Type: PH200C, PH200 CS, PH222 CD, PH223 CD, PH635 CD, ORP500 C, ORP500 CS, ORP222 CD, ORP223 CD

This line of electrodes has been designed to provide a cost effective multi-purpose solution for in line or submersion measurement of pH and ORP in a wide range of applications.
Single and double junction versions are available as well as models with or without quick disconnect top caps.
The electrodes can be also provided with epoxy or glass body to fulfill various applications. A simple and reusable gland can be used for economic electrode in-line mounting while a ½" or ¾" coupler with a pipe extension is enough for submersion mounting.

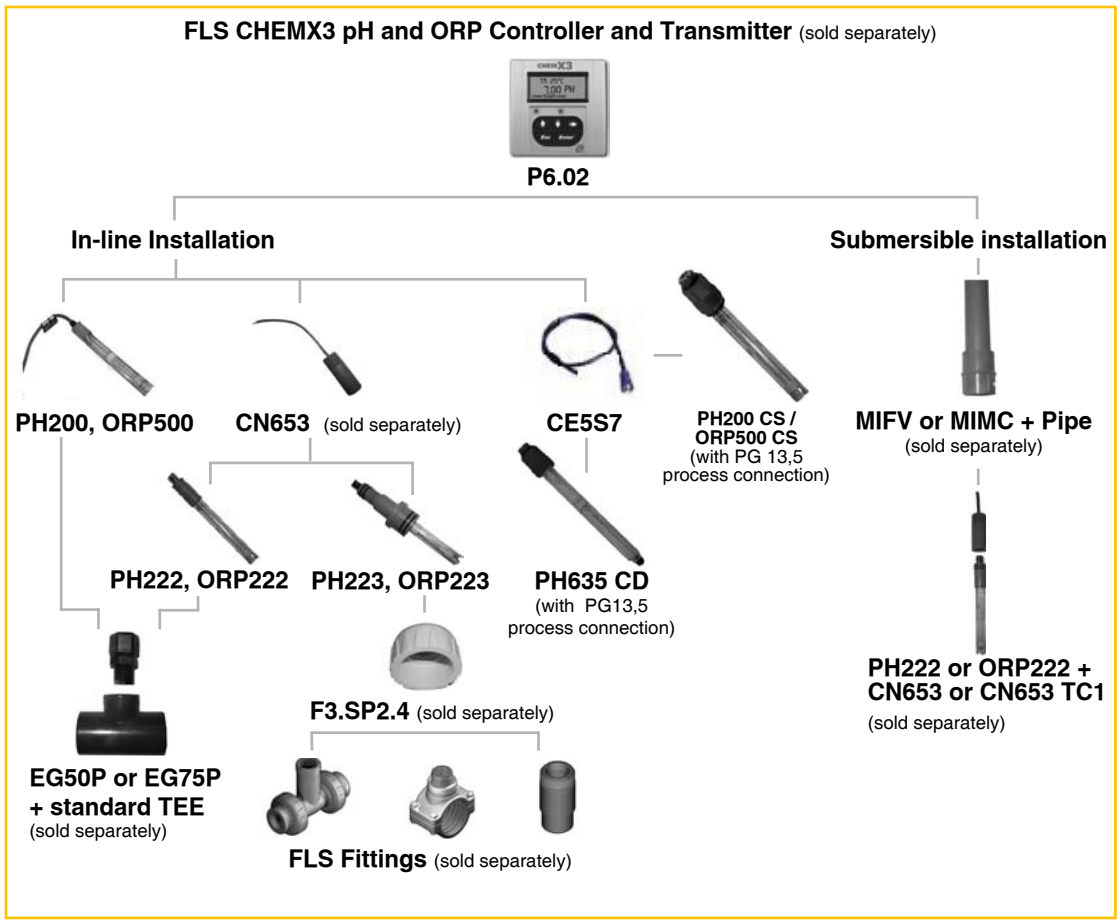
Main Features

- Epoxy or glass body.
- Single or double junction technology.
- Large gel reference volume.
- Easy and quick installation system.
- BNC or S8 (PG 13,5+S7) connection.
- Special versions on request.
- Low cost fittings.

Applications

- Water treatment.
- Neutralization systems.
- Water quality monitoring.
- Swimming Pools and spas.
- Aquaculture.
- Agriculture and fertilizing systems.
- Process control.

