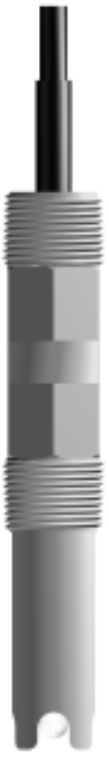
Technical
Information
TI 191C/24/ae

Compact sensors for pH / ORP measurement
OrbiPac W CPF 81 / 82

pH / ORP electrode for immersion and insertion in process technology and waste water

CPF 81/82
with guard

CPF 81/82
with flat membrane



CPF 81/82
extended
with guard

Areas of application

- Waste water treatment
- Process technology
- Food industry
- Water conditioning
- Condensate cleaning

Benefits at a glance

- Suitable for installation and immersion
- Suitable for measurement within pH range of 0 to 14 and temperature range of 32° to 230°F (0° to 110°C)
- Fixed cable lengths of 15 feet, 30 feet and 45 feet or TOP 68 plug-in head
- pH combination electrode with or without integrated temperature sensor
- Pt 100 sensor installed at the tip, inside the glass pH electrode
- With patented KNO_3 electrolyte bridge for better protection against electrode poisons like S^{2-} or CN^- ions
- Protection guard against damage
- Flat membrane enables high flow rates and fibrous applications
- Selectabe integrated preamplifier for noise-free measuring signal transmission for long cables
- 3/4” NPT mounting thread
- Chemically resistant Ryton® and Viton® materials
- PTFE junction, resists fouling

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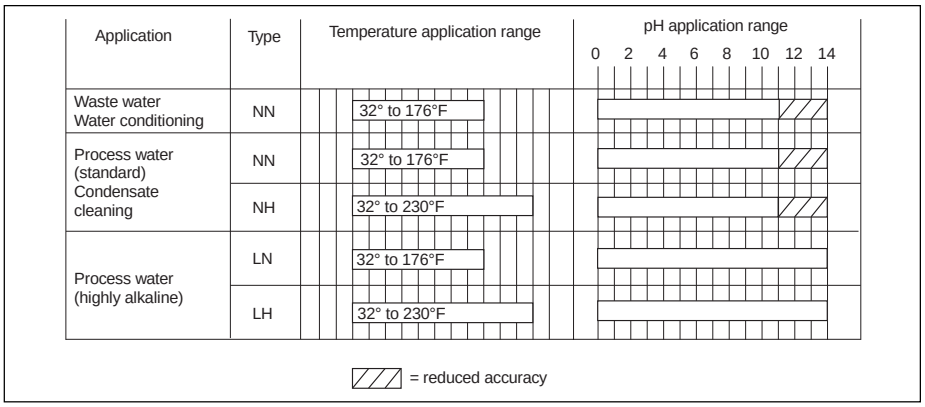
pH and Temperature Ranges

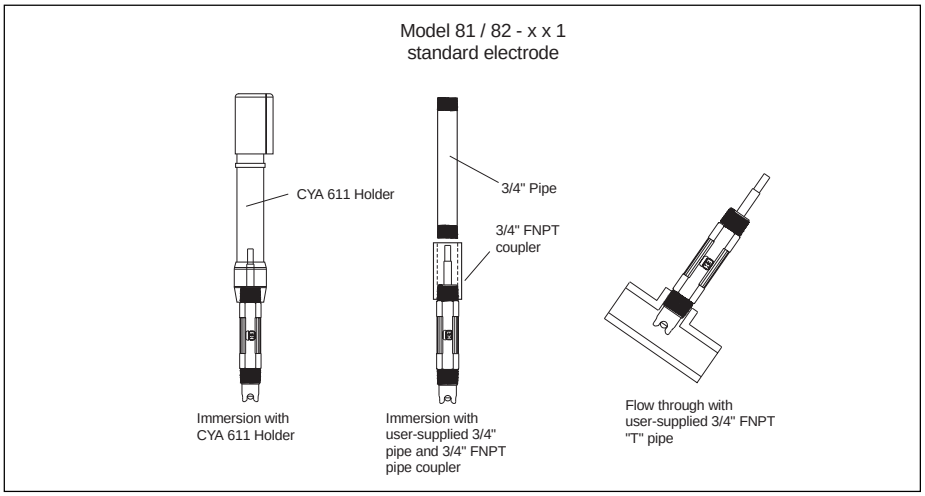
When selecting pH electrodes, the pH value has to be considered, and the temperature of the process.

