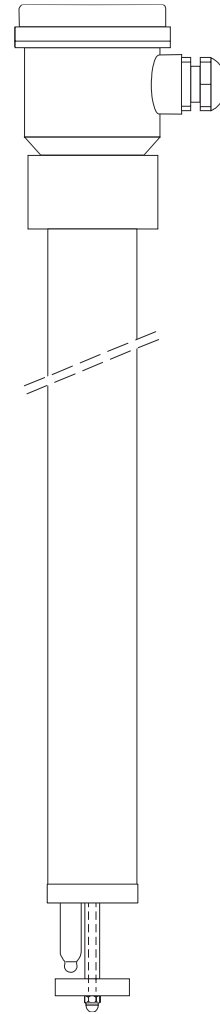
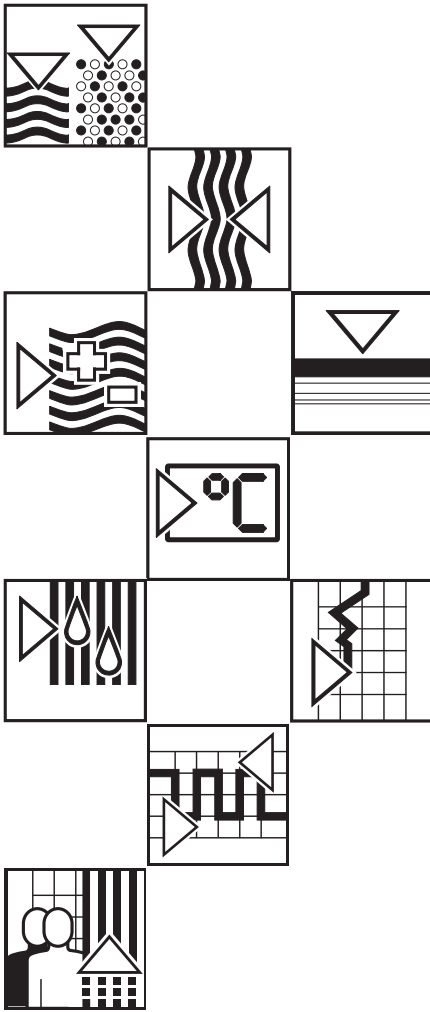


CPA 610 Assembly for pH/Redox Measurement

Installation Instructions



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1. General

1.1 Application

Immersion assembly CPA 610 is an electrode holder designed for simple handling. It can be installed in open channels, basins or tanks.

Typical areas of application are sewage treatment plants: inlet and discharge, effluent treatment stations and neutralisation basins. The three electrode mounting positions permit simultaneous measurement of pH and redox.

1.2 Measuring system

A measuring system comprises:

- the CPA 610 assembly
- a pH and/or redox electrode with a length of 120 mm
- a pH/redox measuring instrument
- a measuring cable (ready-made)

Option:

- junction box VBA and measuring cable CPK 1 (not pre-assembled) to extend the measuring cable

2. Unpacking

- Inspect for any damaged packaging! The post office or freight carrier must be informed of any damage. Damaged packaging material must be retained until the matter has been settled!
- Verify that the contents are undamaged! Inform the post office or freight carrier as well as the supplier of any damage.
- Check that the delivery is complete (see 2.1) and agrees with the shipping documents and your order:

- Quantity delivered
- Unit type and version
- Accessories
- Operating instructions
- Unit identification card(s)

If you have any questions, consult your supplier or the Endress+Hauser sales agency in your area (see back cover of these operating instructions for addresses).

