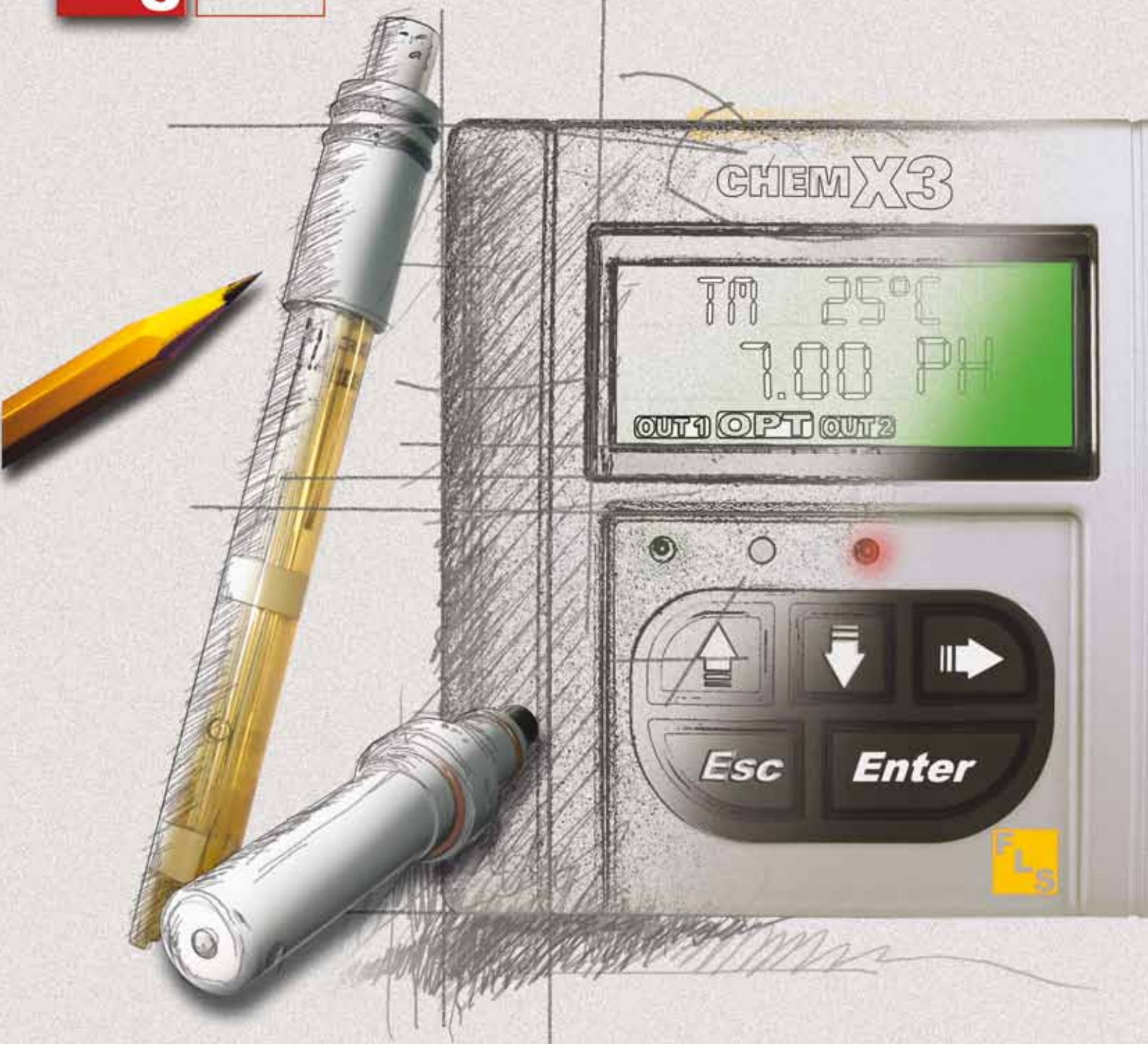
CHEMX3

pH, ORP, Conductivity Sensors and Instruments



Technical Catalogue

Index

PH and ORP

Conductivity

Installation Fittings

Type: PH200C, PH200 CS, PH222 CD, PH223 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.
These epoxy body electrodes can stand several applications thanks to the high chemical resistance of the material. 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.

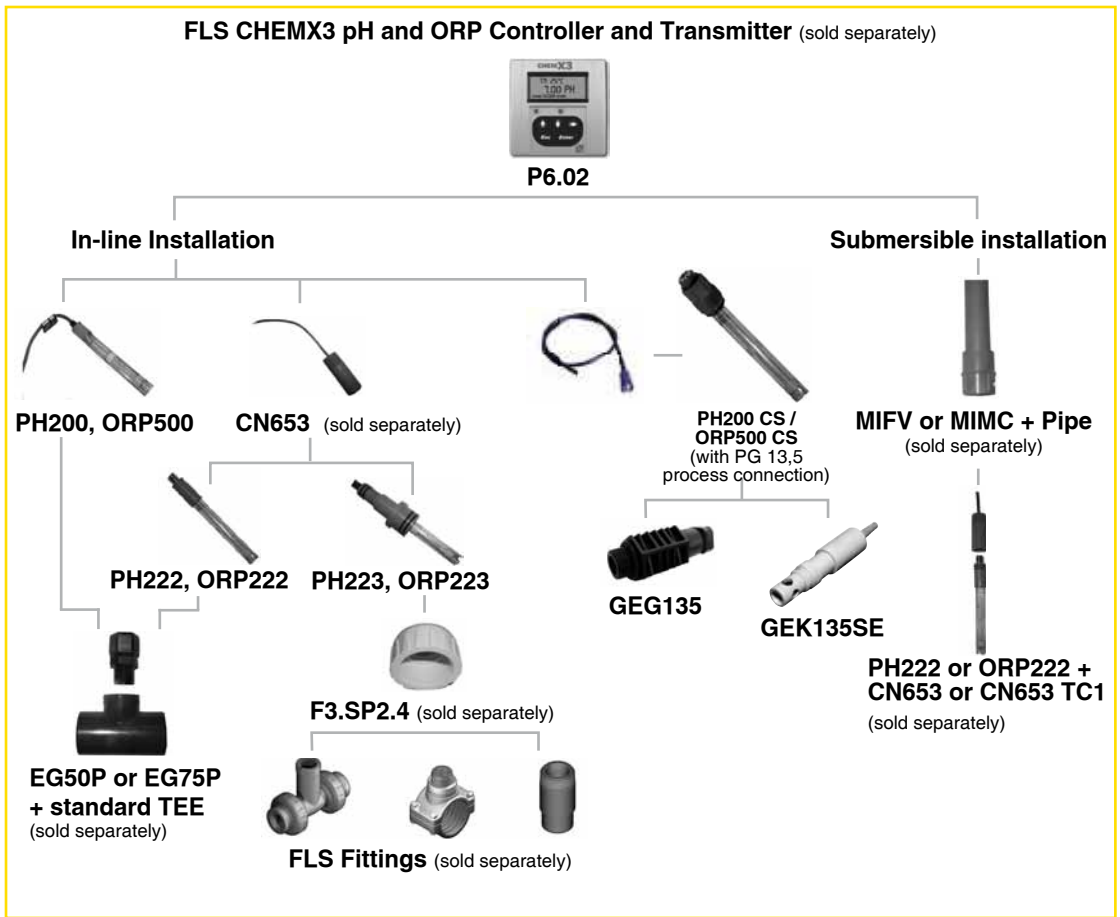
Main Features

- Epoxy 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)

■ Wetted materials:
- Body: epoxy
- O-ring junction: silicone
- Junction: pelon
- 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

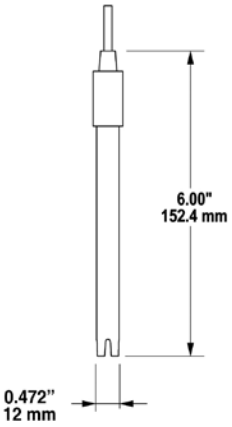
Specifications

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
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

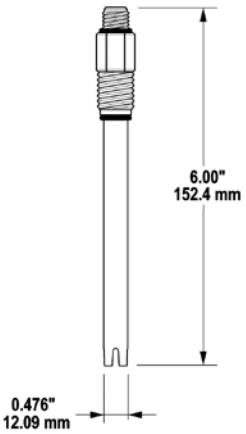
S.J. = single junction; D.J. = double junction

Dimensions

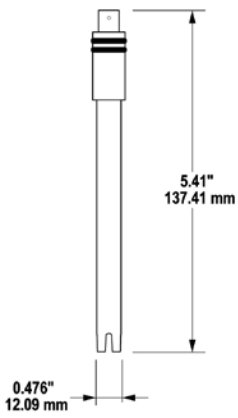
PH200 C
ORP500 C



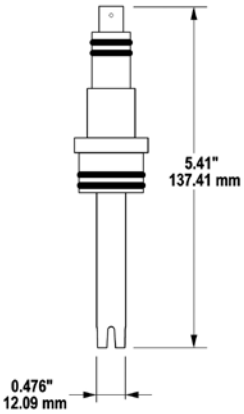
PH200 CS
ORP500 CS



PH222 CD
ORP222 CD



PH223 CD
ORP223 CD



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

* 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
CE5S7	S7 Cable for in-line installation	PH200 CS, ORP500 CS	5 mt. (16.5 ft.)	300

Type: PH635CD, PH630CD, PH625C, ORP625C

This line of electrodes with glass body has been designed both for applications where it's requested to use sensors with traditional features like open junction, ceramic junction, and for special applications where temperature is high or where there is a presence of interfering species. Version with or without head connection (S7) are available.
There are also version equipped with double junction and version with barriered junction.

Main features

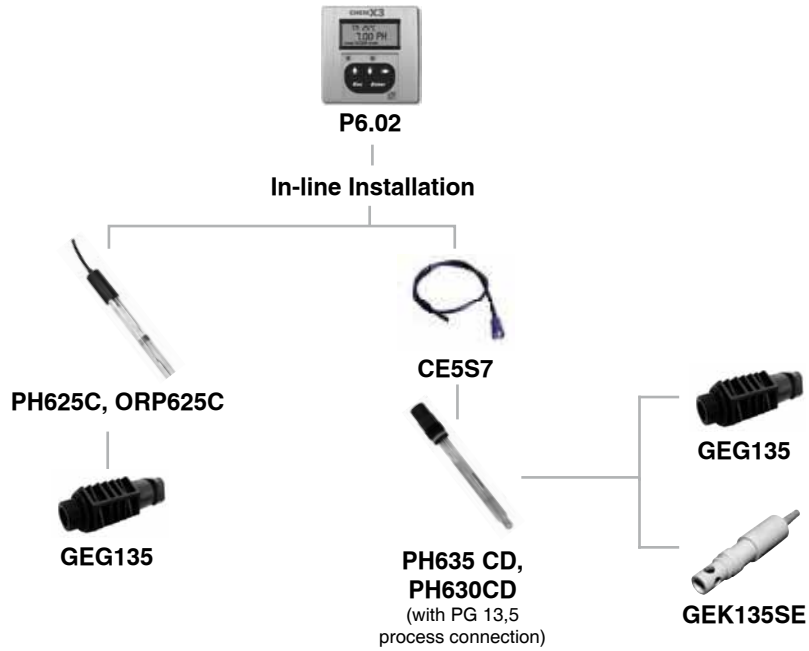
- Glass body.
- Cost effective electrodes.
- Sensors suitable for extreme applications.
- Installation easy and cheap.
- Innovative reference solutions.
- Cheap adaptors for installations.
- Special versions available on request.

