Conductivity Transmitter
- Type Condutec -

- compact unit -

- split version -

Features

- **MEASUREMENT / CONTROL OF CONDUCTIVITY OR CONCENTRATION IN LIQUIDS**
- **AVAILABLE AS COMPACT UNIT OR SPLIT VERSION**
- **OUTPUT FOR CONDUCTIVITY AND TEMPERATURE 4 - 20 MA**
- **MEASURING RANGE PROGRAMMABLE FROM 0… 500 MS/CM**
- **SENSOR CAN BE STERILIZED UP TO 140°, 1 h**
- **VARIOUS PROCESS CONNECTIONS ARE AVAILABLE, E.G. HYGIENIC DESIGN VERSIONS**

DESCRIPTION

The conductivity transmitter **Condutec** is used for the measurement of conductivity or concentration in liquids, e.g. in CIP-lines or other processes in the beverage industry. High accuracy and resistance against contamination of the electrode are achieved by using 4 electrode conductivity cells.

The instrument can be operated directly and user-friendly at the graphic display. The switching output can be freely programmed; the **Condutec** is available either as a compact unit or split version (for strong vibrations or significant heat radiations).

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Conductivity Transmitter
- Type Condutec -

Hengesbach Prozessmesstechnik

TECHNICAL DATA - CONDUCTIVITY TRANSMITTER	
Constructive Specifications	
Model	´compact unit´ or ´split version´
Protection class	IP 65 acc. EN 60529
Working temperature	0...50 °C
Material	polyamide with fibre-glass PA6-GF 15/15
Weight	0.36 kg
Front keyboard	polyester
Display	
Display	LCD-dot display, 3.8 mm height 2 lines with 16 characters
Electrical Connection	
Supply voltage	14...30 V DC, 2-wire system
Test voltage	500 V DC
Galvanic isolation	Conductivity output / temperature output / alarm output 1 / alarm output 2 / measurement range sw
Strip terminal	screw terminal with pressure plat, 2.5mm^2 fine wire, 4mm^2 single wire
Measuring range switching	
Input resistance	> 10 kΩ
Range 1 active	U = 0...3 V DC
Range 2 active	U = 12...30 V DC
Alarm output	
Transistor	14...30 V DC, max. 60 mA, short circuit protection
Voltage drop	< 2 V
Conductivity output	
Unit	programmable µS/cm; mS/cm; kOhm/cm; MOhm/cm
Decimals	-„- 0...3 places
Measuring range	-„- 500...9999 digit (depending on unit and decimals)
Smallest/largest range	0...5.00 µS/cm / 0...500.0 mS/cm 0...0.5 µS/cm / 0...50.0 µS/cm with pure water cell
Temperature compensation	not linear for pure water and natural water programmable in range 0.000...8.000% / °C
Cell constant	0.080...4.000
Standard error	+/- 0,5% from measure value +/- 2 digit
Temperature coefficient	< 100 ppm/°C
Measuring rate	approx. 3 / seconds
Temperature output	
Output signal	4...20 mA
Burden	R = (supply voltage - 14 V) : 0.02 A
Temperature sensor	PT100 or PT1000
Unit	programmable °C; °F
Measuring range	programmable -40.0...+160.0 °C (-40.0...320.0 °F)
min / max span	25.0 °C (45.0 °F) / 200 °C (360.0 °F)
Standard error	+/- 0.1% +/- 1 digit
Temperature coefficient	<50 ppm / °C
Linearisation error	+/- 0.1 %
CE-Conformity	EN 50022, IEC 1000-4-3 / 4 / 5

TECHNICAL DATA - MEASURING CELLS	
Conductivity ranges	0…20 µS / cm bis 0…500 mS / cm
Cell constant	C = 0.4 measured cell constant on the label
Working temperature	-10…120 °C
Sterilization	1h bei 140 °C
Pressure resistance	max. 16 bar
Temp. measurement	with integrated PT1000 acc. DIN IEC 751
Housing	medium contacted parts PEEK, stainless steel1.4571, graphit, seal EPDM with FDA-authorization
Electr. connection	LF 3533 / LF 4533 (Varivent) > flat cable connector (only for´compact unit´) LF 3733 / LF 4733 (milk sanitary) > 8-pole-connector

