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Technical Information
Unifit CPA842

Hygienic process assembly for safe installation of 12 mm sensors (Pg 13.5) in the food, beverage and life sciences industries

Simple - Safe - Hygienic - Reliable

Application

- Permanently installed assembly for 12 mm sensors such as pH glass electrodes, conductivity, pH-ISFET and oxygen sensors, etc.
- Food and beverage industry
- Life sciences
- Chemical industry

Your benefits

- Robust assembly
- Meets the criteria of 3-A standard 74-05, the European Hygienic Engineering and Design Group (EHEDG) and ASME BPE
- Suitable for in-place cleanability and in-line steam sterilizability
- Flush-mounted, gap-free electrode seal (sealing ring)
- Electropolished surface Ra = 0.38 µm or 0.76 µm (stainless steel 1.4435 (AISI 316 L))
- Hygienic process connections
- A range of process connection versions for easy adaptation to existing processes

Endress+Hauser
People for Process Automation

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Function and system design

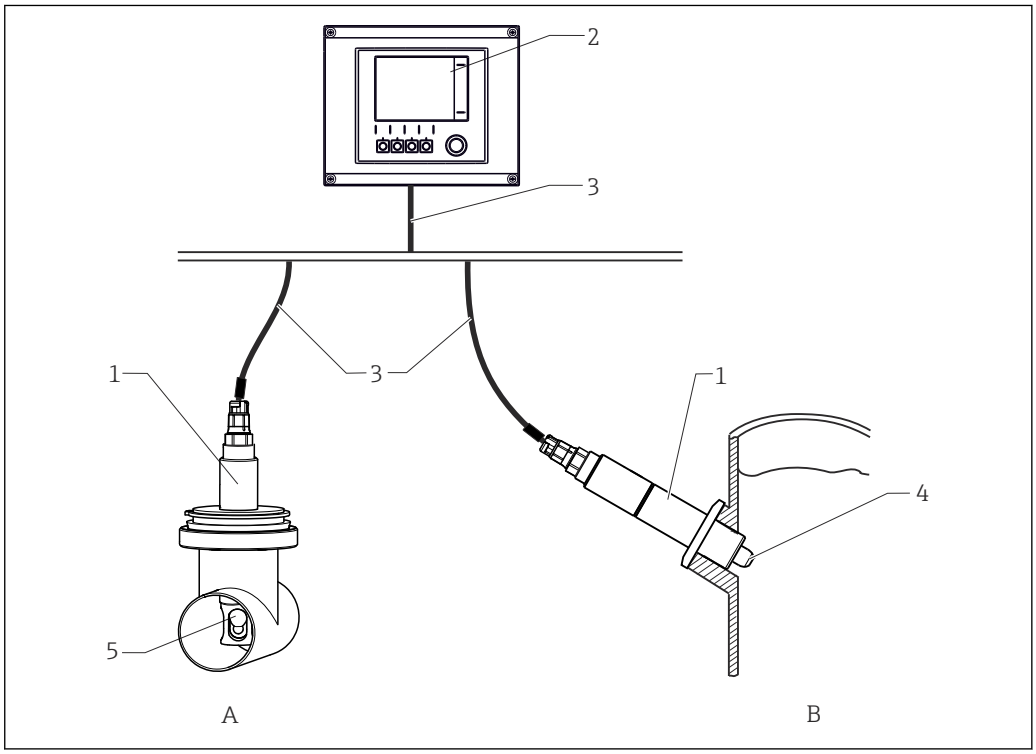
Operating principle

The assembly is used as a stationary holder for installing 12mm sensors. It can be installed either vertically or at an angle in pipes or reactors. The assembly protects the sensor and seals it off from the process. It is suitable for:
- CIP (cleaning in place)
- SIP (sterilization in place)

The versions in stainless steel 1.4435 (AISI 316 L) and Alloy C22 are autoclavable.

