



OPTISYS IND 8100 Handbook

Conductivity measuring system

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1.1 Intended use

**CAUTION!**

Responsibility for the use of the measuring devices with regard to suitability, intended use and corrosion resistance of the used materials against the measured fluid lies solely with the operator.

**INFORMATION!**

The manufacturer is not liable for any damage resulting from improper use or use for other than the intended purpose.

The OPTISYS IND 8100 consists of a conductivity sensor and a transmitter built into one compact unit. The output from the transmitter are two 4...20 mA, which is available for both conductivity, concentration and temperature. The display features more user selectable modes and user specified "product labels" and warnings. Further there are two switch outputs for alarms or control. The background colour can be set in three colours, white, green or red - steady or flashing, controlled by the alarm settings. The transmitter and display can be programmed by either the touch screen on the display or by the configuration tool programming unit and software.

1.2 Safety instructions from the manufacturer

1.2.1 Copyright and data protection

The contents of this document have been created with great care. Nevertheless, we provide no guarantee that the contents are correct, complete or up-to-date.

The contents and works in this document are subject to copyright. Contributions from third parties are identified as such. Reproduction, processing, dissemination and any type of use beyond what is permitted under copyright requires written authorisation from the respective author and/or the manufacturer.

The manufacturer tries always to observe the copyrights of others, and to draw on works created in-house or works in the public domain.

The collection of personal data (such as names, street addresses or e-mail addresses) in the manufacturer's documents is always on a voluntary basis whenever possible. Whenever feasible, it is always possible to make use of the offerings and services without providing any personal data.

We draw your attention to the fact that data transmission over the Internet (e.g. when communicating by e-mail) may involve gaps in security. It is not possible to protect such data completely against access by third parties.

We hereby expressly prohibit the use of the contact data published as part of our duty to publish an imprint for the purpose of sending us any advertising or informational materials that we have not expressly requested.

1.2.2 Disclaimer

The manufacturer will not be liable for any damage of any kind by using its product, including, but not limited to direct, indirect or incidental and consequential damages.

This disclaimer does not apply in case the manufacturer has acted on purpose or with gross negligence. In the event any applicable law does not allow such limitations on implied warranties or the exclusion of limitation of certain damages, you may, if such law applies to you, not be subject to some or all of the above disclaimer, exclusions or limitations.

Any product purchased from the manufacturer is warranted in accordance with the relevant product documentation and our Terms and Conditions of Sale.

The manufacturer reserves the right to alter the content of its documents, including this disclaimer in any way, at any time, for any reason, without prior notification, and will not be liable in any way for possible consequences of such changes.

1.2.3 Product liability and warranty

The operator shall bear responsibility for the suitability of the device for the specific purpose. The manufacturer accepts no liability for the consequences of misuse by the operator. Improper installation or operation of the devices (systems) will cause the warranty to be void. The respective "Standard Terms and Conditions" which form the basis for the sales contract shall also apply.

1.2.4 Information concerning the documentation

To prevent any injury to the user or damage to the device it is essential that you read the information in this document and observe applicable national standards, safety requirements and accident prevention regulations.

If this document is not in your native language and if you have any problems understanding the text, we advise you to contact your local office for assistance. The manufacturer can not accept responsibility for any damage or injury caused by misunderstanding of the information in this document.

This document is provided to help you establish operating conditions, which will permit safe and efficient use of this device. Special considerations and precautions are also described in the document, which appear in the form of icons as shown below.

1.2.5 Warnings and symbols used

Safety warnings are indicated by the following symbols.



DANGER!

This warning refers to the immediate danger when working with electricity.



DANGER!

This warning refers to the immediate danger of burns caused by heat or hot surfaces.



DANGER!

This warning refers to the immediate danger when using this device in a hazardous atmosphere.



DANGER!

These warnings must be observed without fail. Even partial disregard of this warning can lead to serious health problems and even death. There is also the risk of seriously damaging the device or parts of the operator's plant.



WARNING!

Disregarding this safety warning, even if only in part, poses the risk of serious health problems. There is also the risk of damaging the device or parts of the operator's plant.



CAUTION!

Disregarding these instructions can result in damage to the device or to parts of the operator's plant.



INFORMATION!

These instructions contain important information for the handling of the device.



LEGAL NOTICE!

This note contains information on statutory directives and standards.



• **HANDLING**

This symbol designates all instructions for actions to be carried out by the operator in the specified sequence.