System Overview



PHAMP1 Battery Powered Amplifier may be required for electrode-monitor connections longer than 15 mt. (49 ft.).

Cable Assembly

Cable	Part No.	Description	For Electrodes	Cable Length
	**CN653**	Quarter-turn, quick disconnect, universal cable assembly for in-line or submersible installation	PH222 CD, PH223 CD, ORP222 CD, ORP223 CD	5 mt. (16.5 ft.)
	**CN653 TC1**	Quarter-turn, quick disconnect, submersible cable assembly with TEMPERATURE COMPENSATION (PT 100) integrated	PH222 CD, PH223 CD	5 mt. (16.5 ft.)
	**CE5S7**	S7 cable assembly for In-Line installation	PH635 CD, PH200 CS, CRP500 CS	5 mt. (16.5 ft.)

Technical Data

General

■ Operating Range:
- PH Electrodes: 0 - 14 pH (0 - 12.3 pH without Na+ error)
- ORP Electrodes: ± 2000 mV.

■ Pipe Size Range: DN15 to DN100 (0.5” to 4”).

■ Zero voltage point new electrode performances: 7.00pH ± 0.2pH.

■ Efficiency new electrode performances: > 97% @ 25°C (77°F).

■ Response time new electrode performances:
- PH: 2 sec for 95% of signal change,
- ORP: application dependent.

■ Reference:
- Electrolyte: solidified gel 3.5M KCl for single junction versions/KCl-KNO_3 for double junction versions

■ Process Connection:
- In-line installation with:
  - threaded nipple ½”, ¾” or PG13,5
  - FLS installation fittings
- Submersible installation.

Please refer to installation Fittings for more details and a complete list of items.

■ Max Working pressure/ working temperature:
- 7 bar (100 psi) @ 25°C (77°F)
- 1 bar (14,5 psi) @ 65°C (149°F) for epoxy body electrode
- 10 bar (145 psi) @ 25°C (77°F)
- 2,5 bar (36 psi) @ 130 °C (266°F) for glass body electrode.

■ Wetted materials:
- Body: epoxy (glass for PH635 CD)
- O-ring junction: silicone
- Junction: pelon (ceramic for PH635 CD)
- Sensing surface: glass membrane (pH) platinum (ORP).

■ O-ring: Buna-N (PH222 CD, PH223 CD, ORP222 CD, ORP223 CD).

Standards & Approvals

■ Manufactured under ISO 9001 (Quality).

■ Manufactured under ISO 14000 (Environmental Management).

■ CE.

■ GOST R.

Technical Data

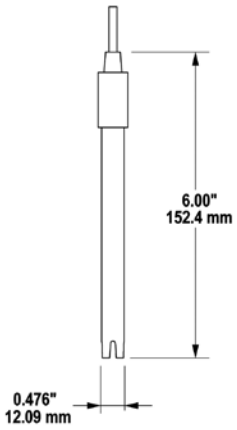
Specifications

Model	Body	Junction material/type	Reference solution	Sensing surface	O-ring	Max working pressure @ working temperature
PH200 C	epoxy	nylon/S.J.	3,5M KCl	glass membrane	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
PH200 CS	epoxy	nylon/D.J.	3,5M KCl/ Sat'd KNO_3	glass membrane	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
PH222 CD	epoxy	nylon/D.J.	3,5M KCl/ Sat'd KNO_3	glass membrane	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
PH223 CD	epoxy	nylon/D.J.	3,5M KCl/ Sat'd KNO_3	glass membrane	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
PH635 CD	glass	ceramic/D.J.	3,0M KCl/ 1,5 KNO_3	glass membrane	silicone	10 bar @ 25°C / 2,5 bar @ 130°C 145 psi @ 77°F / 36 psi @ 266°F
ORP500 C	epoxy	nylon/S.J.	3,5M KCl	platinum	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
ORP500 CS	epoxy	nylon/D.J.	3,5M KCl/ Sat'd KNO_3	platinum	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
ORP222 CD	epoxy	nylon/D.J.	3,5M KCl/ Sat'd KNO_3	platinum	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F
ORP223 CD	epoxy	nylon/D.J.	3,5M KCl/ Sat'd KNO_3	platinum	silicone	7 bar @ 25°C / 1 bar @ 65°C 100 psi @ 77°F / 14,5 psi @ 149°F

