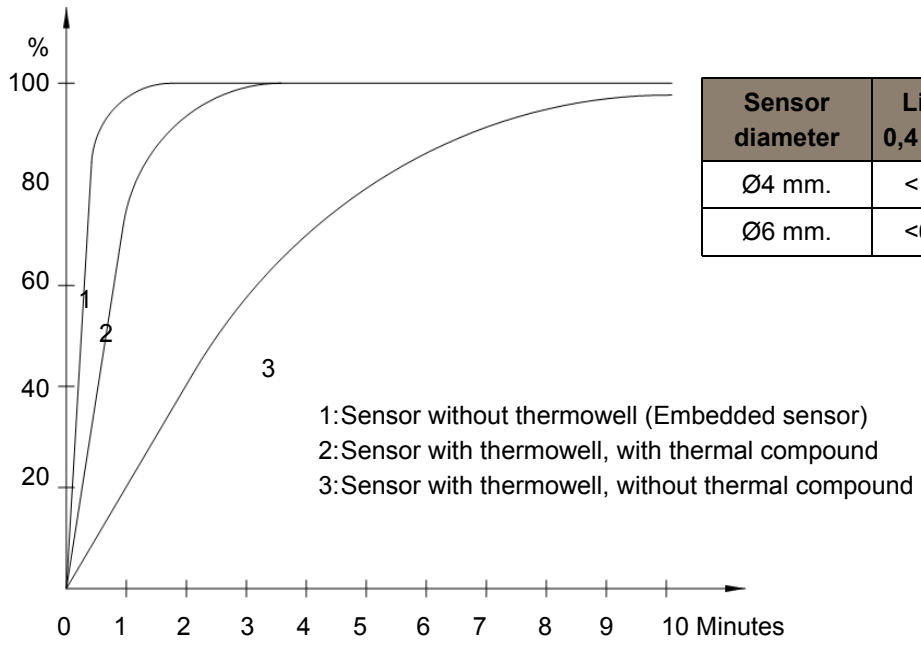


3.3 Response time (time constant) T0,5

When measuring temperature, the response time is depending on the kind of media you are measuring and if there is a flow past the sensor. There will always be a delay since the sensor element itself is not directly placed in the media but protected inside the sensor tip.
The 4 mm. sensor tip is the quickest to respond to changes and the 6 mm. is the slowest.

If you need a fast response time it is always recommended to place the sensor directly into the media instead of placing it inside a thermowell.

The graph below shows the response time on a temperature change in the media with and without a thermowell.



Sensor diameter	Liquid 0,4 m/sec	Air 3 m/sec	Air 0 m/sec
Ø4 mm.	<1,5 sec	<21,4 sec	<135,6 sec
Ø6 mm.	<6,1 sec	<27,2 sec	<137,8 sec

3.3 Recycling information:

- **Unpacking**
  - Packing material consists of plastic and cardboard boxes.
  - Cardboard boxes can be reused, recycled or used for energy recovery.
  - Plastics should be recycled or burnt at a licensed waste incineration plant.

- **Maintenance**
  - During maintenance seals and O-ring should be replaced (only on clamp connections).
  - All metal parts should be sent for material recycling.
  - Worn out or defective electronic parts should be sent to a licensed handler for material recycling.
  - Oil and all non metal wear parts must be taken care of in agreement with local regulations.

- **Scrapping**
  - At end of use, the equipment shall be recycled according to relevant, local regulations. Beside the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact the local Alfa Laval sales company.

4. Technical specifications

4.1 Temperature Transmitter with display

Technical specifications	
Accuracy:	
Pt100 sensor	According to DIN/EM/IEN 60751 1/1 DIN B: ± (0,3+0,005 x t) °C 1/1 DIN A: ± (0,15+0,002 x t) °C
Transmitter	Normal Accuracy: < 0,25 °C High Accuracy: < 0,1 °C
Measurement Range:	
Temperature range:	4 ranges: TE67G1xxxxxxxx + TE67G2xxxxxxxx: 0..150 °C TE67G4xxxxxxxx + TE67G5xxxxxxxx: -20..150 °C TE67G7xxxxxxxx + TE67G8xxxxxxxx: 0..100 °C TE67GAxxxxxxxx + TE67GBxxxxxxxx: -10..100 °C
Maximum pressure allowed	≤ 100 Bar
Proces temperature range:	-50..250 °C.
Sample time	
0,1 °C transmitter	≤ 0,7 seconds
0,25°C transmitter	≤ 0,7 seconds
Power-on time	
0,25°C transmitter	10 seconds
0,1°C transmitter	3,9 seconds
Electrical specifications:	
Power supply	8..35 VDC
Output :	
Temperature	Pt100 4..20 mA 4..20 mA HART®
Relay	2 galvanic insulated relays included in the display (60V / 70 mA)
Electrical connection	
Electrical connection	M12, 5 pin (4..20 mA output only) M12, 8 pin (4..20 mA + relay output) M16 or M20 cable gland

Materials		
Surface Roughness		
Hygienic and non-hygienic versions	Ra ≤ 0,8 µm	
Electropolished (option)	Ra ≤ 0,4 µm	
Wetted parts:		
Proces connection	Stainless Steel, AISI 316L, 1.4404	
Sensor Tube	Stainless Steel, AISI 316L, 1.4404	
Non wetted parts:		
Housing	Stainless steel, AISI 304, 1.4301	
Electrical connections:		
Cable Gland	Polycarbonate or Stainless steel, AISI 304, 1.4404	
M12 connector	Stainless Steel, AISI 304, 1.4404	
Display:		
Housing	Polycarbonate plastic	
Micro enviroment demand specifications		
Temperature:		
Ambient temperature	Pt100 output:	-40..160 °C.
	4..20 mA. Transmitter:	-40..85 °C.
	With display:	-30..80 °C.
Vibrations:		
DNV high vibration strain, class B	1,6 mm (2-25 Hz)	
IEC 60068-2-6 - test FC	4.0 g (25-100 Hz)	
Humidity:		
IEC 68-2-38	98% condensing	
Protection Class		
IEC 529	IP67 with cable gland IP69K with M12 connector and IP69K approved cable and correct torque	
Isolation voltage	500 VAC	
Compliance and approvals		
Apply to		
EMC directive	2004/108/CE	
EU directives	EN61000-6-2, EN61000-6-3, Pressure Directive 2014/68/EU, 1935/2004, 2023/2006	
FDA		
Approvals		
Hygienic	3-A Standard 74-07 on some models, see Chapter 9	

5. Installation

5.1 Mechanical Installation

The TE67G has several possibilities for mechanical mounting into the process.
It can de delivered with both hygeinic clamp connections and non-hygienic versions

Warning:
Install only the temperature transmitter when the tank or pipe is depressurized and currentless

Installation:

- Carefully remove the temperature sensor from the package.
- Only use a suitable gasket or O-ring depending on the media.
- Tighten the proces connection or clamp ring only with recomended torque (20 Nm for G1/2")
- Make sure that the temperature sensor is placed so the electrical connector or cable gland is facing downwards to avoid water ingress.