➡ **RESULT**

This symbol refers to all important consequences of the previous actions.

1.3 Safety instructions for the operator



WARNING!

*In general, devices from the manufacturer may only be installed, commissioned, operated and maintained by properly trained and authorized personnel.
This document is provided to help you establish operating conditions, which will permit safe and efficient use of this device.*

2.1 Scope of delivery

**INFORMATION!**

Inspect the packaging carefully for damages or signs of rough handling. Report damage to the carrier and to the local office of the manufacturer.

**INFORMATION!**

Do a check of the packing list to make sure that you have all the elements given in the order.

**INFORMATION!**

Look at the device nameplate to ensure that the device is delivered according to your order. Check for the correct supply voltage printed on the nameplate.



Figure 2-1: Standard scope of delivery

- ① Ordered conductivity measuring system
- ② Documentation

Optional accessories

- Hygienic process connection for the OPTISYS IND 8100 are described in the additional data sheet “Accessories for hygienic measuring instruments”

Consumables/Spare parts available

- Configuration tool [XGP9 000010]

2.2 Device description

The inductive measurement method enables maintenance-free acquisition of the individual conductivity of food liquids.

The measuring cell is a homogeneous sealed body made entirely in PEEK. The body has a hole, through which the media is flowing through. Built in are two coils, the primary coil and the secondary coil. The primary coil is supplied by AC voltage; the secondary coil picks up the small induced voltage.

The size of this voltage is dependent on the conductivity of the media. This signal is then amplified in the electronic to a linear 4...20 mA output signal. At the tip of the sensor, a fast acting Pt 100 is installed to measure quickly the media temperature allowing also a fast temperature compensation of the conductivity signal.

This temperature value can be given out on the second 4...20 mA output signal.

The whole sensor is encapsulated in the PEEK body, which has a surface of < 0.8 µm and is therefore well suited for hygienic applications.

2.3 Nameplate



INFORMATION!

Look at the device nameplate to ensure that the device is delivered according to your order. Check for the correct supply voltage printed on the nameplate.

The conductivity measuring system is specified on the labelling of the measuring system package and on the measuring system itself.

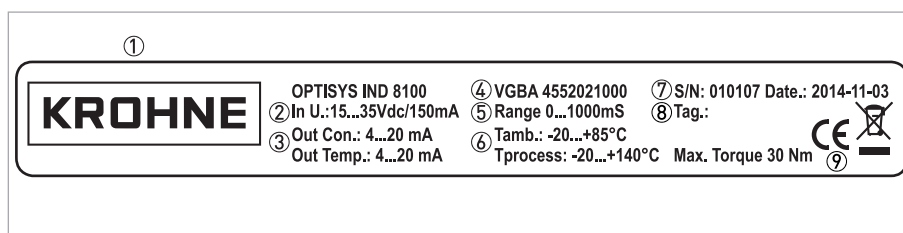


Figure 2-2: Example of a nameplate

- ① Manufacturer
- ② Power supply
- ③ Outputs
- ④ Modelcode
- ⑤ Measuring range
- ⑥ Ambient / Process temperature
- ⑦ Serial number, Manufacturing date
- ⑧ TAG number
- ⑨ CE marking

3.1 General notes on installation

**INFORMATION!**

Inspect the packaging carefully for damages or signs of rough handling. Report damage to the carrier and to the local office of the manufacturer.

**INFORMATION!**

Do a check of the packing list to make sure that you have all the elements given in the order.

**INFORMATION!**

Look at the device nameplate to ensure that the device is delivered according to your order. Check for the correct supply voltage printed on the nameplate.

3.2 Storage and Transport

- Store the conductivity measuring system in its original packaging in a dry and dust-free location. Keep it away from dirt.
- The original packaging serves the protection of the equipment. Therefore always use it for transport or return to the manufacturer.

3.3 Installation requirements

- For the hygienic version, use only the recommended sleeves or adapters. If other systems are used, no guarantee can be given for proper functionality or leak-tightness.
- The connection thread must have direct electrical contact with the threaded sleeve and the metal tank or pipe.
- At the hygienic connection G1 do not use Teflon or paper gaskets between the conductivity measuring system and hygienic adapter. The PEEK sensor together with the Stainless Steel adapter will perform a hygienic tightening. Assumed that the requirements have been followed.
- The tightening torque for the sleeve should be 25...30 Nm.
- To avoid turbulence problems the conductivity measuring system is recommended to be mounted in a distance of >1 meter from a bend.

