



Measurement & Instrumentation

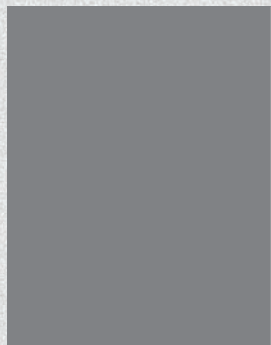


Flow

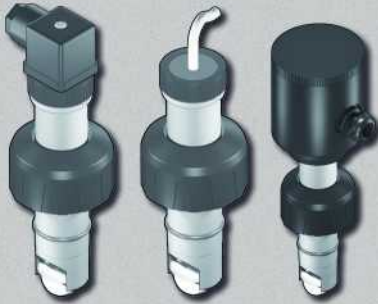


pH
ORP
Conductivity

Product Range



	FLOWX3	CHEMX3
	Insertion technology flowmeters Flow sensors: <ul style="list-style-type: none">■ Insertion paddlewheel sensors■ Insertion electromagnetic sensors■ Hot Tap paddlewheel sensors■ Hot Tap turbine sensors■ Hot Tap electromagnetic sensors■ In line sensors for specific applications, ultra low flow measurement, high viscose liquids measurement	Systems for process analysis Electrodes: <ul style="list-style-type: none">■ pH and ORP bulb electrodes■ pH and ORP flat surface electrodes■ Conductivity sensors■ Toroidal conductivity transmitters
	Instrumentation: <ul style="list-style-type: none">■ Monitors and transmitters■ Battery operated monitors■ Batch controllers	Instrumentation: <ul style="list-style-type: none">■ pH/ORP monitors and controllers■ Conductivity monitors and controllers



F3.00 Paddlewheel Flow Sensor

The paddlewheel flow sensor F3.00 is designed to be used with every kind of solid-free liquid. The sensor can measure flow from 0.15 m/s (0.5 ft/s) producing a frequency output signal highly repeatable. A new electronic, with a push-pull output, is now available for a safe connection to any kind of PLC/instrument digital input. A special family of fittings ensures installation into all pipe material in sizes from DN15 to DN600 (0.5" to 24").

F111 Hot Tap Flow Sensor

The metal flow sensor F111 offers high strength and mechanical resistance applied to hot tap insertion technology. It can be assembled in pressurized pipes using a proper clamp saddle. The sensor is available with both paddlewheel and turbine technologies. The paddlewheel sensor can measure flow from 0.15 m/s (0.5 ft/s), the turbine can measure from 0.08 m/s (0.26 ft/s) recognizing the direction of the flow (bi-directional version).

PRODUCT

Brief description

- Easy insertion system
- Measurement range over 50:1
- High chemical resistance
- Battery powered version (F3.00.C)
- 4-20 mA or MIN alarm relay output options
- push-pull output for universal electrical connection (F3.00.P)

0.15 to 8m/s (0.5 to 25ft/s)

- Adjustable sensor position
- Paddlewheel or turbine technology
- Hot Tap installation
- Pressure intake
- Battery powered version
- Compatibility with most data loggers

F111.H & F111.C: 0.15 to 8 m/s (0.5 to 25 ft/s)
F111.HT: 0.08 to 8 m/s (0.26 to 25 ft/s)
F111.HT.BD: 0.08 to 1.5 m/s (0.26 to 4.9 ft/s) bi-directional

Main Features

Working Range

Display

W: - Sensor Body: PVC-C, PVDF, Brass or 316L SS
 - O-rings: EPDM or FPM
 - Rotor: ECTFE (Halar®)
 - Shaft: Ceramic (Al₂O₃)
 - Bearings: Ceramic (Al₂O₃)

W: - Sensor Body: 304 SS
 - O-rings: EPDM
 - Rotor: ECTFE (Halar®)
 - Turbine: PVDF
 - Shaft: Ceramic (Al₂O₃)
 - Bearings: Ceramic (Al₂O₃)

W: Wetted materials
 C: Case materials

O: - Square wave, frequency: 45 Hz per m/s (13.7 Hz per ft/s) nominal
 - 4-20 mA with K330 output kit mounted
 - Square wave + min alarm (relay) with K315 output kit mounted

O: - **F111.H and F111.C:** sq. wave, freq.: 45 Hz per m/s (13.7 Hz per ft/s) nominal
 - **F111.HT:** sq. wave, freq.: 20 Hz per m/s (6.10 Hz per ft/s) nominal
 - **F111.HT.BD** sq. wave, freq.: 10 Hz per m/s (3.05 Hz per ft/s)

I: inputs
 O: outputs

PVC-C body (F3.00.H; F3.00.P; F3.00.C):
 10bar (145psi) @ 25°C (77°F) - 1.5bar (22psi) @ 80°C (176°F)
PVDF body (F3.00.H; F3.00.P; F3.00.C):
 10bar (145psi) @ 25°C (77°F) - 2.5bar (36psi) @ 100°C (212°F)
Brass & SS body
 F3.00.H; F3.00.P: 25bar (363psi) @ 120°C (248°F)
 F3.00.C: 25bar (363psi) @ 100°C (212°F)

20 bar (290 psi) @ 80° C (176° F)