Applications

- Water treatment .
- Neutralization systems.
- Water quality monitoring.
- Process control.
- Agriculture and fertilizing systems.
- Plating plant and tannery.
- Cooling towers and scrubbers.

System overview

FLS CHEMX3 pH and ORP Controller and Transmitter (sold separately)



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

Cable assembly

Cable	Part No.	Description	For electrodes	Cable lenght
	**CE5S7**	S7 cable assembly for in-line installation	PH635CD, PH630CD	5 mt (16.5 ft)

Technical data

General

■ Operating range:
- Ph electrodes: 0 - 14 pH (0 - 12.3 pH without Na^+ error)
- ORP electrodes: ± 1000 mV.

■ Pipe size range:
DN15 to DN100 (0.5” to 4”).

■ Zero point voltage point new electrode performances: 7pH ± 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: 3M KCl polymeric gel (different substrates in according with model)

■ Process connection:
- In-line installation with: PG13,5.

■ Max working pressure/ working temperature:
- 6 bar (90psi) @ 130°C (266°F) (PH635CD)
- 10 bar (145psi) @ 80°C (175°F) (PH630CD)
- 6 bar (90psi) @ 60°C (140°F) (PH625C, ORP625C).

■ Wetted materials:
- body: glass
- junction: Open (PH635CD), Ceramic (PH630CD), Open (PH625C, ORP625C)
- Sensing surface: glass membrane (pH); platinum (ORP).

Standards & Approvals

■ Manufactured under ISO9001 (Quality).

■ Manufactured under ISO14000 (Environmental Management).

■ CE.

■ GOST R.

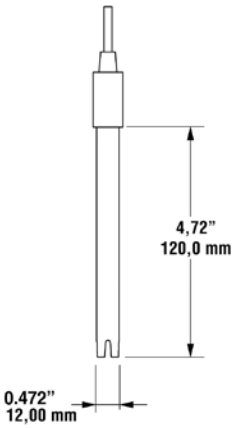
Specification

Model	Body	Junction material/type	Reference solution	Sensing surface	O-ring	Max working pressure @ max working temperature
PH635CD	glass	Open/D.J.	KCl 3M	Glass type H	Silicone	6bar @ 130°C/85psi @ 266°F
PH630CD	glass	Ceramic/D.J.	KCl 3M	Glass type H	Silicone	10bar @ 80°C/145psi @ 176°F
PH625C	glass	Open/S.J.	KCl 3M	Glass type H	Silicone	6bar @ 60°C/87psi @ 140°F
ORP625C	glass	Open/S.J	KCl 3M	Glass type H	Silicone	6bar @ 60°C/87psi @ 140°F

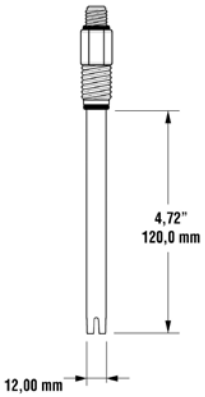
S.J. = single junction; D.J. = double junction

Dimensions

PH625 C
ORP625 C



PH635 CD
PH630 CD



Ordering data

CHEMX3 pH and and ORP glass body electrodes

Part No.	Description	Cable assembly	Connection	Weight (gr)
PH635CD	Double Junction combination pH/Reference electrode	Required	S7	200
PH630CD	Double Junction combination pH/Reference electrode	Required	S7	200
PH625C	Combination pH/Reference electrode	Not Required	5 mt (16.5 ft)	200
ORP625C	Combination ORP/Reference electrode	Not Required	5 mt (16.5 ft)	200

Cable assembly

Part No.	Description	For electrodes	Cable lenght	Weight (gr)
CE5S7	S7 cable assembly for in-line installation	PH635CD, PH630CD	5 mt (16.5 ft)	250

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.

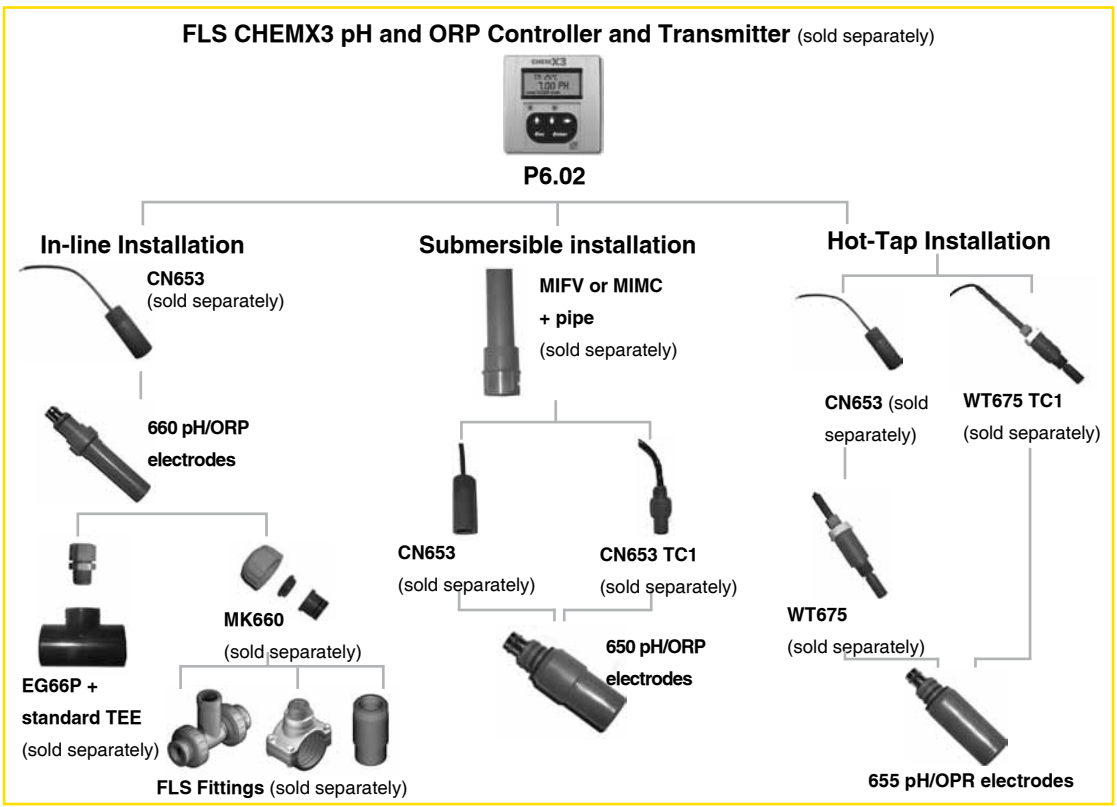
Main Features

- 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).

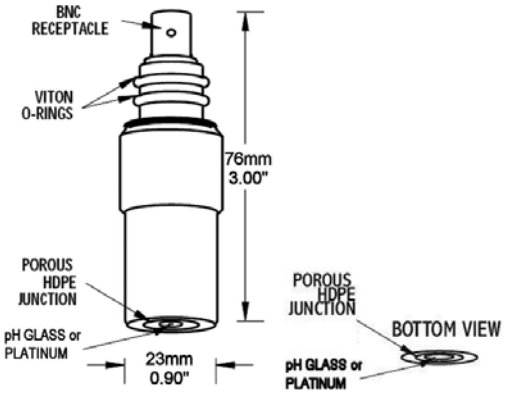
■ Manufactured under ISO 14000 (Environmental Management).

■ CE.

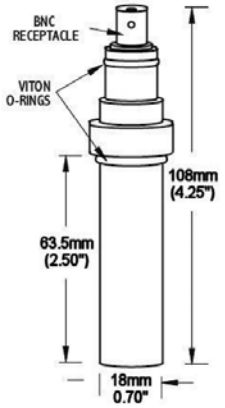
■ GOST R.

Dimensions

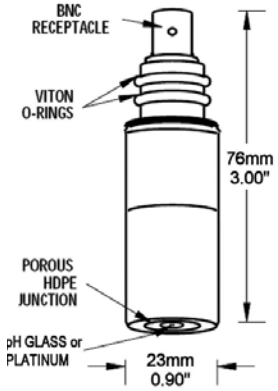
Submersible PH650, ORP650



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: P6.02

FLS CHEMX3 P6.02 pH/ORP Monitors and Controllers are designed for a wide range of application and to work with different kind of pH and ORP electrodes. Automatic buffer recognition allows an easy and mistake-proof pH and ORP electrode calibration. A complete choice of input/output options, together with manual or automatic temperature compensation and an easy-to-use software, guarantee customized setups for any process to be controlled.

Main Features

- Configurable for either pH or ORP.
- Backlit alphanumeric LCD.
- Automatic evaluation of electrode performance.
- Automatic recognition of calibration buffer.
- Automatic or manual temperature compensation.
- Two programmable relays for external device control.
- Programmable alarms.
- Easy-to-use software.
- Removable terminals.
- Output simulator.

Applications

- Water & Wastewater treatment.
- Water quality monitoring.
- Swimming Pools and Spas.
- Neutralization systems.
- Scrubber control.
- Surface finishing.
- Heavy metal removal and recovery.
- Mineral water.
- Bleach production.
- Pulp bleaching.

Technical Features

PH/ORP Monitor and Controller	Part No.	Power Supply	Electrode Input	4-20 mA Output	Relay Output	Mounting
	**P6.02.P1**	24 VAC/DC	pH or ORP, Temperature	1	2 - low, high, blinking prop. pulse, continuing prop. pulse, off	Panel Mounting
	P6.02.W1	24 VAC/DC	pH or ORP, Temperature	1	2 - low, high, blinking prop. pulse, continuing prop. pulse, off	Wall Mounting
	P6.02.W2	110/230 VAC	pH or ORP, Temperature	1	2 - low, high, blinking prop. pulse, continuing prop. pulse, off	Wall Mounting