Measuring system

A complete measuring system comprises:
- Unifit CPA842 assembly
- 12 mm sensor (with shaft length 120 mm), e.g. pH Memosens CPS61E, conductivity Memosens CLS82E or oxygen COS81E
- Transmitter, e.g. Liquiline CM44x
- Measuring cable, e.g. CYK10



1 Measuring system (example)

1 Unifit CPA842 assembly
2 Liquiline CM44x transmitter
3 Measuring cable CYK10
4 Sensor COS81E
5 Sensor CPS61E
A Installation in pipe
B Installation in tank

Dependability

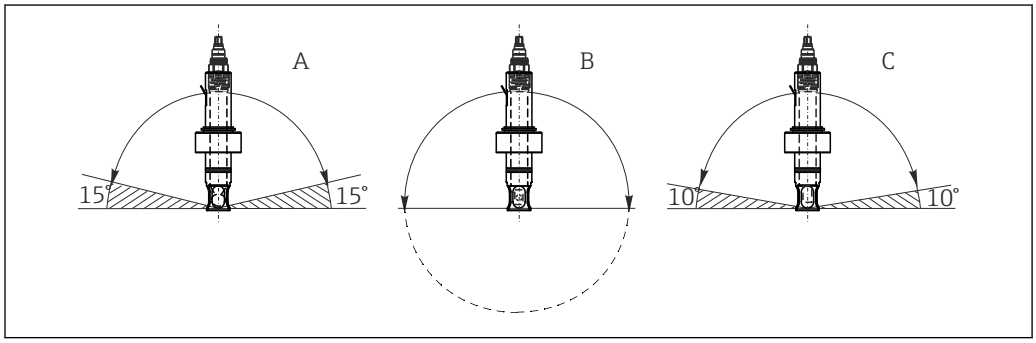
- The assemblies are manufactured in accordance with Endress+Hauser's certified quality criteria.
- The fixed assembly is manufactured from high-grade materials:
  - Stainless steel 1.4435 as per BN2 (AISI 316 L)
  - Only these materials and the relevant seal are in contact with the process medium.
- The assembly can be cleaned and sterilized inline in accordance with EHEDG criteria.
- Certified versions and certificates are available, depending on the version.

Installation

- The assembly is designed for installation on vessels and pipes. Suitable process connections must be available at the customer site for this purpose.
- The mounting seal, which seals the adapter from the process nozzle, must be provided by the customer (except in the versions DN25 standard and DN25 B. Braun port).
- Install the assembly only if the vessel is empty and the process is unpressurized.

The assembly can be mounted at any angle from 0° to 360°. The installation conditions of the sensor used must be complied with.

Example:



2 Permitted angle of installation depending on sensor

A	Glass pH sensor:	Installation angle at least 15° from the horizontal
B	ISFET pH sensor, conductivity sensor, oxygen sensor (optical):	No restrictions, recommended 0 to 180°, where buildup can occur.
C	Oxygen sensor (amperometric):	Installation angle at least 10° from the horizontal