Maximum Process Pressure/Temperature

Ambient temperature

L: ±0.75% of full scale
R: ±0.5% of full scale

L: ±0.75% of full scale
R: ±0.5% of full scale

L: linearity
 R: repeatability
 E: efficiency
 T: response time

DN15 to DN600 (0.5" to 24")

DN50 to DN900 (2" to 36")

Pipe Size Range

ISO 9001; ISO 14001; CE; GOST R

ISO 9001; ISO 14001; CE; GOST R

Certificates & Approvals

F3.00.H: 5 to 24 VDC ± 10% regulated
F3.00.P: 12 to 24 VDC ± 10% regulated
F3.00.C: 3 to 5 VDC or 3.6 Volt Lithium Battery

F111.H and F111.HT: 5 to 24 VDC ± 10% regulated
F111.HT.BD: 4 to 5 VDC ± 10% regulated
F111.C: 3 to 5 VDC or 3.6 Volt Lithium Battery

Power Supply

IP65 or IP68

IP68

Protection Rating

- Water and industrial waste water treatment
- Water distribution
- Processing and manufacturing industry
- Textile finishing
- Chemical production
- Cooling and Heating systems
- Swimming pools and Spas

- Water distribution
- Leak detection or monitoring
- Irrigation
- Water treatment and regeneration
- Ground water Remediation
- Filtration Systems

Typical Applications



PRODUCT	F3.10 Paddlewheel MiniFlow Sensor	F3.60M Insertion Magmeter
Brief description	<p>The simple and reliable paddlewheel technology has been moved into this new Miniflow sensor F3.10, designed to be used with every kind of solid-free liquid. The sensor can measure flow from 0.25 m/s (0.8 ft/s) producing a frequency output signal highly repeatable.</p> <p>A rugged construction and a proven technology guarantee exceptional performances with little or no maintenance required. The very small dimension and special design make it suitable for installation on FIP standard Tee fittings from DN15 to DN40 (0.5" to 1.5")</p>	<p>The F3.60M and F3.63M insertion magmeters can measure flow rate in both metal and plastic pipes. No moving parts allow the measurement of liquids with suspended solids as long as conductive and homogeneous. The sensors can be assembled into the standard FLS fittings for installation from DN15 to DN600 (0.5" to 24"). They offer frequency output to use with FLS flow instrumentation and 4-20 mA output for long distance transmission and PLC connection.</p> <p>Special versions for salt-water applications (high concentration of chlorides as sea water) and for high temperature conditions.</p>
Main Features	<ul style="list-style-type: none"> ▪ ABS Body with EPDM or FPM seal ▪ ABS 4 blade paddlewheel (no bearings) ▪ Mono-directional design ▪ Installation on standard Tee fittings 	<ul style="list-style-type: none"> ▪ No moving parts, no wear, maintenance free ▪ Accurate measurement of dirty liquids ▪ Bi-directional flow measurement (F3.60M) ▪ Low pressure drop ▪ Blind 4-20 mA or frequency output
Working Range	0.25 to 4 m/s (0.8 to 12.5 ft/s)	F3.60M: 0.05 to 8 m/s (0.15 to 25 ft/s) F3.63M: 0.15 to 8 m/s (0.5 to 25 ft/s)
Display	-	-
W: Wetted materials C: Case materials	W: - Body: ABS - O-rings: EPDM or FPM - Rotor: ABS - Shaft: AISI 316L - Magnets: Samarium-cobalt (SmCo ₅)	W: - Sensor Body: 316L SS / CuNi Alloy / PVDF / PEEK - O-rings: EPDM or FPM - Electrodes: 316L SS / CuNi Alloy C: - Case: Polycarbonate (PC) / PVC - Gasket: EPDM
I: inputs O: outputs	O: - Square wave, frequency: 15 Hz per m/s (4.6 Hz per ft/s) nominal	O: - 4-20 mA, isolated - Square wave, frequency: 0 - 500 Hz - Open Collector: flow direction (F3.60M)
Maximum Process Pressure/Temperature	- 10 bar (145 psi) @ 20° C (68° F) - 2 bar (30 psi) @ 70° C (158° F)	- PVDF version: - 16 bar (232 psi) @ 25° C (77° F) - 8.6 bar (124 psi) @ 70° C (158° F) - PEEK version: - 16 bar (232 psi) @ 150° C (302° F)
Ambient temperature	-	0° C to +60° C (32° F to 140° F)
L: linearity R: repeatability E: efficiency T: response time	L: ± 1% of full scale R: ± 0.5% of full scale	L: ± 1% of reading + 1.0 cm/s R: ± 0.5% of reading
Pipe Size Range	DN15 to DN40 (0.5" to 1.5")	DN15 (0.5") to DN600 (24")
Certificates & Approvals	ISO 9001; ISO 14001; CE; GOST R	ISO 9001; ISO 14001; CE; GOST R
Power Supply	5 to 24 VDC ± 10% regulated	12 to 24 VDC ± 10% regulated (reverse polarity and short circuit protected)
Protection Rating	IP68	IP65
Typical Applications	<ul style="list-style-type: none"> ▪ Water treatment ▪ Filtration systems ▪ Pure water production ▪ Water monitoring ▪ Fertigation 	<ul style="list-style-type: none"> ▪ Water and waste water treatment ▪ Raw water intake ▪ Industrial water distribution ▪ Textile industry ▪ Swimming pools, Spas and aquariums ▪ HVAC ▪ Processing and manufacturing industry



F9.60M Insertion Magmeter with Display

F3.61M Hot Tap Insertion Magmeter

PRODUCT

The F9.60M and F9.63M insertion magmeters can measure flow rate in both metal and plastic pipes. No moving parts allow the measurement of liquids with suspended solids as long as conductive and homogeneous. The sensor can be assembled into the standard FLS fittings for installation from DN15 to DN600 (0.5" to 24"). A complete choice of analog and digital outputs + local flow indication make this devices suitable for a wide range of applications.

