Technical Information

Flowfit CPA250
Flow assembly for pH and ORP sensors

Application
The CPA250 assembly is totally made of corrosion resistant plastic. It is designed for pipeline installation of Pg 13.5 pH or ORP sensors with installation length 120 mm (4.72 inch). Inlet and outlet of the fluid lie on one axis. Due to especially designed internal fluid deviation and siphon, the sensors are kept wet even when the flow is interrupted.

Main areas of application are:
- Water treatment
- Drinking water
- Process applications
- Cooling water cycle

Your benefits
- Mounting places for max. three analog or digital sensors with Pg 13.5 thread (pH, ORP, temperature)
- Threaded cap:
  - easy installation and removal of the sensors
  - protection of the sensor connection compartment
- Potential matching pin (stainless steel 1.4571 (AISI 316Ti) or titane)
- Extension options:
  - Connection to the electrolyte vessel CPY7
  - Adaption of the Chemoclean system
- Economic flow assembly concept for in-line installation
- Easy calibration by removable calibration vessel
Function and system design

Measuring system

A complete measuring system comprises:
- Flowfit CPA250
- pH or ORP sensor, e.g. CPS71D
- Measuring cable, e.g. CYK10
- Transmitter, e.g. Liquiline M CM42

Optional:
- up to two more pH/ORP sensors or single electrodes or temperature sensors
- Junction box for cable extension, e.g. RM junction box

Fig. 1: Measuring system (bypass installation)

1 Process line with bypass and valves
2 Supply line of the transmitter
3 Transmitter Liquiline M CM42
4 Measuring cable CYK10
5 Flowfit CPA250
6 pH sensor CPS71D
**Installation**

**Installation instructions**

To get a flow through the by-pass, pressure $p_1$ has to be higher than pressure $p_2$. Therefore, you have to install an aperture or a throttle in the main conduit (→ Fig. 2).

![Installation example with by-pass and aperture in the main conduit](image)

*Fig. 2: Installation example with by-pass and aperture in the main conduit*

Alternatively, you can install a booster pump in the main conduit to produce the required pressure (→ Fig. 3).

![Installation example with open outlet](image)

*Fig. 3: Installation example with open outlet*
In case of an open outlet installation, no pressure increasing procedure is needed (→ Fig. 4).

**Environment**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature range</td>
<td>0 to 50 °C (32 to 120 °F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>0 to 50 °C (32 to 120 °F)</td>
</tr>
</tbody>
</table>

**Process**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process temperature range</td>
<td>0 to 80 °C (32 to 170 °F), 6 bar (87 psi) at 20 °C (68 °F) and pressureless at 80 °C (176 °F)</td>
</tr>
<tr>
<td>Process pressure</td>
<td>max. 6 bar (87 psi) at 20 °C (68 °F)</td>
</tr>
</tbody>
</table>
Pressure-Temperature diagram

![Pressure-Temperature diagram](image)

*Fig. 5: Temperature-Pressure diagram*

**Mechanical construction**

Design, dimensions

![Mechanical construction](image)

*Fig. 6: Dimensions*

**Weight**

0.5 to 0.8 kg (1.1 to 1.8 lbs), depending on process connection
Materials

In contact with medium:
- Assembly body: PP
- O-rings: Viton

Potential matching pin:
- CPA250-A01: Titane
- all other versions: stainless steel 1.4571 (AISI 316 Ti)

Process connection

depending on the version: G1, NPT 1"

Suitable sensors

Glass electrodes or ISFET sensors, analog or digital with Memosens technology, with Pg 13.5 thread and shaft length 120 mm (4.72 inch), with or without liquid KCl reference electrode

Ordering information

Product structure

<table>
<thead>
<tr>
<th>Design</th>
<th>Process connection, Material, Potential matching pin (PMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mounting places for 3 sensors</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>00  G1, PP, PMP 1.4571 (ANSI 316 Ti)</td>
</tr>
<tr>
<td></td>
<td>01  G1, PP, PMP titanium</td>
</tr>
<tr>
<td></td>
<td>02  NPT 1&quot;, PP, no PMP</td>
</tr>
<tr>
<td></td>
<td>30  G1, PP LABS free, PMP titanium</td>
</tr>
</tbody>
</table>

CPA250- complete order code

Special version

CPA250
- Material: PP
- Process connection: NPT ½"
- Modification number: C-PA050720-41

Scope of delivery

The scope of delivery comprises:
- Flowfit assembly (ordered version)
- Operating Instructions (English)
Accessories

Note!
In the following sections, you find the accessories available at the time of issue of this documentation. For information on accessories that are not listed here, please contact your responsible service.

Accessories kits

- **NP**
  - 2 nipples for adaption of CPA250-A* to PP pipe without thread
  - OD 32 mm (1.26 inch)
  - order no. 50003450

- **NV**
  - Adapter for adaption of CPA250-A* to PVC pipe
  - OD 32 mm (1.26 inch), order no. 50003454
  - OD 25 mm (0.98 inch), order no. 50003456

- **BF**
  - Wall mounting kit for CPA250-A*
  - 2 long V4A screws, incl. screw anchors
  - order no. 50001130

Sensors

- **Orbisint CPS11/11D**
  - pH electrode for process applications with dirt-repellent PTFE diaphragm
  - Optional Memosens technology (CPS11D)
  - Ordering acc. to product structure, see Technical Information (TI028C/07/en)

- **Ceragel CPS71/CPS71D**
  - pH electrode with double junction reference system and integrated bridge electrolyte
  - Optional with Memosens technology (CPS71D)
  - Ordering acc. to product structure, see Technical Information (TI245C/07/en)

- **Ceragel CPS72/CPS72D**
  - Redox sensor with double junction reference system and integrated bridge electrolyte
  - Optional with Memosens technology (CPS72D)
  - Ordering acc. to product structure, see Technical Information (TI374C/07/de)

Cleaning systems

- **Chemoclean CPR31 / CPR3**
  - Automatic spray cleaning system for sensors
  - CPR31 is installed in one of the three sensor mounting places of the assembly
  - order no. on request

- **Chemoclean**
  - Injector CYR10 and programme sequencer CYR20
  - Ordering acc. to product structure, see Technical Information (TI046C/07/en)