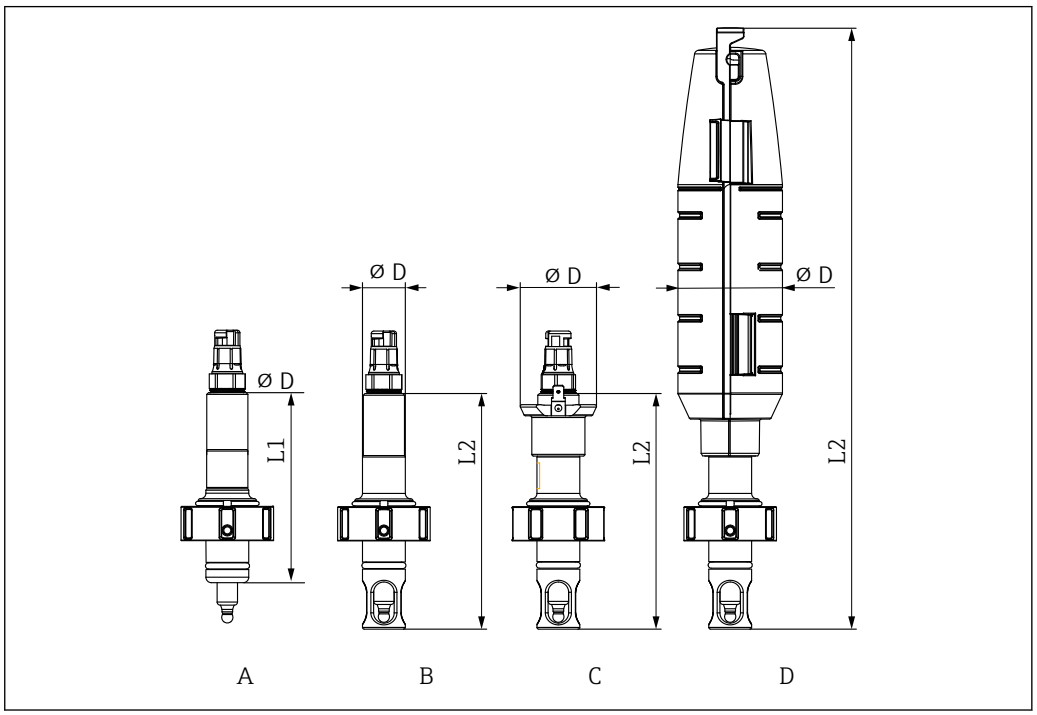
Only operate the CLS82E conductivity sensor with an assembly without sensor protection, to avoid influencing the measuring signal.

COS81E-*****U*** oxygen sensor (u-shaped spot cap)