Special versions for salt-water applications (high concentration of chlorides as sea water) and for high temperature conditions.

The F3.61M Hot Tap insertion magmeter can measure flow rate in both metal and plastic pipes from DN50 (2") to DN900 (36"). It can be assembled in pressurized pipes simply using a standard clamp saddle and an isolation ball valve. No moving parts allow the measurement of liquids with suspended solids as long as conductive and homogeneous. The F3.61M provides frequency output to use with FLS flow instrumentation or 4-20 mA output for long distance transmission and PLC connection.

Brief description

- No moving parts, no wear, maintenance free
- Accurate measurement of dirty liquids
- Bi-directional flow measurement (F9.60M only)
- Low pressure drop
- LCD display on board

- Adjustable sensor position
- Hot Tap installation
- Pressure intake
- Standard 1 1/4" BSP process connection
- Bi-directional flow measurement

Main Features

F9.60M: 0.05 to 8 m/s (0.15 to 25 ft/s) bi-directional
F9.63M: 0.15 to 8 m/s (0.5 to 25 ft/s)

0.05 to 8 m/s (0.15 to 25 ft/s) bi-directional

Working Range

- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line

-

Display

W: - Sensor body: 316L SS / Cuni Alloy / PVDF / PEEK
 - O-rings: EPDM or FPM
 - Electrodes: 316L SS / Cuni Alloy
C: - Case: Polycarbonate (PC)
 - Gasket: EPDM
 - Keypad: 5-button silicone rubber

W: - Sensor body: 304 SS/PVDF
 - O-rings: EPDM
 - Electrodes: 316L SS
C: - Case: Polycarbonate (PC)/PVC
 - Gasket: EPDM

W: Wetted materials
 C: Case materials

O: - 4-20 mA, fully adjustable and reversible
 - Open Collector (min., max, window, volumetric pulse, freq., off)
 - Mechanical relay (min., max, window, volumetric pulse, off)

O: - 4-20 mA, isolated
 - Square wave, frequency: 0 - 500 Hz
 - Open Collector: flow direction

I: inputs
 O: outputs

- PVDF version:
 - 16 bar (232 psi) @ 25° C (77° F)
 - 8.6 bar (124 psi) @ 70° C (158° F)
 - PEEK version:
 - 16 bar (232 psi) @ 150° C (302° F)

- 20 bar (290 psi) @ 70° C (158° F)

Maximum Process Pressure/Temperature

-10° C to +70° C (14° F to 158° F)

0° C to +60° C (32° F to 140° F)

Ambient temperature

L: ± 1% of reading + 1.0 cm/s
R: ± 0.5% of reading

L: ± 1% of reading + 1.0 cm/s
R: ± 0.5% of reading

L: linearity
 R: repeatability
 E: efficiency
 T: response time

DN15 to DN600 (0.5" to 24")

DN50 to DN900 (2" to 36")

Pipe Size Range

ISO 9001; ISO 14001; CE; GOST R

ISO 9001; ISO 14001; CE; GOST R

Certificates & Approvals

12 to 24 VDC ± 10% regulated (reverse polarity and short circuit protected)

12 to 24 VDC ± 10% regulated (reverse polarity and short circuit protected)

Power Supply

IP65

IP65

Protection Rating

- Water and waste water treatment
- Row water intake
- Textile industry
- Swimming pools, Spas, Aquariums
- HVAC
- Chemical industry
- Processing and manufacturing industry

- Water distribution
- Leak detection or monitoring
- Raw water intake
- Water and waste water treatment
- Ground water remediation
- Irrigation