Mounting with Clamp DN38/DN51 (ISO2852):
The TE67G is available with either a DN38 or a DN51 clamp connection.
To ensure a correct measurement it is important to follow the guidelines of the installation.

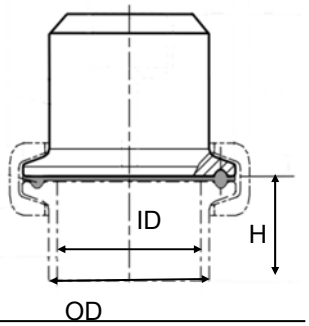
When using a ISO2852 ferrule,it is important that the O-ring is placed correctly to ensure a tight connection.

Follow these guidelines to ensure a good connection:

- Always position the ferrule in a self draining position
- On a vertical pipe, make sure that the ferrule is angled at least 5 degrees.
- All weldings should be grinded to Ra = 0,8 µm

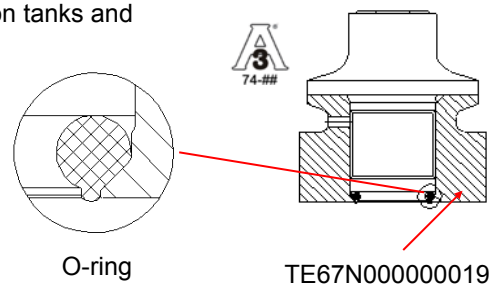
These standard Alfa Laval ferrules are recomended for the TE67G:

Item number 304L, 1.4307	Item number 316L, 1.4404	Size	Dimensions OD/ID x t	Depth: (H)
9611310201	9166310200	DN38 (ISO2852)	38,6/35,6 x 1,5	21,5 mm.
9611310211	9166310210	DN51 (ISO2852)	51,6/48,6 x 1,5	21,5 mm.



Mounting of the 3-A approved CFF welding adaptor:
For the TE67GxDxxxxxxx to be compliant to 3-A it must be installed in the welding adaptor TE67N000000019. The TE67N000000019 welding adaptor can be fitted on tanks and on pipes.

- Mount the adapter in a self drained position/angle
- The 3-A mark or the arrow shall be placed upwards
- Welding should be grinded to Ra= 0.8



5. Installation

It is important that the installation comply to 3-A regulations which means that:

- Only 3-A approved welding adaptor is to be used (TE67N000000019)
- The inspection hole should be visible and drained
- Mount the adapter in a self-drained position/angle
- The 3-A mark or the arrow shall be placed upwards
- Welding should be grinded to Ra=0.8
- Welding according to appropriate 3-A standard

TE67N000000019 is also available with (these are not included in the 3-A authorization):

Electropolishing: TE67N000000020
3.1 certificate: TE67N000000037
Electropolishing + 3.1 certificate: TE67N000000038

Mounting of the 3-A approved welding adaptor:
For the TE67Gx4xxxxxxx to be compliant to 3-A it must be installed in the welding adaptor TE67N000000006.
The TE67N000000006 welding adaptor can be fitted on the top of the tank.

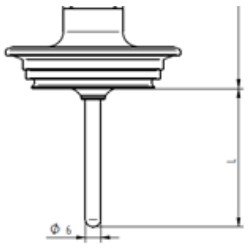
It is important that the installation comply to 3-A regulations which means that:

- Only 3-A approved welding adaptor is to be used (TE67N000000006)
- The inspection hole should be visible and drained
- Mount the adapter in a self-drained position/angle
- The 3-A mark or the arrow shall be placed upwards
- Welding should be grinded to Ra=0.8
- Welding according to appropriate 3-A standard

TE67N000000006 is also available with (these are not included in the 3-A authorization):

Electropolished: TE67N000000013
3.1 certificate: TE67N000000024
Electropolished + 3.1 certificate: TE67N000000031

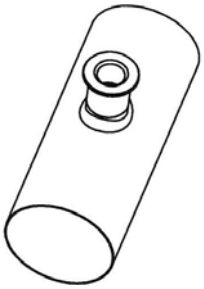
Mounting with hygienic Unique Flexbody connection:
The TE67G is available with the Unique Flexbody connection which offer a 100% flush connection.

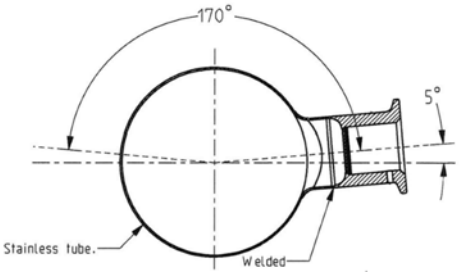


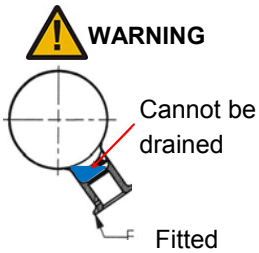
5. Installation

5.2 General Installation Guidelines

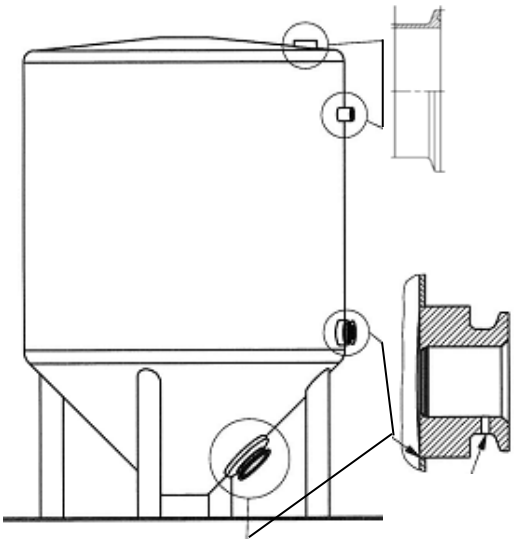
Avoid deadlegs:
Deadlegs are areas around process connections which, because of misplacement of the connection, is very hard to clean. Welding adaptors must always be placed in a way which makes them self drained and easy to clean. This is done by keeping an angle of at least 5 degrees







Tank Installation:



When installed in tanks with a ISO2852 ferrule it is important only to install it on vertical surfaces and with an angle of 5° which makes it self draining

When installed in the bottom of tanks it is recommended to use the CFF process connection (TE67N000000019) or the Unique Flexbody connection to get a flush mounting without any dead legs.

After installation

- Check the leak tightness of the sleeve/ferrule.
- Check the tightness of glands or M12 plugs.
- Check the tightness of the cover

5. Installation

5.3 Electrical installation with M12 connectors

5-pin M12 connector

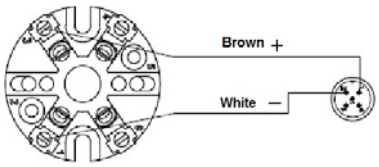
1: Brown	Supply (+)	(4...20 mA)
2: White	Supply (-)	(4...20 mA)
3: Blue		
4: Black		
5: Yellow/Green		

8-pin M12 connector with separated relay output

1: White	n.c.	
2: Brown	Supply (+)	(4...20 mA)
3: Green	Relay 2	
4: Yellow	Relay 2	
5: Grey	Relay 1	
6: Light red	Relay 1	
7: Blue	Supply (-)	(4...20 mA)
8: Red	n.c.	

