50088 / 1.12 / 2026-02-20 / MH / EU-NA

Product Information ILM-4 **FOOD**

Inductive Conductivity Meter ILM-4

CLEANadapt

Application/Specified Usage

- Inductive measurement of the specific conductivity of liquid media in the range of 0...1 000 mS/cm.
- Designed for hygienic applications in food-, beverage- and pharmaceutical industries.

Application Examples

- Controlling of CIP processes (e. g. phase separation detergents/water)
- Concentration measurement (e. g. Alkali and acid concentration in remaking)
- Monitoring of product quality, quality control

Hygienic Design/Process Connection

- Hygienic process connection with CLEANadapt
- Versions available with EHEDG approval
- Versions available to conform to 3-A Standard 74-
- All wetted materials are FDA-conform
- CRN: 0F18719.5C
- Sensor completely made of stainless steel, sensor tip of PEEK material
- Complete overview of process connections: see order code
- The Anderson-Negele CLEANadapt system offers a flow-optimized, hygienic and easily sterilizable installation solution for sensors.

Features/Advantages

- CIP/SIP cleaning up to 150 °C (302 °F)/maximum 60 minutes
- Wear-free, inductive measurement
- In contrast to conductive measurement procedures, no problems with electrode deterioration or polarization.
- Accurate measurement through compensation of temperature influences.
- High reproducibility of ≤ 0.2 % of measurement value.
- Analog outputs for conductivity and temperature are a standard feature.
- Analog outputs for conductivity, temperature or concentration are freely adjustable.
- Hybrid technology with digital and analog interface
- Short reponse time of 1.2 s for highest efficiency
- Installation in tube diameters from DN 40

Options/Accessories

- Version with longer toroid housing for pipes ≥ DN 65 or for installation into T-fitting
- Preassembled cable for M12 plug-in connector
- Display module Simple User Interface (SUI) and Large User Interface (LUI)
- Remote version with cable length up to 30 m
- Add-On Instructions are available at www.anderson-negele.com/aoi

Communication

IO-Link 4...20 mA

ILM-4 / L20 Compact Version



CERTIFIED EHEDG TYPE EL CLASS I

3-A 74-

ILM-4R / L20 Remote Version



Large User Interface (LUI)

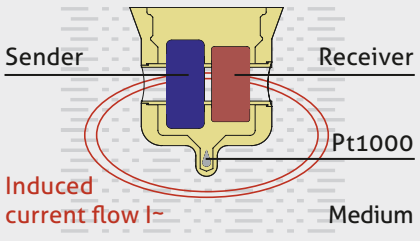


Specification		
Process connection	CLEANadapt Tri-Clamp Varivent	G1" 1½", 2", 2½", 3" DN 25 (type F), DN 40/50 (type N)
Materials	Connecting head Threaded connector Immersible body Plastic cap/sight glass	Stainless steel 1.4308 (AISI CF-8) Stainless steel 1.4305 (AISI 303) PEEK, FDA number 21 CFR 177.2415 Polycarbonate
Temperature ranges	Ambient Process CIP/SIP cleaning	-10...70 °C (14...158 °F) -10...130 °C (14...266 °F) Up to 150 °C (302 °F) max. 60 min
Operating pressure		Max. 16 bar (232 psi)
Protection class		IP 69 K
Reproducibility	of conductivity	≤ ±0,2 % of measured value
Resolution/measurement range	≤ 1 mS/cm ≤ 10 mS/cm ≤ 100 mS/cm ≤ 1 000 mS/cm	0.001 mS/cm 0.01 mS/cm 0.1 mS/cm 1 mS/cm
Accuracy	Slope Offset	±2 % of measured value ±20 µS/cm
Long-term stability		±0.5 % of upper range limit
Accuracy of temperature output	≤ 100 °C (212 °F) 100...150 °C (212...302 °F)	Max. 0.5 °C (0.9 °F) Max. 1.0 °C (1.8 °F)
Response time	Conductivity Temperature (t_{90})	< 1.2 s < 20 s
Electrical connection	Cable gland Cable connection Power supply	2x M16 x 1.5 2x M12 connector 1.4301 (AISI 304) 18...36 V DC max. 190 mA
Remote cable (ILM-4R only)	PVC-cable	8 pin, twisted pair, unshielded, with M12 coupling/straight plug
Communication	Analog Digital	2x Analog output 4...20 mA, short circuit proof 1x Digital input (24 V DC) IO-Link
LCD display	Backlit display	5 lines
Measuring principle	Wear-free	Inductive