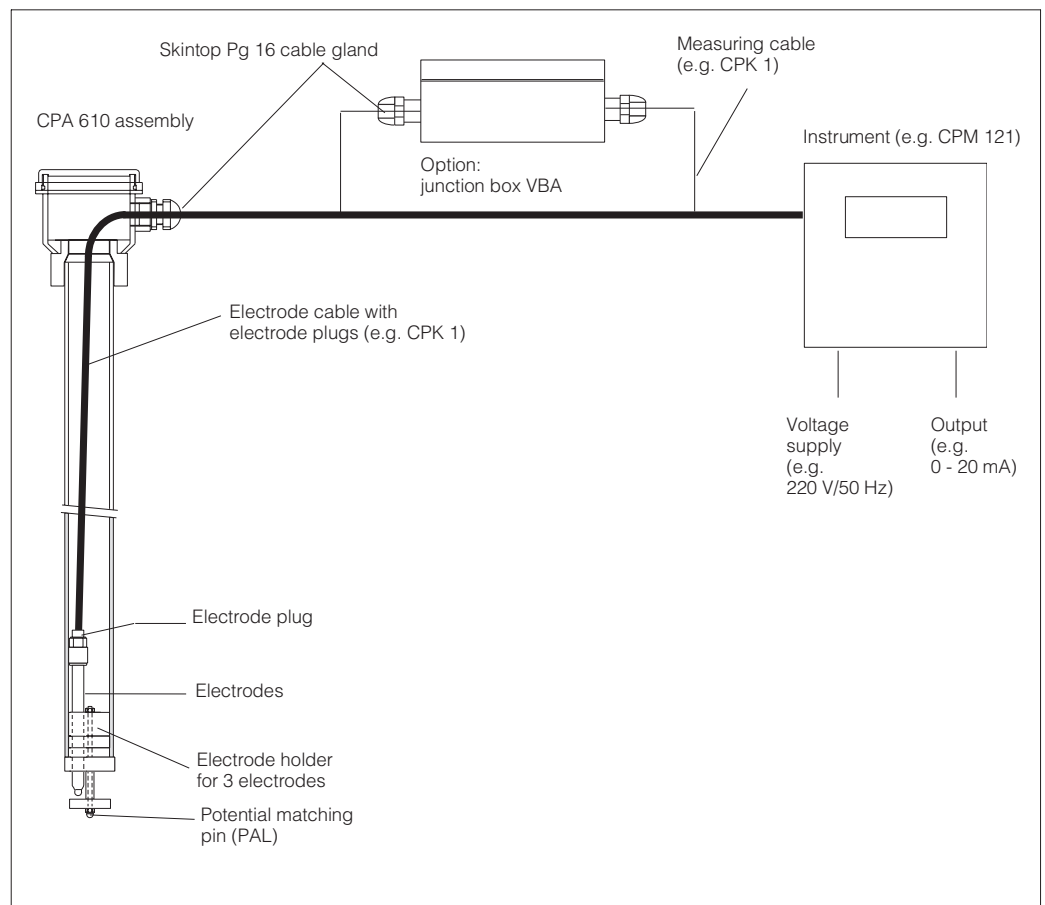


Fig. 1: The complete measuring system

2.1 Scope of delivery

The delivery comprises:

- Assembly CPA 610, material PVC, immersion tube length 1500 mm
- Operating instructions (order no. 125 337 - 1000)

Option:

- Suspension bracket
 - bracket, 1.4571
 - retaining ring, black PVC
- Lead pipe
- Fixing ring, black PVC