3.4 Process connection

The hygienic G1 process sleeve is easy to weld into tanks or pipes. This kind of assembly allows installation in conformity with standards of hygiene (to 3A, FDA). The G1 connection can be mounted in any counter thread acc. to ISO 228.

Various hygienic adapter sleeves are available for fitting to other process connections. For more information please look into the data sheet "Accessories for hygienic measuring instruments".

The conductivity measuring system can be installed in any desired position.

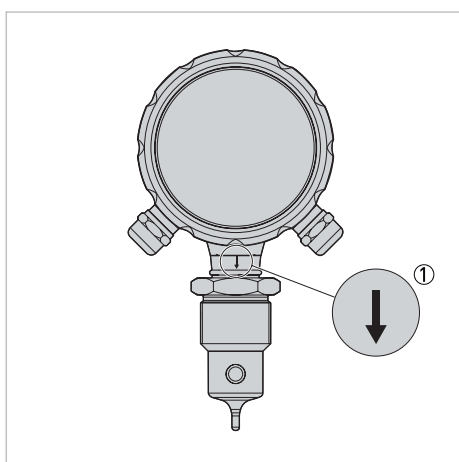


Figure 3-1: Arrow for the flow direction

The arrow on the sensor must be in the flow direction. There must be media flowing without air bubbles through the hole to ensure a correct measurement.

3.5 Mounting of 3A marked products

The 3A mark is valid only when the product is mounted in a 3A marked counterpart and installed acc. to the installation manual. Use also a 3A marked O-ring or gasket if relevant.

The 3A marked products conforms to the 3A sanitary standards criteria. Materials and surfaces fulfill the FDA demands.

EPDM O-rings supplied with 3A marked products are conform to sanitary standards class II (8% milk fat).

- ① Use only 3A approved counterparts.
- ② The inspection hole should be visible and drained. Face it downwards that leaking can be observed.
- ③ Mount the device in a self-drained position.
- ④ Level the inner surface of the pipe with the counterpart.
- ⑤ Weld from the inside of the tank, if possible. Welds shall be free from cracks, crevices and grooves. Weldings should be grinded to $R_a = 0.8 \mu\text{m}$.

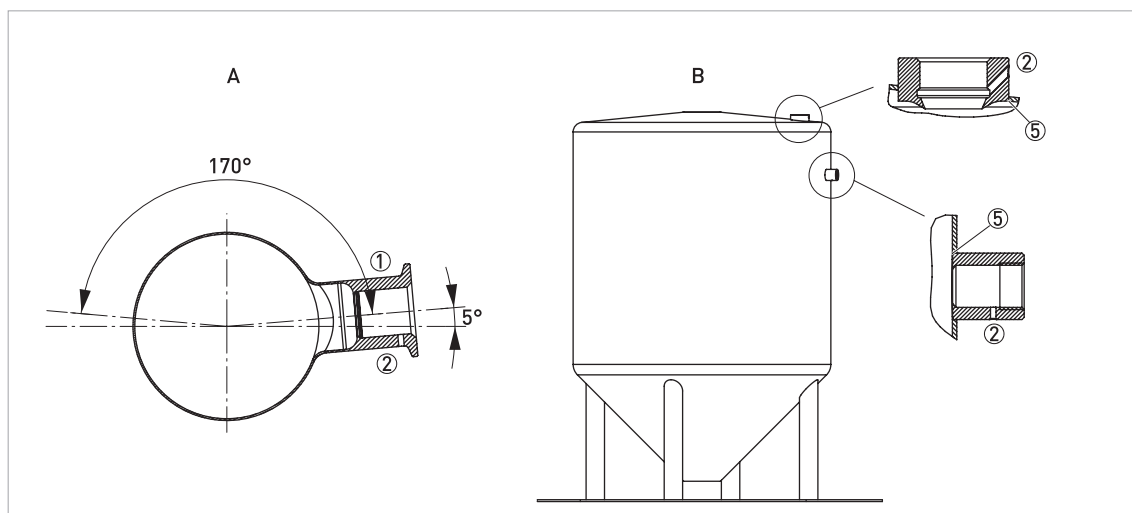


Figure 3-2: Mounting of 3A products in pipe installations (A) or tank installations (B)

4.1 Safety instructions



DANGER!

For devices used in hazardous areas, additional safety notes apply; please refer to the Ex documentation.



DANGER!

All work on the electrical connections may only be carried out with the power disconnected.