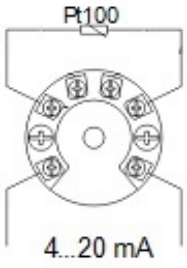
5.4 Electrical installation with M16 or M20 cable gland

Ceramic Terminal Block
Pt100 Output



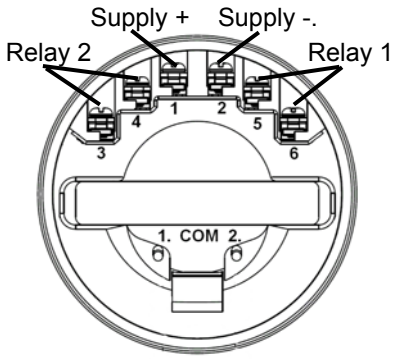
Ambient temperature
RTD output: -40...160°C

Temperature Transmitter
4..20 mA. Output



Ambient temperature with built in transmitter: 40...85°C

Display Terminals



Cable diameter for M16 3...9 mm
Cable diameter for M20 8...13 mm

Relays (on display):

Contacts:	2 x Solid state relays
Voltage:	< 60 V
Load Current:	75 mA.
Max On resistance:	10 Ohm

Warning

Note: Check the maximum temperature for the cable used.

Note:
The TE67G with display is delivered with terminal 1 and 2 connected in series with the transmitter.
Pin 3 and 5 can be jumpered together if common supply is used for the two relays, e.g. via a M12 5-pin connector.
Two galvanic separated relay outputs will require a 8-pin M12 connector if plug connection is required.
If cable gland is used the screw terminals 1 (display) and 2 (transmitter) are connected and the supply should be connected to - on the display and + on the transmitter.

6.1 Programming the display

General

The display on the TE67G works as a local view for the measured temperature. It is powered by the 4..20 mA loop distributed from the temperature transmitter and displays the configured value.
There is a number of features which has to be programmed through the display configuration.
It involves the screen layout, the color change feature and the setup of the 2 individual relay output. It is also possible to lock the display with a built in password (see page 17).

To access the programming mode, gently touch in the bottom part of the illuminated display area.
A menu button will show in the bottom middle of the display which will give access to the programming mode.
The programming menu has multiple levels and can be navigated through the up and down arrow on each side.
To access a menu point, use the up and down arrow and press select to go the submenu.

To go a level back, go to the top, where there always will be a "↩ **Back**" menu point and press select or press and hold the up arrow for 3 seconds for moving a level backwards in a menu point.
The display also has a timeout function which make it exit programming mode after 120 seconds. This value can be set individually

Screen layout

From the factory, the display is programmed to show the measured temperature with all details possible in the display. But it is possible to select between 10 different standard views.

Standard views

The 10 standard views which shows the measured value in different ways. Both range and unit are configurable.

Value (large)

Value (details)

Bar (horizontal)

Bar (vertical)

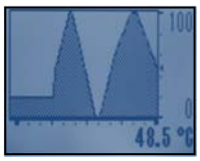
Analog

Analog + Bar

Value +
analog bar

Tank illustration

Bottle illustration



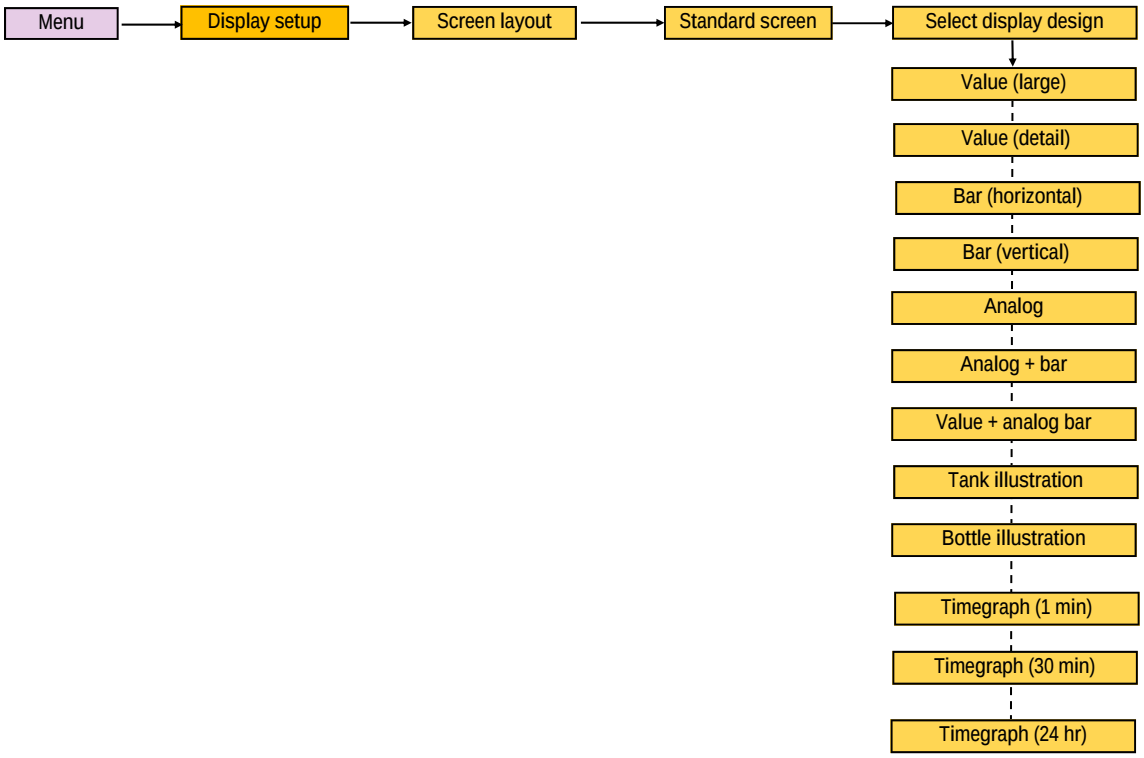
Timegraph
(1 min, 30 min or 24 hr)

NOTE:
These 10 views is not designed particular for the TE67G and have to be configured individually (page 16)

6. Setup

Selecting display view

Configuration of the screen layout is selected through the menus of the touch display on the TE67G.
Touch the bottom center of the screen to activate the menu button.
To change the screen layout access the Menu → Display setup → Screen layout

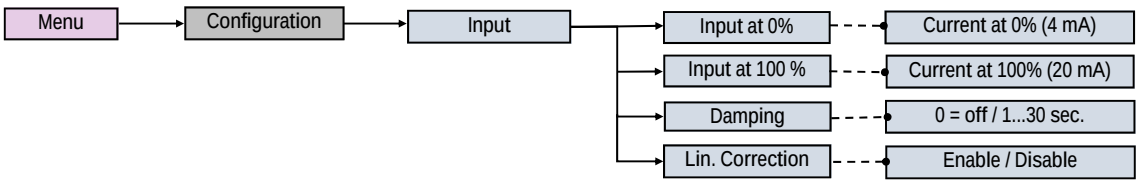


Display input (optional):

The display input configured according to the range selected in the ordering key.
It is possible to change the input values by following the description below.