2.2 Order code

pH immersion assembly CPA 610

Immersion tube length
 1 immersion tube length: 1500 mm

CPA 610 - ←complete order code

3. Assembly and installation

3.1 Dimensions

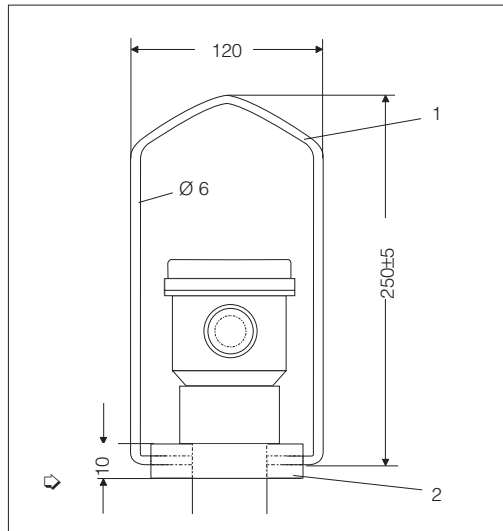


Fig. 2: Suspension bracket option

- 1 Bracket
- 2 Retaining ring

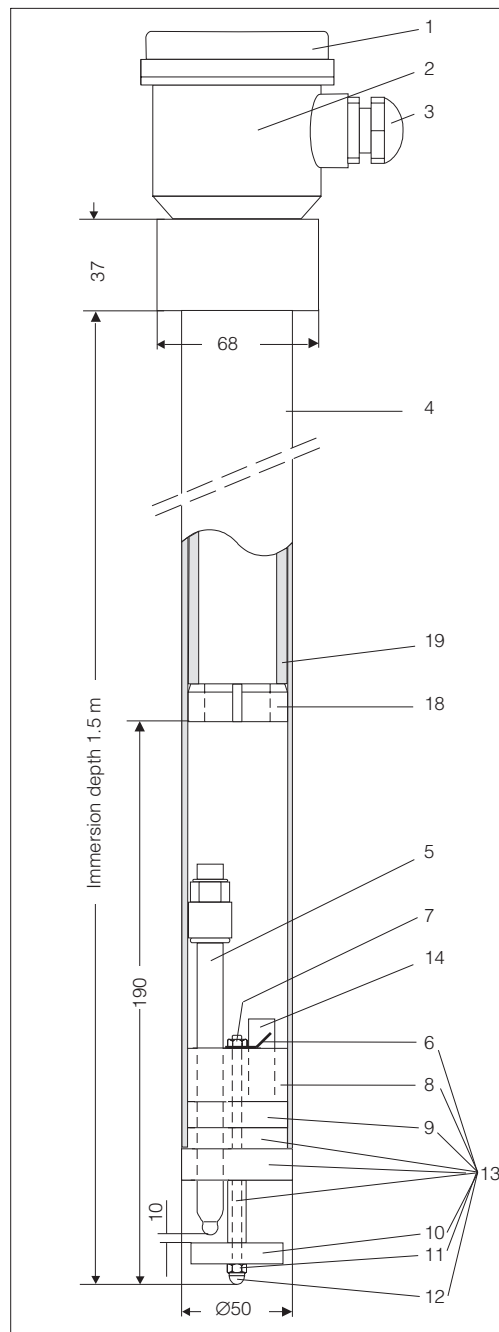


Fig. 1: CPA 610

- 1 Lid
- 2 Assembly head
- 3 Pg 16 cable gland, reduced
- 4 Assembly pipe
- 5 Electrode
- 6 Potential matching connection
- 7 Nut for potential matching connection
- 8 Electrode holding plate with 3 electrode slots
- 9 Pinched rubber plate
- 10 Fixing plate (this plate is turned to fix the electrode holding plate in place in the immersion tube)
- 11 PAL, special steel 1.4571
- 12 Cap nut, special steel 1.4571
- 13 Electrode holder
- 14 Dummy plug
- 18 Fixing ring
- 19 Lead pipe L = 250 mm

Suspension bracket option:
 Attachment fig. 2

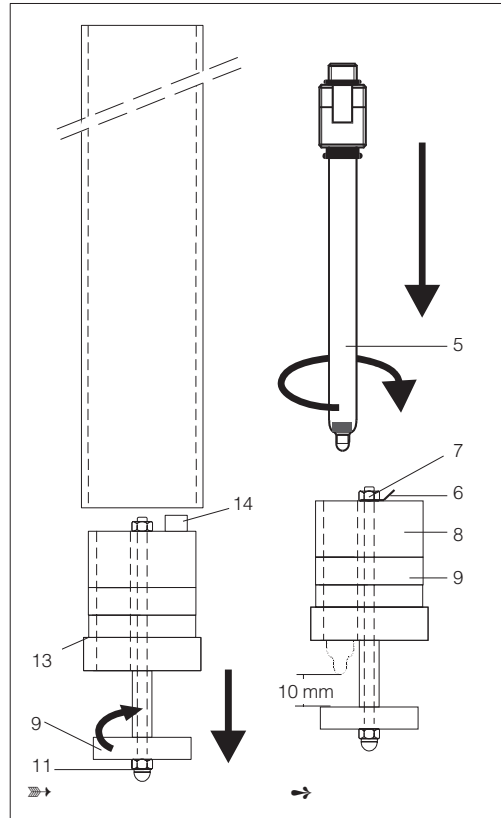


Fig. 3: Dismantling the electrode holder

Fig. 4: Installing the pH/redox electrode

3.2 Installation

3.2.1 Electrode installation

figs. 3 and 4

- Remove electrode holder 13.
 - Turn fixing plate 9 counterclockwise all the way to the stop on cap nut 11.
- If several electrodes are to be installed:
 - Remove dummy plug 14.
 - Remove nut 7 for potential matching connection
 - Remove cable lug 6.
 - Remove electrode holding plate 8.
 - Perforate rubber plate 9 as required for electrodes to be installed. Trim edges of perforation(s) with a knife.
- Carefully insert electrodes 5 by turning them at the same time (clockwise). See drawing for desired mounting position.
- Assemble using reverse sequence.
 - Tighten PAL nut 7.