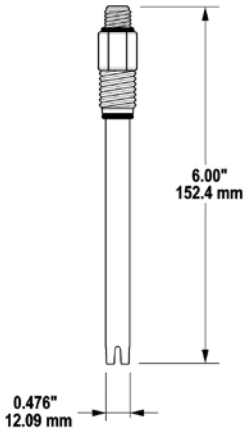
S.J. = single junction; D.J. = double junction

Dimensions

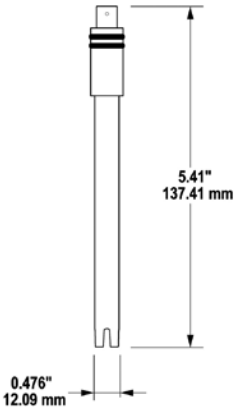
PH200 C
ORP500 C



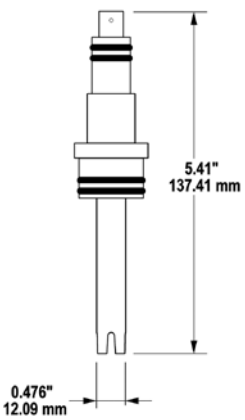
PH200 CS
ORP500 CS



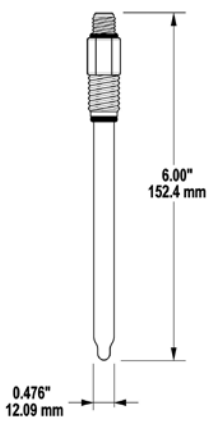
PH222 CD
ORP222 CD



PH223 CD
ORP223 CD



PH635 CD



Ordering Data

CHEMX3 pH and ORP Epoxy/Glass Body Electrodes

Part No.	Description	Cable Assembly	Connection	Weight (gr.)
PH200 C	Combination pH/Reference Electrode	Not required	5 mt. (16.5 ft.) Cable*	200
PH200 CS	Double Junction Combination pH/ Reference Electrode	Required	S7	100
PH222 CD	Cartridge-type Double Junction Combination pH/ Reference Electrode	Required	Twist-Lock (BNC)	90
PH223 CD	Cartridge-type Double Junction Combination pH/ Reference Electrode for FLS fittings	Required	Twist-Lock (BNC)	100
ORP500 C	Combination REDOX/Reference Electrode	Not required	5 mt. (16.5 ft.) Cable*	200
ORP500 CS	Double Junction Combination REDOX/ Reference Electrode	Required	S7	100
ORP222 CD	Cartridge-type Double Junction Combination REDOX/Reference Electrode	Required	Twist-Lock (BNC)	90
ORP223 CD	Cartridge-type Double Junction Combination REDOX/Reference Electrode for FLS fittings	Required	Twist-Lock (BNC)	100
PH635 CD	Double Junction Combination PH/Reference Electrode Glass body for high temperature (130°C)	Required	S7	200

* Cable with BNC connector available on request.

Cable Assembly

Part No.	Description	For Electrodes	Cable Lenght	Weight (gr.)
CN653	Universal cable assembly	PH222 CD, PH223 CD, ORP222 CD, ORP223 CD	5 mt. (16.5 ft.)	300
CN653 TC1	Submersible cable assembly with TEMPERATURE COMPENSATION (PT 100)	PH222 CD, PH223 CD	5 mt. (16.5 ft.)	350

Flat surface pH and ORP Electrodes

Type:
PH660 CD,
PH650 CD,
PH655 CD,
ORP660 CD,
ORP650 CD,
ORP655 CD

This is the rugged version of the traditional flat electrodes with an improved self-cleaning effect. Installation and maintenance are easy due to the quick disconnect BNC connectors. Built into the electrode's body is a sealed, gel-filled double junction reference design. This design provides an extra barrier against reference side contamination and allows the electrodes to be used in severe applications prolonging electrode life. The pH-responsive flat glass surface is placed in the center of the measuring surface and surrounded by the flat porous plastic reference junction providing an excellent sample contact.
A wide range of installation accessories allows in line, submersion or hot tap installation.