DANGER!

Observe the national regulations for electrical installations!



WARNING!

Observe without fail the local occupational health and safety regulations. Any work done on the electrical components of the measuring device may only be carried out by properly trained specialists.



INFORMATION!

Look at the device nameplate to ensure that the device is delivered according to your order.

4.1.1 Electrical connection M12



CAUTION!

Moisture on the sensor connector must be avoided! Moisture may cause a short-circuit and a malfunction of the sensor!

If moisture has entered the connector dry it with air (e.g. hot air gun).

A device without display is equipped with two 4 pin connector (left and right side)

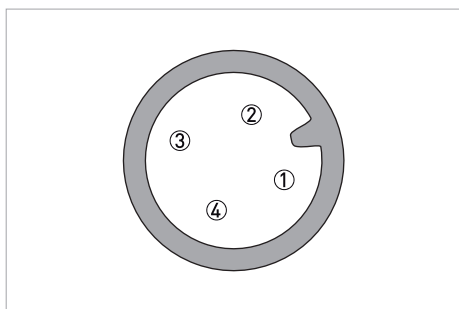


Figure 4-1: 4 pin connector (left side)

- ① 15...35 VDC (+) / Brown
- ② Conductivity (-) / White / 4...20 mA
- ③ 15...35 VDC (-) / Blue
- ④ Conductivity (+) / Black / 4...20 mA

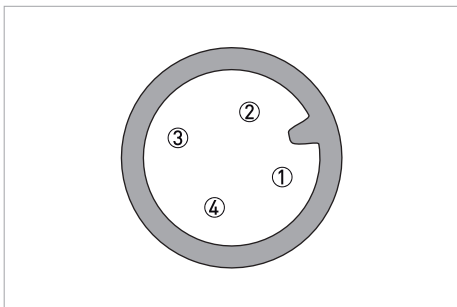


Figure 4-2: 4 pin connector (right side)

- ① R1 / Brown / external input
- ② Temperature (-) / White / 4...20 mA
- ③ R2 / Blue / external input
- ④ Temperature (+) / Black / 4...20 mA

A device with display is equipped with a 4 pin connector (left side) and a 8 pin connector (right side)

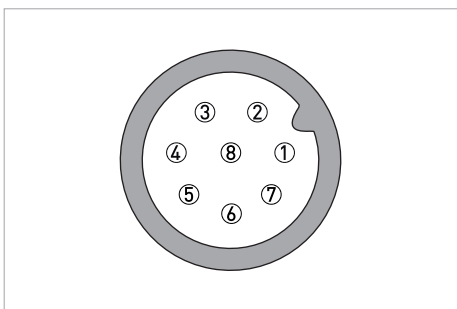


Figure 4-3: 8 pin connector (right side)

- ① R1 (external input) / White
- ② Temp. (+) (4...20 mA) / Brown
- ③ Relay 2 / Green
- ④ Relay 2 / Yellow
- ⑤ Relay 1 / Grey
- ⑥ Relay 1 / Light red
- ⑦ Temp. (-) (4...20 mA) / Blue
- ⑧ R2 (external input) / Red

4.1.2 Electrical connection cable glands

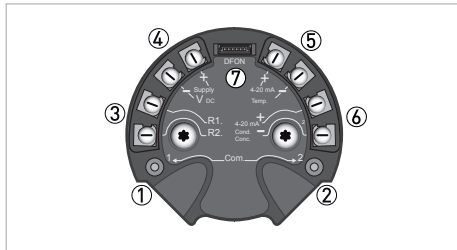


Figure 4-4: Connection overview transmitter

- ① COM 1
- ② COM 2
- ③ R1 and R2 (contact input)
- ④ Supply+ and Supply-
- ⑤ Temp+ and Temp- (output)
- ⑥ Cond.+ and Cond.- (output)
- ⑦ UnitCom (ribbon cable to display)

Range	R1 (contact input)	R2 (contact input)
1 (0...200 mS/cm)	Not connected	Not connected
2 (0...20 mS/cm)	24 VDC	Not connected
3 (0...2 mS/cm)	Not connected	24 VDC
4 (0...500 µS/cm)	24 VDC	24 VDC



INFORMATION!

The end value for conductivity can be freely chosen to the customer requirement.



INFORMATION!

The table of the conductivity ranges above shows the default settings from the factory and can be changed over the menu.