Note:



- The electrodes have to be wetted before installation in the assembly.
- Simple immersion of the electrodes in water is sufficient.

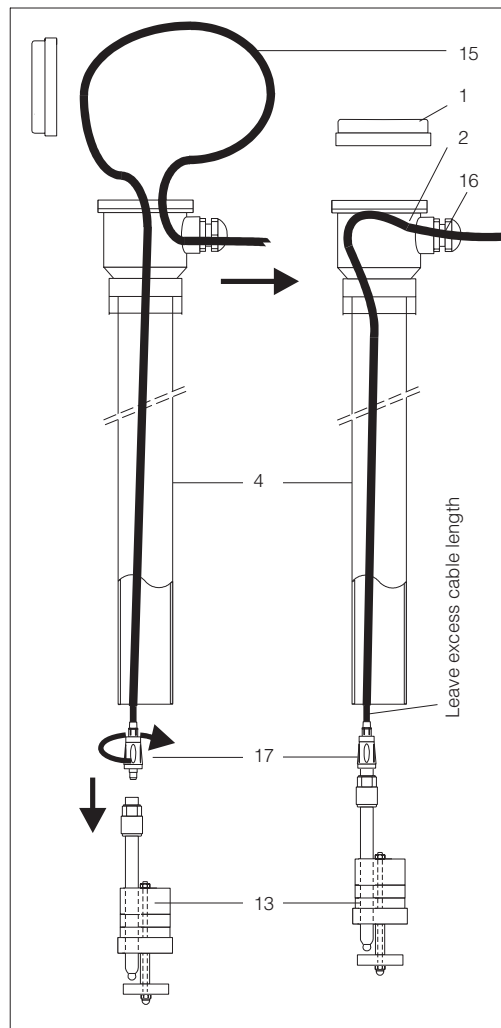


Fig. 5: Installing the measuring cable

3.2.2 Measuring cable installation

fig. 5

- Unscrew lid 1 from assembly head 2 and remove Pg cable gland.
- Thread the prepared end of electrode connecting cable 15 through assembly pipe 4.
- Thread the unprepared end of the cable through the Pg 16 cable gland.
- Install the Pg cable gland, leaving an extra length of cable (approx. 10 cm)!
- Screw on plug 17.
- Insert electrode holder 13 and tighten fixing plate 9.

3.3 Mounting

- Shorten the assembly pipe:
 - Saw off as required (perpendicular cut).
 - Deburr on inside and outside.
- Attachment:
 - Attach to the basin wall, e.g. by means of a pipe clamp and spacer.
 - Or use the suspension bracket option and a chain for attachment.

3.3.1 Suspension bracket option

- Installation of lead pipe:
 - When using the suspension bracket option, a lead pipe must be fitted for stabilisation.
 - Remove electrode holder 13 as described above.
 - Insert the lead pipe in the assembly pipe (fig. 1).
 - Push fixing ring 18 – with the bevelled side ahead – into the assembly pipe to obtain the desired distance of 190 mm from the lower edge of the assembly.

3.4 Electrical connection

Caution:



1. The notes and warnings in these operating instructions must be strictly adhered to!
2. Use pre-assembled cable CPK 1, 2 or 7 for connection. (See fig. 9 for terminal assignments.)



Any faults in the assembly must be remedied by authorized and trained personnel only!



If the faults cannot be remedied, the assembly must be removed from service and secured to prevent accidental startup.