Installation angle is limited to 0° to 180°

Mechanical construction

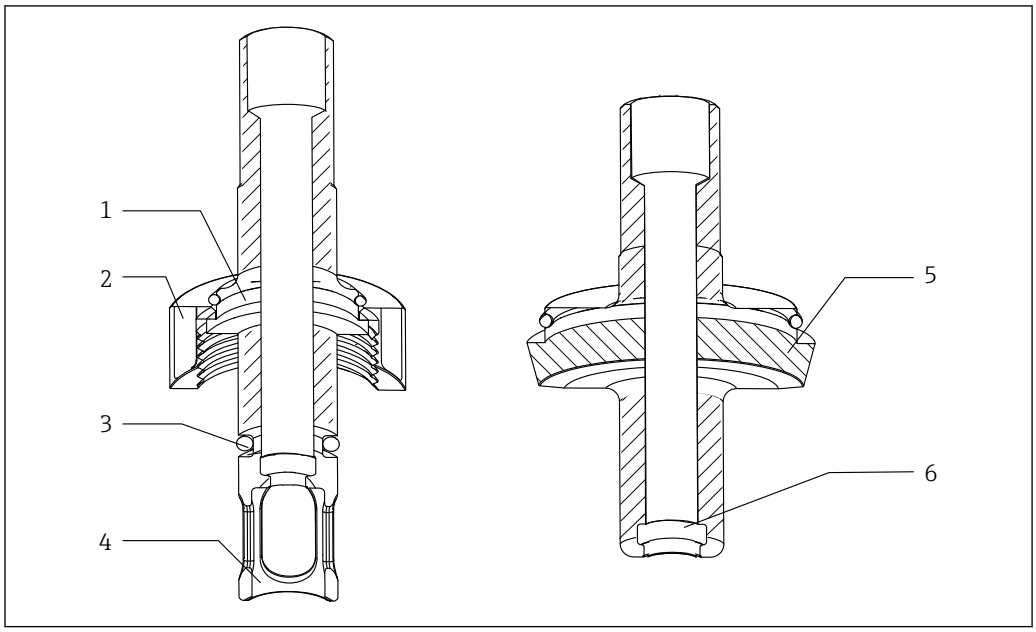
Dimensions



3 Dimensions in mm (in)

	A	B	C	D
	Standard	Sensor protection	Sensor protection with PAL	Sensor protection with protection cover
	CPA842-XXXXXX1	CPA842-XXXXXX1+NB	CPA842-XXXXXX1+NANB	CPA842-XXXXXX1+NBNC
no sensor protection L1	110 (4.33)	-	-	-
with sensor protection L2	-	137.5 (5.41)	137.5 (5.41)	351 (13.81)
Diameter D	25 (1)	25 (1)	44.5 (1.75)	61 (2.40)

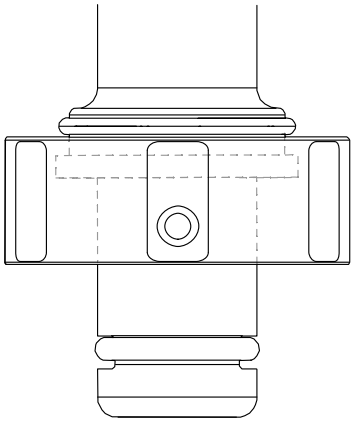
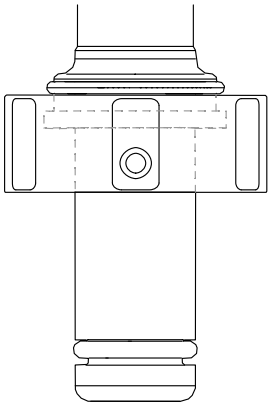
Design

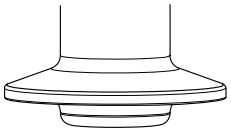
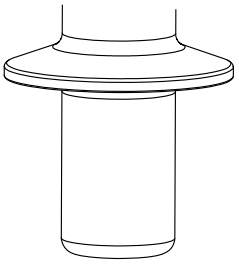
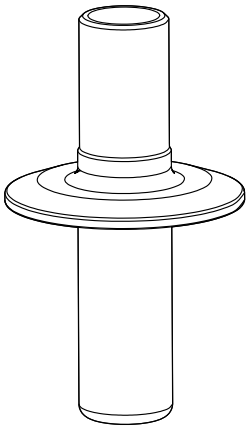
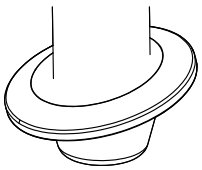
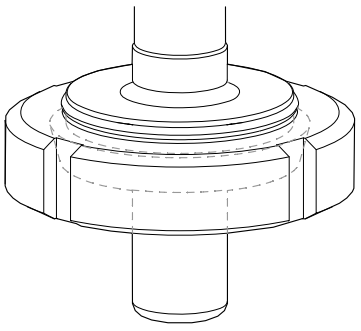


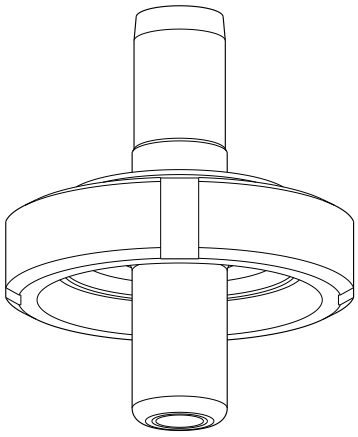
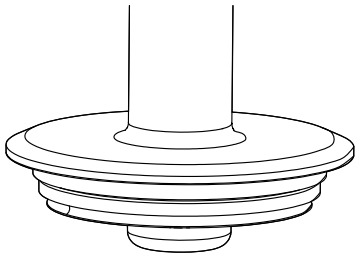
4 *Design*