Typical Applications



PRODUCT	ULF Ultra Low Flow Sensor	F3.80 Oval Gear Flow Sensor
Brief description	The compact ultra-low flow sensor ULF is designed to be used with every kind of aggressive and solid-free liquid. The sensor can be fixed to flexible or rigid pipes via 1/4" GAS threaded process connections. The paddlewheel sensor produces a frequency output proportional to the flow velocity that can be easily transmitted and processed. The ULF sensor offers two different flow ranges starting from 1.5 or 6 l/h (0.0066 or 0.0264 gpm). The construction materials, POM or ECTFE (Halar®), provide high strength and chemical resistance	The new line of oval gear flow sensor F3.80 has been designed following the main industrial application requirements: high mechanical resistance and reliable performances. These sensors are suitable to measure a wide range of liquid viscosities with a very high accuracy and repeatability. The sensors can be fixed to flexible or rigid pipes via 1/4" GAS threaded process connections. The construction materials, ECTFE (Halar®), PP or SS, provide high strength and chemical resistance.
Main Features	<ul style="list-style-type: none"> Two flow ranges available High chemical resistance Easy mounting 4-20 mA or MIN alarm relay output options 	<ul style="list-style-type: none"> Compact dimensions Easy installation High chemical resistance High viscosity fluids measurement Low pressure loss
Working Range	ULF01: 1.5 to 100 l/h (0.0066 to 0.44 gpm) ULF03: 6 to 250 l/h (0.0264 to 1.1 gpm)	F3.81.H: 10 to 100 l/h (0.044 to 0.44 gpm) F3.82.H: 25 to 150 l/h (0.11 to 0.66 gpm)
Display	-	-
W: Wetted materials C: Case materials	W: - Body and Rotor: POM or ECTFE (Halar®) - O-ring: FPM or KALREZ - Shaft: Corepoint or Shappire - Magnets: Ceramic (Al ₂ O ₃) - Bearings: Shappire	W: - Body: PP, ECTFE (Halar®) or SS AISI 316L - O-ring: FPM - Gear: ECTFE (Halar®) - Shaft: Zirconium or Stainless Steel
I: inputs O: outputs	O: - Square wave, frequency - 4-20 mA with K330U output kit mounted - Square wave + min alarm (relay) with K315U output kit mounted	O: - Square wave, frequency
Maximum Process Pressure/Temperature	5 bar (70 psi) @ 22° C (72° F)	PP body: 6 bar (87 psi) @ 25° C (77° F) - 3 bar (44 psi) @ 60° C (140° F) ECTFE body: 8 bar (116 psi) @ 25° C (77° F) - 5 bar (73 psi) @ 60° C (140° F) SS body: 8 bar (116 psi) @ 60° C (140° F)
Ambient temperature	-	-
L: linearity R: repeatability E: efficiency T: response time	L: ± 1% of full scale R: ± 0.5% of full scale	L: ± 1% of full scale R: ± 0.5% of full scale
Pipe Size Range	-	-
Certificates & Approvals	ISO 9001; ISO 14001; CE; GOST R	ISO 9001; ISO 14001; CE; GOST R
Power Supply	ULF01.H & ULF03.H: 5 to 24 VDC ± 10% regulated ULF01.R & ULF03.R: none	5 to 24 VDC ± 10% regulated
Protection Rating	IP65	IP65
Typical Applications	<ul style="list-style-type: none"> Water treatment Chemical industry Pharmaceutical industry Dosing systems Laboratory plants 	<ul style="list-style-type: none"> Chemical industry Laboratory plants Dosing systems Pulsating flows measurement High viscosity and non conductive fluid measurement Oil measurement



F3.05 Paddlewheel Flow Switch

The simple insertion paddlewheel flow switch F3.05 is designed to protect a pump from running dry or pumping against a closed valve. It is equipped with a mechanical SPST contact activated when the flow velocity drops below the factory preset value of 0.15 m/s (0.5 ft/s). A special family of fitting ensures an easy and quick installation into all pipe material in sizes from DN15 to DN600 (0.5" to 24").

- Easy insertion system
- High chemical resistance
- No-flow alarm relay output
- Highly visible local bicolour status Indicator
- Maintenance free
- Low pressure drop

No flow rate point: 0.15 m/s (0.5 ft/s)

W: - Body: PVC-C, PVDF, 316L SS or Brass
 - O-rings: EPDM or FPM
 - Rotor: ECTFE (Halar®)
 - Shaft & Bearings: Ceramic (Al₂O₃)

O: - Mechanical SPST relay

PVC-C body:
 10bar (145psi) @ 25°C (77°F) - 1.5bar (22psi) @ 80°C (176°F)
PVDF body:
 10bar (145psi) @ 25°C (77°F) - 2.5bar (36psi) @ 100°C (212°F)
Brass & SS body:
 25bar (363psi) @ 120°C (248°F)

DN15 to DN600 (0.5" to 24")

ISO 9001; ISO 14001; CE; GOST R

12 to 24 VDC ± 10% regulated

IP65

- Pump protection
- Filtration systems
- Cooling water systems

F9.50.L Batch Controller

The F9.50.L batch controllers are designed for accurate batching of liquids. It combines complex control capability with easy calibration and operation. A Simple and Advanced mode are available to customize the unit to specific batch requirements providing simple and quick changes of batch volumes and settings. The F9.50.L, with two relays, an open collector and an analog output ensure accurate batch operation reducing the possibility of water hammer into the system, while the F9.51.L gives the possibility to store up to 10 different batch parameters.

- External start, stop and resume
- Overrun and missing signal alarms
- Automatic or manual overrun compensation (F9.50.L)
- Up to ten different batch parameters storage (F9.51.L)
- Auto calibration
- Count up or count down batch indication

- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line
 - Backlight display as standard

C: - Case: Polycarbonate (PC)
 - Panel gasket: Neoprene
 - Wall & Field gasket: EPDM
 - Keypad: 5-button silicone rubber

I: - Square wave (frequency)
O: - 4-20 mA, isolated
 - Mechanical relay (OUT1: batch; OUT2: options and alarms)
 - Open collector (Start Batch or End Batch indication)

-10° C to +70° C (14° F to 158° F)

ISO 9001; ISO 14001; CE

12 to 24 VDC ± 10% regulated

IP65 front

- Batch processes
- Chemicals addition
- Filling processes
- Blending applications