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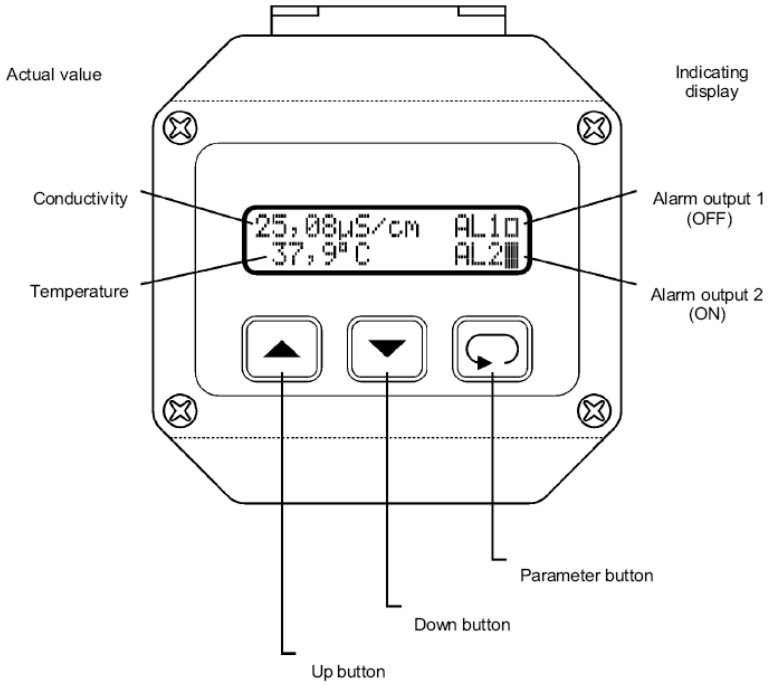
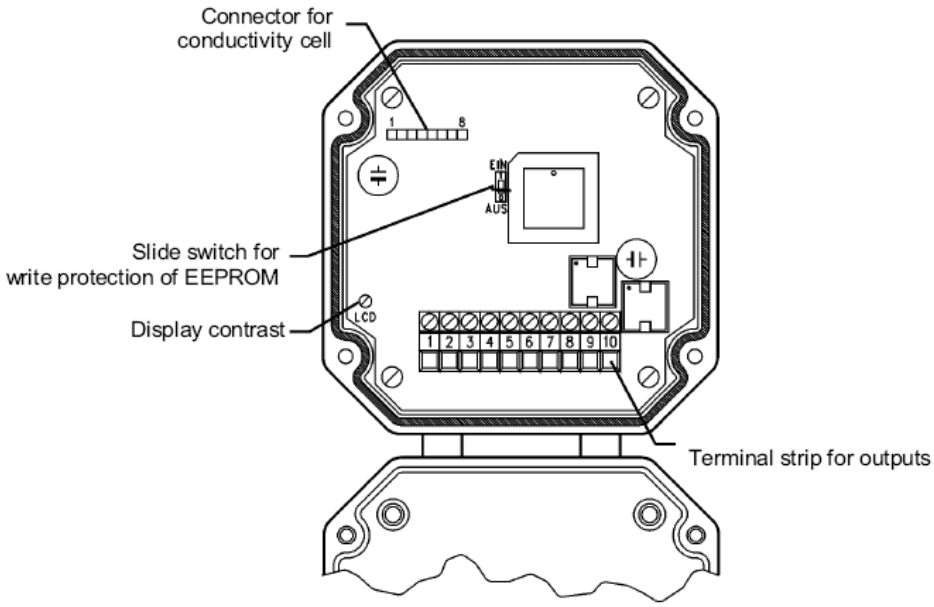
DISPLAY AND CONTROLS