Setting up the input configuration

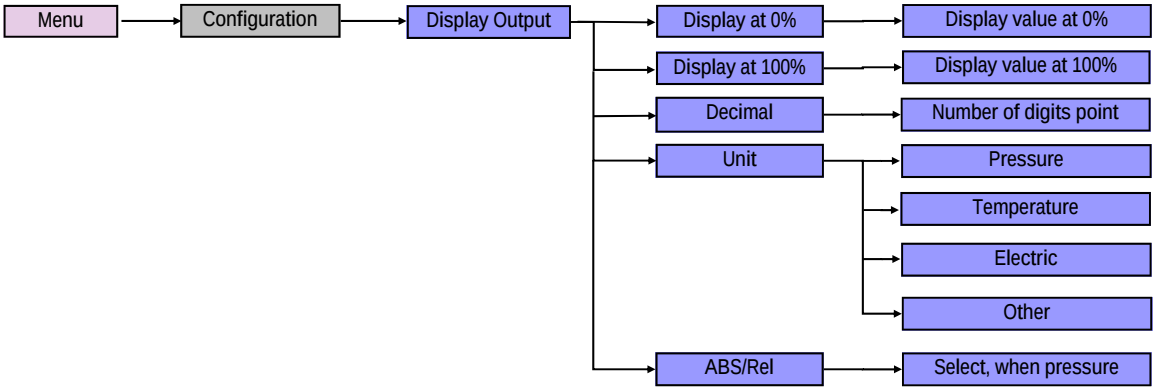
To change the input configuration of the display, access the Menu → Configuration → Input



Display output
The output of the display is fully programmable in every possible range.
The display converts the 4..20 mA. Signal to a linear curve and displays it in the unit and scale configured in the setup.
The number of decimals can be between 0 and 3 decimals or automatic (floating).
The display offers the following units:

Temperature:
Kelvin, Celcius and Fahrenheit

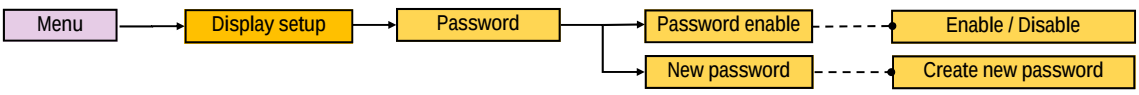
Setting up the configuration
To change the output configuration of the display, access the Menu → Configuration → Display Output and begin by scaling the display value at 0% and 100%. Select the number of decimals and finally select the preferred display unit.



Note:
The display will default display the value in °C and will follow the selected measuring range defined by the ordering key

Password protection
The display can be locked with a 4 digit password which must be entered to get access to the programming menu.

Setting up the password configuration
To enable and configure the password, access the Menu → Display setup → Password and begin by enabling the password and then enter the 4 digit code for unlocking the display



6. Setup

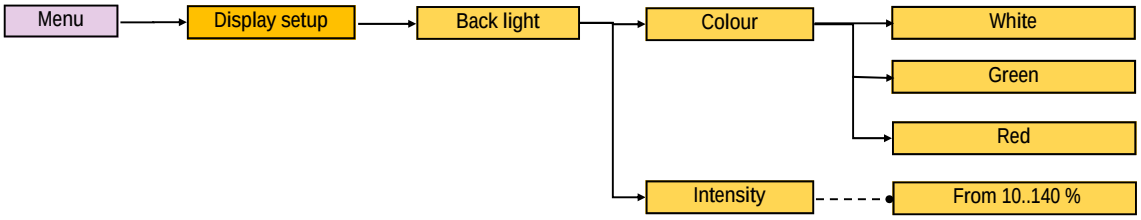
Background color and intensity:
The display on the TE67G has 3 different backlight colors.
Factory default is the white color.

The backlight intensity can also be adjusted anywhere between 10% and up to 140%.

White background Green background Red background

NOTE:
120 and 140% backlight intensity requires a minimum of 5-6 mA.

Setting up backlight color and intensity
To change the backlight color and intensity access the Menu → Display setup → Back light



Alarm / warning indication
The display includes an error/warning function which can make the display change backlight color or show an error message in the display at certain limit. The function is based on the 4..20 mA loop and the setpoint will stay the same even though the conductivity range is changed.

The display has 4 different settings:

- High Error
- High Warning
- Low Warning
- Low Error

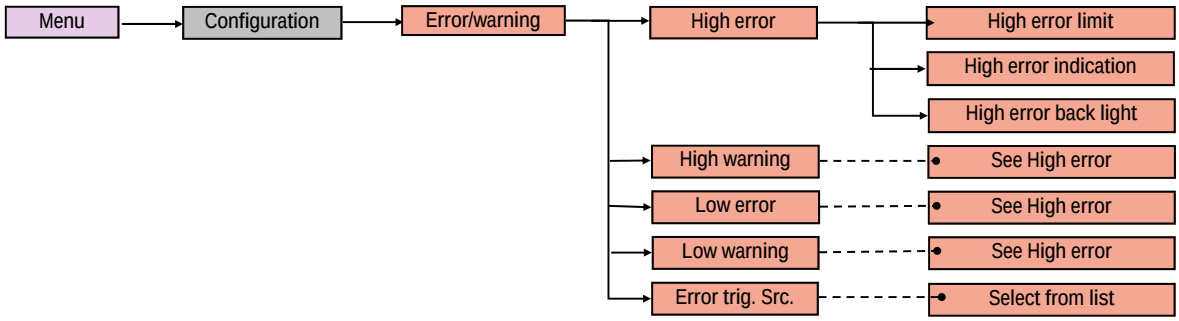
The high error and high warning are activated if the value is above the programmed setpoint and the low warning and the low error are activated if the value drops below the programmed setpoint.

Each error and warning limit offers a possiblity to change backlight color or set the color to flash. This mean that if the standard backlight color is white and the high error is set to red, the color will change if the limit is reached.
It is also possible to se an error message in the display which will be shown as the picture below.

Error message

Setting up error/warning indication

To setup the error/warning indication access the Menu → Configuration → Error/warning and select the limit which you wish to configure.