Connections to CHEMX3 electrodes

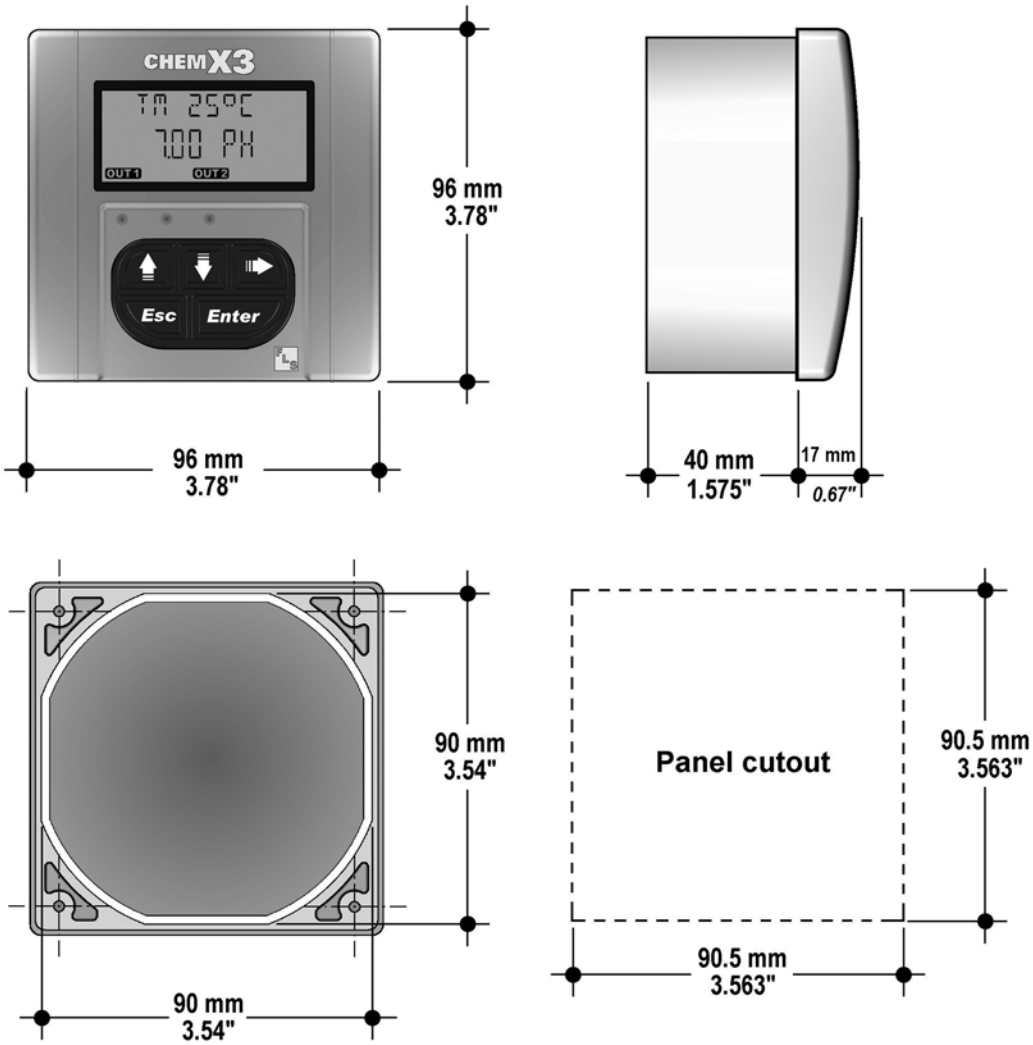
PH Electrodes
All conductivity sensors attend on CHEM X3 catalogue.
ORP Electrodes
All conductivity sensors attend on CHEM X3 catalogue.

Preamplifiers
PHAMP1.

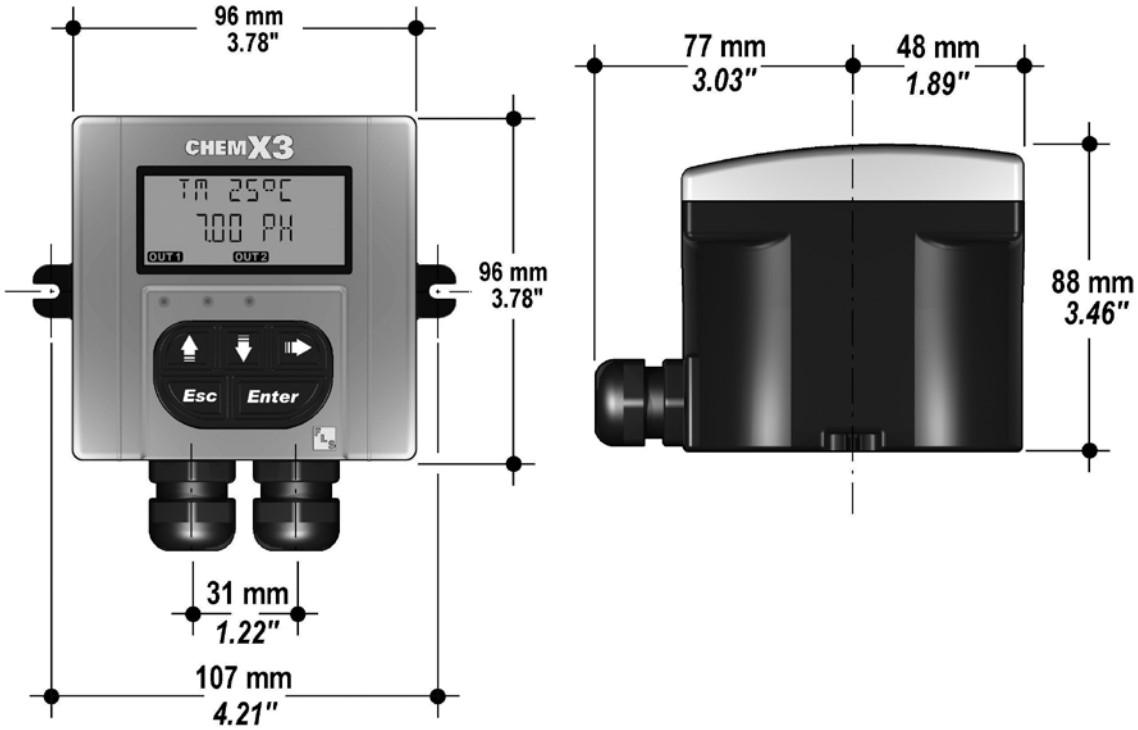
Please refer to individual sections for more information.

Dimensions

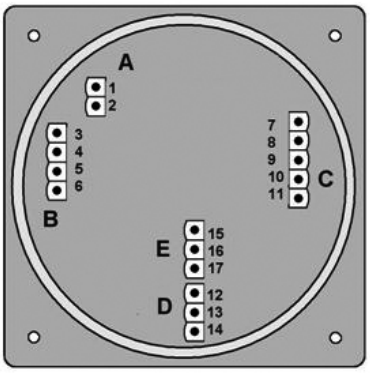
Panel mount



Wall mount



Rear Terminal View



1	+ Vac/dc	A
2	- Vac/dc	
3	+ HOLD	B
4	- HOLD	
5	+ LOOP	
6	- LOOP	
7	Pt100/ Pt1000	C
8		
9		
10	+ IN	
11	- IN	
12	NC	D
13	COM	
14	NO	
15	NC	E
16	COM	
17	NO	

Technical Data

General

- Materials:
  - Case: PC
  - Panel gasket: Neoprene
  - Wall gasket: EPDM
  - Keypad: 5-button silicone rubber.
- Display:
  - 3 line LCD: 2 x 12 alphanumeric lines + 1 icon line
  - Update rate: 1 second
  - Contrast: User adjustable with 5 levels
- Enclosure: IP65 front.
- **pH monitor**
  - Sensor Input range: -2÷16 pH
  - Accuracy: ± 0.01 pH
- **Redox monitor**
  - Sensor Input range: ± 2000 mV
  - Accuracy: 1 mV
- Temperature Range: 0÷100°C with Pt100/Pt1000 three wires
- Temperature Accuracy: ± 1°C
- Temperature Resolution: 0.15°C

Electrical

- Supply Voltage: 24 VAC/DC ± 20%
- Current output:
  - 4…20 mA (±0.05%, ±0.01mA), isolated, fully adjustable and reversible
  - Max loop impedance: 500 Ω
- Relay output:
  - Mechanical SPDT contact
  - Contact 10A 250V
- Input Voltage: 15÷30 Vac/dc Optically isolated
- Protection Fuse: 150 mA (Regenerate).

Environmental

- Operating temperature: -10 to +60°C (14 to 158°F).
- Storage temperature: -15 to +80°C (5 to 176°F).
- Relative humidity: 0 to 95% non condensing.

Standards & Approvals

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

Ordering Data

CHEMX3 pH/ORP Controllers and Transmitters

Part No.	Description	Power Supply	Input	Output	Weight (gr.)
P.6.02	pH/ORP monitor and transmitter	24 VAC/DC	pH or ORP, Temperature	1 (4-20mA) 2 (Relay)	550
P6.02.P1	Panel mounting pH/ORP monitor and transmitter	24 VAC/DC	pH or ORP, Temperature	1 (4-20mA) 2 (Relay)	550
P6.02.W1	Wall mounting pH/ORP monitor and transmitter	24 VAC/DC	pH or ORP, Temperature	1 (4-20mA) 2 (Relay)	650
P6.02.W2	Wall mounting pH/ORP monitor and transmitter	110/230 VAC	pH or ORP, Temperature	1 (4-20mA) 2 (Relay)	750

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

Epoxy body Conductivity Sensors

Type: C150, C150 TC, C200, C200 TC

The CHEMX3 conductivity sensors feature graphite or high resolution platinum ring technology. Durable epoxy body construction provides rugged and dependable sensors. Due to platinum electrodes and ATC elements these sensors provide accurate and high resolution measurement.
They can be used for both laboratory and industrial applications.
Three cell constants are available depending on the operating range required.
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

- Graphite or Platinum measuring surfaces.
- Suitable for laboratory, industrial or portable applications.
- In line and submersion installation.
- Available with or without ATC (temperature sensor).
- Cell constant choices of 0.1 and 10.

Applications

- Chemical concentrations.
- Foods industry.
- Steam generation.
- Metal finishing and mining.
- Textile industry.
- Pulp and paper.
- Water treatment.
- Reverse osmosis.
- Softener regeneration.
- De-ionization.
- Distillation.
- Aquaculture.
- Agriculture and fertilizing systems.

System Overview

FLS CHEMX3 pH and ORP Controller and Transmitter (sold separately)

C5.02

In-line Installation

C150, C150 TC, C200, C200 TC

GEG135

K150200
(sold separately)

EG50P or EG75P + standard TEE
(sold separately)

FLS Fittings (sold separately)

Submersible installation

MIFV or MIMC + Pipe
(sold separately)

C150, C150 TC, C200, C200 TC + EGxxP
(sold separately)

Technical Data

General

- Operating Range:
  - C150.01, C150.01 TC, C200.01, C200.01 TC: 0.02 to 2000 µS (50 Mohm to 0.5 Kohm) (0.014 to 1400 ppm)
  - C150.1, C150.1 TC, C200.1, C200.1 TC: 0,2 to 10000 uS (0.14 to 14000 ppm)
  - C200.10, C200.10 TC: 2 to 200000 µS 1.4 to 140000 ppm.
- Temp. compensation device (for TC models): Pt100.
- Cable length: 5 meter (2,5 ft.) .
- Max. distance electrode-controller (without signal conditioning): 20 meter (66 ft).
- Process Connection:
  - In-line installation with:
    - threaded nipple ½" or ¾"
    - FLS installation fittings
  - Submersible installation.

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

- Working temperature: 0°C to 100°C (32°F to 212°F).
- Max. Working Pressure: 7 bar (100 psi).
- Wetted materials:
  - Body: epoxy
  - Measuring surface: graphite (C150 version) or platinum (C200 version).

Standards & Approvals

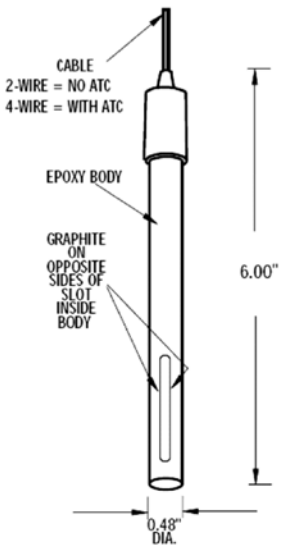
- Manufactured under ISO 9001 (Quality).
- Manufactured under ISO 14000 (Environmental Management).
- CE.
- GOST R.