1 Process connection
2 Coupling nut
3 O-ring
4 Sensor protection
5 Process connection
6 Molded seal

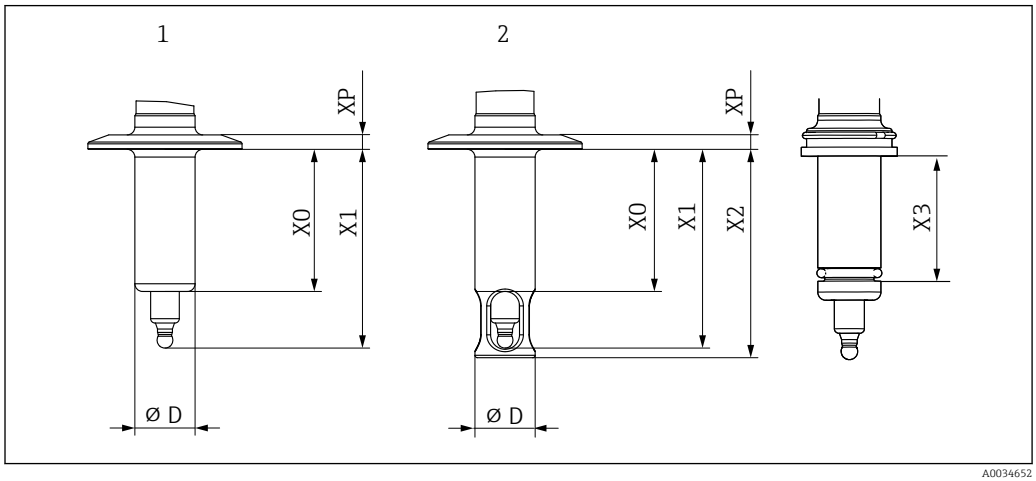
Process connections

Process connection	
DN25 standard	
DN25 B.Braun port	 A0043028

Process connection	
Clamp 1.5" short with OD of 50.5 mm (1.99 in) ▪ Corresponds to NW 38 DIN 32676/ISO 2852 ▪ Compatible with NovAseptic process connections, pay attention to immersion depths ▪ The (pipe) internal diameter of the counterpiece must be greater than 28 mm (1.10 in).	
Clamp 1.5" long with OD of 50.5 mm (1.99 in) ▪ Complies with ASME-BPE 2009 ▪ Complies with DN40 DIN 32676 2001 ▪ Corresponds to NW 38 DIN 32676/ISO 2852 ▪ Compatible with NovAseptic process connections, pay attention to immersion depths ▪ The (pipe) internal diameter of the counterpiece must ge greater than 28 mm (1.10 in).	
Clamp 2" with OD of 64 mm (2.52 in) ▪ Complies with ASME-BPE 2009 ▪ Complies with DN50 DIN 32676 2001 ▪ Corresponds to NW 51-40 DIN 32676/ISO 2852 ▪ Compatible with NovAseptic process connections, pay attention to immersion depths	
Clamp 1.5" angled at 15° with OD of 50.5 mm (1.99 in)	
Dairy fitting DN50 DIN 11851 (EHEDG approval only with seal from Siersema)	 A0043050

Process connection	
Aseptic DN50 threaded DIN11864-1A (suitable for DIN 11866 Series A pipes)	 A0046280
Varivent flange N (DN40 to 125)	 A0034979