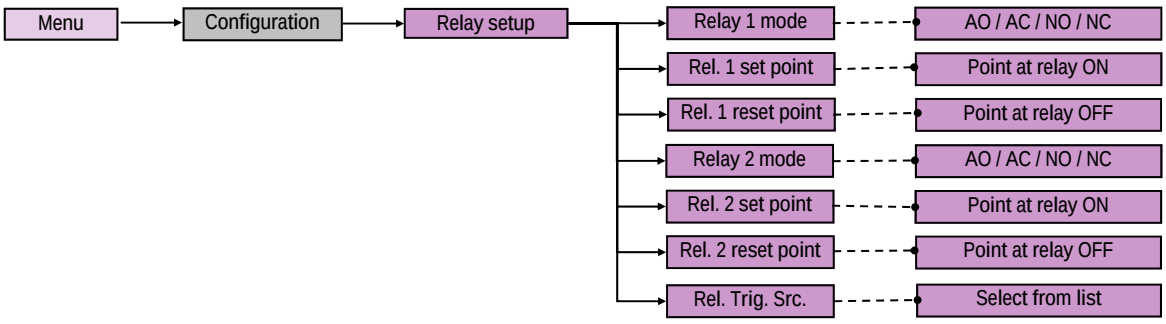
Built-in Solid state relays

The display on the TE67G has 2 built-in solid state relays which can be configured individually.
Both relays can be set as a
Normally Open (NO), Normally Closed (NC), Always Open (AO) or Always Closed (AC) function.

Electrical connection of the relays can be seen on page 12 of this manual.

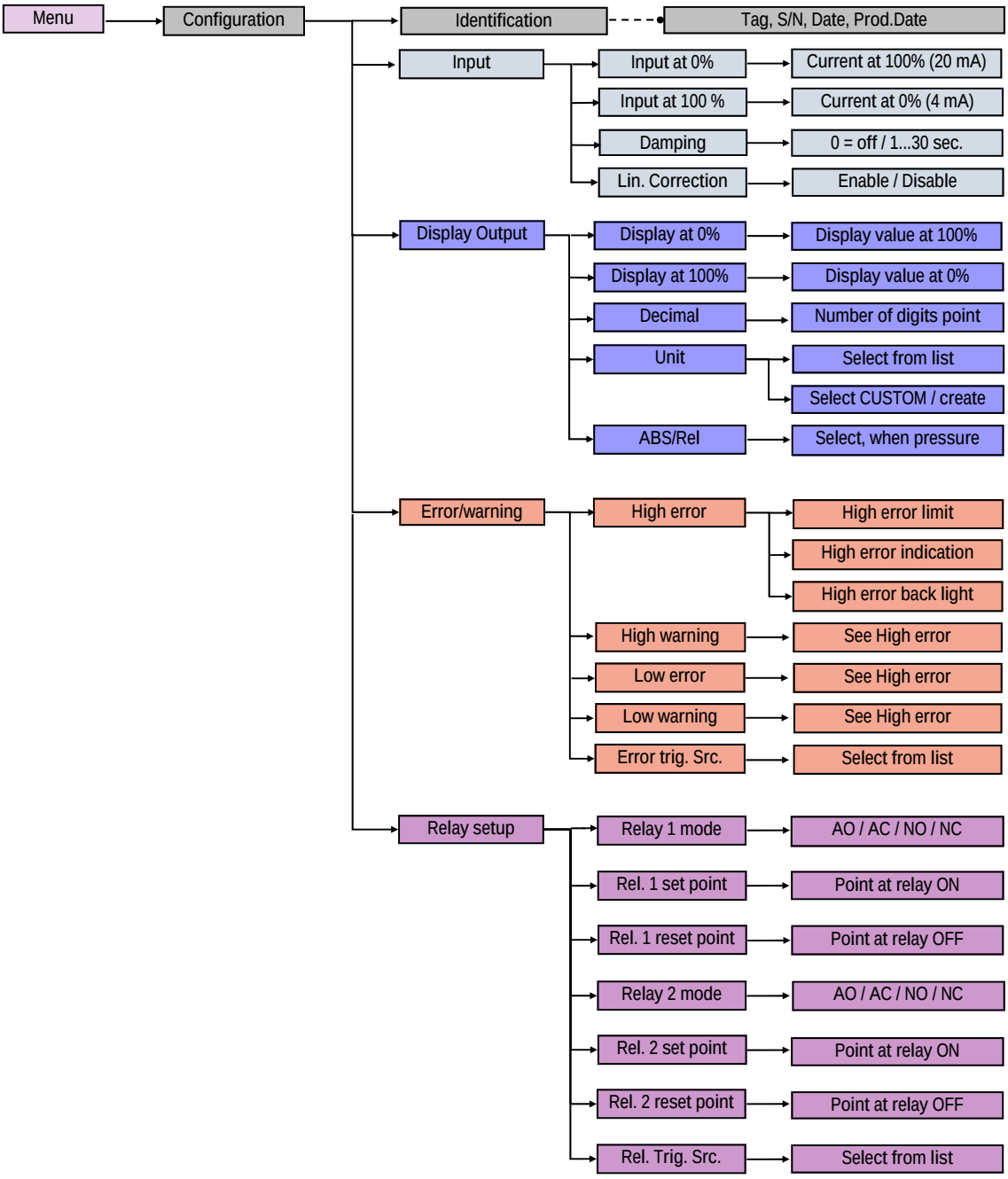
Setting up the relays:

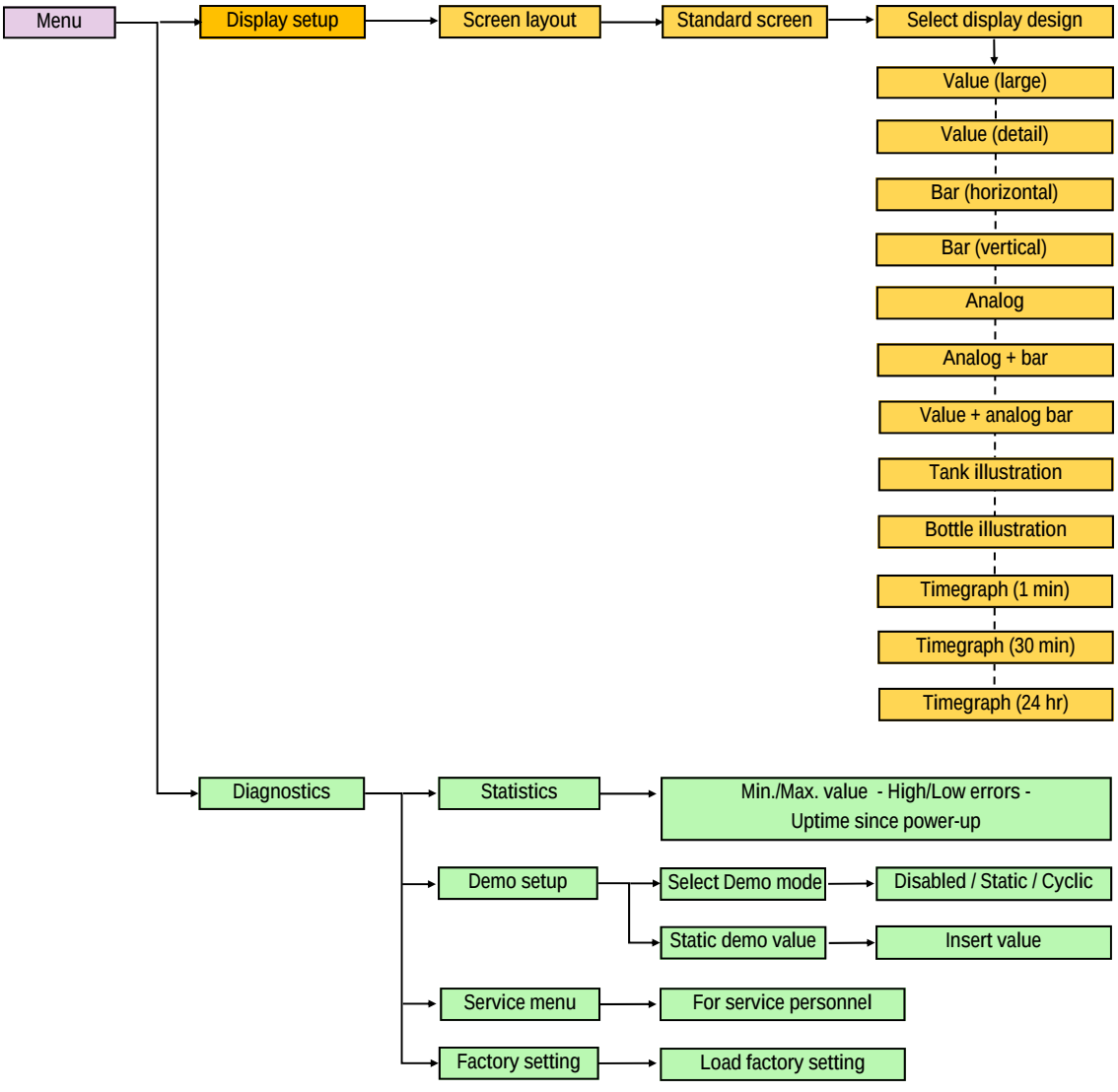
To setup the error/warning indication access the Menu → Configuration → Relay setup and chose the relay that you wish to configure.