Cell Constant Ranges

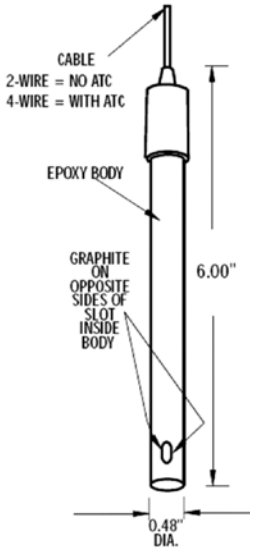
Cell Constant (k)	0.1	1	10
Operating Range	0.02 µs to 2000 µs 50 MΩ to 0.5 KΩ 0.014 to 1400 ppm	0.2 µs to 20000 µs 0.14 to 14000 ppm	2 µs to 200000 µs 1.4 to 140000 ppm
Application	Deionized and distilled water	Distilled and drinking water. Cooling towers	Waste water sea water

Dimensions

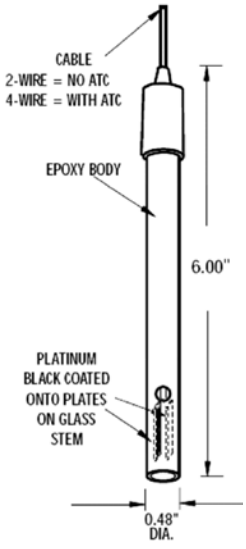
C150.01, C150.01 TC



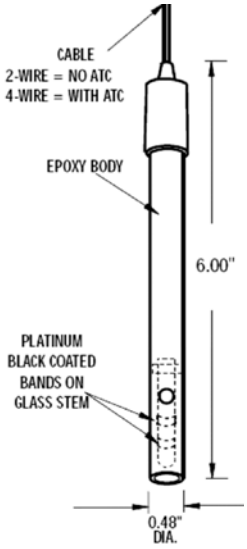
C150.1, C150.1 TC



C200.01, C200.01 TC



C200.1, C200.1 TC



Ordering Data

CHEMX3 Conductivity Epoxy Body Sensors

Part No.	Description	Cell Constant	Connection	Weight (gr.)
C150.01	Graphite Conductivity Sensor	0,1 Cell	5 mt. (2.5 ft.)	200
C150.1	Graphite Conductivity Sensor	1,0 Cell	5 mt. (2.5 ft.)	200
C150.01 TC	Graphite Conductivity Sensor with Temperature Sensor included	0,1 Cell	5 mt. (2.5 ft.)	200
C150.1 TC	Graphite Conductivity Sensor with Temperature Sensor included	1,0 Cell	5 mt. (2.5 ft.)	200
C200.01	Platinum Conductivity Sensor	0,1 Cell	5 mt. (2.5 ft.)	200
C200.1	Platinum Conductivity Sensor	1,0 Cell	5 mt. (2.5 ft.)	200
C200.10	Platinum Conductivity Sensor	10,0 Cell	5 mt. (2.5 ft.)	200
C200.01 TC	Platinum Conductivity Sensor with Temperature Sensor included	0,1 Cell	5 mt. (2.5 ft.)	200
C200.1 TC	Platinum Conductivity Sensor with Temperature Sensor included	1,0 Cell	5 mt. (2.5 ft.)	200
C200.10 TC	Platinum Conductivity Sensor with Temperature Sensor included	10,0 Cell	5 mt. (2.5 ft.)	200

Stainless Steel electrodes Conductivity Sensors

Type:
C100.01
C100.02
C100.1
C100.01 TC
C100.02 TC
C100.1 TC
C300.001 TC
C300.10TC

The CHEMX3 conductivity sensors with stainless steel electrodes (C100 series) are designed for agriculture application and for light industrial application obviously where sample conditions allow a steel using (water treatment, foods industry and others). This type of sensors are characterized by a considerable ratio performance/price. They can also be equipped with ATC to improve measurement accuracy. Moreover a wide number of cell constants grants to choose the best item for specific application.
C300 serie has been designed for ultrapure water monitoring (cell constant 0,01) and for waste water application (cell constant 10). C300 sensors are completely made in SS ensuring a wide range of applications.

Main Features

- Stainless steel measuring surfaces.
- Considerable ratio performance/price.
- Available with or without ATC.
- Wide range of cell constant.
- Rugged sensor body in PP (C100).
- Sensor in SS completely (C300).

Applications

- Agriculture and fertilizing system.
- Water treatment.
- Foods industry.
- Aquaculture.
- Ultrapure water application: production and use.

Technical Data

General

- Operating range:
  - C300.001TC: 0,002 µS to 200 µS
  - C100.01, C100.01TC: 0.02 µS to 2000 µS
  - C100.02, C100.02TC: 0.04 µS to 4000 µS
  - C100.1, C100.1TC: 0.2 µS to 20000 µS
  - C300.10TC: 2 µS to 200000 µS.
- Temperature compensation device (for TC models):
  - Pt 100 (C100TC), Pt1000 (C300TC).
- Cable length:
  - C100.01, C100.02, C100.1: 5 m bipolar cable of 5 mm section
  - C100.01TC, C100.02TC, C100.1TC: no cable available
  - C300TC: 3 m
- Process connection:
  - C100.01, C100.02, C100.1: ½" male BSP
  - C100.01TC, C100.02TC, C100.1TC: ¾" male BSP
  - C300: EG50P, EG75P and SS fitting.
- Max. Working Temperature:
  - C100.01, C100.02, C100.1: 80°C (176°F)
  - C100.01TC, C100.02TC, C100.1TC : 100°C (212°F)
  - C300TC: 100°C (PP fitting); 120°C (SS fitting)
- Max. Working Pressure:
  - C100.01, C100.02, C100.1, C100.01TC, C100.02TC, C100.1TC: 6 bar (85 psi)
  - C300TC: 7 bar (PP fitting); 13 bar (SS fitting).
- Wetted materials:
  - Body: C100.01, C100.02, C100.1, C100.01TC, C100.02TC, C100.1TC: PP C300TC: SS 316
  - Measuring surface: stainless steel AISI316

Standards & Approvals

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

Ordering Data

Part No.	Description	Cell Constant (k)	Cable (m)	Installations	Weight (gr.)
C300.001TC	Body sensor and conductivity electrodes in SS	0,01	3	EG50P, EG75P, SS fitting	150
C100.01	PP body sensor with SS Conductivity Electrode	0,1	5,00	½" male BSP (parallel threaded)	350
C100.01TC	PP body sensor with SS Conductivity Electrode and Temperature Sensor included	0,1	No (4 poles connector)	¾" male BSP (parallel threaded)	350
C100.02	PP body sensor with SS Conductivity Electrode	0,2	5,00	½" male BSP (parallel threaded)	350
C100.02TC	PP body sensor with SS Conductivity Electrode and Temperature Sensor included	0,2	No (4 poles connector)	¾" male BSP (parallel threaded)	350
C100.1	PP body sensor with SS Conductivity Electrode	1,0	5,00	½" male BSP (parallel threaded)	350
C100.1TC	PP body sensor with SS Conductivity Electrode and Temperature Sensor included	1,0	No (4 poles connector)	¾" male BSP (parallel threaded)	350
C300.10TC	Body sensor and conductivity electrodes in SS	10,0	3	EG50P, EG75P, SS fitting	150

Inductive Conductivity Transmitter

Type: C3.30

FLS CHEMX3 C3.30 is a family of conductivity transmitters which are made by a 4-20mA output device (two wire technology) integrated onto an inductive conductivity electrode. This type of measurement technology allows a broad range of applications especially to measure high values of conductivity in aggressive fluids. Automatic temperature compensation is granted by a Pt100 integrated into instrument body. The isolated 4-20mA output is perfect for direct connections to PLCs or data loggers without any extra interfaces.

Main Features

- Corrosion & coating resistant.
- Compact transmitter.
- No calibration required.
- Easy installation.
- Pt100 sensor integrated.

Applications

- Water treatment.
- Waste water treatment.
- Cooling towers.
- Scrubber systems.
- Metal finishing.
- Coating and corrosion fluid measurement.

Technical Data

General

- Body Material: CPVC
- Body length: 207mm
- IP68.
- Power supply: 10-30 VDC regulated
- Max Working pressure/Working Temperature:
  - 10bar (145psi) @ 25°C (77°F)
  - 6bar (87psi) @ 50°C (122°F).
- Process connection: 1 ½” male NPT.

Standards & Approvals

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

Ordering Data

Part No.	Description	Measuring range (mS)	Cable (m)	Process connection	Weight (gr.)
C3.30.01	PVC-C Conductivity Transmitter with Temperature Sensor included	0-10	3	1 ½” male NPT	550
C3.30.02	PVC-C Conductivity Transmitter with Temperature Sensor included	0-100	3	1 ½” male NPT	550
C3.30.03	PVC-C Conductivity Transmitter with Temperature Sensor included	0-1000	3	1 ½” male NPT	550

Conductivity Monitor and Controller

Type: C5.02

FLS CHEMX3 C5.02 Conductivity Monitors and Controllers are designed to satisfy a broad range of application requirements.
A complete choice of input/output options, together with manual or automatic temperature compensation, guarantee customized setups for any process to be controlled.
The C5.02 can be easily configured via a user friendly software and can show also temperature value on the display (for TC sensor version).
C5.02 monitor will be able to control both Pt100 and Pt1000 temperature sensor.

Main Features

- Temperature value on the display.
- Range from 0,02 µS to 0,2 S.
- Auto range.
- Backlit alphanumeric LCD.
- Cell constant selectable freely.
- Measurement in TDS and in Ohm selectable
- Two programmable relays for external device control.
- Programmable alarms.
- Easy-to-use software.
- Removable terminals.
- Special correlation conductivity/ temperature for ultra-pure water.

Applications

- RO and DI Water Systems.
- Water quality monitoring.
- Desalination process
- Mineral water.
- Leak detections.
- Cooling tower.
- Scrubber control.
- Surface finishing.
- Textile industry.
- Pulp and Paper industry.