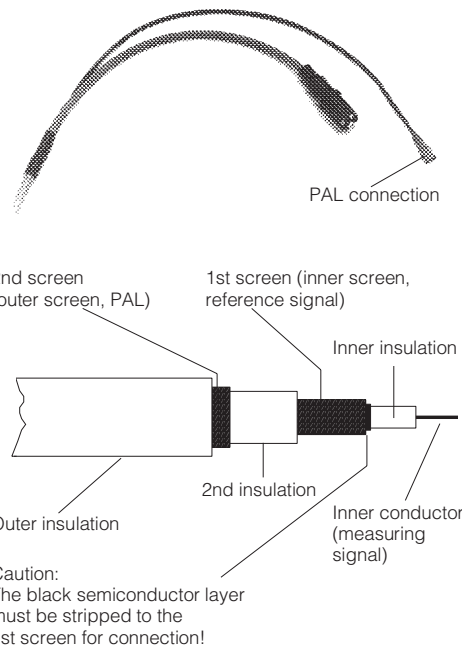


Fig. 7: Electrode connecting cable CPK 1, 2 or 7

Fig. 8: Construction of CPK 1 cable

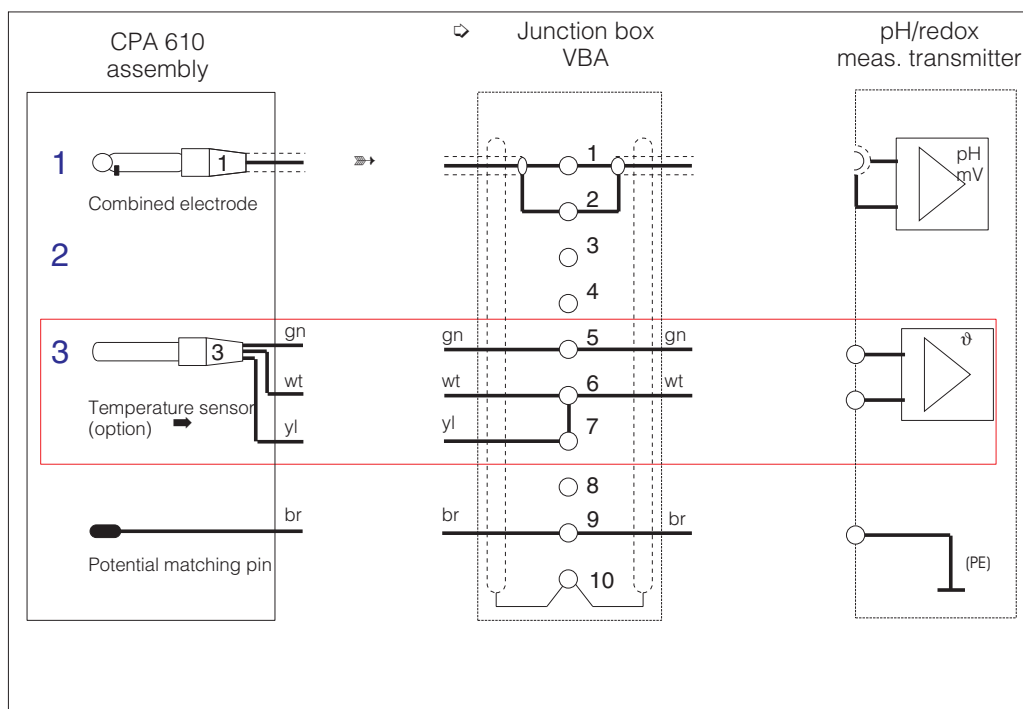


Fig. 9: Combined pH/redox electrode

- ➡ Temperature sensor option with automatic temperature compensation only
- ↗ Junction box option if required
- ➡ Cable CPK 2 (PMK) - for combined pH electrodes with integrated temperature sensor CPK 7 - without temperature compensation CPK 1 (SMK)

Fig. 10: Single pH / redox electrode with separate reference electrode

- ➔ Temperature sensor option for automatic temperature compensation only
- ⇨ Junction box option if required
- ⇒ Cable CPK 2 (PMK)