6. Setup

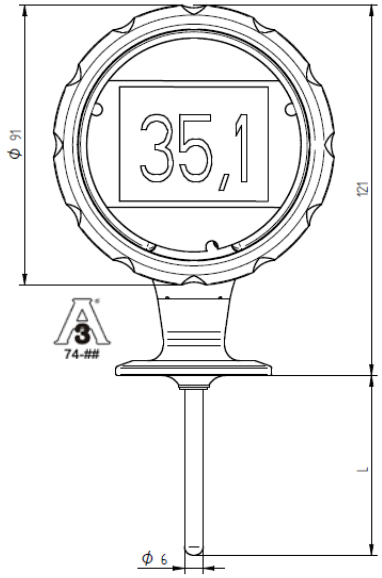
6.3 Complete menu structure of the display



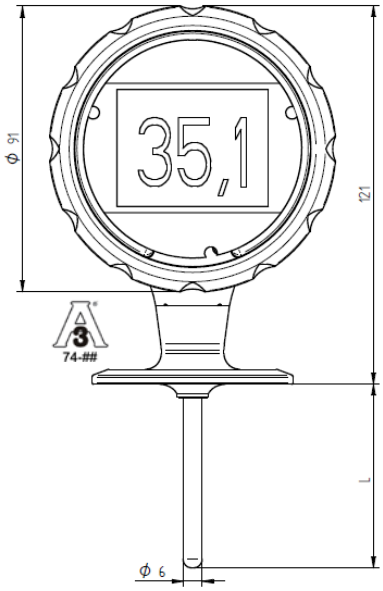

Menu
Display setup
Screen layout
Standard screen
Select display design
Value (large)
Value (detail)
Bar (horizontal)
Bar (vertical)
Analog
Analog + bar
Value + analog bar
Tank illustration
Bottle illustration
Timegraph (1 min)
Timegraph (30 min)
Timegraph (24 hr)
Diagnostics
Statistics
Min./Max. value - High/Low errors -
Uptime since power-up
Demo setup
Select Demo mode
Disabled / Static / Cyclic
Static demo value
Insert value
Service menu
For service personnel
Factory setting
Load factory setting