CONNECTIONS

a) Housing



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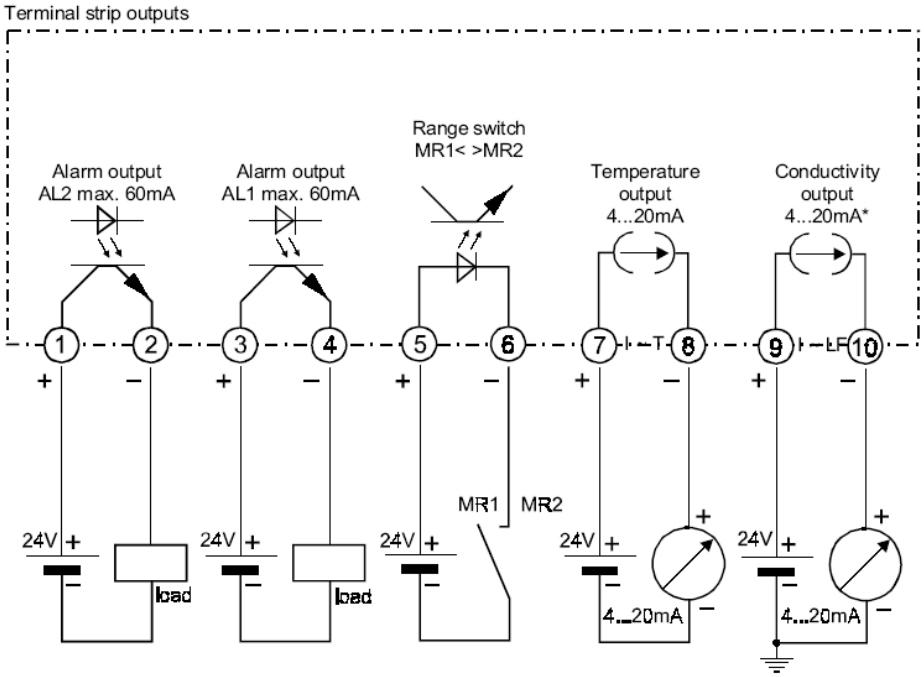
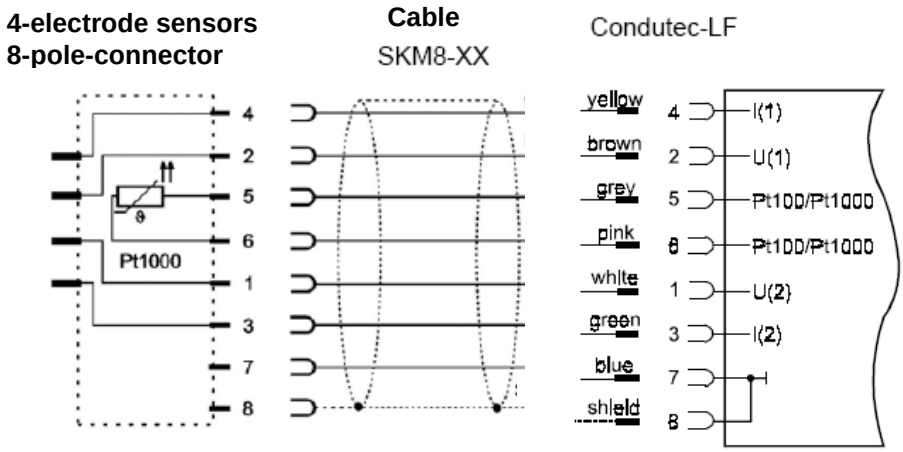
b) Electrical connection / output



* For supplying the converter use terminals (9) and (10) as shown. If the converter is used for monitoring only, terminals (9) and (10) must be connected direct to supply voltage.

c) Electrical connections / connection to Condutec compact unit



d) Connecting cable

For 4-electrode-sensors for Condutec compact unit with 8-pole cable gland and 8-pole cable connector.

