

Product Information L3

FOOD

Pressure, Level and Volume Sensor L3



Range of applications

- Hydrostatic level measurement in dynamic temperature environments
- Pressure measurement in pipes and vessels up to 110 °C (230 °F)
- Hydrostatic level, volume and mass measurement in inventory silo's

Application examples

- Hygienic pressure and level monitoring for brewing, dairy, and food and beverage processing

Hygienic design/Process connection

- Hygienic process connection with CLEANadapt
- Conforming to 3-A Sanitary Standard for versions with DIRECTadapt
- All wetted materials are FDA-conform
- Sensor completely made of stainless steel
- Complete overview of process connections: see order code
- By using the Negele weld-in sleeve EMZ or the build-in system EHG a flow optimized, hygienic and easy cleanable measurement point will be achieved.

Features

- CIP-/SIP-cleaning up to 135 °C (275 °F) for 60 minutes max.
- Patented dual o-ring seals provide IP69K ingress protection
- Intuitive user interface makes set-up and configuration easy
- User adjustable potential free switch
- Field repairable and reconfigurable through modular design
- State of the art temperature compensation allows temperature resistant pressure, level and volume measurement
- On board interface or HART protocol allows reconfiguration including 10:1 turndown and the units
- Optional displaying volume and mass values directly
- Predefined and customer specific tank tables as well as product informations adjustable
- Standard HART 7.0 communication and graphical LC display
- Wide range of measurement ranges

Options/Accessories

- Optional remote kit provides a separate version of the sensor and display
- Optional M12 molded cordset available

Measuring principle of the pressure sensor

This unit utilizes an internal piezoelectric transducer and an RTD temperature element to measure the pressure and temperature of the internal actuating fluid. The mV signal of the transducer and resistance of the RTD are measured and converted to a compensated pressure value by way of the signal acquisition board in the stem. This signal is digitally communicated to the head where the signal is converted to industry standard 4...20 mA and HART 7.0 signals.

For relative sensors the back of the diaphragm is vented and the output is relative to the atmospheric conditions.