7. Dimensional Drawings

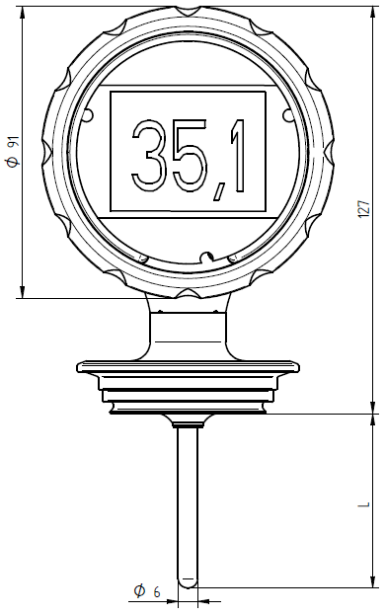
7.1 Dimensional Drawings



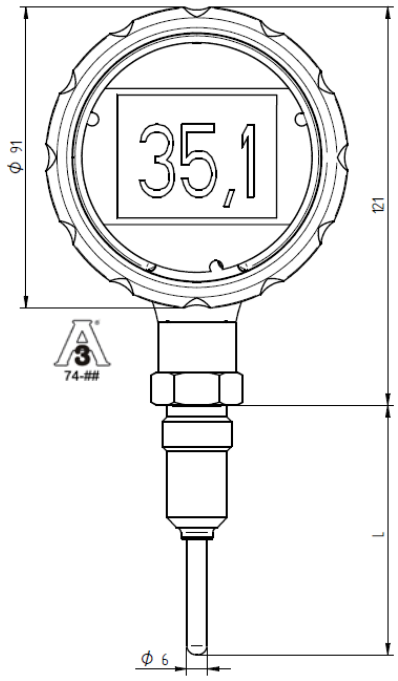
Clamp DN38 (ISO2852)
TE67Gx1xxxxxxx



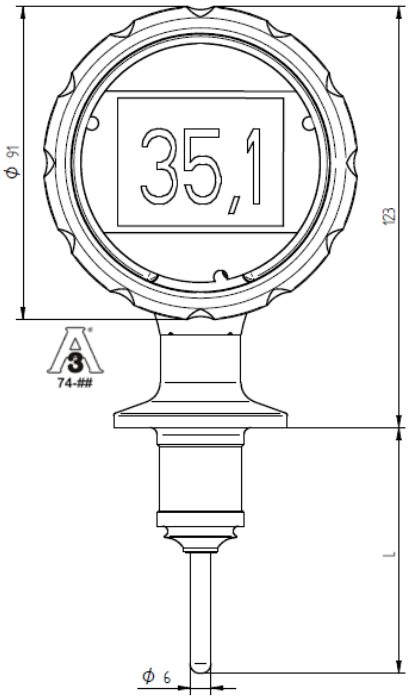
Clamp DN51 (ISO2852)
TE67Gx2xxxxxxx



Unique Flexbody, type F or N Connection
TE67GxMxxxxxxx
TE67GxNxxxxxxx

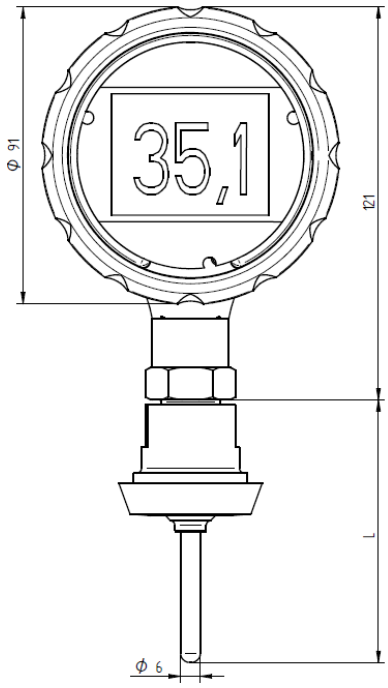


G1/2A DIN 3852
TE67Gx4xxxxxxx

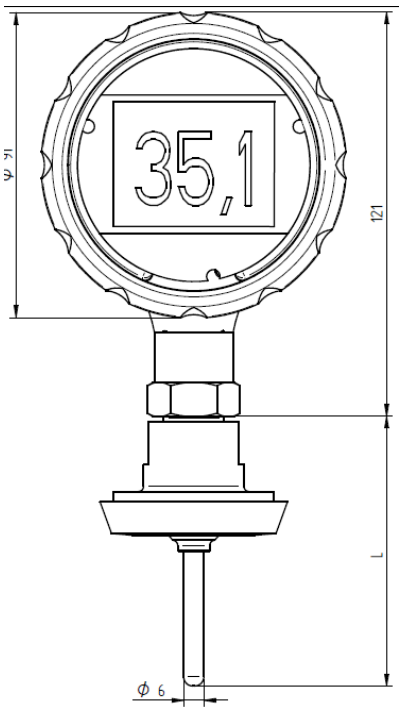


Clamp Flush Flushable (CFF)
TE67GxDxxxxxxx

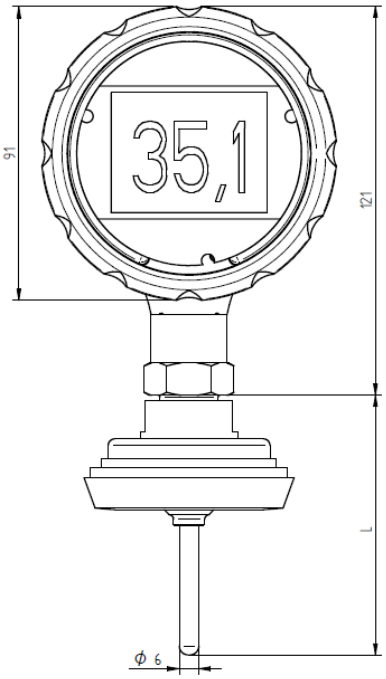
7. Dimensional Drawings



DN 32 (DIN11851)
TE67GxAxxxEx4x

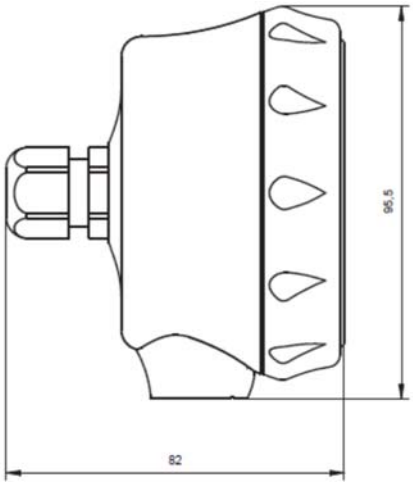


DN 40 (DIN11851)
TE67GxBxxxEx4x

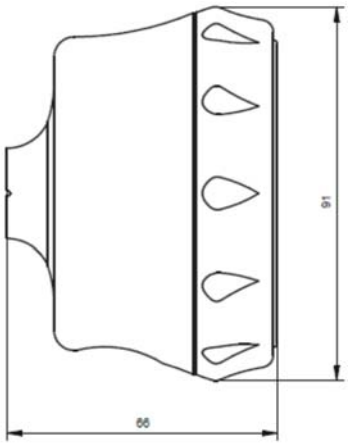


DN 50 (DIN11851)
TE67GxCxxxEx4x

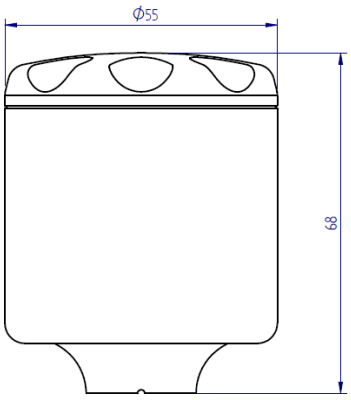
7.2 Housing direction



Bottom connection
TE67GxxxxxAxxx
TE67GxxxxxCxxx
TE67GxxxxxExxx
TE67GxxxxxGxxx



Rear connection
TE67GxxxxxBxxx
TE67GxxxxxDxxx
TE67GxxxxxFxxx
TE67GxxxxxHxxx



Ø55 housing
With no display
TE67Gxxxxx1xxx
TE67Gxxxxx3xxx
TE67Gxxxxx4xxx
TE67Gxxxxx5xxx

8. Troubleshooting

8.1 Troubleshooting

No electrical output from the sensor

In case of no electrical signal from the sensor please follow this checklist for identifying the problem.

- Loosen and remove the frontring or cover. If there is a display gently loosen it from the housing.
- Measure if there is 10-35 VDC on the two supply terminals to make sure that there is power to the sensor.
- Check if wiring is according to the scedule on p. 14.

If all of these points is checked, then the sensor may have an error and need to be returned to Alfa Laval for repair.

No light or digits in the display

The display is loop powered by the transmitter and supplied through the terminal from the transmitter. If there is no light or digits in the display, it could be one of the following reasons.

- Loosen and remove the frontring and gently loosen the display from the housing.
- Measure if there is 10-35 VDC on the two supply terminals to make sure that there is power to the sensor
- Check if wiring is according to the scedule on p. 14

It is possible to order the display as a spare part if any damage should happen to it. Ordering key is. TE67I000000000.

If none of the above reasons is present then the sensor may have an error and need to be returned to Alfa Laval for repair.