PRODUCT

Brief description

Main Features

Working Range

Display

W: Wetted materials
 C: Case materials

I: inputs
 O: outputs

Maximum Process Pressure/Temperature

Ambient temperature

L: linearity
 R: repeatability
 E: efficiency
 T: response time

Pipe Size Range

Certificates & Approvals

Power Supply

Protection Rating

Typical Applications



PRODUCT	F9.00 Flow Monitor and Transmitter	F9.00.BD Flow Monitor and Transmitter
Brief description	The F9.00 flow monitors and transmitters are designed to convert the signal from all FlowX3 flow sensors into a display indication and a 4-20 mA signal for long distance transmission. A very simple and complete choice of options are granted by single or dual input/output, Open Collector, Solid State or Mechanical Relay Outputs. The high flexibility is also maximised through only one packaging for compact pipe mount, panel or wall installation. Self explaining calibration menus allow a customized setup of all measuring parameters and the state of the art electronic design ensures long-term reliable and stable signals.	The F9.00.BD flow monitor and transmitter is designed to convert the signal from the bi-directional flow sensor (F111.HT.BD) into a display indication and a 4-20 mA signal for long distance transmission and it also performs a fully programmable open Collector digital output. Self explaining calibration menus allow a customised setup of all measuring parameters and the state of the art electronic design ensures long term reliable and stable signals.
Main Features	<ul style="list-style-type: none"> Two totalizers: 10 digit permanent and 6 digit resettable Adjustable outputs Output simulation for system testing One packaging for compact/pipe, panel or wall installation Self explaining calibration menus 	<ul style="list-style-type: none"> Wall or panel installation Adjustable analog output Flow rate and direction display Two totalizers: 10 digit permanent and 6 digit resettable Output simulation for system testing Digital open collector output
Working Range	-	-
Display	- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line - Backlight display as standard (F9.00, F9.02)	- 3 line LCD: 2x 12 alphanumeric lines and 1 icon line
W: Wetted materials C: Case materials	C: - Case: Polycarbonate (PC) - Panel gasket: Neoprene - Wall & Field gasket: EPDM - Keypad: 5-button silicone rubber	C: - Case: Polycarbonate (PC) - Panel gasket: Neoprene - Wall gasket: EPDM - Keypad: 5 button silicone rubber
I: inputs O: outputs	I: - Square wave (frequency) O: - 4-20 mA, fully adjustable and reversible - Open Collector (min, max, volumetric pulse, freq, off) - Solid State relay (min, max, volumetric pulse, off, window) - Mechanical relay (min, max, volumetric pulse, off, window)	I: - Square wave (frequency), bi-directional O: - 4-20 mA adjustable for positive, negative or bi-directional flow - Open collector (min, max, volumetric pulse, off)
Maximum Process Pressure/Temperature	-	-
Ambient temperature	- 10° C to +70° C (14° F to 158° F)	-10° C to +70° C (14° F to 158° F)
L: linearity R: repeatability E: efficiency T: response time	-	-
Pipe Size Range	-	-
Certificates & Approvals	ISO 9001; ISO 14001; CE	ISO 9001; ISO 14001; CE
Power Supply	12 to 24 VDC ±10% regulated	12 to 24 VDC ± 10% regulated
Protection Rating	IP65 front	IP65 front
Typical Applications	<ul style="list-style-type: none"> Flow control and measuring Water and industrial waste water treatment and recovery Water distribution and leak detection Processing and manufacturing industry Textile finishing Auxiliary plants Swimming pools and Spas 	<ul style="list-style-type: none"> Flow control and monitoring Water distribution Leak detection Water treatment Filtration systems Ground water remediation Irrigation



F9.20 Battery Powered Flow Monitor	F9.20.BD Battery Powered Flow Monitor	PRODUCT
<p>The F9.20 battery powered flow monitor is equipped with two long life lithium batteries and integrates the power supply for the sensor. It is designed to show on the LCD display flow rate and totalized flow volume with no external power supply required. Self explaining calibration menus allow a customized setup of all measuring parameters and the state of the art electronic design ensures long term reliable and stable indications.</p>	<p>The F9.20.BD bi-directional battery powered flow monitor is equipped with two long life lithium batteries and integrates the power supply for the sensor. It is designed to show on the LCD display flow rate and totalized volume with no external power supply required. The instant flow rate can be positive or negative, according to flow direction. Two totalizers (resettable and permanent) are available for positive and negative flow. Self explaining calibration menus allow customized setup of all measuring parameters.</p>	Brief description
<ul style="list-style-type: none"> ■ Battery operated ■ No information loss during battery replacement ■ 5 digit flow rate indication ■ Two totalizers: 10 digit permanent and 6 digit resettable ■ One packaging for compact/pipe, panel or wall installation 	<ul style="list-style-type: none"> ■ Wall installation ■ Battery operated ■ No information loss during battery replacement ■ Flow rate and direction display ■ Two totalizers: 10 digit permanent and 6 digit resettable 	Main Features
-	-	Working Range
- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line	- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line	Display
<p>C: - Case: Polycarbonate (PC) - Panel gasket: Neoprene - Wall & Field gasket: EPDM - Keypad: 5-button silicone rubber</p>	<p>C: - Case: Polycarbonate (PC) - Wall gasket: EPDM - Keypad: 5-button silicone rubber</p>	<p>W: Wetted materials C: Case materials</p>
<p>I: - Square wave, frequency</p>	<p>I: - Square wave (frequency), bi-directional</p>	<p>I: inputs O: outputs</p>
-	-	Maximum Process Pressure/Temperature
-5° C to +60° C (23° F to 140° F)	-5° C to + 60° C (23° F to 140° F)	Ambient temperature
-	-	<p>L: linearity R: repeatability E: efficiency T: response time</p>
-	-	Pipe Size Range
ISO 9001; ISO 14001; CE	ISO 9001; ISO 14001; CE	Certificates & Approvals
2 x 3.6 Volt Lithium thionyl chloride battery, 2.8 Ahr	2 x 3.6 Volt Lithium thionyl chloride battery, 16.5 Ahr	Power Supply
IP65 front	IP65 front	Protection Rating
<ul style="list-style-type: none"> ■ Water and waste water treatment and recovery ■ Liquids delivery systems ■ Water distribution and leak detection ■ Irrigation ■ Ground water remediation ■ Swimming pools and Spas 	<ul style="list-style-type: none"> ■ Flow monitoring ■ Water distribution ■ Leak detection ■ Irrigation ■ Filtration systems ■ Ground water remediation 	Typical Applications