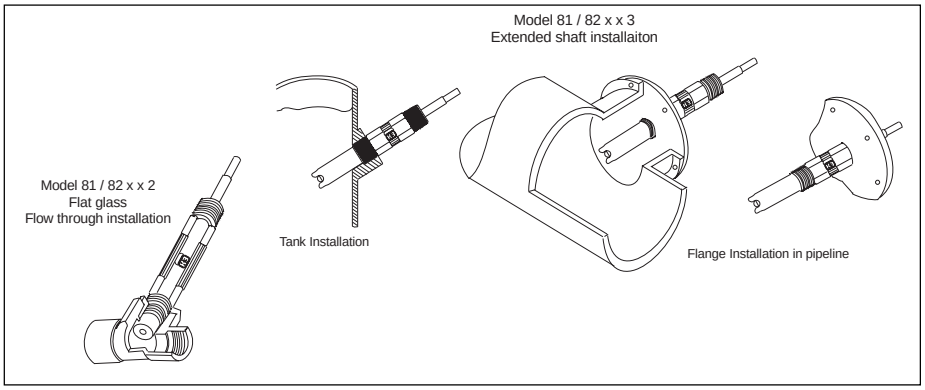
The temperature / pH range table is a guide for selecting an appropriate electrode version.

Once the pH and temperature range is selected, the sensor type is determined. Sensor selection is based on shaft length, measuring cable length and integrated temperature sensor, as shown in the order code. Minimum conductivity is > 50 µS/cm



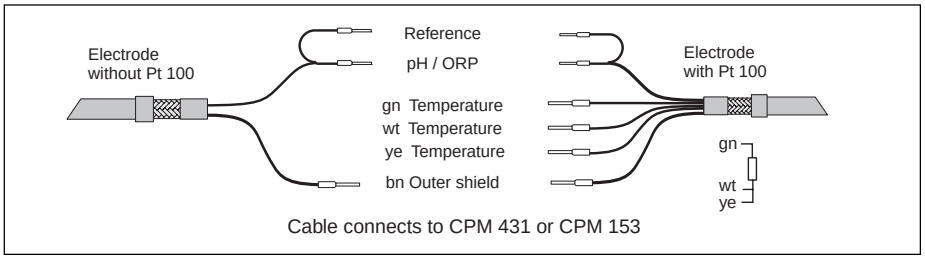
Installation Guidelines



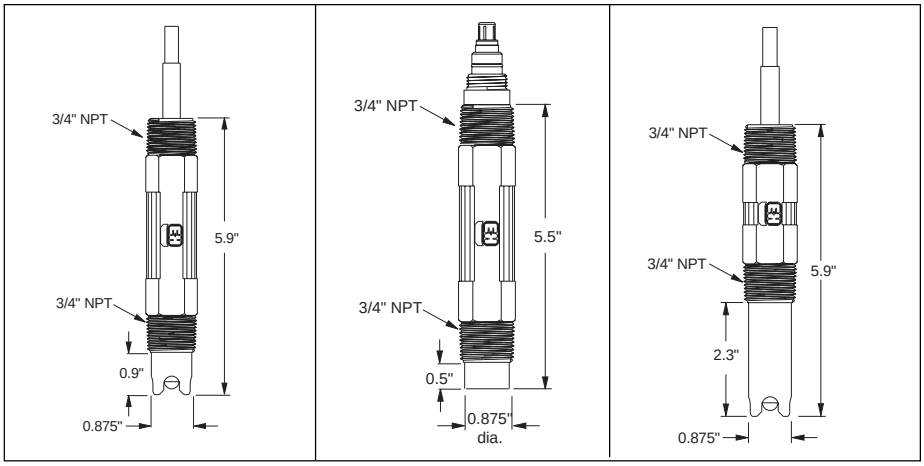


Electrical Connection

The CPF 81 / 82 is supplied with the appropriate cable pre-wired in the electrode. Cable lengths available are 15, 30 or 45 feet.