Technical Features

Conductivity Monitor and Controller	Part No.	Power Supply	Associated Electrode	4-20 mA Output	Relay Output	Mounting
	**C5.02.P1**	24 VAC/DC	Conductivity, Temperature	1	2 - low, high, blinking prop. pulse, continuing prop. pulse, off	Panel Mounting
	C5.02.W1	24 VAC/DC	Conductivity, Temperature	1	2 - low, high, blinking prop. pulse, continuing prop. pulse, off	Wall Mounting
	C5.02.W2	110-230 VAC	Conductivity, Temperature	1	2 - low, high, blinking prop. pulse, continuing prop. pulse, off	Wall Mounting

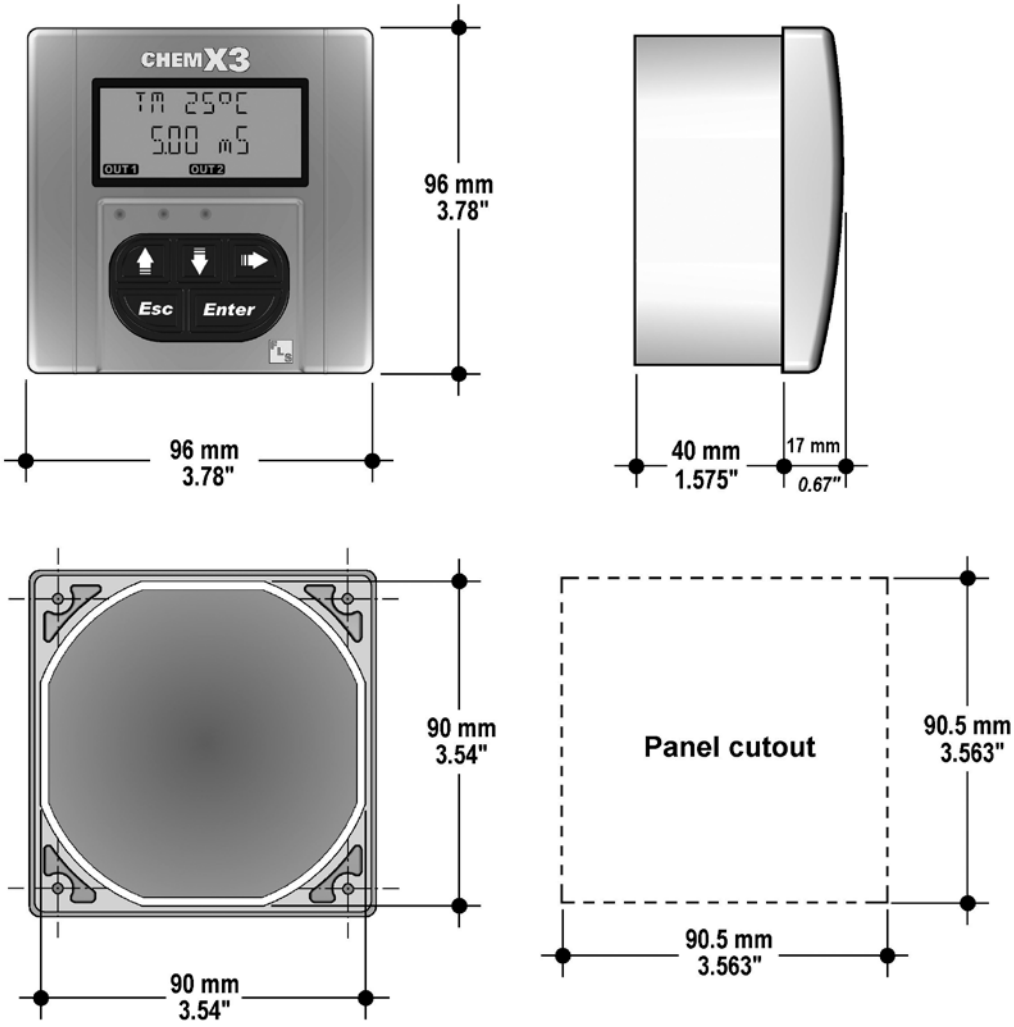
Connections to CHEMX3 sensors

Conductivity Sensors
C100, C150, C200, C300 series

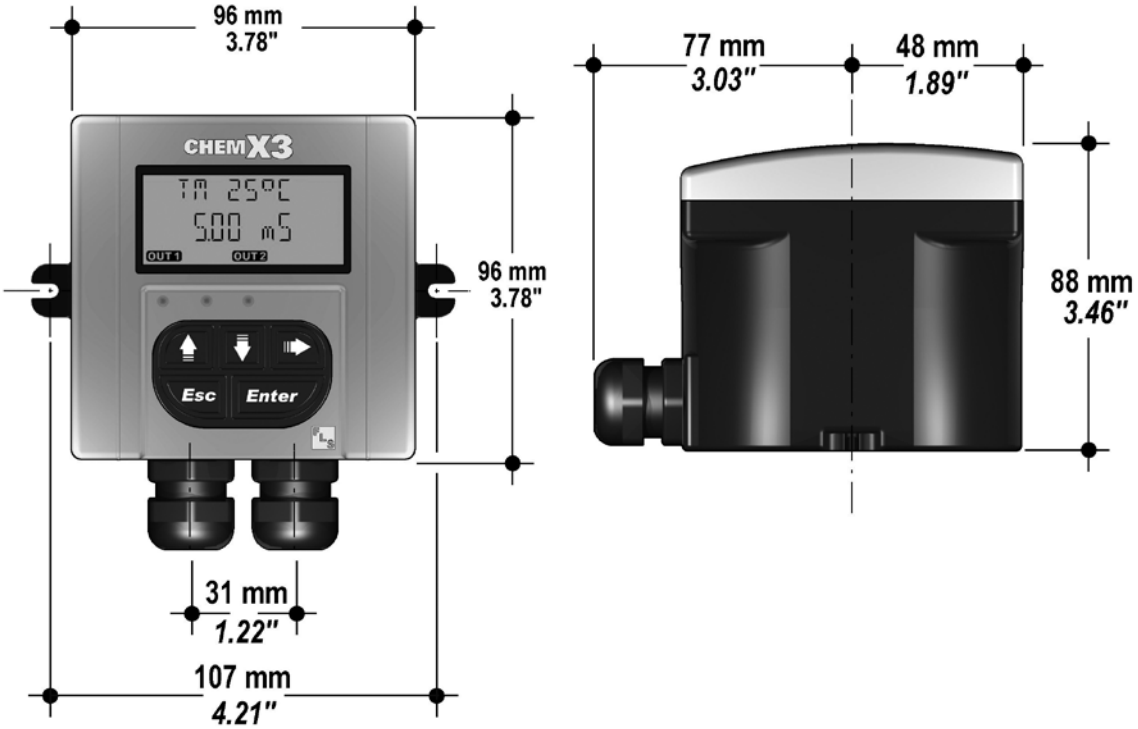
Please refer to individual sections for more information.

Dimensions

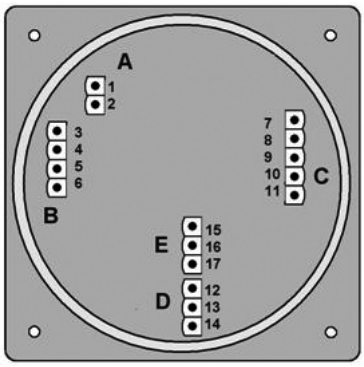
Panel mount



Wall mount



Rear Terminal View



1	+ Vac/dc	A
2	- Vac/dc	
3	+ HOLD	B
4	- HOLD	
5	+ LOOP	
6	- LOOP	
7	Pt100/ Pt1000	C
8		
9		
10	+ IN	
11	- IN	
12	NC	D
13	COM	
14	NO	
15	NC	E
16	COM	
17	NO	

Technical Data

General

- Materials:
  - Case: PC
  - Panel gasket: Neoprene
  - Wall gasket: EPDM
  - Keypad: 5-button silicone rubber.
- Display:
  - 3 line LCD: 2 x 12 alphanumeric lines + 1 icon line
  - Update rate: 1 second
  - Contrast: User adjustable with 5 levels.
- Enclosure: IP65 front

Conductivity

- Sensor Input range:
  - 0,002÷200µS with probe cell Constant = 0.01
  - 0,02÷2000µS with probe cell Constant = 0.1
  - 0,2÷20000µS with probe cell Constant = 1.0
  - 2÷200000µS with probe cell Constant = 10.0
- Accuracy: ± 0.1 % F.S.
- Temperature Range: 0÷100°C with Pt100/Pt1000 three wires.
- Temperature Accuracy: ± 1°C.
- Temperature Resolution: 0.15°C
- Special correlation conductivity/ temperature for ultra-pure water selectable.

Electrical

- Supply Voltage: 24 VAC/DC ± 20%.
- Current output:
  - 4…20 mA (±0.05%, ±0.01mA), isolated, fully adjustable and reversible
  - Max loop impedance: 500 Ω.
- Relay output:
  - Mechanical SPDT contact
  - Contact 10A 250V.
- Input Voltage for Hold Function: 15÷30 VAC/DC Optically isolated
- Protection Fuse: 150 mA (Regenerate)

Environmental

- Operating temperature: -10 to +60°C (14 to 158°F).
- Storage temperature: -15 to +80°C (5 to 176°F).
- Relative humidity: 0 to 95% non condensing

Standards & Approvals

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

Ordering Data

CHEMX3 Conductivity Controllers and Transmitters

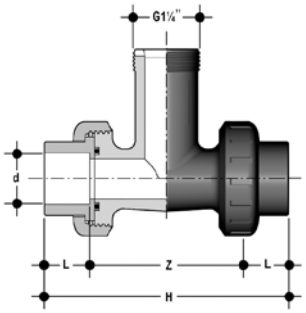
Part No.	Description	Power Supply	Input	Output	Weight (gr.)
C5.02	Conductivity monitor and transmitter	24 VAC/DC	Conductivity, Temperature	1 (4-20mA) 2 (Relay)	550
C5.02.P1	Panel mounting conductivity monitor and transmitter	24 VAC/DC	Conductivity, Temperature	1 (4-20mA) 2 (Relay)	550
C5.02.W1	Wall mounting conductivity monitor and transmitter	24 VAC/DC	Conductivity, Temperature	1 (4-20mA) 2 (Relay)	650
C5.02.W2	Wall mounting conductivity monitor and transmitter	110-230 VAC	Conductivity, Temperature	1 (4-20mA) 2 (Relay)	750

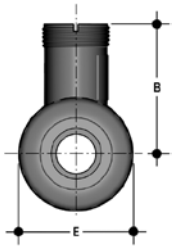
Installation Fittings

Part No.	Description	For Electrodes	Installation	Weight (gr.)
EG50P 	PA 1/2" male Electrode Gland	PH200 C, PH200 CD, PH222 CD, ORP500 C, ORP500 CD ORP222 CD, C150, C150 TC, C200, C200 TC, T970278 (Temp.)	In-line or Submersion	45
EG75P 	PA 3/4" male Electrode Gland	PH200 C, PH200 CD, PH222 CD, ORP500 C, ORP500 CD, ORP222 CD, C150, C150TC, C200, C200 TC, T970278 (Temp.)	In-line or Submersion	45
EG66P 	C-PVC 3/4" male Electrode Gland	PH660 CD, PH660 CD HF, ORP660 CD, ORP660 CD HF	In-line	45
F3.SP2.4 	Yellow Electrode Cap	PH223 CD, ORP223 CD	In-line	60
MK660 	Installation KIT for FLS fittings (adapter + yellow cap)	PH660 CD, PH660 CD, HF ORP660 CD, ORP660 CD HF	In-line	165
MK150200 	Installation KIT for FLS fittings (adapter + EG50P + yellow cap)	C150, C150 TC, C200, C200TC	In-line	165
MIFV20X05 	PVC Double socket 20x1/2" (pipe customer supplied)	All (PH655 CD, ORP655 CD excluded)	Submersion	30
MIMC20X05 	C-PVC Double socket 20x1/2" (pipe customer supplied)	All (PH655 CD, ORP655 CD excluded)	Submersion	30
WT675 	Wet Tap insertion assembly 12" depth	PH655 CD, ORP655 CD	Wet-Tap or Horizontal	700
WT675 TC1 	Wet Tap insertion assembly 12" depth with TC, including cable assembly (5 mt. Cable length)	PH655 CD	Wet-Tap or Horizontal	880

Installation Fittings

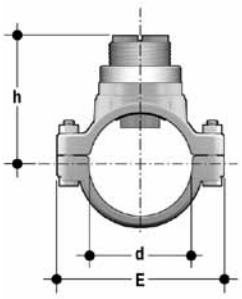
Installation on PVC pipes





ISO Metric PVC Tee Fittings (female ends for solvent welding)