PRODUCT	Epoxy pH and ORP Electrodes	Glass pH and ORP Electrodes
Brief description	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. A simple and reusable gland can be used for economic electrode in-line mounting while a 1/2" or 3/4" coupler with a pipe extension is suitable for submersion mounting.	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 single junction.
Main Features	<ul style="list-style-type: none"> Single or double junction technology Large gel reference volume Easy and quick installation system BNC or S8 (S7 + PG 13,5) connection Special versions on request Low cost fittings 	<ul style="list-style-type: none"> Cost effective electrodes. Sensors suitable for extreme applications. Installation easy and cheap. Innovative reference solutions. Cheap adaptors for installations. Special versions available on request.
Working Range	<p>pH electrodes: 0 – 14 pH (0 – 12.3 pH without Na+ error)</p> <p>ORP electrodes: ± 2000 mV</p>	<p>pH electrodes: 0 – 14 pH (0 – 12.3 pH without Na+ error)</p> <p>ORP electrodes: ± 1000 mV</p>
Display	-	-
W: Wetted materials C: Case materials	<p>W: - Body: Epoxy</p> <ul style="list-style-type: none"> - O-ring junction: Silicone - Junction: Pelon (Nylon) - Sensing surface: Glass membrane (pH) Platinum (ORP) 	<p>W: - Body: Glass</p> <ul style="list-style-type: none"> - Junction: Open (PH635CD, PH625C, ORP625C) Ceramic (PH630CD) - Sensing surface: Glass membrane (pH) Platinum (ORP)
I: inputs O: outputs	-	-
Maximum Process Pressure/Temperature	<ul style="list-style-type: none"> - 7bar (100 psi) @ 25°C (77°F) - 1bar (14.5 psi) @ 65°C (149°F) 	<p>PH635CD: 6 bar (90psi) @ 130°C (266°F)</p> <p>PH630CD: 10 bar (145psi) @ 80°C (175°F)</p> <p>PH625C, ORP625C: 6 bar (90psi) @ 60°C (140°F)</p>
Ambient temperature	-	-
L: linearity R: repeatability E: efficiency T: response time	<p>E: > 97% @ 25° C (77°F)</p> <p>T: pH: <5 sec for 95% of signal change</p> <p>ORP: application dependent</p>	<p>E: > 97% @ 25° C (77°F)</p> <p>T: pH: 2 sec for 95% of signal change</p> <p>ORP: application dependent</p>
Pipe Size Range	DN15 to DN100 (0.5" to 4")	DN15 to DN100 (0.5" to 4")
Certificates & Approvals	ISO 9001; ISO 14001; GOST R	ISO 9001; ISO 14001; GOST R
Power Supply	-	-
Protection Rating	IP68	IP68
Typical Applications	<ul style="list-style-type: none"> Water treatment Neutralization systems Water quality monitoring Swimming pools and Spas Aquaculture Agriculture and fertilizing systems Process control 	<ul style="list-style-type: none"> Water treatment Neutralization systems Water quality monitoring Process control Agriculture and fertilizing systems Plating plant and tannery Cooling towers and scrubbers



Flat Surface pH and ORP Electrodes

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 that provides an extra barrier against reference side contamination prolonging electrode's 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 accessories allows you to install the electrodes in-line, submerged or hot tap.

- Double junction and large gel reference volume
- High protection from process contamination
- Easy and quick installation system
- BNC connector
- HF option (pH) for liquids with HF inside
- DI option (pH) on request for pure water (<100uS)

pH electrodes: 0 – 14 pH (0 – 12.3 pH without Na+ error)
ORP electrodes: ± 2000 mV

- W:** - Body: PVC-C (PVDF on request)
 - Reference Junction: Porous HDPE
 - Sensing surface: Glass membrane (pH)
 Platinum sealed in glass (ORP)
 - O-ring: FPM (Viton)

7 bar (100 psi) @ 75° C (167° F)

E: > 97% @ 25° C (77° F)
T: pH: <6 sec for 95% of signal change
 ORP: application dependent

DN15 to DN100 (0.5" to 4")

ISO 9001; ISO 14001; GOST R

IP68

- Water and wastewater treatment
- Neutralization systems
- Pre-chlorination and de-chlorination
- Cooling towers & boiler systems
- Bleach production
- Pulp bleaching
- Textile dyeing process

P6.02 pH/ORP Monitor and Controller

The P6.02 pH/ORP Monitors and Controllers are designed for a wide range of applications 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 customised set ups for any process to be controlled.