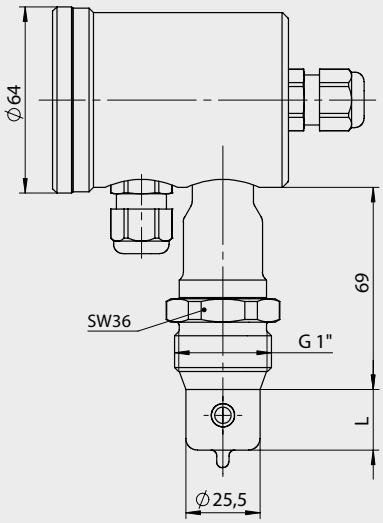
Measuring Principle of the Inductive Conductivity Meter

An alternating current generates a magnetic field in the primary coil (sender) which induces a current in the circumfluent medium. The current flow in the medium generates another magnetic field in the secondary coil (receiver). The strength of the induced current in the secondary coil depends on the conductivity of the medium. The conductivity of the liquid medium is temperature dependent. To compensate the temperature error, an additional sensor (Pt1000) in the sensor tip is used for monitoring the temperature of the medium. The temperature coefficient (TC-value) of the liquid can be set up in the electronics of the ILM which is used for automatic compensation of the temperature error.

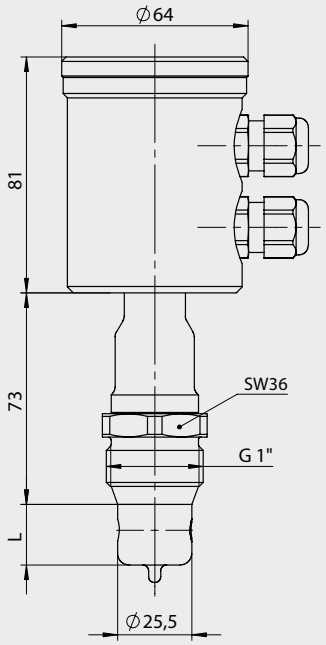
Inductive Conductivity Measurement



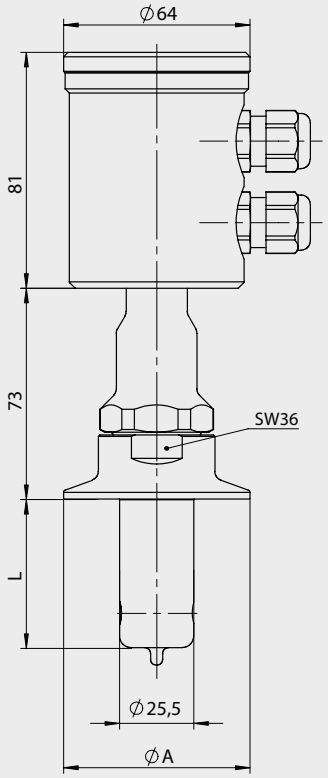
ILM-4 / G1" horizontal



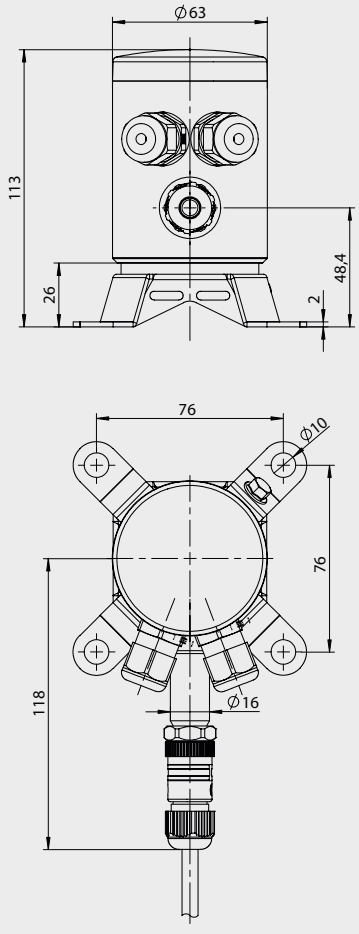
ILM-4 / G1" vertical



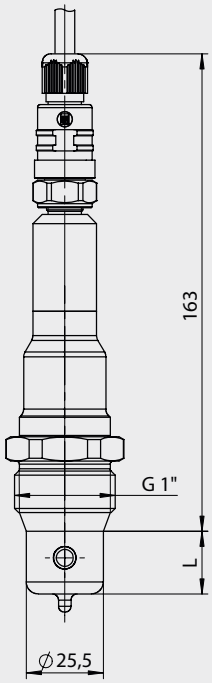
ILM-4 / Tri-Clamp vertical



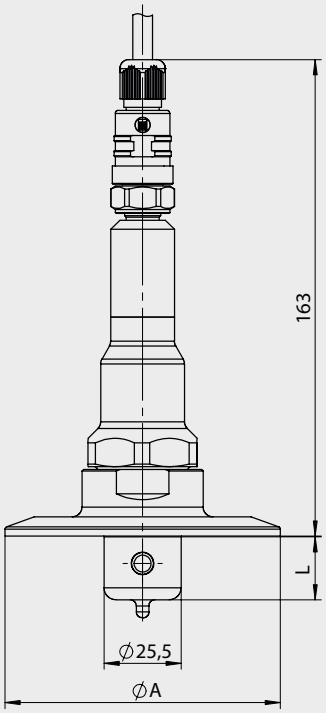
HUR / Head Unit Remote Version



ILM-4S / G1" CLEANadapt



ILM-4S / Tri-Clamp



Submersion length	
Type	**L [mm / inch]**
ILM-4 / L20	20.0 / 0.79
ILM-4 / L50	50.0 / 1.97

Tri-Clamp size	
Type	**ø A [mm / inch]**
TC1	50.5 / 1.99
TC2	64.0 / 2.52
T25	77.5 / 3.05
TC3	91.0 / 3.54

Note

This product information is not an operating manual. Please note the information on device safety, installation and operation in the product operating manual.

Mechanical Connection / Installation

- The sensor has to be installed in that way that the bobbin case is entirely washed around by media and no bubbles can occure. Installation in a rising pipe is recommended.
  Special indications for hygienic installation (3-A, EHEDG) must be observed.