SKM8-02	length 2m	IP67
SKM8-05	length 5m	IP67

as before, but plug and socket stainless steel 1.4571, PVC- able

SKM8-02-VA	2m lang	IP67
SKM8-05-VA	5m lang	IP67

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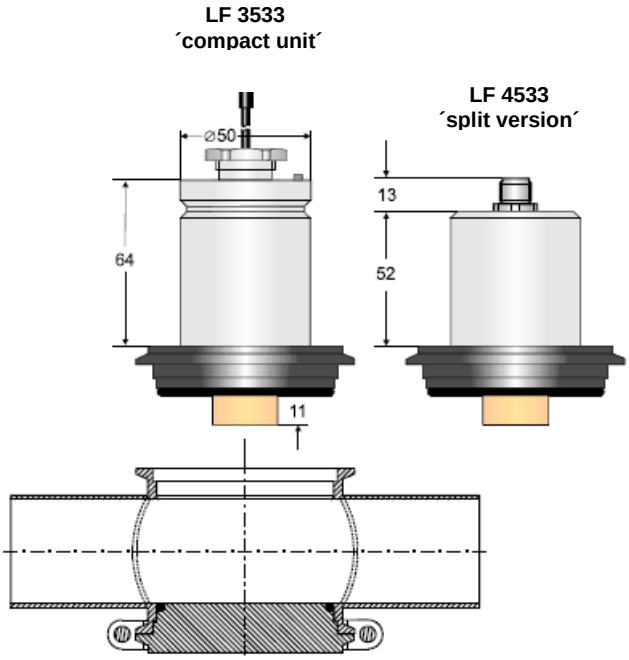
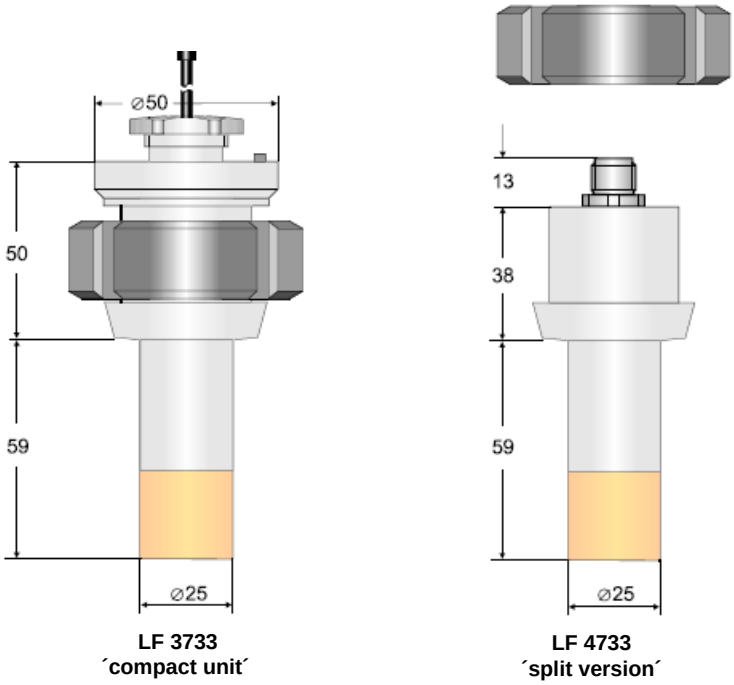
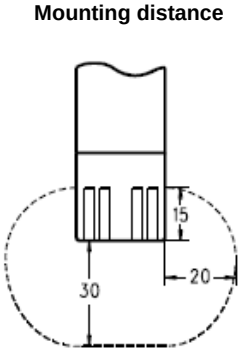
DIMENSIONS
Sensors

a) Condutec conductivity cell LF 3533 / LF 4533
with VARIVENT-connection



b) Condutec conductivity cell LF 3733 / LF 4733
with milk sanitary connection DIN 11851





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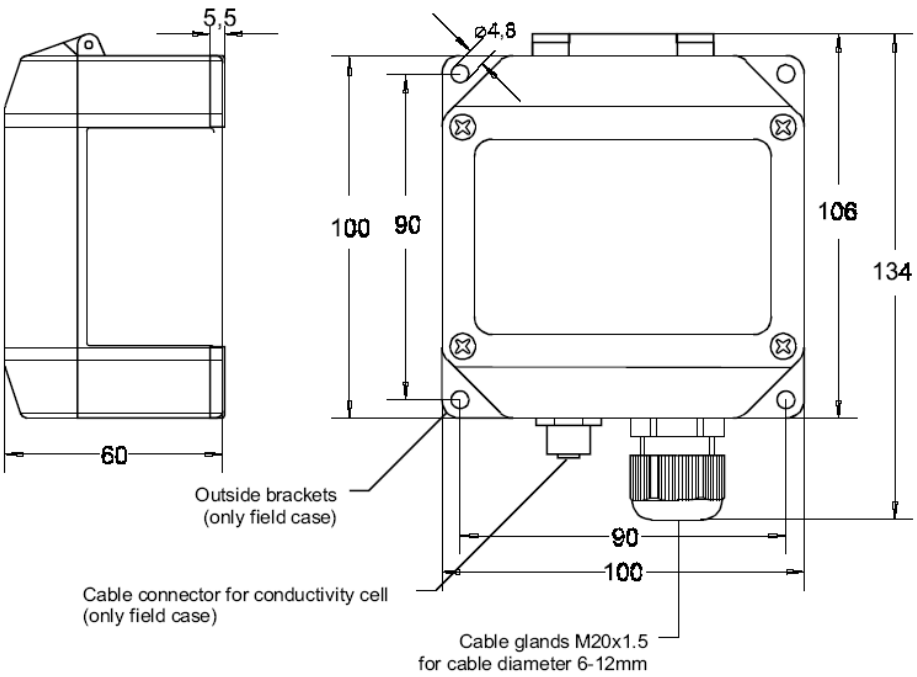
DIMENSION