- Configurable for either pH or ORP
- Automatic buffer recognition
- Electrode quality control
- Automatic or manual temperature compensation
- Proportional dosing based on set point
- Easy to use software and multi-language menus

- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line
- Backlight display as standard

- C:** - Case: Polycarbonate (PC)
 - Panel gasket: Neoprene
 - Wall gasket: EPDM
 - Keypad: 5-button silicone rubber

- I:** - pH: -2 to 16
 - ORP: -2000 to +2000 mV
 - Temperature: 0° C (32° F) to 100° C (212° F)
O: - 4-20 mA, fully adjustable and reversible
 - Mech. relay (low, high, prop. pulse, timed pulse, off)

-10° C to +60° C (14° F to 140° F)

ISO 9001; ISO 14001; CE

24 VAC - VDC ±10% regulated

IP65 front

- Water quality monitoring
- Water and waste water treatment
- Swimming pools and Spas
- Neutralization systems
- Heavy metal removing and recovery
- Surface finishing
- Scrubber control

PRODUCT

Brief description

Main Features

Working Range

Display

W: Wetted materials
 C: Case materials

I: inputs
 O: outputs

Maximum Process
 Pressure/Temperature

Ambient temperature

L: linearity
 R: repeatability
 E: efficiency
 T: response time

Pipe Size Range

Certificates & Approvals

Power Supply

Protection Rating

Typical Applications



PRODUCT	Epoxy Conductivity Sensors	Stainless Steel Conductivity Sensors
Brief description	<p>The epoxy conductivity sensors feature graphite or high resolution platinum ring technology. Durable epoxy body construction provides rugged and dependable sensors.</p> <p>Due to platinum electrodes and ATC elements (Pt 100) 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.</p> <p>A simple and reusable gland can be used for economic electrode in-line mounting while a 1/2" or 3/4" coupler with a pipe extension is enough for submersion mounting.</p>	<p>This sensors line are equipped with SS sensing surfaces and can be supplied for agriculture and light industrial applications (C100) as well as for extreme applications (C300) where conductivity values can be very low as for ultrapure water production or very high as for primary water treatment. 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.</p>
Main Features	<ul style="list-style-type: none"> Graphite (C150), platinum (C200) In line and submersion installation Available with or without ATC (Pt100 sensor) Cell constants: 0.1, 1.0, 10 	<ul style="list-style-type: none"> Wide range of cell constant Available with or without temperature sensor (Pt100 or Pt1000) Considerable ratio performance/price Stainless steel measuring surfaces Rugged sensor body in PP (C100) and in SS (C300) Stainless Steel fittings for process connection available (C300)
Working Range	<p>K= 0.1: 0.02μS to 2mS (50MΩ to 500Ω) 0.014 to 1400 ppm</p> <p>K= 1: 0.2μS to 20mS (0.14 to 14000 ppm)</p> <p>K= 10: 2μS to 200mS (1.4 to 140000 ppm)</p>	<p>K= 0.01: 0.002μS to 0.2mS (500MΩ to 5KΩ)</p> <p>K= 0.1: 0.02μS to 2mS K= 0.2: 0.04μS to 4mS</p> <p>K= 1: 0.2μS to 20mS K= 10: 2μS to 200mS</p>
Display	-	-
W: Wetted materials C: Case materials	<p>W: - Body: Epoxy</p> <p>- Electrodes: Graphite, Platinum</p>	<p>W: - Body: PP (C100), SS (C300)</p> <p>- Electrodes: Stainless Steel</p>
I: inputs O: outputs	-	-
Maximum Process Pressure/Temperature	<p>- 7 bar (100 psi) @ 25° C (77° F)</p> <p>- 1 bar (14 psi) @ 100° C (212° F)</p>	<p>C100: 6 bar (87 psi) @ 25° C (77° F) 1 bar (14 psi) @ 80° C (176° F)</p> <p>C300: PP Fittings: 7 bar (101 psi) @ 100° C (212° F) SS Fittings: 13 bar (188 psi) @ 120° C (248° F)</p>
Ambient temperature	-	-
L: linearity R: repeatability E: efficiency T: response time	-	-
Pipe Size Range	DN15 to DN100 (0.5" to 4")	DN15 to DN100 (0.5" to 4")
Certificates & Approvals	ISO 9001; ISO 14001; GOST R	ISO 9001; ISO 14001; GOST R
Power Supply	-	-
Protection Rating	IP68	IP68
Typical Applications	<ul style="list-style-type: none"> Chemical concentrations Metal finishing Foods industry Aquariums & aquaculture Agriculture and fertilizing systems Softener regeneration 	<ul style="list-style-type: none"> Agriculture and fertilizing system. Water treatment. Foods industry. Aquaculture Pure water treatment (RO, De-ionization, Distillation)



C5.02 Conductivity Monitor and Controller

FLS CHEM X3 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. Conductivity values can be shown in Siemens, Ohm, TDS (ppm). The C5.02 can be easily configured via a user friendly software, will be able to control sensors equipped both with Pt100 and Pt1000, temperature value can also be shown on the display.