Immersion depth

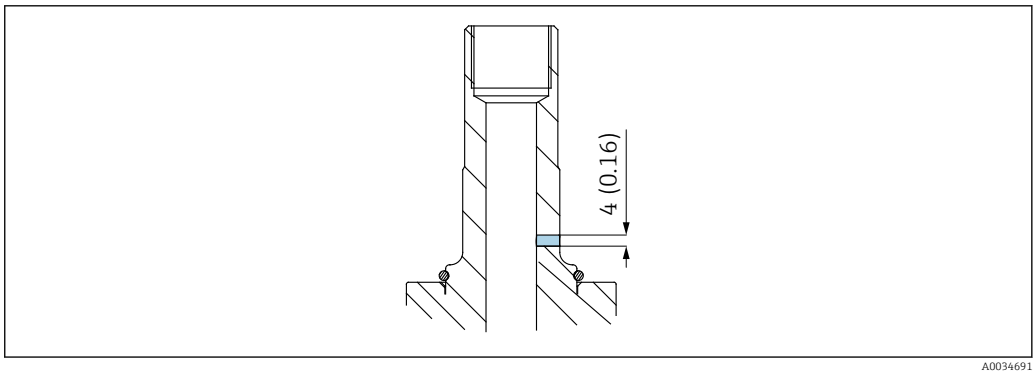


5 Immersion depth in mm (in)

Process connection	Feature 40	X0	X1	X2	D	XP	X3
DN25 standard	AA	37.5 (1.46)	61 (2.4)	65 (2.6)	25 (1)	11 (0.43)	29 (0.1)
DN25 B.Braun port	AB	57 (2.24)	80.5 (3.17)	84.5 (3.33)	25 (1)	11 (0.43)	49 (0.16)
Clamp 1.5" short	AC	6 (0.24)	29.5 (1.16)	33.5 (1.32)	25 (1)	7 (0.27)	
Clamp 1.5" long	OD	39 (1.53)	62.5 (2.46)	66.5 (2.61)	25 (1)	7 (0.27)	
Clamp 2"	AE	59 (2.23)	82.5 (3.25)	86.5 (3.4)	25 (1)	6 (0.24)	

Process connection	Feature 40	X0	X1	X2	D	XP	X3
Clamp 1.5" - angled at 15°	AF	17.8 (0.7)	41.3 (1.63)	--	25 (1)	6 (0.24)	
Dairy fitting DN50	AG	41 (1.61)	64.5 (2.53)	68.5 (2.7)	25 (1)	19.5 (0.77)	
Aseptic DN50 threaded DIN11864-1A	AK	41 (1.61)	64.5 (2.53)	68.5 (2.7)	25 (1)	19.5 (0.77)	
Varivent N 68mm DN40-125	AH	6 (0.24)	29.5 (1.16)	33.5 (1.32)	25 (1)	16.5 (0.65)	

Leakage monitoring



6 *Leakage monitoring*

Leakage monitoring (a hole above the process connection) indicates a possible defect in the molded seal. that causes medium to escape in small quantities from the opening used for monitoring. The molded seal must then be replaced.

Leakage monitoring is included in option 3-A.

Weight

Assembly with process connection AA ... AK: 0.3 to 1.4 kg (0.7 to 3.1 lbs) depending on version

Protection cover: approx. 0.2 kg (0.4 lbs)

Materials

In contact with medium

Seals: Molded seal made of EPDM, FDA-compliant as per 21CFR 177.2600, USP Class VI
Molded seal made of FKM, FDA-compliant as per 21CFR 177.2600, USP Class VI
O-ring made of silicone, FDA-compliant as per 21CFR 177.2600, USP Class VI
Molded seal FFKM, FDA-compliant as per 21CFR 177.2600, USP Class V

Assembly: Stainless steel 1.4435 (AISI 316 L) (versions available with surface roughness Ra ≤ 0.76 µm or Ra ≤ 0.38 µm)

Lubricant for seals: Klüber Paraliq GTE703 USP87 Class VI, FDA 21CFR 178.3570, USDA-H1, NSF51, NSF61

Versions with silicone seals are not greased

Not in contact with medium

Mounted parts:	Stainless steel Stahl 1.4308 as per BN2 (AISI 316L) oder 1.4404 (AISI 316L)
Pal connection:	1.4301
Protection cover:	PP137 conductive

Environment

Atmospheric temperature

−15 to 70 °C (5 to 158 °F)

Storage temperature

−15 to 70 °C (5 to 158 °F)

Process

Process temperature

Pay attention to electrode specification.

−15 to 140 °C (+5 to 280 °F)

Process pressure

Pay attention to electrode specification.