Authorizations



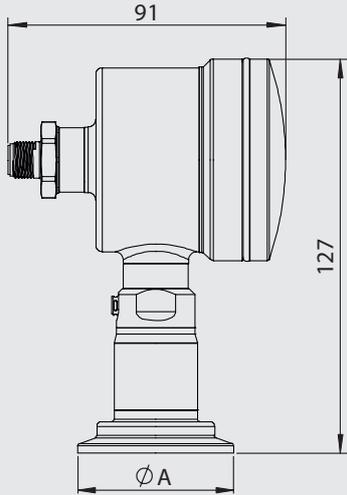
Pressure, level and volume sensor L3



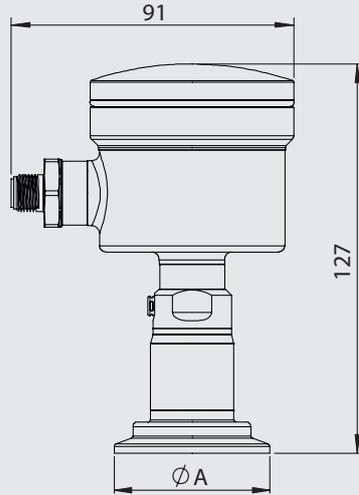
L3 Remote version



L3 / Tri-Clamp with horizontal enclosure



L3 / Tri-Clamp with vertical enclosure



Tri-Clamp size

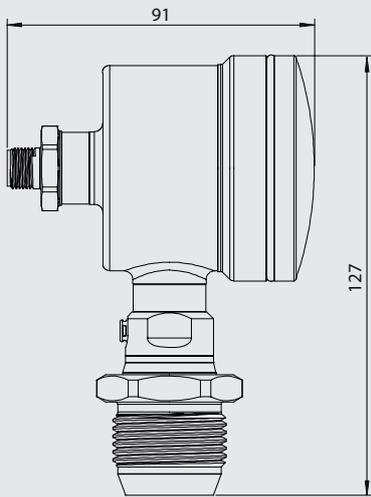
Type	Ø A
004	50,5 mm
005	64,0 mm

Information

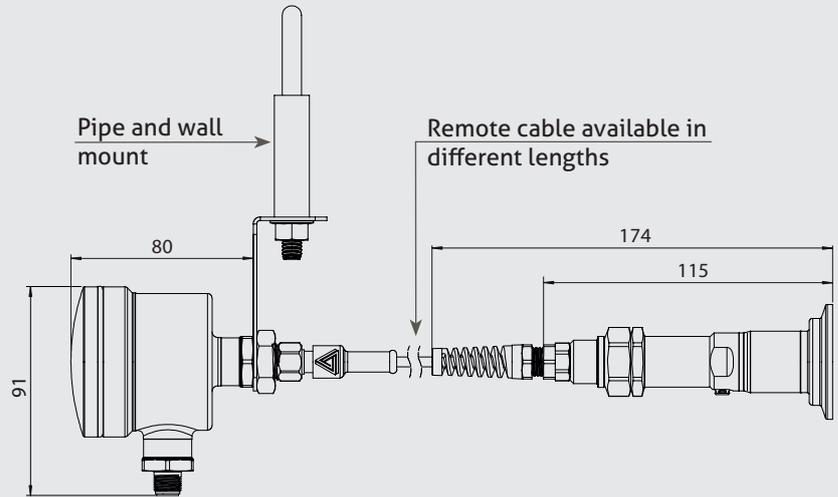


The remote kit, including all parts for separate mounting, can be ordered as accessory.

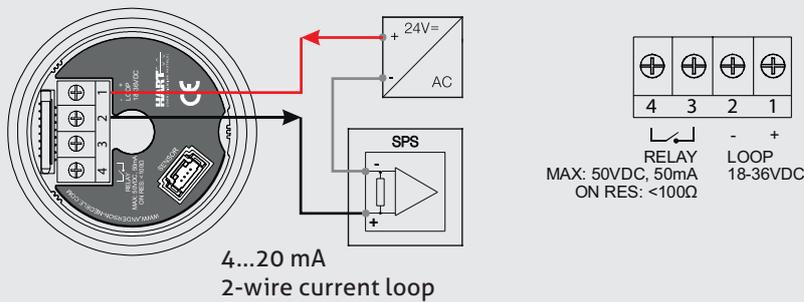
L3 / G1" Compact version



L3 Remote version

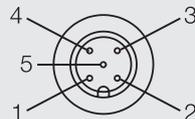


Electrical connection with cable gland

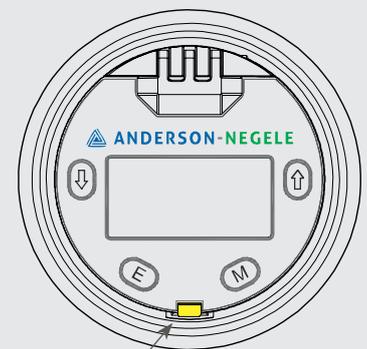


Electrical connection with M12 plug

1: red	+ supply
2: black	- supply 4...20 mA
3: green	relay normally open
4: blue	relay normally open
5:	n. c.



L3 with open cap



Pull up the clip to open the display.

Order code of fully assembled sensor

L3A (Modular pressure sensor)

S (Stem)

Measurement range

- 5 (0...6 psi; 0...0.4 bar)
- 6 (30 "Hg/0/30 psi; -1...2 bar)
- 7 (30 "Hg/0/100 psi; -1...7 bar)
- 8 (30 "Hg/0/500 psi; -1...35 bar)

Process connection/Fitting without 3-A TPV

- 160 (Flexibel thread G1", hygienic CLEANadapt)
- 182 (Fixed thread G1", hygienic CLEANadapt)
- 115 (Dairy flange DIN 11851 DN40)
- 124 (Dairy flange DIN 11851 DN50)
- 181 (DRD flange 65 mm)
- 109 (38 mm SMS Liner (female))
- 110 (51 mm SMS Liner (female))