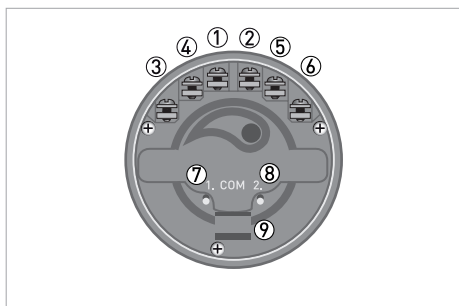


Figure 4-5: Overview display

- ① Not connected
- ② Not connected
- ③ Relay 2 / Green
- ④ Relay 2 / Yellow
- ⑤ Relay 1 / Grey
- ⑥ Relay 1 / Light red
- ⑦ COM 1
- ⑧ COM 2
- ⑨ UnitCom (ribbon cable to transmitter)

To connect the configuration tool

COM 1	Red clip
COM 2	Black clip

5.1 Menu

5.1.1 Communication over the touch screen display



- Start with one touch of the display
- ➡ The button **Menu** appears in the display
- Touch the button to get in the menu overview
- ➡ Now you can choose the required menu

Vertical navigation over the ↑ and ↓ button.

Menu overview

Menu	OSYS menu
	Display menu
	Data display mode <ul style="list-style-type: none"> • Transmitter value (default) • Display conversion

Conductivity measuring system Menu

Identification	
Prod. Identification	User date, Tag no.
Communication data	Poll address, Desc, Message, Message start
Product data	Model mode, Serial no., Prod. date, Firmware
Poll address	
Loop current mode	Enable / Disable
Input config	
Conductivity ranges	Conductivity range 1 (Default measuring range)
	Conductivity range 2
	Conductivity range 3
	Conductivity range 4
Temp. compensation	range 1%/K
	range 2%/K
	range 3%/K
	range 4%/K
	Advanced compensation
Output config	
Output mode	Conductivity mode
	Concentration mode
Conductivity mode	Select range 1...4
Concentration mode	Use PC
Temperature output	Temp. at 4 mA
	Temp. at 20 mA
	Output temp. unit

Output current limits	Lower current limit
	Upper current limit
	Lower temp. curr. limit
	Upper temp. curr. limit
Error output	Setting the error output current
	Error output channel <ul style="list-style-type: none"> • Channel 1 • Channel 2

Display menu

Configuration	
Identification	Tag, S/N, Date, Prod. Date
Input	Input at 0% <ul style="list-style-type: none"> • Current at 100% (20 mA)
	Input at 100% <ul style="list-style-type: none"> • Current at 0% (4 mA)
	Damping <ul style="list-style-type: none"> • 0 = off / 1...30 sec.
	Lin. Correction <ul style="list-style-type: none"> • Enable / Disable
Display Output	Display at 0% <ul style="list-style-type: none"> • Display value at 100%
	Display at 100% <ul style="list-style-type: none"> • Display value at 0%
	Decimal <ul style="list-style-type: none"> • Number of digits
	Unit <ul style="list-style-type: none"> • Select from list • Select from CUSTOM / create
Error / Warning setup	ABS / REL <ul style="list-style-type: none"> • Select, when pressure (not applicable)
	High error <ul style="list-style-type: none"> • High error limit • High error indication • High error Back light
	High warning <ul style="list-style-type: none"> • See High error
	Low error <ul style="list-style-type: none"> • See High error
Relay setup	Low warning <ul style="list-style-type: none"> • See High error
	Relay 1 mode <ul style="list-style-type: none"> • AO / AC / NO / NC
	Rel. 1 set point <ul style="list-style-type: none"> • Point relay ON
	Rel. 1 reset point <ul style="list-style-type: none"> • Point relay OFF
	Relay 2 mode <ul style="list-style-type: none"> • AO / AC / NO / NC
	Rel. 2 set point <ul style="list-style-type: none"> • Point at relay ON
	Rel. 2 reset point <ul style="list-style-type: none"> • Point at relay OFF

Display setup	
Screen layout	Standard screen <ul style="list-style-type: none"> • Not applicable for conductivity conductivity measuring system specific screen <ul style="list-style-type: none"> • Select display design
Back light	Colour <ul style="list-style-type: none"> • Select from list (white, green, red) Intensity <ul style="list-style-type: none"> • Select from list
Password	Password Enable <ul style="list-style-type: none"> • Enable / Disable New password <ul style="list-style-type: none"> • Create new password
Menu timeout	Time in seconds
Diagnostics	
Statistics	Min. / Max value - High / Low errors - Uptime since power up
Demo setup	Select demo mode <ul style="list-style-type: none"> • Disabled / Static / Cyclic Select demo value <ul style="list-style-type: none"> • Insert value
Factory setting	Load factory setting
Service menu	For service personnel

5.2 Default settings

The OPTISYS IND 8100 will be delivered with the following default values for conductivity and temperature:

Conductivity range 1	0...200 mS/cm (Default working range)
Conductivity range 2	0...20 mS/cm
Conductivity range 3	0...2 mS/cm
Conductivity range 4	0...500 µS/cm
Temperature	0...150°C



INFORMATION!