9.1 Ordering Key Table

Ordering key table		
Description	**Option**	**Item nr. code**
	Basic instrument	**TE67G**xxxxxxxxx
Measuring Range	0..150 °C 6mm sensor tip	TE67G**1**xxxxxxxx
	0..150 °C 4mm sensor tip	TE67G**2**xxxxxxxx
	-20..150 °C 6mm sensor tip	TE67G**4**xxxxxxxx
	-20..150 °C 4mm sensor tip	TE67G**5**xxxxxxxx
	0..100 °C 6mm sensor tip	TE67G**7**xxxxxxxx
	0..100 °C 4mm sensor tip	TE67G**8**xxxxxxxx
	-10..100 °C 6mm sensor tip	TE67G**A**xxxxxxxx
	-10..100 °C 4mm sensor tip	TE67G**B**xxxxxxxx
Process connection	Clamp DN 38 (ISO2852) / Clamp DN 40 (DIN32676)	TE67Gx**1**xxxxxxx
	Clamp DN 51 (ISO2852) / Clamp DN 50 (DIN32676)	TE67Gx**2**xxxxxxx
	G½ Hygienic	TE67Gx**4**xxxxxxx
	DN 25 (DIN11851)	TE67Gx**A**xxxxxxx
	DN 40 (DIN11851)	TE67Gx**B**xxxxxxx
	DN 50 (DIN11851)	TE67Gx**C**xxxxxxx
	Clamp front flushable (CFF)	TE67Gx**D**xxxxxxx
	Unique Flexbody, type F - DN 25 (1”)	TE67Gx**M**xxxxxxx
	Unique Flexbody, type N - DN 40...DN 125 (1½” … 6”)	TE67Gx**N**xxxxxxx
Surface finish wetted parts	Ra<0,8 µm	TE67Gxx**1**xxxxxx
	Ra<0,4 µm (Electropolished)	TE67Gxx**2**xxxxxx
Sensor length *Max length 30 cm with 4 mm. sensor tip*	0 cm.	TE67Gxxx**0**xxxxx
	10 cm.	TE67Gxxx**1**xxxxx
	20 cm.	TE67Gxxx**2**xxxxx
	30 cm.	TE67Gxxx**3**xxxxx
	40 cm.	TE67Gxxx**4**xxxxx
	50 cm.	TE67Gxxx**5**xxxxx
Sensor length	0 cm.	TE67Gxxxx**0**xxxx
	1 cm.	TE67Gxxxx**1**xxxx
	2 cm.	TE67Gxxxx**2**xxxx
	3 cm.	TE67Gxxxx**3**xxxx
	4 cm.	TE67Gxxxx**4**xxxx
	5 cm.	TE67Gxxxx**5**xxxx
	6 cm.	TE67Gxxxx**6**xxxx
	7 cm.	TE67Gxxxx**7**xxxx
	8 cm.	TE67Gxxxx**8**xxxx
	9 cm.	TE67Gxxxx**9**xxxx

9. Ordering

Ordering key table (Continued)		
Description	**Option**	**Item nr. code**
Electrical output / Housing	ø55 mm Housing, 4..20mA (0,1 °C Transmitter)	TE67Gxxxxx**1**xxx
	ø55 mm Housing, 4..20 mA HART (0,1 °C Transmitter)	TE67Gxxxxx**3**xxx
	ø55 mm Housing, Ceramic socket (Pt100 output)	TE67Gxxxxx**4**xxx
	ø55 mm Housing, 4..20mA (0,25 °C Transmitter)	TE67Gxxxxx**5**xxx
	ø80 mm Housing bottom w/o display 4..20mA (0,25 °C Transmitter)	TE67Gxxxxx**A**xxx
	ø80 mm Housing rear w/o display 4..20mA (0,25 °C Transmitter)	TE67Gxxxxx**B**xxx
	ø80 mm Housing bottom w/o display 4..20mA (0,1 °C Transmitter)	TE67Gxxxxx**C**xxx
	ø80 mm Housing rear w/o display 4..20mA (0,1 °C Transmitter)	TE67Gxxxxx**D**xxx
	ø80 mm Housing bottom with display 4..20mA (0,25 °C Transmitter)	TE67Gxxxxx**E**xxx
	ø80 mm Housing rear with display 4..20mA (0,25 °C Transmitter)	TE67Gxxxxx**F**xxx
	ø80 mm Housing bottom with display 4..20mA (0,1 °C Transmitter)	TE67Gxxxxx**G**xxx
	ø80 mm Housing rear with display 4..20mA (0,1 °C Transmitter)	TE67Gxxxxx**H**xxx
Sensor Element	Pt100 - 1/1 DIN B	TE67Gxxxxxx**1**xx
	Pt100 - 1/1 DIN A	TE67Gxxxxxx**6**xx
Electrical connection	1 x M12 Connector 8 wire, Stainless Steel with relays	TE67Gxxxxxxx**2**x
	1 x M12 Connector 5 wire, Stainless Steel w/o relays	TE67Gxxxxxxx**3**x
	1 x Cable gland M16, Plastic	TE67Gxxxxxxx**4**x
	1 x Cable gland M16, Stainless Steel	TE67Gxxxxxxx**5**x
Certificates	None	TE67Gxxxxxxxx**0**
	Calibration Certificate	TE67Gxxxxxxxx**1**
	3.1 Certificate	TE67Gxxxxxxxx**2**
	Calibration Certificate + 3.1. Certificate	TE67Gxxxxxxxx**6**

9.2 Certificates Table

Available certificates				
Item code	**Process Connection**	**3-A**	**Calibration**	**3.1**
TE67Gx**1**xxxxxxx	Clamp DN 38 (ISO2852) / Clamp DN 40 (DIN32676)	**X**	**X**	**X**
TE67Gx**2**xxxxxxx	Clamp DN 51 (ISO2852) / Clamp DN 50 (DIN32676)	**X**	**X**	**X**
TE67Gx**4**xxxxxxx	G½ Hygienic	**X**	**X**	**X**
TE67Gx**A**xxxxxxx	DN 25 (DIN11851)		**X**	**X**
TE67Gx**B**xxxxxxx	DN 40 (DIN11851)		**X**	**X**
TE67Gx**C**xxxxxxx	DN 50 (DIN11851)		**X**	**X**
TE67Gx**D**xxxxxxx	Clamp front flushable (CFF)	**X**	**X**	**X**
TE67Gx**M**xxxxxxx	Unique Flexbody, type F - DN 25 (1”)		**X**	**X**
TE67Gx**N**xxxxxxx	Unique Flexbody, type N - DN 40...DN 125 (1½” … 6”)		**X**	**X**

3-A Approval is only valid with a 3-A approved welding part

3-A Certificate Authorization number: 1536

A copy of the certificate can be downloaded from 3-A Sanitary Standards, Incorporated

10.1 Service / Repair

Upon every return of product, no matter if for modifications or repair, it is necessary to contact you local Alfa Laval office to guarantee a quick execution of your request.

You will receive instructions regarding the return procedure from your local Alfa Laval office.
Be sure to follow the instructions closely.

10.2 Warranty

The warranty conditions are subject to the legal warranty period of 12 months from the date of delivery. In case of improper use, modifications of or damages to the device, we do not accept warranty claims. Damaged devices will also not be accepted. Furthermore, defects due to normal wear are not subject to warranty services.

10.3 How to contact Alfa Laval Kolding A/S

For further information please feel free to contact:

Alfa Laval Kolding A/S
31, Albuen - DK 6000 Kolding - Denmark
Registration number: 30938011
Tel switchboard: +45 79 32 22 00 - Fax switchboard: +45 79 32 25 80
www.toftejorg.com , www.alfalaval.dk - info.dk@alfalaval.com

Contact details for all countries are continually updated on our websites.

How to contact Alfa Laval

Contact details for all countries are
continually updated on our website.
Please visit www.alfalaval.com to access the information direct.

Sap: 11149023 02