Process connection/Fitting with 3-A TPV acc. to standard 74-06

- 004 (Tri-Clamp 1½")
- 005 (Tri-Clamp 2")
- 123 (CPM Fitting)
- 154 (Endress & Hauser Universal Adaptor - Short)
- 155 (Endress & Hauser Universal Adaptor - Long)

Capillary fill

- 1 (Mineral oil / FDA approved)
- 5 (Neobee / FDA approved)

Sensor type

- O (Compact version)
- A (Remote with 1.5 m (= 5') cable)
- B (Remote with 3.0 m (= 10') cable)
- C (Remote with 4.5 m (= 15') cable)
- D (Remote with 6.0 m (= 20') cable)
- E (Remote with 7.5 m (= 25') cable)
- F (Remote with 15 m (= 50') cable)

E (Enclosure)

Cap

- 2 (Clear plastic)
- 3 (Stainless steel without control window)

Enclosure orientation

- 1 (Vertical)
- 2 (Horizontal)

Electrical connection

- A (M12 plug)
- C (Cable gland M16x1.5)
- N (1/2" NPTF adapter)

Engineering units

- B (bar)
- L (mbar)
- P (psi)

Calibration range

- XXX (Preset acc. to table on next page)
- 999 (Factory setting acc. to custom calibration)
- 000 (Full measurement range)

Certificate

- X (No certificate)
- Z (3.1 inspection certificate and calibration certificate of the stem)

L3A S 5 004 1 0 E 2 1 A P 025 X

Calibration range Bar		
Code	Range	Span range of stem
251	(-1...1)	6, 7
286	(-1...2,5)	7
217	(-1...3)	7
056	(-1...4)	7, 8
304	(-1...7)	7, 8
028	(-1...15)	8
029	(-1...30)	8
501	(0...1,2)	6, 7
428	(0...1,5)	6, 7
057	(0...2)	6, 7
235	(0...3)	7
192	(0...4)	7, 8
060	(0...6)	7, 8
309	(0...7)	7, 8
061	(0...10)	8
502	(0...18)	8
065	(0...20)	8
066	(0...30)	8
224	(0...35)	8

Calibration range mBar		
Code	Range	Span range of stem
224	(0...35)	5
067	(0...40)	5
068	(0...50)	5
069	(0...60)	5
206	(0...70)	5
071	(0...100)	5
294	(0...140)	5
073	(0...150)	5
074	(0...160)	5
075	(0...200)	5, 6
077	(0...300)	5, 6
078	(0...350)	5
079	(0...400)	5, 6
503	(0...415)	5, 6
504	(0...480)	6
081	(0...500)	6
505	(0...830)	6, 7
084	(0...1000)	6, 7
499	(0...1200)	6, 7
506	(0...1385)	6, 7
507	(0...1600)	6, 7
086	(0...2000)	6, 7
508	(0...3300)	7
089	(0...4000)	7, 8

Calibration range PSI		
Code	Range	Span range of stem
025	(30 "Hg/0)	6
217	(30 "Hg/0/3)	6
056	(30 "Hg/0/4)	6
304	(30 "Hg/0/7)	6
028	(30 "Hg/0/15)	6, 7
029	(30 "Hg/0/30)	6, 7
031	(30 "Hg/0/60)	7, 8
032	(30 "Hg/0/100)	7, 8
314	(30 "Hg/0/200)	8
501	(0...1,2)	5
428	(0...1,5)	5
057	(0...2)	5
235	(0...3)	5
192	(0...4)	5
060	(0...6)	5, 6
309	(0...7)	6
061	(0...10)	6, 7
502	(0...18)	6, 7
065	(0...20)	6, 7
066	(0...30)	6, 7
224	(0...35)	7
067	(0...40)	7
068	(0...50)	7, 8
069	(0...60)	7, 8
206	(0...70)	7, 8
071	(0...100)	7, 8
294	(0...140)	8
073	(0...150)	8
074	(0...160)	8
075	(0...200)	8
077	(0...300)	8
078	(0...350)	8
079	(0...400)	8
503	(0...415)	8
504	(0...480)	8
081	(0...500)	8

Order code of sensor head

L3E (Sensor head)

Cap

- 2 (Clear plastic)
- 3 (Stainless steel without control window)