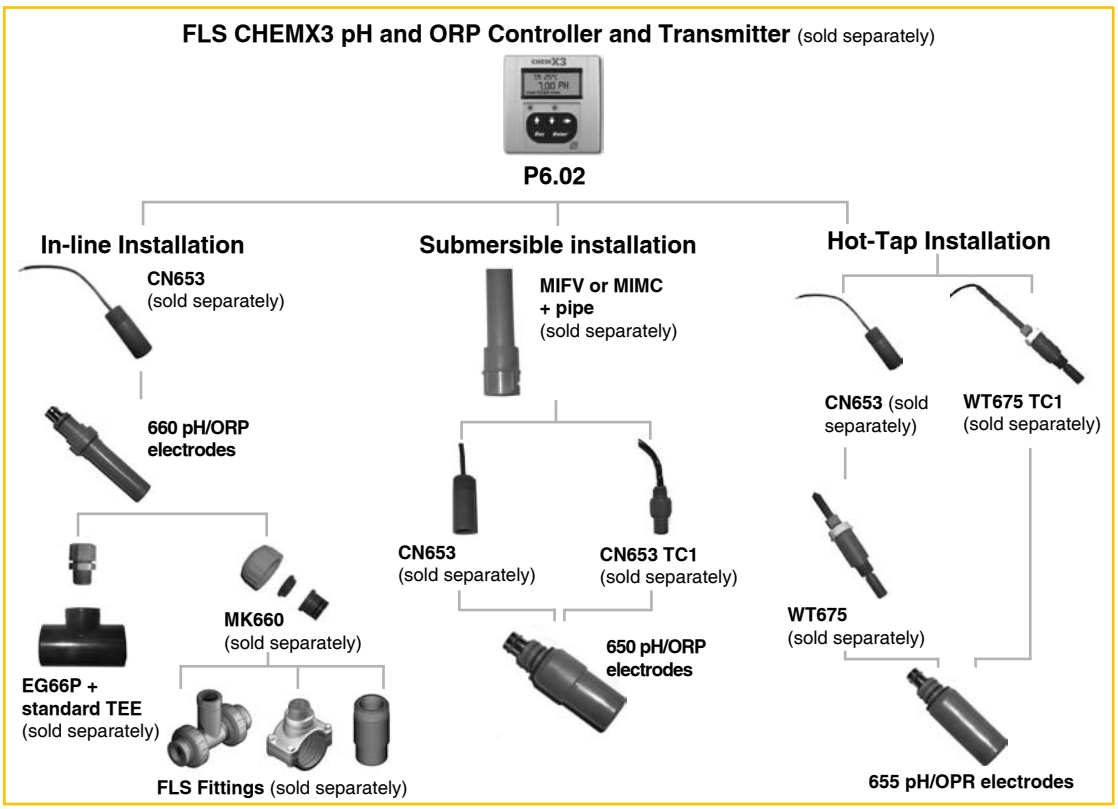
Main Features

- pH and ORP versions.
- Flat electrodes.
- Double junction technology.
- Large gel reference volume.
- High protection from process contamination.
- Easy and quick installation system.
- BNC connector.
- In line, submersion or hot tap installation.
- Low cost fittings.
- HF option (pH) for liquids with HF (max. 2%) inside.
- DI option (pH) on request for pure water (<100uS).
- Other special versions on request.

Applications

- Water & Wastewater treatment.
- Pre-chlorination & de-chlorination.
- Neutralization systems.
- Water quality monitoring.
- Ozone treatment.
- Cooling towers.
- Boiler systems.
- Bleach production.
- Pulp bleaching.
- Aquaculture.
- Fruit and vegetables washing.
- Textile Dye Process.

System Overview



PHAMP1 Battery Powered Amplifier may be required for electrode-monitor connections longer than 15 mt. (49 ft.).

Cable Assembly

Cable	Part No.	Description	For Electrodes	Cable Length
	**CN653**	Quarter-turn, quick disconnect, universal cable assembly for in-line or submersible installation	All *	5 mt. (16.5 ft.)
	**CN653 TC1**	Quarter-turn, quick disconnect, submersible cable assembly with TEMPERATURE COMPENSATION (PT 100)	PH650, ORP650	5 mt. (16.5 ft.)

* Excluded PH655 CD when used together with WT675 TC1

Technical Data

General

■ Operating Range:
- PH Electrodes: 0 - 14 pH (0 - 12.3 pH without Na+ error)
- ORP Electrodes: ± 2000 mV.

■ Pipe Size Range: DN15 to DN100 (0.5” to 4”).

■ Zero voltage point new electrode performances: 7.00pH ± 0.2pH.