- The inscription "FLOW" on the bottom side of the sensor has to show in flow direction of the medium.
- Very heavy vibrations can cause measurement errors (e. g. installation very near a pump).
- Use Negele CLEANadapt system for safe operation of measuring point!
- Attention: The maximum tightening torque for mounting is 20 Nm!
- Use a welding mandril for correct installation of CLEANadapt weld-in fittings.
  Please pay attention to the weld-in and installation details in the CLEANadapt product information.

Note on 3-A Sanitary Standard 74-

Information on installation according to 3-A standard is available on our website:
www.anderson-negele.com/3A74.pdf

Click on the PDF icon to download the document.

PDF

Click or Scan

Note on EHEDG Hygienic Standard Type EL Class I

Information on installation according to EHEDG standard and indications for CLEANadapt adapters with leackage holes is available on our website:
www.anderson-negele.com/EHEDG.pdf

Click on the PDF icon to download the document.

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Note on IO-Link

Information on parameters and events are available on our website:

www.anderson-negele.com/iodd

Click on the IO-Link icon to open the website.

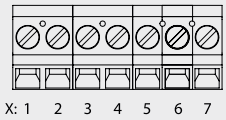
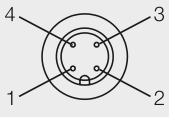
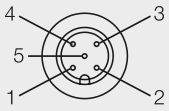
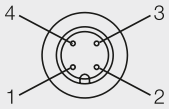
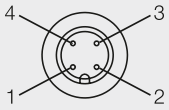
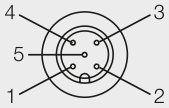
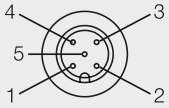
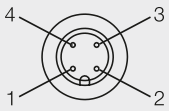
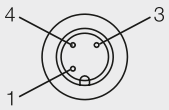
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Information

The components ILM-4S / sensor and HUR / Head Unit Remote can be purchased as spare parts separately.
The valid configuration can be seen on the product labels.