16 bar (232 psi) up to 140 °C (284 °F)

Flow velocity

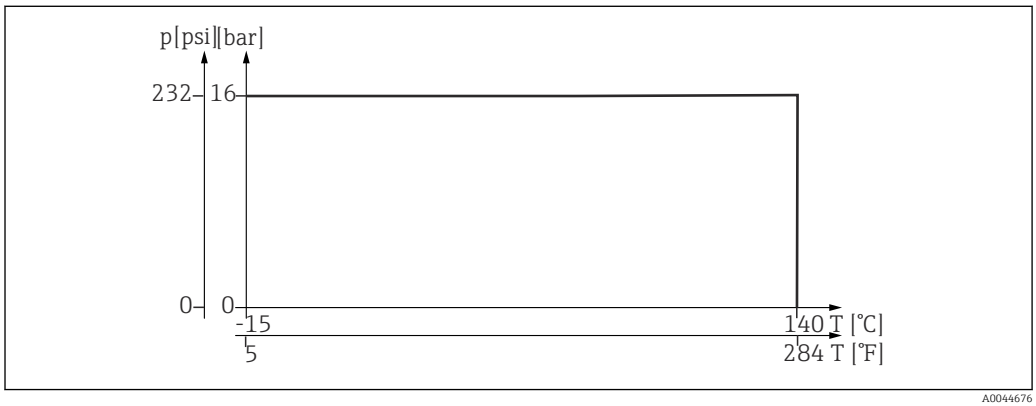
NOTICE

Excessively high flow velocities may damage or destroy the sensors.

► Pay attention to the specification of the installed sensor.

To avoid cavitation, flow velocities in the process should be < 7.5 m/s (24.6 ft/s) at 1 bar and 20°C (68°F).

Pressure/temperature ratings



7 *Temperature values for stainless steel 1.4435 (AISI 316 L)*

Certificates and approvals

Current certificates and approvals for the product are available via the Product Configurator at www.endress.com.

1. Select the product using the filters and search field.
2. Open the product page.

The **Configuration** button opens the Product Configurator.

Ordering information

Product page

www.endress.com/cpa842

Product Configurator

On the product page there is a **Configure** button to the right of the product image.

1. Click this button.
   ↳ The Configurator opens in a separate window.
2. Select all the options to configure the device in line with your requirements.
   ↳ In this way, you receive a valid and complete order code for the device.
3. Export the order code as a PDF or Excel file. To do so, click the appropriate button on the right above the selection window.

For many products you also have the option of downloading CAD or 2D drawings of the selected product version. Click the **CAD** tab for this and select the desired file type using picklists.

Scope of delivery

The scope of delivery comprises:
- Assembly in the version ordered
- Sensor seal (mounted)
- Process seal (mounted) for process connections: DN25 standard, DN25 B. and Braun port
- Dust caps to protect the Pg 13.5 thread
- Operating Instructions

Accessories

The following are the most important accessories available at the time this documentation was issued.

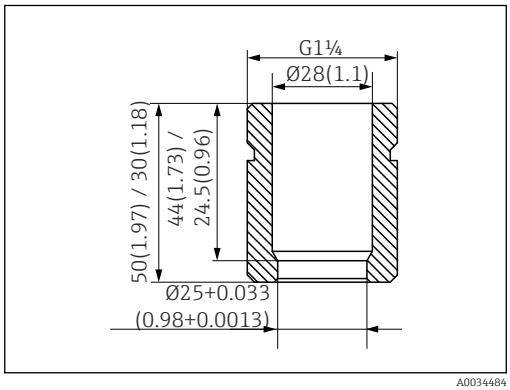
► For accessories not listed here, please contact your Service or Sales Center.