Mounting



ORDER INFORMATION - Condutec

a) Transmitter – order details

Version	
1	output conductivity 4...20 mA, 2-wire loop powered transistor alarm outputs, supply voltage 14...30 V DC
2	as 1, but additional 2nd measuring range for conductivity output temperature 4...20 mA, 2-wire

Mounting	
01	compact unit: connection with flat cable connector of the cell
02	split version: connection with separate connection cable
03	as ´02´, but connector plug stainless steel 1.4571

Measuring principle	
4	4-electrode measurement (2-electrode cells connectable)

Temperature measurement (RTD)	
1	PT100 -sensor
2	PT1000 -sensor

Options	
00	without option
14	measurement acc. USP<645> (USP23)

		4		

Information: **Measuring cell and connecting cable must be ordered separately in any case!**

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b) Conductivity cells LF3533 / LF 4533 (VARIVENT) - Order details

Version	
3533	for ´compact unit´
4533	für ´split version´

Process connection	
DN 25	for VARIVENT connection DN 25 (stainless steel 1.4404)
DN 40	for VARIVENT connection DN 40...DN 125 (stainless steel 1.4404)

Options	
00	without option
03	8-pole connector, stainless steel 1.4571

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b) Conductivity cells LF3733 / LF 4733 (milk sanitary connection) - Order details

Version	
3733	for ´compact unit´
4733	für ´split version´

Process connection	
DN 25	incl. union nut DN 25 (stainless steel 1.4301)
DN 40	incl. union nut DN 40 (stainless steel 1.4301)
DN 50	incl. union nut DN 50 (stainless steel 1.4301)
DN 65	incl. union nut DN 65 (stainless steel 1.4301)

Options	
00	without option
03	8-pole connector, stainless steel 1.4571

[ ] [C 0,4] [ ] [ ]

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INSTALLATION NOTES

- The Condutec is delivered with the standard parameter setting. Please make sure that the instrument is changed to the applications before it will be used. Simulation of the temperature and conductivity in manual operation is possible.

- Temperature compensation:
  Good measurement results can only be achieved by using the temperature compensation. Please study the operating manual for details .

- Adjusting the cell constant:
  The exact cell constant C is marked on all 4-electrode conductivity cells. This cell constant must be taken into account when setting the parameters (see operating manual). Due to aging processes the cell constant may be changed. In order to determine the correct cell constant the cell has to be dipped into a reference solution while carefully stirring. Various reference solutions are available. The reference solution chosen, should correspond to the measurement range the equipment is operating in.

- **Mounting:**

  - When installing conductivity measurement, please make sure that there is no air at the active area of the conductivity cells!
  - Take care that there is adequate flow through and around the sensors.
  - If the devices are mounted in pipes, please make sure that the required distance between sensor and wall of the pipe are guaranteed. Otherwise the compensation of the cell has to be changed!
  - The fixing of the sensors must be secure and free of vibrations!
  - When installing a system with Condutec compact unit, it may be necessary to turn converter und conductivity cell against each other for easy operation and better reading of the display. These assembly variations are possible in steps of 30°.

- Conductivity cells LF 3533 und LF 4533 (VARIVENT):
  The sensor may not be installed with other instruments in **1** VARIVENT-housing!

- Conductivity cells LF 3733 und LF 4733 (milk sanitary):
  The cell constant must be changed in case that the distance between wall of pipe and sensor is too small!

Please read the operating manual before commissioning the instrument.

Our products are constantly in further development, therefore subjects to modifications.

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