Application / Function	Signal module	I42	I62	I63
IO-Link communication X3		✓	✓	✓
2x analog output X45 and X67 for conductivity and temperature		⛔	✓	✓
1x digital input X3 for external range switching		⛔	⛔	✓

Table electrical connection

Type	Connection		Pin assignment			
P (1x PG) D (2x PG)		Clamps	1: Power supply +24 V DC 2: Power supply - 3: Digital input X3 4: Analog output X45 + 5: Analog output X45 - 6: Analog output X67 + 7: Analog output X67 -	✓	✓	✓
A (2x M12)		4 pin	1: Analog output X45 - 2: Analog output X45 + 3: Power supply +24 V DC 4: Power supply -	⛔	✓	✓
		5 pin	1: Analog output X67+ 2: Not assigned 3: Not assigned 4: Analog output X67 - 5: Digital input X3			
M (1x M12)		4 pin	1: Power supply +24 V DC 2: Analog output X45 + 3: Analog output X45 - 4: Power supply -	✓	⛔	⛔
N (2x M12)		4 pin	1: Analog output X45 + 2: Analog output X67 + 3: Analog output X67 - 4: Analog output X45 -	⛔	✓	✓
		5 pin	1: Power supply +24 V DC 2: Not assigned 3: Not assigned 4: Power supply - 5: Digital input X3			
C (1x M12) IO-Link		5 pin	1: Power supply +24 V DC 2: Analog output X45 - 3: Power supply - 4: IO-Link 5: Analog output X45 +	✓	⛔	⛔
R (2x M12) IO-Link		4 pin	1: Analog output X45 + 2: Analog output X67 + 3: Analog output X67 - 4: Analog output X45 -	⛔	✓	✓
		3 pin	1: Power supply +24 V DC 3: Power supply - 4: IO-Link / Digital input X3			

Order code

ILM-4 Inductive conductivity sensor
ILM-4R Inductive conductivity sensor - remote version

Submersion length of toroid
L20 20 mm
L50 50 mm

Process connection
(Ⓐ: 3-A conform, Ⓔ: EHEDG approval (only with CLEANadapt adapter with leakage hole))
S01 CLEANadapt G1" Ⓐ Ⓔ
V25 Varivent type F, DN 25 Ⓐ
V40 Varivent type N, DN 40/50 Ⓐ
TC1 Tri-Clamp 1½" Ⓐ
TC2 Tri-Clamp 2" Ⓐ
T25 Tri-Clamp 2½" Ⓐ
TC3 Tri-Clamp 3" Ⓐ

Head orientation (not selectable for ILM-4R)
H Horizontal head orientation
V Vertical head orientation

Signal module
I42 IO-Link and 1x 4...20 mA conductivity
I62 IO-Link and 2x 4...20 mA conductivity/temperature selectable
I63 IO-Link and 2x 4...20 mA conductivity/temperature selectable, external range switching

Electrical connection
P Cable gland M16x1.5
D 2x cable gland M16x1.5
M 1x M12 connector, 4 pin output/power supply
N 2x M12 connector, 4 pin output, 5 pin input/power supply
A 2x M12 connector, 4 pin output/power supply, 5 pin output/input
C 1x M12 connector, 5 pin analog output and IO-Link
R 2x M12 connector, 4 pin analog and switching output, 3 pin IO-Link and input

Interface/Display
X Without
S Simple User Interface with small display (not for ILM-4R)
L Large User Interface with big display

Enclosure
X Plastic cap without sight glass
P Plastic cap with sight glass
M Stainless steel cap without sight glass
W Stainless steel cap with sight glass

Configuration
X Default factory settings
S Special customer settings

Remote transmitter interconnect cable
(PVC, 8 pin, M12 plug)
05P Length 5 m, plastic coupling
10P Length 10 m, plastic coupling
20P Length 20 m, plastic coupling
XXP Special length, plastic coupling, 30 m max, steps of 1 m
05S Length 5 m, stainless steel coupling
10S Length 10 m, stainless steel coupling
20S Length 20 m, stainless steel coupling
XXS Special length, stainless steel coupling, 30 m max, steps of 1 m
000 Without remote cable

ILM-4 /	**L20 /**	**S01 /**	**V /**	**I63 /**	**D /**	**S /**	**P /**	**X**	
ILM-4R /	**L20 /**	**S01 /**		**I63 /**	**D /**	**L /**	**P /**	**X /**	**05P**

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