The table of the conductivity ranges above shows the default settings from the factory and can be changed over the menu.

5.3 Quick setting for adjusting the current output

Menu				
	Sensor menu			
		Output config		
		Conductivity mode		
		Range 1		
			conductivity at 4 mA, change if necessary by using the change button	
			conductivity at 20 mA, change if necessary by using the change button	

Menu				
	Sensor menu			
		Output config		
		Temperature output		
			Temp. at 4 mA, change if necessary by using the change button	
			Temp. at 20 mA, change if necessary by using the change button	
			Output temp. unit, change if necessary by using the change button	



INFORMATION!

The end value for conductivity can be freely chosen to the customer requirement.

Save the correct values and leaving the menu by pushing the “back” button several times.

6.1 Spare parts availability

The manufacturer adheres to the basic principle that functionally adequate spare parts for each device or each important accessory part will be kept available for a period of 3 years after delivery of the last production run for the device.

This regulation only applies to spare parts which are subject to wear and tear under normal operating conditions.

6.2 Availability of services

The manufacturer offers a range of services to support the customer after expiration of the warranty. These include repair, maintenance, technical support and training.



INFORMATION!

For more precise information, please contact your local sales office.

6.3 Returning the device to the manufacturer

6.3.1 General information

This device has been carefully manufactured and tested. If installed and operated in accordance with these operating instructions, it will rarely present any problems.



CAUTION!

Should you nevertheless need to return a device for inspection or repair, please pay strict attention to the following points:

- *Due to statutory regulations on environmental protection and safeguarding the health and safety of the personnel, the manufacturer may only handle, test and repair returned devices that have been in contact with products without risk to personnel and environment.*
- *This means that the manufacturer can only service this device if it is accompanied by the following certificate (see next section) confirming that the device is safe to handle.*



CAUTION!

If the device has been operated with toxic, caustic, flammable or water-endangering products, you are kindly requested:

- *to check and ensure, if necessary by rinsing or neutralising, that all cavities are free from such dangerous substances,*
- *to enclose a certificate with the device confirming that is safe to handle and stating the product used.*

6.3.2 Form (for copying) to accompany a returned device



CAUTION!

To avoid any risk for our service personnel, this form has to be accessible from outside of the packaging with the returned device.

Company:		Address:	
Department:		Name:	
Tel. no.:		Fax no. and/or Email address:	
Manufacturer's order no. or serial no.:			
The device has been operated with the following medium:			
This medium is:	<input type="checkbox"/>	radioactive	
	<input type="checkbox"/>	water-hazardous	
	<input type="checkbox"/>	toxic	
	<input type="checkbox"/>	caustic	
	<input type="checkbox"/>	flammable	
	<input type="checkbox"/>	We checked that all cavities in the device are free from such substances.	
	<input type="checkbox"/>	We have flushed out and neutralized all cavities in the device.	
We hereby confirm that there is no risk to persons or the environment through any residual media contained in the device when it is returned.			
Date:		Signature:	
Stamp:			

6.4 Disposal



CAUTION!

Disposal must be carried out in accordance with legislation applicable in your country.

Separate collection of WEEE (Waste Electrical and Electronic Equipment) in the European Union:



According to the directive 2012/19/EU, the monitoring and control instruments marked with the WEEE symbol and reaching their end-of-life **must not be disposed of with other waste**. The user must dispose of the WEEE to a designated collection point for the recycling of WEEE or send them back to our local organisation or authorised representative.