■ Efficiency new electrode performances: > 97% @ 25°C (77°F).

■ Response time new electrode performances:
- PH: < 6 sec for 95% of signal change,
- ORP: application dependent.

■ Reference
- Type: sealed double junction
- Electrolyte : Solidified Gel 3.5M KCl 0.1M KCl for LC electrode version / solidified gel KCl 3.5M
- Secondary junction: Nylon filament
- Wire: Ag/AgCl.

Please refer to installation Fittings for more details and a complete list of items.

■ Process Connection:
- In-line installation:
  - threaded nipple ½”, ¾”
  - FLS installation fittings
- Submersible installation
- Hot-Tap installation.

■ Max Working pressure/ working temperature:
- 7 bar (100 psi) @ 75°C (167°F).

■ Wetted materials:
- Body: CPVC (PVDF only on request)
- Reference Junction: porous HDPE
- Sensing surface:
  - glass membrane (pH)
  - platinum sealed in glass(ORP)
- O-ring: FPM (Viton).

Standards & Approvals

■ Manufactured under ISO 9001 (Quality).

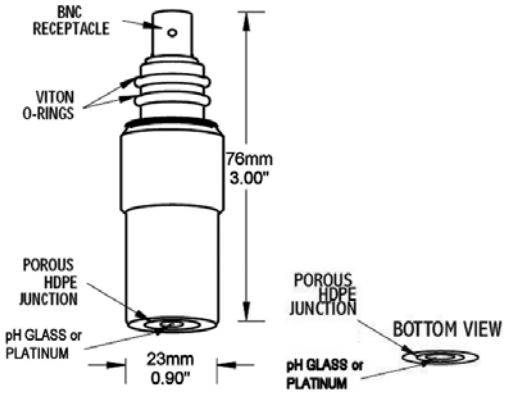
■ Manufactured under ISO 14000 (Environmental Management).

■ CE.

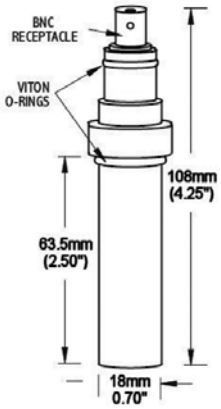
■ GOST R.

Dimensions

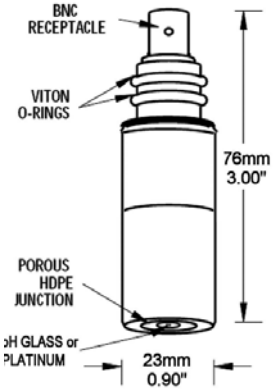
Submersible PH650, ORP650



In-line PH660, ORP660



Insertion/Hot-tap PH655, ORP655



Ordering Data

CHEMX3 pH and ORP Flat Surface, Self Cleaning Electrodes

Part No.	Description	Cable Assembly	Connection	Installation	Weight (gr.)
PH660 CD	C-PVC Double Junction pH Combination Flat surface Electrode	Required	Twist-Lock (BNC)	In Line	100
ORP660 CD	C-PVC Double Junction REDOX Combination Flat surface Electrode	Required	Twist-Lock (BNC)	In Line	100
PH650 CD	C-PVC Double Junction pH Combination Flat surface Electrode	Required	Twist-Lock (BNC)	Submersible	100
ORP650 CD	C-PVC Double Junction REDOX Combination Flat surface Electrode	Required	Twist-Lock (BNC)	Submersible	100
PH655 CD	C-PVC Double Junction pH Combination Flat surface Electrode with pressurized filling gel	Required	Twist-Lock (BNC)	Insertion/ Hot-Tap	100
ORP655 CD	C-PVC Double Junction REDOX Combination Flat surface Electrode with pressurized filling gel	Required	Twist-Lock (BNC)	Insertion/ Hot-Tap	100

Cable Assembly

Part No.	Description	For Electrodes	Cable Lenght	Weight (gr.)
CN653	Universal cable assembly	All*	5 mt. (16.5 ft.)	300
CN653 TC1	Submersible cable assembly with TEMPERATURE COMPENSATION (Pt 100)	PH650 CD	5 mt. (16.5 ft.)	350

* Excluded PH655 CD when used together with WT675 TC1.