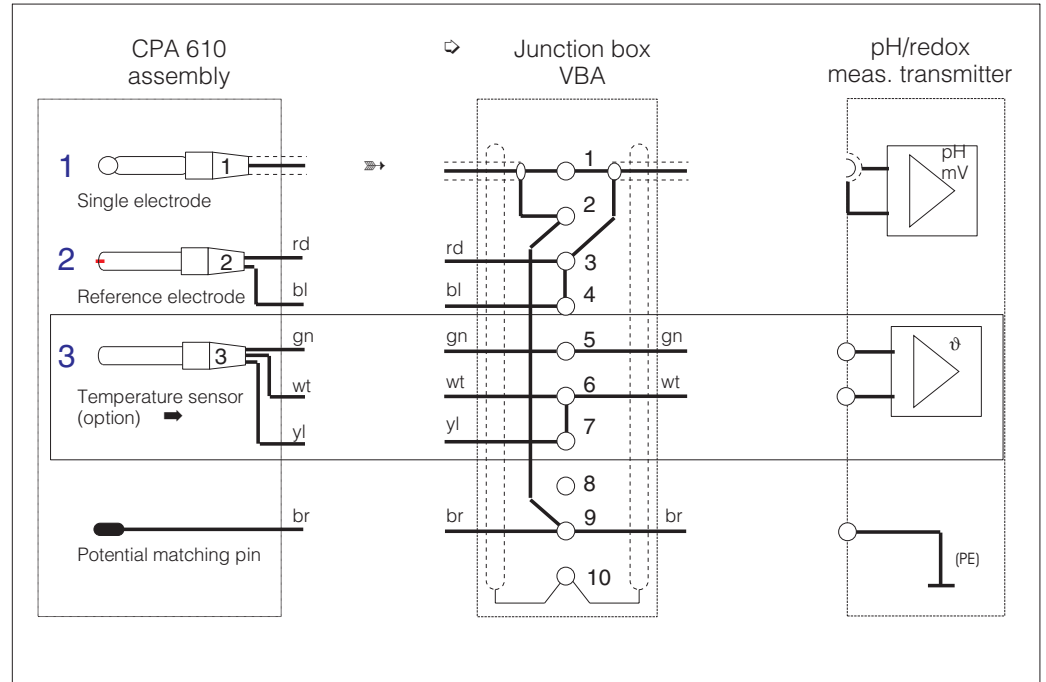
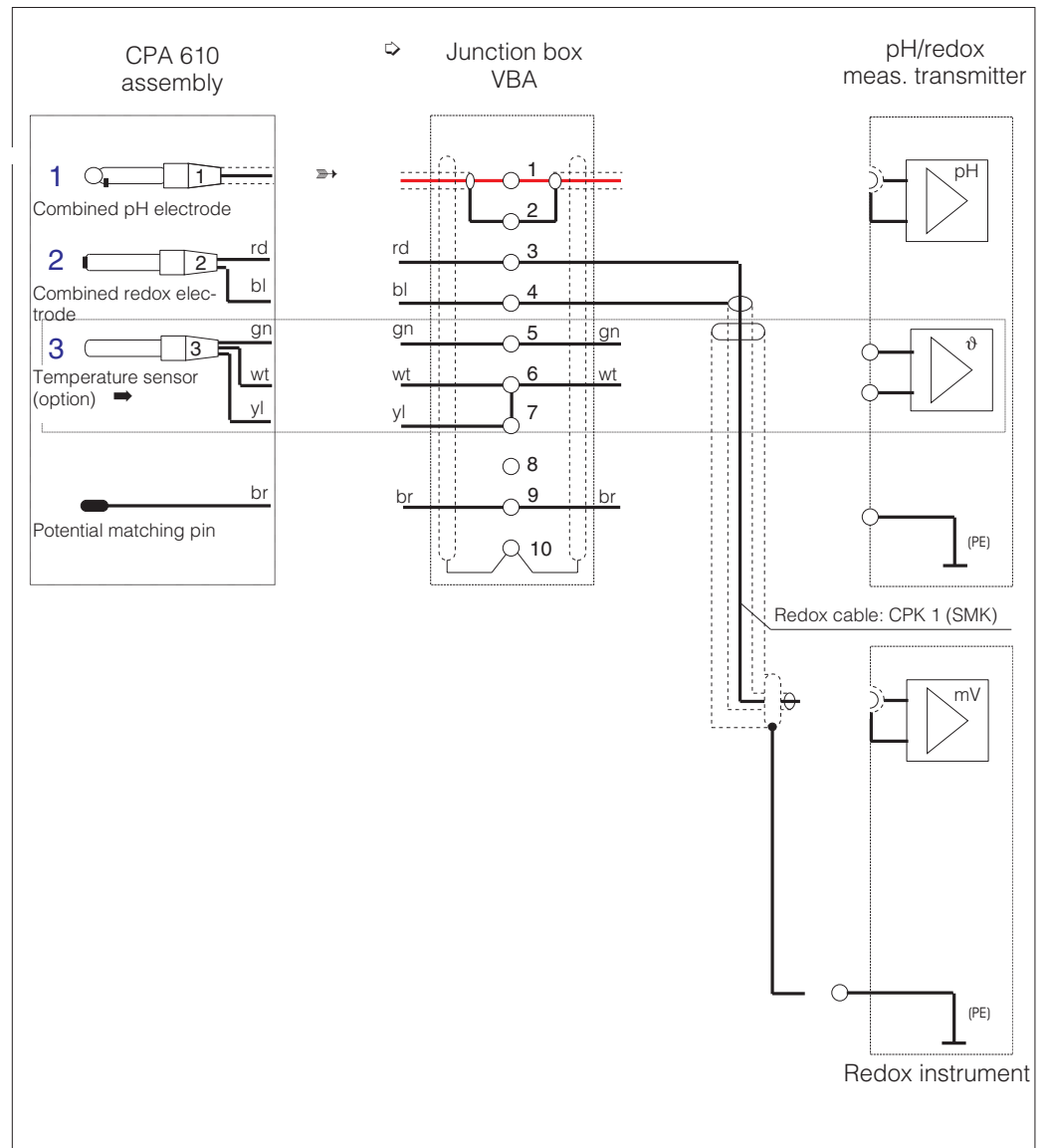