7.1 Measuring principle

7.1.1 Conductivity measurement - inductive

The inductive measurement method enables largely maintenance-free acquisition of conductivity, even in the toughest media conditions. In the principle of inductive measurement, the sensor consists of a sender-recipient-coil. This principle is used here to determine conductivity at solutions with higher values, where direct contact measurement is not well suited. A magnetic field is generated by an electrical coil and a second electrical coil is placed next to it, a certain amount of electric energy will be transferred to it. With an inductive conductivity sensor, the process media flows directly through the middle of the sensor. As the voltage in the first coil is constant, the amount of energy transferred to the second coil is directly proportional to the electrical resistance of the solution. Due to said voltage and the cell constant the conductivity can be measured. Also built into the PEEK body is a Pt100 sensor placed in the tip of the sensor. This is measuring the actual media temperature to enable fast temperature compensation of the conductivity signal, which is very temperature dependent. The OPTISYS IND 8100 also features an analogue 4...20 mA output signal.

The whole sensor is encapsulated in a PEEK sensor body, which has a surface with surface roughness (Ra) <0.8 µm. It is therefore well suited for use in hygienic processes or direct in concentrated acids or alkalis.

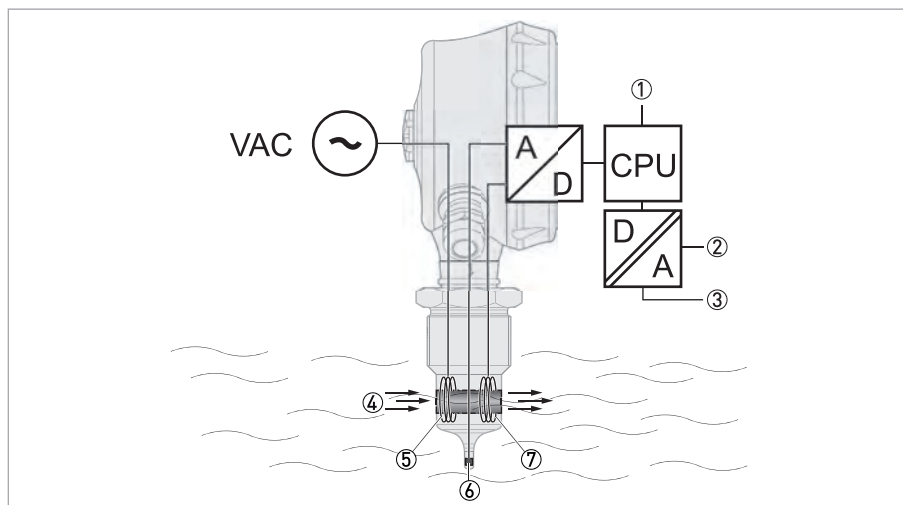


Figure 7-1: Working principle

- ① Range setting over input R1 and R2
- ② Conductivity / concentration 4...20 mA output
- ③ 4...20 mA output temperature
- ④ Flow direction
- ⑤ Primary coil
- ⑥ Pt100 sensor
- ⑦ Secondary coil

7.2 Technical data



INFORMATION!

- The following data is provided for general applications. If you require data that is more relevant to your specific application, please contact us or your local sales office.
- Additional information (certificates, special tools, software,...) and complete product documentation can be downloaded free of charge from the website (Downloadcenter).

Measuring system

Measuring principle	Inductive, 2 toroidal core transformers
Measuring range	Conductivity: 0...500 µS/cm up to 1 S/cm, 14 selectable ranges
	Detection limit ≥ 50 µS/cm
	Concentration: 4 factory set media/ranges, 1 customer defined media/ranges
	Temperature: -30...+150°C, free programmable range

Design

Temperature sensor	Pt100
LED display	Conductivity, temperature, concentration, relay status

Measuring accuracy

Accuracy (conductivity measuring system incl. transmitter at +25°C/77°F ambient)	Conductivity: <ul style="list-style-type: none"> • $\leq 1.5\%$ at 0...500 µS/cm • $\leq 1.0\%$ at 0...1 mS/cm - 0...500 mS/cm • $\leq 1.5\%$ at 0...1 S/cm Temperature: <ul style="list-style-type: none"> • $\leq 0.4\%$ selected range
--	---

Operating conditions

Process pressure	≤ 10 bar / 145 psi
Temperature range	-30...+140°C / -22...+285°F (150°C / 302°F < 1 hour)
Ambient temperature with display	-30...+80°C / -22...+176°F
Ambient temperature without display	-40...+85°C / -40...+185°F
Relative humidity (IEC 68.2.38)	98% condensing

Materials

Housing	Ø 80 mm, stainless steel 1.4301, AISI 304
M16 cable gland	Plastic or stainless steel
M12 plug	Stainless steel
Sensor	37 mm virgin PEEK, 83 mm virgin PEEK 1.4404 (316L)

