

Electrodes for pH/Redox Measurement *OrbiPac P CPF 91 / 92*

**Sterilizable pH/redox compact electrodes for
installation in process technology, food industry
and pharmacy**



Areas of application

With NPT $\frac{3}{4}$ " thread:

- Process technology

With 1.5" or 2" clamp adapter:

- Food industry
- Dairies
- Pharmaceutical industry

Features and benefits

- Selectable process connection
- Suitable for measurement within pH range 0 ... 14 and temperature range -5 ... 110 °C
- Three fixed cable lengths available (5 m/15 ft, 10 m/30 ft, 15 m/45 ft) or TOP 68 plug-in head
- Combined pH electrode with or without integrated temperature sensor
- With patented KNO_3 electrolyte bridge for a better protection against electrode poisons like S^{2-} or CN^- ions
- Protection guard against damage
- Integrated potential matching connection
- Selectable integrated pre-amplifier for interference-free transmission of measured value

Endress + Hauser

The Power of Know How



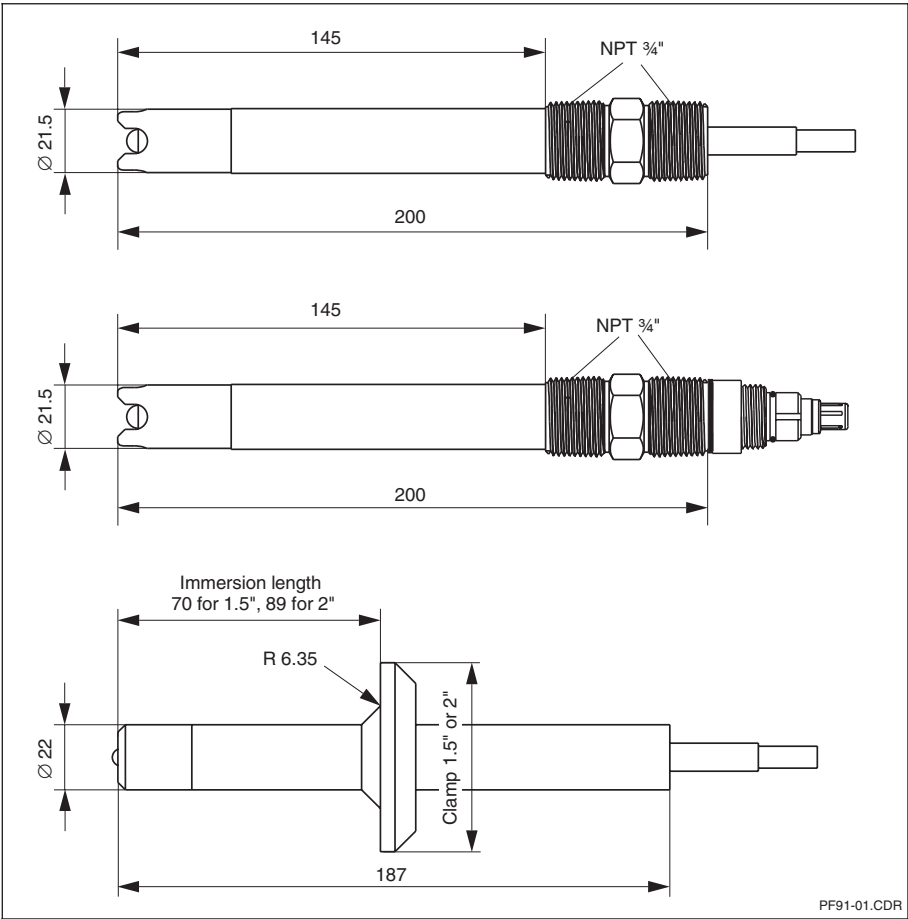
Electrode design

pH/redox electrodes
OrbiPac H CPF 91 / 92

top:
xxx1 version with
process connection
NPT 3/4" and protection
guard, fixed cable

middle:
xxx1 version with
process connection
NPT 3/4" and protection
guard, fixed cable,
ESA plug-in head