Ordering Data

Electrodes for special applications

Part No.	Description	Purpose	Cable Assembly	Connection	Installation	Weight (gr.)
PH660 CD HF	C-PVC Double Junction pH Combination Flat surface Electrode	Liquids with HF (max 2%)	Required	Twist-Lock (BNC)	In Line	100
PH650 CD HF	C-PVC Double Junction pH Combination Flat surface Electrode	Liquids with HF (max 2%)	Required	Twist-Lock (BNC)	Submersible	100
PH655 CD HF	C-PVC Double Junction pH Combination Flat surface Electrode with pressurized filling gel	Liquids with HF (max 2%)	Required	Twist-Lock (BNC)	Insertion/ Hot-Tap	100
PH660 DA ORP660 DA	Ground Loop interrupt Flat Surface pH/ORP combination Electrode	Presence of stray currents	Required	Twist-Lock (BNC)	In Line	200
PH650 DA ORP650 DA	Ground Loop interrupt Flat Surface pH/ORP combination Electrode	Presence of stray currents	Required	Twist-Lock (BNC)	Submersible	200
PH655 DA ORP655 DA	Ground Loop interrupt Flat Surface pH/ORP combination Electrode with pressurized filling gel	Presence of stray currents	Required	Twist-Lock (BNC)	Insertion/ Hot-Tap	200
PH660 CD LC	C-PVC Double Junction pH Combination Flat surface Electrode	Liquids with low conductivity (<100 µs)	Required	Twist-Lock (BNC)	In Line	100
PH650 CD LC	C-PVC Double Junction pH Combination Flat surface Electrode	Liquids with low conductivity (<100 µs)	Required	Twist-Lock (BNC)	Submersible	100
PH655 CD LC	C-PVC Double Junction pH Combination Flat surface Electrode with pressurized filling gel	Liquids with low conductivity (<100 µs)	Required	Twist-Lock (BNC)	Insertion/ Hot-Tap	100

Cable Assembly

Part No.	Description	For Electrodes	Cable Lenght	Weight (gr.)
CN653	Universal cable assembly	All*	5 mt. (16.5 ft.)	300
CN653 TC1	Submersible cable assembly with TEMPERATURE COMPENSATION (Pt 100)	PH650 CD HF PH650 DA PH650 CD LC	5 mt. (16.5 ft.)	350

* Excluded PH655 CD HF, PH655 DA, PH655 CD LC when used together with WT675TC1.

Please, contact us for special request or for other special applications as for soils, organic solvents, dairy products.

Type:
PHAMP1
T970278
T971554

Phamp1
Main Features

- Cable length up to 300 mt. (1000 ft.).

For all pH and ORP electrodes equipped with BNC connector.

- Long-lasting batteries included.

Temperature sensors
Main Features

- Wide chemical compatibility.
- Two wires technology.
- IP68 enclosure.

Phamp1 Technical Data

General

- Dimensions:
  - Length: 10 cm. (4.00 in.)
  - Diameter: 1.6 cm. (0.63 in.)
- Material: Stainless Steel AISI 316.
- Working temperature: 0°C to 60°C (32°F to 140°F).

Electrical

- Power Supply: 2 x 3 Volt lithium batteries (not replaceable).
- Input: pH and ORP electrodes with BNC connector and impedance < 10^{13} Ω.
- Output: mV unity gain, < 20 KΩ resistance.
- Output offset: 2 mV max. (0.03 pH units).

Standards & Approvals

- Manufactured under ISO 9001 (Quality).
- Manufactured under ISO 14000 (Environmental Management).
- CE.

Temperature sensors Technical Data

T970278

- Material: Epoxy body.
- Operating range: 0°C(32°F) to 100°C(212°F).
- Accuracy: ± 0,3°C @ 0°C; ± 0,8°C @ 100°C.
- Installation: in-line or submersible.
- Cable length: 5mt (16,5ft.).

T971554

- Material: CPVC body.
- Operating range: 0°C(32°F) to 100°C(212°F).
- Accuracy: ± 0,3°C @ 0°C; ± 0,8°C @ 100°C.
- Installation: in-line.
- Cable length: 5mt (16,5ft.) .

Ordering Data

Part No.	Description	Cable Assembly	Weight (gr.)
PHAMP1	Battery Powered Preamplifier	Required	100
T970278	Epoxy body Pt100 sensor	5 mt (16,5ft.)	350
T971554	CPVC ¼" threaded body Pt100 sensor	5 mt (16,5ft.)	350