

# Safety Instructions

## Ceramax CPS341D

pH sensor for use in the pharmaceutical industry and food production

ATEX: II 1G Ex ia IIC T3/T4/T6 Ga

IECEX: Ex ia IIC T3/T4/T6 Ga



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pH sensor for use in the pharmaceutical industry and food production

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**Associated documentation** This document is an integral part of Operating Instructions BA00468C.

**Supplementary documentation**



Competence Brochure CP00021Z  
 ■ Explosion Protection: Guidelines and General Principles  
 ■ [www.endress.com](http://www.endress.com)

**Certificates and declarations** **EU Declaration of Conformity**

EC\_00356

**Ex certification**

*ATEX*

**CPS341D:**

EU type-examination certificate BVS 04 ATEX E 121 X

 II 1G Ex ia IIC T3/T4/T6 Ga

*IECEX*

**CPS341D:**

IECEX certificate IECEX BVS 11.0052X

Ex ia IIC T3/T4/T6 Ga

*Notified body*

**DEKRA Testing and Certification GmbH**  
 Bochum

**Extended order code**

| Type    | Version     |                 |    |   |                                                                  |
|---------|-------------|-----------------|----|---|------------------------------------------------------------------|
| CPS341D | 7           | *               | ** | * | G                                                                |
|         | Ex-relevant | No Ex relevance |    |   | ATEX II 1G Ex ia IIC T3/T4/T6 Ga/<br>IECEX Ex ia IIC T3/T4/T6 Ga |

**General safety instructions**

The Memosens inductive sensor-cable connector system, which consists of certified pH sensors CPS341D-7\*\*\*G+\* and measuring cable CYK10-E/G/I\*\*\*+\* or CYK20-BA/IA\*\*\*\* is suitable for use in hazardous areas.

**IECEX**

- The specified sensors, in conjunction with a CYK10-G/I\*\*\*+\* or CYK20-BA/IA\*\*\*\* measuring cable or a Memosens measuring cable, which is structurally identical or equivalent in terms of hardware and function, may be connected to the IECEX-certified, intrinsically safe sensor inputs of the Liquiline M CM42-MI\*\*\*\*\*+\* and Liquiline M CM42-NI\*\*\*\*\*+\* measuring instruments, or the CM42B or CM44x with intrinsically safe current output.
- Alternatively all of the listed sensors can be connected with a measuring cable to an IECEX-certified, intrinsically safe output circuit with the maximum values specified below. In particular, the maximum inner inductance and the capacitance of the intrinsically safe output circuit may not exceed the maximum values indicated, see the "Connection values" table .

**ATEX**

- The specified sensors, in conjunction with a CYK10-E/G/I\*\*1/2+\* or CYK20-BA/IA\*\*C1/C2+\* measuring cable or a Memosens measuring cable, which is structurally identical and equivalent in terms of hardware and function, may be connected to the certified intrinsically safe sensor inputs of the Liquiline M CM42-M/NK\*\*\*\*\*+\* CM42B CM44x measuring instrument, or the CM42B or CM44x with intrinsically safe current output.
- Alternatively all of the listed sensors can be connected with a measuring cable to a certified, intrinsically safe output circuit with the maximum values specified below. In particular, the maximum inner inductance and the capacitance of the intrinsically safe output circuit may not exceed the maximum values indicated, see the "Connection values" table .

**IECEx and ATEX**

- The electrical connection must be carried out according to the wiring diagram of the transmitter used.
- The pH sensors CPS341D-7\*\*\*G+\* must not be operated under electrostatically critical process conditions. Avoid strong steam or dust currents that act directly on the connection system.
- The Memosens measuring cables CYK10-E/G/I\*\*\*+\* or CYK20-BA/IA\*\*\*\* and their plugs must be protected against electrostatic charge when installing in Zone 0.
- Hazardous area versions of digital Memosens sensors have an orange/red ring.
- The maximum permitted cable length is 100 m.
- The stipulations for electrical connections in explosive atmospheres (e.g. EN/IEC 60079-14) for the use of sensors and measuring instruments must be observed.
- No changes may be made to the device, except for those permitted in the Operating Instructions.
- The electrical connection information provided in the Operating Instructions must be followed.
- The applicable standards can be found on the EU type-examination certificate and the IECEx certificate.