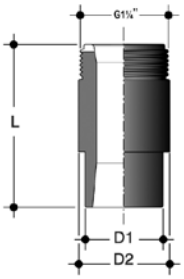
Part No.	DN	d	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFIV20B	15	20	NO	EPDM	113	81	16	73	53	250
TFIV25B	20	25	NO	EPDM	126	88	19	80	62	300
TFIV32B	25	32	NO	EPDM	139.5	95.5	22	81	71	400
TFIV40B	32	40	NO	EPDM	170	118	26	84	84	600
TFIV50B	40	50	NO	EPDM	199	137	31	82.5	98	800
TFIV20D	15	20	NO	FPM	113	81	16	73	53	250
TFIV25D	20	25	NO	FPM	126	88	19	80	62	300
TFIV32D	25	32	NO	FPM	139.5	95.5	22	81	71	400
TFIV40D	32	40	NO	FPM	170	118	26	84	84	600
TFIV50D	40	50	NO	FPM	199	137	31	82.5	98	800

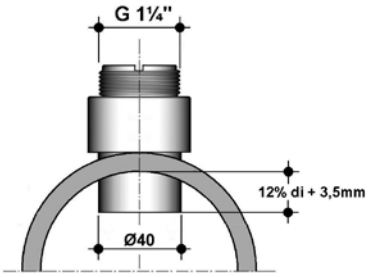


ISO Metric Clamp Saddles

Part No.	DN	d	Connection for Temp. sensor	O-Ring	Body/ Insert	E	h	H	Drilling hole	Weight (gr.)
SCIC063BVC	50	63	NO	EPDM	C-PVC	116	86.7	105	35	850
SCIC075BVC	65	75	NO	EPDM	C-PVC	134	90.8	105	35	950
SCIC090BVC	80	90	NO	EPDM	C-PVC	152	95.9	105	40	1100
SCIC110BVC	100	110	NO	EPDM	C-PVC	176	102.8	105	40	1500
SCIC063DVC	50	63	NO	FPM	C-PVC	116	86.7	105	35	850
SCIC075DVC	65	75	NO	FPM	C-PVC	134	90.8	105	35	950
SCIC090DVC	80	90	NO	FPM	C-PVC	152	95.9	105	40	1100
SCIC110DVC	100	110	NO	FPM	C-PVC	176	102.8	105	40	1500

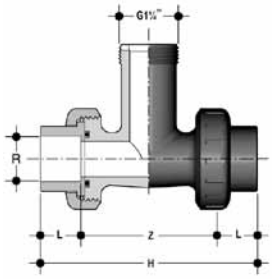
Installation on PVC pipes

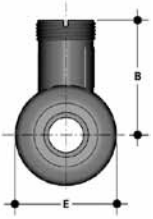




PVC Glue-on Fittings

Part. No	DN	d	Connection for Temp. sensor	L	D1	D2	Drilling hole	Weight (gr.)
WAIV063	50	63	NO	68.5	40	50	40	100
WAIV075	65	75	NO	68.5	40	50	40	100
WAIV090	80	90	NO	68.5	40	50	40	100
WAIV110	100	110	NO	68.5	40	50	40	100

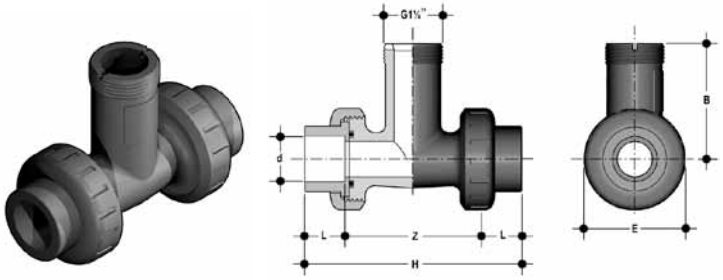




BSP Female Threaded PVC Tee Fittings (parallel threaded female ends)

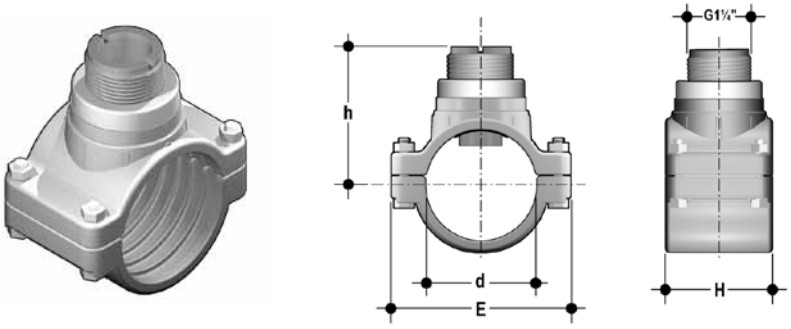
Part No.	DN	R	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFFV20B	15	1/2"	NO	EPDM	118.5	88.5	15	73	53	250
TFFV25B	20	3/4"	NO	EPDM	127.5	94,9	16.3	80	62	300
TFFV32B	25	1"	NO	EPDM	146	107.8	19.1	81	71	400
TFFV40B	32	1 1/4"	NO	EPDM	177	134.2	21.4	84	84	600
TFFV50B	40	1 1/2"	NO	EPDM	191	148.2	21.4	82.5	98	800
TFFV20D	15	1/2"	NO	FPM	118.5	88.5	15	73	53	250
TFFV25D	20	3/4"	NO	FPM	127.5	94.9	16.3	80	62	300
TFFV32D	25	1"	NO	FPM	146	107.8	19.1	81	71	400
TFFV40D	32	1 1/4"	NO	FPM	177	134.2	21.4	84	84	600
TFFV50D	40	1 1/2"	NO	FPM	191	148.2	21.4	82.5	98	800

Installation on PVC pipes



BS Solvent Welding PVC Tee Fittings (female ends for solvent welding)

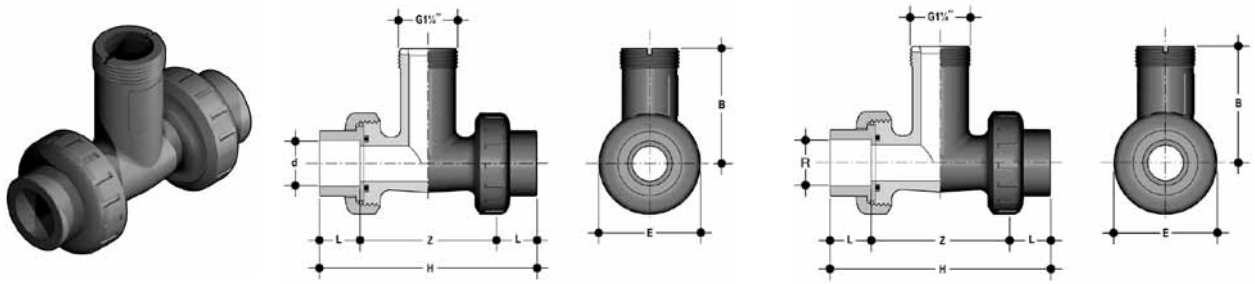
Part No.	DN	d	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFLV20B	15	1/2"	NO	EPDM	113	80	16.5	73	53	250
TFLV25B	20	3/4"	NO	EPDM	126	88	19	80	62	300
TFLV32B	25	1"	NO	EPDM	139.5	94.5	22.5	81	71	400
TFLV40B	32	1 1/4"	NO	EPDM	170	118	26	84	84	600
TFLV50B	40	1 1/2"	NO	EPDM	199	139	30	82.5	98	800
TFLV20D	15	1/2"	NO	FPM	113	80	16.5	73	53	250
TFLV25D	20	3/4"	NO	FPM	126	88	19	80	62	300
TFLV32D	25	1"	NO	FPM	139.5	94.5	22.5	81	71	400
TFLV40D	32	1 1/4"	NO	FPM	170	118	26	84	84	600
TFLV50D	40	1 1/2"	NO	FPM	199	139	30	82.5	98	800



BS Clamp Saddles

Part. No	DN	d	Connection for Temp. sensor	O-ring	Body/ Insert	E	h	H	Drilling hole	Weight (gr.)
SCLC2.0BVM	50	2”	NO	EPDM	C-PVC	116	85.3	105	35	85
SCLC3.0BVM	80	3”	NO	EPDM	C-PVC	152	95.0	105	40	1100
SCLC4.0BVM	100	4”	NO	EPDM	C-PVC	176	103.5	105	40	1500
SCLC2.0DVM	50	2”	NO	FPM	C-PVC	116	85.3	105	35	85
SCLC3.0DVM	80	3”	NO	FPM	C-PVC	152	95.0	105	40	1100
SCLC4.0DVM	100	4”	NO	FPM	C-PVC	176	103.5	105	40	1500

Installation on PVC pipes



ASTM version NPT version

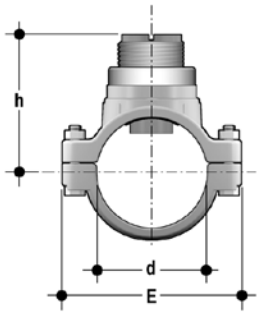
ASTM SCH. 80 PVC Tee Fittings (female ends for solvent welding)

Part No.	Size	d	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFAV20B	0.50”	0.85”	NO	EPDM	4.92”	3.15”	0.89”	2.87”	2.09”	250
TFAV25B	0.75”	1.06”	NO	EPDM	5.51”	3.50”	1.00”	3.15”	2.44”	300
TFAV32B	1.00”	1.33”	NO	EPDM	6.04”	3.78”	1.13”	3.19”	2.80”	400
TFAV40B	1.25”	1.67”	NO	EPDM	7.34”	4.80”	1.26”	3.31”	3.31”	600
TFAV50B	1.50”	1.91”	NO	EPDM	8.15”	5.39”	1.38”	3.25”	3.86”	800
TFAV20D	0.50”	0.85”	NO	FPM	4.92”	3.15”	0.89”	2.87”	2.09”	250
TFAV25D	0.75”	1.06”	NO	FPM	5.51”	3.50”	1.00”	3.15”	2.44”	300
TFAV32D	1.00”	1.33”	NO	FPM	6.04”	3.78”	1.13”	3.19”	2.80”	400
TFLV40D	1.25”	1.67”	NO	FPM	7.34”	4.80”	1.26”	3.31”	3.31”	600
TFAV50D	1.50”	1.91”	NO	FPM	8.15”	5.39”	1.38”	3.25”	3.86”	800

NPT Female Threaded PVC Tee Fittings (NPT threaded female ends)

Part No.	Size	R	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFNV20B	0.50”	1/2”	NO	EPDM	4.67”	3.26”	0.70”	2.87”	2.09”	250
TFNV25B	0.75”	3/4”	NO	EPDM	5.02”	3.60”	0.71”	3.15”	2.44”	300
TFNV32B	1.00”	1”	NO	EPDM	5.75”	3.97”	0.89”	3.19”	2.80”	400
TFNV40B	1.25”	1 1/4”	NO	EPDM	6.97”	5.12”	0.93”	3.31”	3.31”	600
TFNV50B	1.50”	1 1/2”	NO	EPDM	7.52”	5.28”	1.12”	3.25”	3.86”	800
TFNV20D	0.50”	1/2”	NO	FPM	4.67”	3.26”	0.70”	2.87”	2.09”	250
TFNV25D	0.75”	3/4”	NO	FPM	5.02”	3.60”	0.71”	3.15”	2.44”	300
TFNV32D	1.00”	1”	NO	FPM	5.75”	3.97”	0.89”	3.19”	2.80”	400
TFNV40D	1.25”	1 1/4”	NO	FPM	6.97”	5.12”	0.93”	3.31”	3.31”	600
TFNV50D	1.50”	1 1/2”	NO	FPM	7.52”	5.28”	1.12”	3.25”	3.86”	800