bottom:
xxx2 and xxx3 versions
with clamp adapter

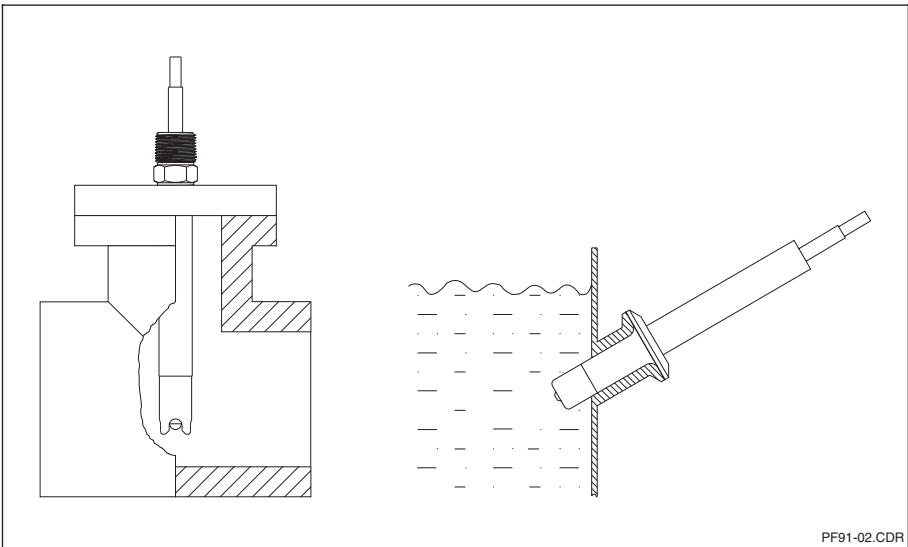


Mounting

Mounting examples

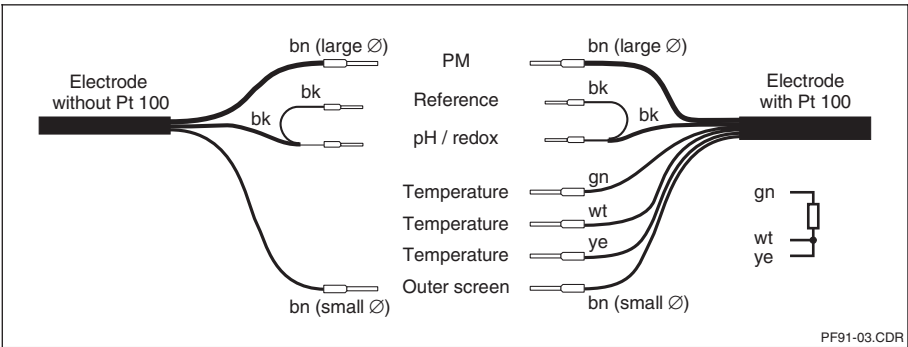
left:
Pipeline installation with
flange

right:
Side-of-tank installation



Electrical connection

Electrical connection
of CPF 91 / 92



Technical data

General specifications

Manufacturer	Endress+Hauser
Product designation	OrbiPac P CPF 91 / 92

Process connection

Threaded connection	NPT ¾"
Clamp adapter	1.5" or 2"

Mechanical data

Variants with threaded connection

Total length	approx. 200 mm
Immersion length	145 mm
Shaft diameter	21.5 mm

Variants with clamp adapter

Total length	187 mm
Immersion length	70 mm for clamp 1.5" 89 mm for clamp 2"
Shaft diameter	22 mm

Materials

Housing	stainless steel 1.4401 (AISI 316)
Shaft (in contact with medium)	stainless steel 1.4401 (AISI 316), PPS
pH electrode (in contact with medium)	lead-free membrane glass, suitable for processes
Redox electrode (in contact with medium)	platinum pin

Application range

pH range	pH 0 ... 14
Temperature range (Pt 100)	-5 ... 110 °C, sterilizable up to 130 °C
Pressure range	10 bar at 110 °C, 3 bar at 130 °C
Ingress protection	Fixed cable version: IP67 ESA plug-in head version: IP68

Measuring system

Reference system	Double junction (two-chamber system) KNO ₃ and KCl / AgCl
Potential matching (PM)	via sensor housing (variant with plug-in head: connection via CPK 9 with interior PM line)
Minimum conductivity	50 µS/cm
Electrode zero point	pH 7.0 ± 0.2
Impedance	
Variants without pre-amplifier (A, C)	300 MΩ at 25 °C
Variants with pre-amplifier (B, D)	< 1 MΩ

Integrated pre-amplifier

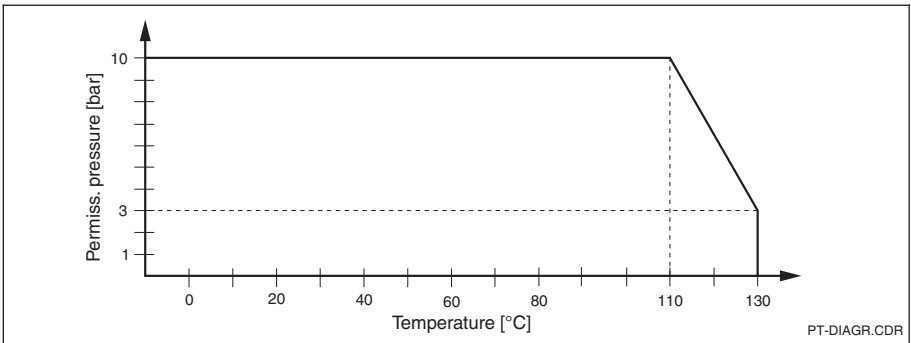
Design	potted within sensor body
Power supply	via integrated round cells, service life approx. 3 years, not replaceable
Reference potential of pre-amplifier	PM connection

Note:

The pre-amplifier option (variants B, D) will negate the SCS function of the transmitter. This function should then be turned off.

Subject to modifications.

Pressure-temperature
diagram



Accessories

- Transmitter
Liquisys M CPM 223 / 253
Technical Information
Order no. 51500277

Product structure

Electrodes OrbiPac P CPF 91					
Application range					
NP pH 0 ... 14, T = -5 ... 110 °C					
Version					
4 Stainless steel 1.4401 (AISI 316)					
Process connection					
1 NPT ¾"					
2 Clamp adapter 1.5"					
3 Clamp adapter 2"					
Equipment					
A Without Pt 100, without pre-amplifier					
B Without Pt 100, with pre-amplifier					
C With Pt 100, without pre-amplifier					
D With Pt 100, with pre-amplifier					
Connection					
2 5 m (15 ft) fixed cable					
3 10 m (30 ft) fixed cable					
4 15 m (45 ft) fixed cable					
8 ESA plug-in head (TOP 68)					
CPF 91-					complete order code

Electrodes OrbiPac P CPF 92					
Application range					
PA Redox measurement					
Version					
4 Stainless steel 1.4401 (AISI 316)					
Process connection					
1 NPT ¾"					
2 Clamp adapter 1.5"					
3 Clamp adapter 2"					
Equipment					
A Without pre-amplifier					
B With pre-amplifier					
Connection					
2 5 m fixed cable					
3 10 m fixed cable					
4 15 m fixed cable					
8 ESA plug-in head (TOP 68)					
CPF 92-					complete order code

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