Installation conditions

Ingress protection	IP67 / IP69 K
Process connection	G1 hygienic, rotating
Vibrations 1.0 mm (2...13.2 Hz) 0.7g (13.2...100 Hz)	IEC 60068.2.6 - test Fc

Power supply

Power	15...35 VDC, 150 mA
Response time conductivity	T ₉₀ < 2 seconds
Response time temperature	T ₉₀ < 15 seconds

Input and output

Output, conductivity	
Temperature compensation	0...5% / K, adjustable
Compensation range	-20...+150°C / -4...+302°F
Start-up time	≤ 15 seconds
Output	4...20 mA or 4...20 mA (HART®)
Overrange	21.6 mA
Reference temperature	+25°C / +77°F (adjustable)
Output, temperature	
Measuring range (free programmable)	-30°C...+150°C / -22°F...+302°F
Accuracy	≤ 0.4% of selectable range
Output	4...20 mA
Overrange	21.6 mA
Output, concentration selectable	
NaOH (caustic soda)	0...15% by weight (0...+90°C / +32...+194°F) 25...50% by weight (0...+90°C / +32...+194°F)
HNO ₃ (nitric acid)	0...25% by weight (0...+80°C / +32...+176°F) 36...82% by weight (0...+80°C / +32...+194°F)
Customer specific	The customer can define the measuring range (30 point linearisation)
Relay output	
Contacts	2 x solid state relays in the display
Load current	75 mA
Voltage	60 V _p
Input	
Contact input	R1 and R2, to select one of the 4 measuring ranges

Approvals

CE	This device fulfils the statutory requirements of the EC directives. The manufacturer certifies successful testing of the product by applying the CE mark.
	Shock resistance: IEC 60068-2-31, Environmental testing – Part 2: Test Fc
	Electromagnetic compatibility: acc. to EN 61326, NAMUR NE 21
	Low voltage directive: Safety requirements for electrical equipment for measurement, control, and laboratory use in accordance with EN 61010-1:2001
Immunity (EMC)	EN 61000-6-2
Emission (EMC)	EN 50081-1
Hygienic	FDA, 1935 / 2004, 2023 / 2006
	3A

7.3 Dimensions

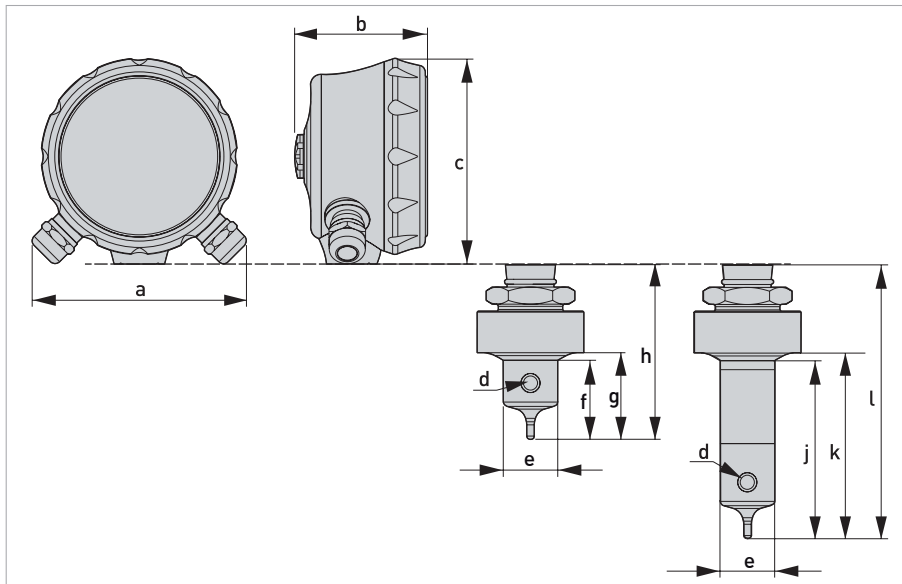


Figure 7-2: Dimensions

	Dimensions [mm]	Dimensions [inch]
a	100	3.94
b	62	2.44
c	95	3.74
d	6.6	0.26
e	25.5	1.01
f	37	1.46
g	40,5	1.6
h	82	3.23
j	83	3.27
k	87	3.43
l	128	5.04





KROHNE – Process instrumentation and measurement solutions

- Flow
- Level
- Temperature
- Pressure
- Process Analysis
- Services

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