**Temperature tables**

| Sensor          | Process temperature $T_a$ for temperature class             |                                                             |                                                            |
|-----------------|-------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|
|                 | T3                                                          | T4                                                          | T6                                                         |
| CPS341D-7***G+* | $-15\text{ °C (5 °F)} \leq T_a \leq 135\text{ °C (275 °F)}$ | $-15\text{ °C (5 °F)} \leq T_a \leq 120\text{ °C (248 °F)}$ | $-15\text{ °C (5 °F)} \leq T_a \leq 70\text{ °C (158 °F)}$ |

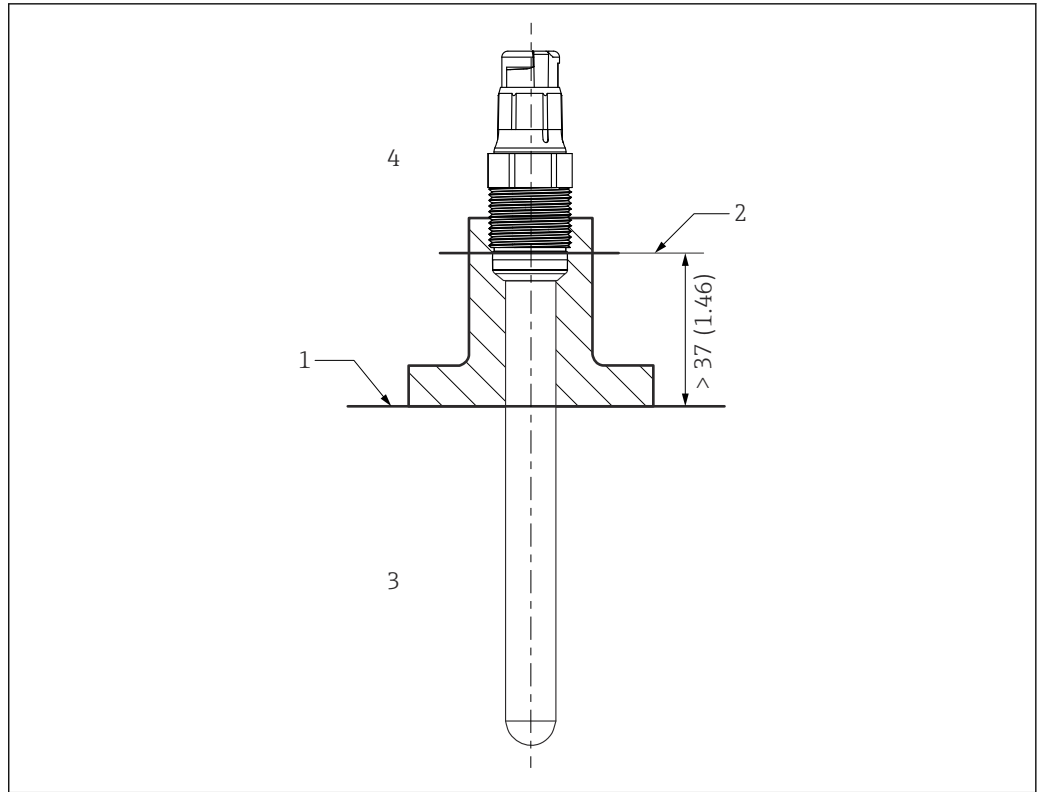
If the specified process temperatures are complied with, temperatures that are not permitted for the respective temperature class will not occur on the equipment.

**Connection***IECEx- and ATEX-certified, intrinsically safe output circuits*

|                                     | Parameter set 1                | Parameter set 2                     |
|-------------------------------------|--------------------------------|-------------------------------------|
| Maximum output voltage $U_o$        | 5.1 V                          | 5.04 V                              |
| Maximum output current $I_o$        | 130 mA                         | 80 mA                               |
| Maximum output power $P_o$          | 166 mW (linear characteristic) | 112 mW (trapezoidal characteristic) |
| Maximum internal conductivity $C_i$ | 15 $\mu\text{F}$               | 14.1 $\mu\text{F}$                  |
| Maximum internal inductance $L_i$   | 95 $\mu\text{H}$               | 237.2 $\mu\text{H}$                 |

In particular, the certified intrinsically safe sensor output may not exceed the effective inner inductance and capacitance of the values indicated below:

| Parameter | Value          |
|-----------|----------------|
| $P_i$     | 180 mW         |
| $P_o$     | Maximum 180 mW |

**Installation conditions**

A0041281

**1 Installation conditions**

- 1 Limit
- 2 Distance between plug-in head (lower edge) and process medium, without ring and thrust collar
- 3 Process temperature  $T_p$
- 4 Ambient temperature  $T_a$

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