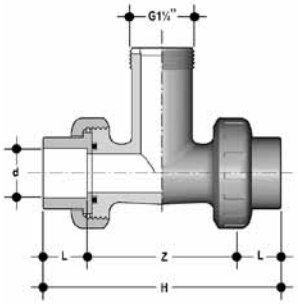
Installation on PVC pipes

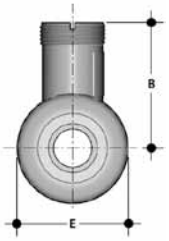


ASTM SCH. 80 Clamp Saddles

Part. No	Size	d	Connection for Temp. sensor	O-Ring	Body/ Insert	E	h	H	Drilling hole	Weight (gr.)
SCAC2.0BVM	2.00”	2.375”	NO	EPDM	C-PVC	4.57”	3.3”	4.13”	1.38”	850
SCAC2.5BVM	2.50”	2.875”	NO	EPDM	C-PVC	5.28”	3.4”	4.13”	1.38”	950
SCAC3.0BVM	3.00”	3.500”	NO	EPDM	C-PVC	5.98”	3.6”	4.13”	1.57”	1100
SCAC4.0BVM	4.00”	4.500”	NO	EPDM	C-PVC	6.93”	4.0”	4.13”	1.57”	1500
SCAC2.0DVM	2.00”	2.375”	NO	FPM	C-PVC	4.57”	3.3”	4.13”	1.38”	850
SCAC2.5DVM	2.50”	2.875”	NO	FPM	C-PVC	5.28”	3.4”	4.13”	1.38”	950
SCAC3.0DVM	3.00”	3.500”	NO	FPM	C-PVC	5.98”	3.6”	4.13”	1.57”	1100
SCAC4.0DVM	4.00”	4.500”	NO	FPM	C-PVC	6.93”	4.0”	4.13”	1.57”	1500

Installation on C-PVC pipes

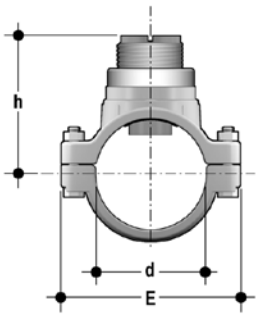




ISO Metric C-PVC Tee Fittings (female ends for solvent welding)

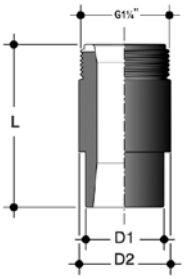
Part No.	DN	d	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFIC20B	15	20	NO	EPDM	113	81	16	73	53	250
TFIC25B	20	25	NO	EPDM	126	88	19	80	62	300
TFIC32B	25	32	NO	EPDM	139.5	95.5	22	81	71	400
TFIC40B	32	40	NO	EPDM	170	118	26	84	84	600
TFIC50B	40	50	NO	EPDM	199	137	31	82.5	98	800
TFIC20D	15	20	NO	FPM	113	81	16	73	53	250
TFIC25D	20	25	NO	FPM	126	88	19	80	62	300
TFIC32D	25	32	NO	FPM	139.5	95.5	22	81	71	400
TFIC40D	32	40	NO	FPM	170	118	26	84	84	600
TFIC50D	40	50	NO	FPM	199	137	31	82.5	98	800

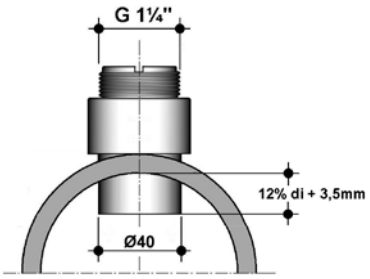
Installation on C-PVC pipes



ISO Clamp Saddles

Part. No	DN	d	Connection for Temp. sensor	O-Ring	Body/ Insert	E	h	H	Drilling hole	Weight (gr.)
SCIC063BVC	50	63	NO	EPDM	C-PVC	116	86.7	105	35	850
SCIC075BVC	65	75	NO	EPDM	C-PVC	134	90.8	105	35	950
SCIC090BVC	80	90	NO	EPDM	C-PVC	152	95.9	105	40	1100
SCIC110BVC	100	110	NO	EPDM	C-PVC	176	102.8	105	40	1500
SCIC063DVC	50	63	NO	FPM	C-PVC	116	86.7	105	35	850
SCIC075DVC	65	75	NO	FPM	C-PVC	134	90.8	105	35	950
SCIC090DVC	80	90	NO	FPM	C-PVC	152	95.9	105	40	1100
SCIC110DVC	100	110	NO	FPM	C-PVC	176	102.8	105	40	1500

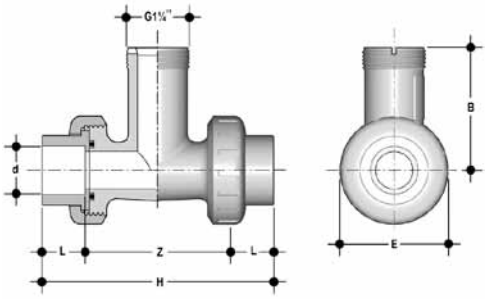




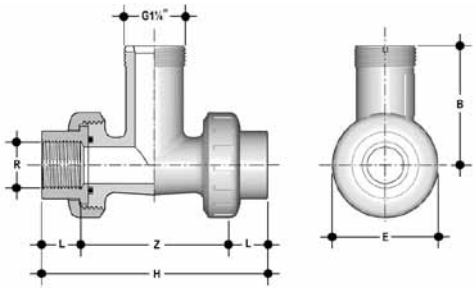
CPVC Glue-on Fittings

Part. No	DN	d	Connection for Temp. sensor	L	D1	D2	Drilling hole	Weight (gr.)
WAIC063	50	63	NO	68.5	40	50	40	100
WAIC075	65	75	NO	68.5	40	50	40	100
WAIC090	80	90	NO	68.5	40	50	40	100
WAIC110	100	110	NO	68.5	40	50	40	100

Installation on PP pipes



ISO Metric version



BSP version

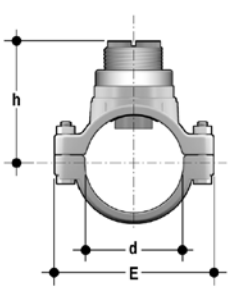
ISO Metric PP Tee Fittings (female ends for socket welding)

Part No.	DN	d	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFIM20B	15	20	NO	EPDM	111	73	14.5	73	53	250
TFIM25B	20	25	NO	EPDM	120.5	80	16	80	62	300
TFIM32B	25	32	NO	EPDM	133.5	81	18	81	71	400
TFIM40B	32	40	NO	EPDM	163.5	84	20.5	84	84	600
TFIM50B	40	50	NO	EPDM	195	82.5	23.5	82.5	98	800
TFIM20D	15	20	NO	FPM	111	73	14.5	73	53	250
TFIM25D	20	25	NO	FPM	120.5	80	16	80	62	300
TFIM32D	25	32	NO	FPM	133.5	81	18	81	71	400
TFIM40D	32	40	NO	FPM	163.5	84	20.5	84	84	600
TFIM50D	40	50	NO	FPM	195	82.5	23.5	82.5	98	800

BSP Female Threaded PP Tee Fittings (parallel threaded female ends)

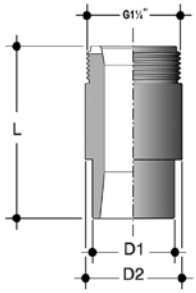
Part No.	DN	R	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFFM20B	15	1/2"	NO	EPDM	113	83	15	73	53	250
TFFM25B	20	3/4"	NO	EPDM	126	93.4	16.3	80	62	300
TFFM32B	25	1"	NO	EPDM	139.5	101.3	19.1	81	71	400
TFFM40B	32	1 1/4"	NO	EPDM	170	127.2	21.4	84	84	600
TFFM50B	40	1 1/2"	NO	EPDM	199	156.2	21.4	82.5	98	800
TFFM20D	15	1/2"	NO	FPM	113	83	15	73	53	250
TFFM25D	20	3/4"	NO	FPM	126	93.4	16.3	80	62	300
TFFM32D	25	1"	NO	FPM	139.5	101.3	19.1	81	71	400
TFFM40D	32	1 1/4"	NO	FPM	170	127.2	21.4	84	84	600
TFFM50D	40	1 1/2"	NO	FPM	199	156.2	21.4	82.5	98	800

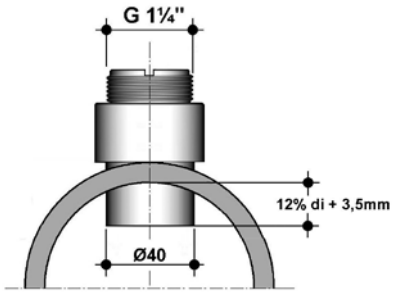
Installation on PP pipes



ISO Clamp Saddles

Part. No	DN	d	Connection for Temp. sensor	O-ring	Body/ Insert	E	h	H	Drilling hole	Weight (gr.)
SCIC063BME	50	63	NO	EPDM	C-PVC	116	84.3	105	35	850
SCIC075BME	65	75	NO	EPDM	C-PVC	134	88.0	105	35	950
SCIC090BME	80	90	NO	EPDM	C-PVC	152	92.6	105	40	1100
SCIC110BME	100	110	NO	EPDM	C-PVC	176	98.8	105	40	1500
SCIC063DME	50	63	NO	FPM	C-PVC	116	84.3	105	35	850
SCIC075DME	65	75	NO	FPM	C-PVC	134	88.0	105	35	950
SCIC090DME	80	90	NO	FPM	C-PVC	152	92.6	105	40	1100
SCIC110DME	100	110	NO	FPM	C-PVC	176	98.8	105	40	1500

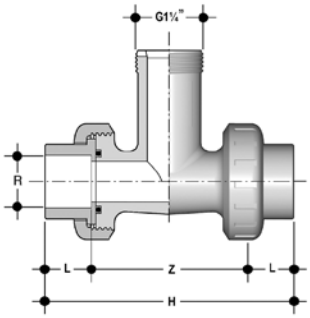


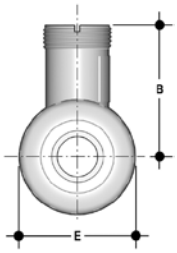


PP Weld-on Fittings

Part. No	DN	O. D.	Connection for Temp. sensor	L	D1	D2	Drilling hole	Weight (gr.)
WAIM063	50	63	NO	68.5	40	50	40	100
WAIM075	65	75	NO	68.5	40	50	40	100
WAIM090	80	90	NO	68.5	40	50	40	100
WAIM110	100	110	NO	68.5	40	50	40	100

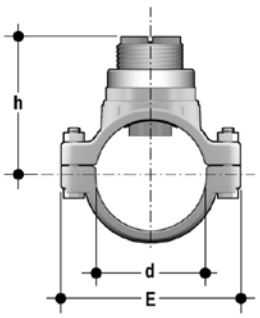
Installation on PP pipes





NPT Female Threaded PP Tee Fittings (NPT threaded female ends)