Dimensions



CPF 81 / 82, 0.9" insertion with protective guard

CPF 81 / 82, 0.5" insertion with flat membrane and TOP 68 ESA plug-in head

CPF 81 / 82, 2.3" extended insertion with protective guard

Technical Data

Materials

Process Connection	3/4" NPT
Housing	PPS (Ryton®)
Shaft (wetted materials)	PPS (Ryton®)
Seals (wetted materials)	Teflon®, Viton®
Electrode (wetted materials)	Lead-free bullet-proof glass, suitable for process applications / platinum

Sensors

pH Measurement	Glass membrane
ORP Measurement	Platinum ring
Temperature Measurement	Pt 100

Measuring Range

pH Range	0 to 14
ORP Range	-1500 mV to + 1500 mV
Temperature Range	32° to 180°F (0° to 80°C) 32° to 230°F (0° to 110°C)
Pressure Range	150 psi (10 bar) at 80°C / 50 psi (3.5 bar) at 110°C

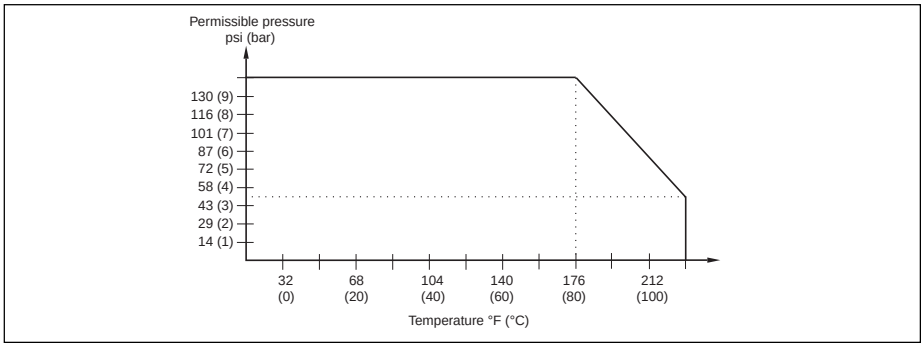
Measuring System

Electrolyte	KCl
Reference System	Double junction KNO_3 and KCl / AgCl
Minimum Conductivity	> 50 µS/cm
Zero Potential	pH 7.0 ± pH 0.2
Measurement Accuracy	± 0.1% along recommended measuring range
Sodium Error	< 0.05 pH in 0.1 molar NaOH (at pH 12.8)
Impedance	150MΩ at 25°C
Response Time	95% in 10 seconds
Drift	< 2 mV per week

Integrated Preamplifier

Design	Internal, poured within sensor body
Power Supply	Via integrated battery
Reference Potential	Reference electrode
Sensor Check System	With preamplifier specified, SCS unavailable. CPF 81 does not include solution ground pin. Only glass breakage detection is possible

Pressure-temperature diagram



Ordering Information

Electrode CPF 81

CPF 81 - 1 2 3 4 5

1 Application
- LH pH 0 to 14, temperature range 32° to 230°F (0° to 110°C)
- NN pH 0 to 11, temperature range 32° to 180°F (0° to 80°C)

2 Version
- 1 0.9" insertion length, with protection guard
- 2 0.5" insertion length, flat membrane
- 3 2.3" insertion length, with protection guard
- 4 0.51" (13 mm) immersion depth with recessed glass

3 Process Connection
- 1 3/4" NPT
- 2 3/4" NPT with internal solution ground

4 Equipment
- A Without Pt 100, without preamplifier
- B Without Pt 100, with preamplifier
- C With Pt 100, without preamplifier
- D With Pt 100, with preamplifier

5 Cable Connection
- 2 15 foot cable
- 3 30 foot cable
- 4 45 foot cable
- 8 ESA TOP 68 head

Electrode CPF 82

CPF 82 - 1 2 3 4 5

1 Application
- PA ORP measurement, platinum, 32° to 180°F (0° to 80°C)

2 Version
- 1 0.9" insertion length, with protection guard
- 3 2.3" insertion length, with protection guard

3 Process Connection
- 1 3/4" NPT

4 Equipment
- A Without preamplifier
- B With preamplifier

5 Cable Connection
- 2 15 foot cable
- 3 30 foot cable
- 4 45 foot cable
- 8 ESA TOP 68 head

Accessories

Extension cables for CPF 81 / 82

15 foot	Part Number: 50088280
30 foot	Part Number: 50088281
60 foot	Part Number: 50088282

Supplemental Documentation

☐ Mypro CPM 431 pH / ORP Transmitter
☐ CYA 611 Immersion Electrode Holder

For application and selection assistance,
in the U.S. call 888-ENDRESS

For total support of your installed base, 24 hours
a day, in the U.S. call 800-642-8737

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TI 191C/24/ae/11.03
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