Fig. 11: Combined pH / redox electrode

- ➔ Temperature sensor option for automatic temperature compensation only
- ⇨ Junction box option if required
- ⇒ Cable CPK 2 (PMK)



4. Maintenance

Electrode soiling may impair measurement to such an extent that the electrode ceases to function at all, e.g. due to coatings on the pH-sensitive glass membrane (poor response time and low sensitivity / slope, unstable measured values).

In order to guarantee reliable measurement, the electrodes must be cleaned regularly.

The electrode must always be cleaned prior to calibration!

The frequency and intensity of cleaning will depend on the type of medium being measured.

4.1 Cleaning

All parts of the electrode and assembly in contact with the medium must be cleaned. Please note the following:

- Remove light coatings and soiling using a suitable cleaning solution.
- Use a soft brush and suitable cleaning solution to remove adhering dirt.
- Stubborn dirt must be dissolved by soaking in cleaning agent.
- Vigorously flush the electrode with water after cleaning.
- The measuring system must be recalibrated after cleaning.

Caution:



1. Do not use any abrasive cleaning agents! These may result in irreparable damage to the electrode measuring surface!
2. Traces of cleaning agent not removed after cleaning may render measurement inaccurate.

Selection of cleaning agents

The selection of cleaning agents will depend on the type of soiling. The types of soiling most frequently encountered and the appropriate cleaning agents are listed in the following table:

Type of soiling	Cleaning agent
Grease, oils	Detergents
Limestone deposits or metal hydroxides	3 % hydrochloric acid
Sulphide deposits (e.g. from waste water treatment)	Mixture of 3 % hydrochloric acid and 1 % Titriplex (EDTA)
Protein deposits (e.g. from biological residue)	Cleaning agents containing enzymes in acidic solution (e.g. 3% HCl + pepsin), or enzyme preparation in alkaline cleaning media



Note:

Flush thoroughly with water after cleaning!

5. Technical data

Materials in contact with medium

Immersion tube	PVC
Electrode holding plate	PVC
Sealing plate	rubber
Potential matching	stainless steel 1.4571
Cap nut	stainless steel 1.4401

Materials not in contact with medium

Assembly head	PETB
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General technical data

Operating temperature	50°C
Immersion depth	1500 mm
Required mounting diameter	DN 50
Weight	2 kg

5.1 Accessories

pH or redox electrodes from the following families:

Orbisint	CPS 11, -12, -13
Orbitex	CPS 21, -22, -23
Ceratex	CPS 31, -32, -33
Ceraliquid	CPS 41, -42, -43
Single electrodes	CPS 64, -65

Suspension bracket, stainless steel 1.4571

Connecting cable

- CPK 1 (SMK)
for connection of a combined pH or redox electrode
- CPK 2 (PMK)
for connection of a combined pH electrode, combined redox electrode and a temperature sensor
- CPK 7
for connection of a combined pH electrode with an integrated temperature sensor Pt 100

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