For more detailed information on the accessories, please refer to the "Spare Part Finding Tool" on the Internet:

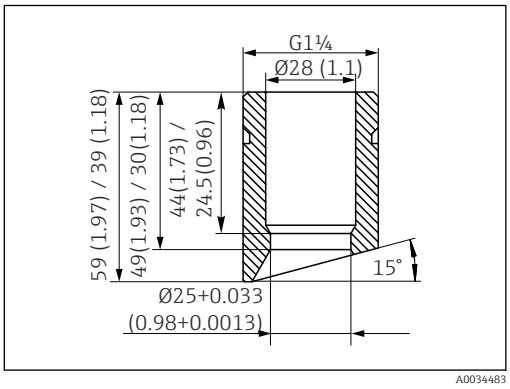
www.endress.com/spareparts_consumables

The product-specific accessories can be ordered via the order structure for CPA842 and the spare parts order structure "XPC0017".

Installation accessories



8 *Welding socket, straight, in mm (in)*



9 *Welding socket, angled, in mm (in)*

Safety welding socket DN25 (B. Braun)
- Straight, stainless steel 1.4435, L=50
- CPA842-*****AB+PL

Safety welding socket DN25 (B. Braun)
- Angled, stainless steel 1.4435, L=50/60
- CPA842-*****AB+PM

Safety welding socket DN25 (standard)
- Straight, stainless steel 1.4435, L=30
- CPA842-*****AA+PI

Safety welding socket DN25 (standard)
- Angled, stainless steel 1.4435, L=30/40
- CPA842-*****AA+PK

Dummy plug
- Dummy plug G1 1/4 DN25 (standard), 316L, FKM-FDA
  CPA842-*****AA+PN
- Dummy plug G1 1/4 DN25 (B. Braun), 316L, FKM-FDA
  CPA842-*****AB+PO

Protection cover
Bend guard for sensor cable, PP conductive

Sensor
- Sensor dummy 120mm, 316L, Ra=0.38
- CPA842-*******+PQ

Grease
- Klüber Paraliq GTE 703 grease (60g)
- CPA842-*******+R8

Seals
- Kit, seal, wetted, EPDM
- Kit, seal, wetted, FKM
- Kit, FKM seals, DN25 G1 1/4, wetted parts
- Kit, FFKM seals, excl. G1 1/4, wetted parts
- Kit, silicone seals (O-ring)

Sensors (selection)

Memosens CPS61E
- pH sensor for bioreactors in life sciences and for the food industry
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps61e

Technical Information TI01566C

Memosens CPS11E
- pH sensor for standard applications in process and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps11e

Technical Information TI01493C

Memosens CPS12E
- ORP sensor for standard applications in process and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps12e

Technical Information TI01494C

Memosens CPS41E
- pH sensor for process technology
- With ceramic junction and KCl liquid electrolyte
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps41e

Technical Information TI01495C

Memosens CPS76E
- pH/ORP sensor for process technology
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps76e

Technical Information TI01601C

Memosens CPS16E
- pH/ORP sensor for standard applications in process technology and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps16e

Technical Information TI01600C

Memosens CPS96E
- pH/ORP sensor for heavily polluted media and suspended solids
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps96e

Technical Information TI01602C

Memosens CPS77D
- Sterilizable and autoclavable ISFET sensor for pH measurement
- Product Configurator on the product page: www.endress.com/cps77d

Technical Information TI01396

Memosens COS81E
- Hygienic optical oxygen sensor with maximum measurement stability over multiple sterilization cycles
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cos81e

Technical Information TI01558C

Memosens COS22E
- Hygienic amperometric oxygen sensor with maximum measurement stability over multiple sterilization cycles
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cos22e

Technical Information

Memosens CLS82E
- Hygienic conductivity sensor
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cls82e

Technical Information TI01529C

OUSBT66
- NIR absorption sensor for the measurement of cell growth and biomass
- Sensor version suitable for pharmaceutical industry
- Product Configurator on the product page: www.endress.com/ousbt66

Compatible with versions with OPL 5 and 10 mm

Technical Information TI00469C

www.addresses.endress.com

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