Enclosure orientation

- 1 (Vertical)
- 2 (Horizontal)

Electrical connection

- A (M12 plug)
- C (Cable gland M16x1.5)
- N (1/2" NPTF adapter)

Engineering units

- B (bar)
- L (mbar)
- P (psi)

Calibration range

- 999 (Factory setting acc. to custom calibration)
- 000 (Full measurement range)

L3E 2 1 A P 025

Order code of sensor stem

L3S (Sensor stem)

Measurement range

- 5 (0...6 psi; 0...0.4 bar)
- 6 (30 "Hg/0/30 psi; -1...2 bar)
- 7 (30 "Hg/0/100 psi; -1...7 bar)
- 8 (30 "Hg/0/500 psi; -1...35 bar)

Process Connection/Fitting without 3-A TPV

- 160 (Flexibel thread G1", hygienic CLEANadapt)
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Process Connection/Fitting with 3-A TPV acc. to standard 74-06

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- 154 (Endress & Hauser Universal Adaptor - Short)
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Capillary fill

- 1 (Mineral oil / FDA approved)
- 5 (Neobee / FDA approved)

Sensor type

- 0 (Compact version)

Certificate

- X (No certificate)
- Z (3.1 inspection certificate and calibration certificate of the stem)

L3S 5 004 1 0 X

Transport/Storage

- No outdoor storage
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration
- Storage temperature -55...+90 °C
- Relative humidity max. 95 %

Cleaning/Maintenance

- In case of using pressure washers, don't point nozzle directly to electrical connections and gaskets!

Note on CE

- Applicable directives:
Electromagnetic Compatibility Directive 2014/30/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.

Reshipment

- Sensors shall be clean and must not be contaminated with dangerous media! Note the advice for cleaning!
- Use suitable transport packaging only to avoid damage of the equipment!

Standards and guidelines

- You have to comply with applicable regulations and directives.

Disposal

- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

L3 Remote kit

Complete accessories to convert compact version into remote version, including:

- M12 remote adaptor with nut
- Stem adaptor
- Wall mount
- Pipe mount

**Note:**

The remote cable is not part of the remote kit and must be ordered separately.

Remote cable for L3**Pre-assembled remote cable for L3**

L3 R-CABLE / 4-15	PVC cable, 4-pin, length 1.5 m
L3 R-CABLE / 4-30	PVC cable, 4-pin, length 3.0 m
L3 R-CABLE / 4-45	PVC cable, 4-pin, length 4.5 m
L3 R-CABLE / 4-60	PVC cable, 4-pin, length 6.0 m
L3 R-CABLE / 4-75	PVC cable, 4-pin, length 7.5 m
L3 R-CABLE / 4-150	PVC cable, 4-pin, length 15 m

Remote cable for L3**Accessories****PVC cable with M12 connection made of 1.4305, IP 69 K, unshielded**

M12-PVC / 4-5 m	PVC cable, 4-pin, length 5 m
M12-PVC / 4-10 m	PVC cable, 4-pin, length 10 m
M12-PVC / 4-25 m	PVC cable, 4-pin, length 25 m

PVC cable with M12 connection, nickel-plated brass, IP 67, shielded

M12-PVC / 4G-5 m	PVC cable, 4-pin, length 5 m
M12-PVC / 4G-10 m	PVC cable, 4-pin, length 10 m
M12-PVC / 4G-25 m	PVC cable, 4-pin, length 25 m

Remote kit

L3 REMOTE-KIT Complete accessories incl. wall mount

Cap / Gaskets

L3 C-GASKET	Replacement silicone gaskets for cap (6 pieces)
L3 C-CLEAR	Clear plastic cap (incl. gasket)
L3 C-STEEL	Stainless steel cap without control window (incl. gasket)

PVC cable with M12 connection**Options**

CERT / 2.2 / L3	Factory certificate 2.2 acc. to EN 10204 (only product contacting surface)
CAL / L3	Factory calibration certificate with 3 calibration points (0 %, 50 %, 100 %)
CAL / L3 / MP	Factory calibration certificate with 5 calibration points (0 %, 25 %, 50 %, 75 %, 100 %)