Part No.	DN	R	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFNM20B	0.50”	1/2”	NO	EPDM	4.45”	3.05”	0.70”	2.87”	2.09”	250
TFNM25B	0.75”	3/4”	NO	EPDM	4.96”	3.54”	0.71”	3.15”	2.44”	300
TFNM32B	1.00”	1”	NO	EPDM	5.49”	3.71”	0.89”	3.19”	2.80”	400
TFNM40B	1.25”	1 1/4”	NO	EPDM	6.69”	4.84”	0.93”	3.31”	3.31”	600
TFNM50B	1.50”	1 1/2”	NO	EPDM	7.83”	5.59”	1.12”	3.25”	3.86”	800
TFNM20D	0.50”	1/2”	NO	FPM	4.45”	3.05”	0.70”	2.87”	2.09”	250
TFNM25D	0.75”	3/4”	NO	FPM	4.96”	3.54”	0.71”	3.15”	2.44”	300
TFNM32D	1.00”	1”	NO	FPM	5.49”	3.71”	0.89”	3.19”	2.80”	400
TFNM40D	1.25”	1 1/4”	NO	FPM	6.69”	4.84”	0.93”	3.31”	3.31”	600
TFNM50D	1.50”	1 1/2”	NO	FPM	7.83”	5.59”	1.12”	3.25”	3.86”	800

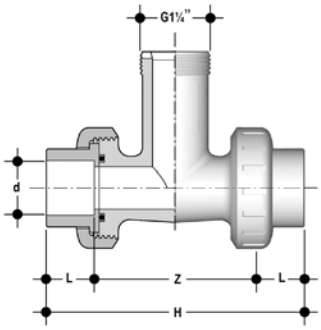


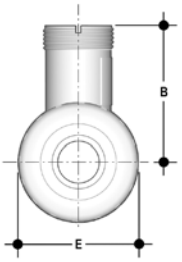
ASTM SCH. 80 Clamp Saddles

Part. No	DN	d	Connection for Temp. sensor	O-ring	Body/ Insert*	E	h	H	Drilling hole	Weight (gr.)
SCAC2.0BME	2.00”	2.375”	NO	EPDM	C-PVC	4.57”	3.29”	4.13”	1.38”	850
SCAC2.5BME	2.50”	2.875”	NO	EPDM	C-PVC	5.28”	3.43”	4.13”	1.38”	950
SCAC3.0BME	3.00”	3.500”	NO	EPDM	C-PVC	5.98”	3.65”	4.13”	1.57”	1100
SCAC4.0BME	4.00”	4.500”	NO	EPDM	C-PVC	6.93”	4.00”	4.13”	1.57”	1500
SCAC2.0DME	2.00”	2.375”	NO	FPM	C-PVC	4.57”	3.29”	4.13”	1.38”	850
SCAC2.5DME	2.50”	2.875”	NO	FPM	C-PVC	5.28”	3.43”	4.13”	1.38”	950
SCAC3.0DME	3.00”	3.500”	NO	FPM	C-PVC	5.98”	3.65”	4.13”	1.57”	1100
SCAC4.0DME	4.00”	4.500”	NO	FPM	C-PVC	6.93”	4.00”	4.13”	1.57”	1500

* PVDF insert available on request.

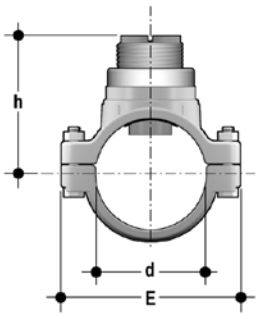
Installation on PVDF pipes





ISO Metric PVDF Tee Fittings (female ends for socket welding)

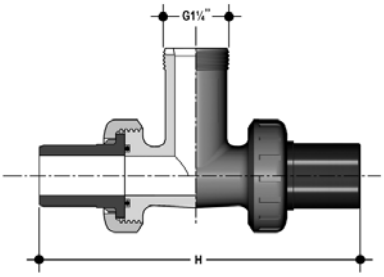
Part No.	DN	d	Connection for Temp. sensor	O-Ring	H	Z	L	B	E	Weight (gr.)
TFIF20B	15	20	NO	EPDM	111	82	14.5	73	53	250
TFIF25B	20	25	NO	EPDM	120.5	88.5	16	80	62	300
TFIF32B	25	32	NO	EPDM	133.5	97	18	81	71	400
TFIF40B	32	40	NO	EPDM	161.5	120.5	20.5	84	84	600
TFIF50B	40	50	NO	EPDM	193.5	146.5	23.5	82.5	98	800
TFIF20D	15	20	NO	FPM	111	82	14.5	73	53	250
TFIF25D	20	25	NO	FPM	120.5	88.5	16	80	62	300
TFIF32D	25	32	NO	FPM	133.5	97	18	81	71	400
TFIF40D	32	40	NO	FPM	161.5	120.5	20.5	84	84	600
TFIF50D	40	50	NO	FPM	193.5	146.5	23.5	82.5	98	800

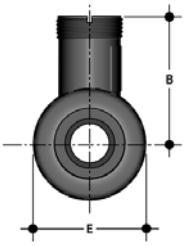


ISO Clamp Saddles

Part. No	DN	d	Connection for Temp. sensor	O-Ring	Body	Insert	E	h	H	Drilling hole	Weight (gr.)
SCIF063BF	50	63	NO	EPDM	C-PVC	PVDF	116	87,2	105	35	850
SCIF075BF	65	75	NO	EPDM	C-PVC	PVDF	134	91,5	105	35	950
SCIF090BF	80	90	NO	EPDM	C-PVC	PVDF	152	96.8	105	40	1100
SCIF110BF	100	110	NO	EPDM	C-PVC	PVDF	176	104	105	40	1500
SCIF063DF	50	63	NO	FPM	C-PVC	PVDF	116	87,2	105	35	850
SCIF075DF	65	75	NO	FPM	C-PVC	PVDF	134	91,5	105	35	950
SCIF090DF	80	90	NO	FPM	C-PVC	PVDF	152	96.8	105	40	1100
SCIF110DF	100	110	NO	FPM	C-PVC	PVDF	176	104	105	40	1500

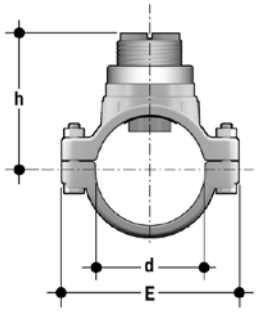
Installation on PE pipes





ISO Metric PVC Tee Fittings (PE end connectors for electrofusion or butt welding)

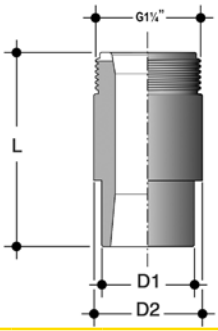
Part No.	DN	d	Connection for Temp. sensor	O-Ring	H	B	E	Weight (gr.)
TFIV20BE	15	20	NO	EPDM	183	73	53	250
TFIV25BE	20	25	NO	EPDM	223	80	62	300
TFIV32BE	25	32	NO	EPDM	237	81	71	400
TFIV40BE	32	40	NO	EPDM	266	84	84	600
TFIV50BE	40	50	NO	EPDM	295	82.5	98	800
TFIV20DE	15	20	NO	FPM	183	73	53	250
TFIV25DE	20	25	NO	FPM	223	80	62	300
TFIV32DE	25	32	NO	FPM	237	81	71	400
TFIV40DE	32	40	NO	FPM	266	84	84	600
TFIV50DE	40	50	NO	FPM	295	82.5	98	800

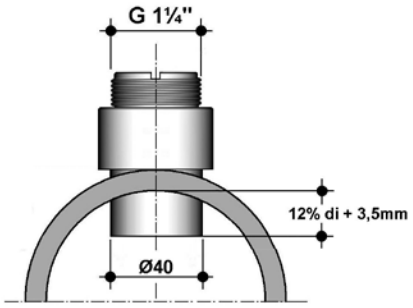


ISO Clamp Saddles

Part. No	DN	d	Connection for Temp. sensor	O-Ring	Body/ Insert	E	h	H	Drilling hole	Weight (gr.)
SCIC063BME	50	63	NO	EPDM	C-PVC	116	84.3	105	35	850
SCIC075BME	65	75	NO	EPDM	C-PVC	134	88.0	105	35	950
SCIC090BME	80	90	NO	EPDM	C-PVC	152	92.6	105	40	1100
SCIC110BME	100	110	NO	EPDM	C-PVC	176	98.8	105	40	1500
SCIC063DME	50	63	NO	FPM	C-PVC	116	84.3	105	35	850
SCIC075DME	65	75	NO	FPM	C-PVC	134	88.0	105	35	950
SCIC090DME	80	90	NO	FPM	C-PVC	152	92.6	105	40	1100
SCIC110DME	100	110	NO	FPM	C-PVC	176	98.8	105	40	1500

Installation on PE pipes

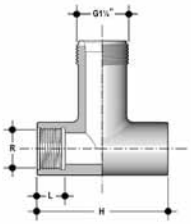




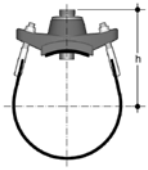
PE Weld-on Fittings

Part. No	DN	d	Connection for Temp. sensor	L	D1	D2	Drilling hole	Weight (gr.)
WAIE063	50	63	NO	68.5	40	50	40	100
WAIE075	65	75	NO	68.5	40	50	40	100
WAIE090	80	90	NO	68.5	40	50	40	100
WAIE110	100	110	NO	68.5	40	50	40	100

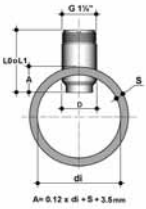
Metal fittings



316 SS Threaded Tees



Metal Strap-on Saddles



316L SS Weld-on Adapters

316 SS Threaded Tees (BSP Female Threads)

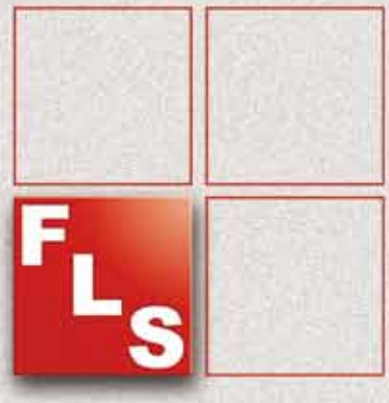
Part. No	DN	R	Connection for Temp. sensor	H	L	B	E	Weight (gr.)
TFFX25	20	1/2"	NO	95	20	81.2	42	-
TFFX32	25	3/4"	NO	105	22.5	81.2	42	-
TFFX40	32	1"	NO	120	20.5	83.8	54	-

Metal Strap-on Saddles

Part. No	DN	O. D. min	O. D. max	Connection for Temp. sensor	Body	Insert	O-Ring	H	Drilling hole	Weight (gr.)
SZIC080I	80	88	104	NO	Cast Iron+SS	C-PVC	NBR	153	40	-
SZIC100I	100	112	126	NO	Cast Iron+SS	C-PVC	NBR	160	40	-

316L SS Weld-on Adapters

Part. No	DN min	DN max	Connection for Temp. sensor	L	D	Weight (gr.)
WAIXL0	40	225	NO	68.5	43.8	-
WAIXL1	250	600	NO	98.5	43.8	-



FIP Formatura Iniezione Polimeri S.p.A. - FLS Division
Loc. Pian di Parata, 16015 Casella (GE) - Italy
Tel +39 010 96211 - Fax +39 010 9621209
info@flsnet.it www.flsnet.it

LEFLSCX09