- Temperature display in °C or °F
- Values visualisation in Siemens, Ohm, TDS
- Automatic or manual temperature compensation
- Proportional dosing based on set point
- Cell constant freely selectable
- Special correlation Cond./Temp. for UPW applications

- 3 line LCD: 2x 12 alphanumeric lines + 1 icon line
- Backlight display as standard

- C:** - Case: Polycarbonate (PC)
 - Panel gasket: Neoprene
 - Wall gasket: EPDM
 - Keypad: 5-button silicone rubber

- I:** - Conductivity: 0.002 to 200,000 µS/cm
 - Temperature: 0° C (32° F) to 100° C (212° F) (Pt 100/Pt 1000)
O: - 4-20 mA, fully adjustable and reversible
 - Mechanical relay (low, high, prop. pulse, timed pulse, off)

-10° C to +60° C (14° F to 140° F)

ISO 9001; ISO 14001; CE

24 VAC - VDC ±10% regulated

IP65 front

- RO and DI water systems
- Water quality monitoring
- Desalination processes
- Leak detection
- Scrubber control
- Cooling towers
- Chemical concentration measurement

C3.30 Conductivity Transmitter

The C3.30 conductivity transmitter is made by a 4-20mA output device (two wire technology) integrated onto an inductive conductivity electrode. Automatic temperature compensation is granted by a Pt100 integrated in the instrument body. The isolated 4-20 mA output is perfect for direct connections to PLCs or data loggers without any extra interfaces.

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

- C3.30.01:** 0 to 10 mS
C3.30.02: 0 to 100 mS
C3.30.03: 0 to 1000 mS

W: - Body: PVC-C

O: - 4-20 mA, isolated

- 10 bar (145 psi) @ 25° C (77° F)
- 6 bar (87 psi) @ 50° C (122° F)

Any pipe diameter through 1 1/2" NPT connection

ISO 9001; ISO 14001; CE; GOST R

10 to 30 VDC regulated

IP68

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

PRODUCT

Brief description

Main Features

Working Range

Display

W: Wetted materials
 C: Case materials

I: inputs
 O: outputs

Maximum Process Pressure/Temperature

Ambient temperature

L: linearity
 R: repeatability
 E: efficiency
 T: response time

Pipe Size Range

Certificates & Approvals

Power Supply

Protection Rating

Typical Applications



CHEMX3 Accessories & Fittings

Cable assembly:

CN653: Quarter-turn universal cable assembly for electrodes with BNC connector. Suitable for in line or submersible installation

CN653 TC1: Quarter-turn universal cable assembly with Pt100 for electrodes with BNC connector. Suitable for submersible installation

CE5S7: universal coaxial cable assembly for electrodes with S7 connector

FLOWX3 Process Fittings

Tee-fittings from DN15 to DN40 (1/2" to 1 1/2"):

- ISO in PVC, PVC-C, PP, PVDF (female ends for solvent or socket welding)
- BSP in PVC, PP (parallel threaded female ends)
- BS in PVC (female ends for solvent welding)
- ASTM SCH. 80 in PVC (female ends for solvent welding)
- NPT in PVC, PP (NPT threaded female ends)

Clamp saddles:

- ISO for PVC, PVC-C, PP, PE pipes from DN50 to DN280
- ISO for PVDF pipes from DN50 to DN200
- BS for PVC pipes from DN50 to DN200 (2" to 8")
- ASTM SCH.80 for PVC, PP pipes from 2" to 8"

Glue-on / Weld-on fittings:

PVC and PVC-C from DN50 to DN280
PP and PE from DN50 to DN280

pH/ORP Electrode preamplifier:

PHAMP1: Battery powered unity-gain preamplifier for connection between electrode and monitor when the distance is longer than 15 mt (50 ft). Suitable for pH/ORP electrodes with BNC connector

Wafer fittings:

PVC and PP for DN250 and DN300

Metal fittings:

- Strap-on saddles in SS and Cast iron from DN80 to DN450
- Hot Tap strap on saddles in SS and Cast iron from DN80 to DN450

Temperature sensors:

T970278: Epoxy body Pt100 for in line and submersible installation (0° C to 100° C - 32° F to 212° F)

SS fittings:

- 316L SS threaded tees (BSP female threads) from DN20 to DN32
- 316L SS weld-on adapters from DN40 to DN600
- Hot Tap 316L SS weld-on adapters, O.D. (outside diameter) min: 400 mm

PP Gland fittings
PVC Gland fittings
SS Gland fittings

PVCC Gland fitting for Flat surface pH and ORP electrodes

Installation Kit for flat surface electrodes on FLS process

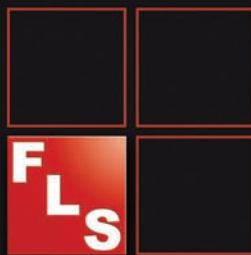
Installation Kit for epoxy body conductivity sensors on FLS process fittings

PVC and PVCC double socket for submersible installation

PVCC Hot Tap insertion assembly (with or without Pt100)

MONITORS								FLOWX3
F9.00	F9.02	F9.03	F9.00.BD	F9.20	F9.20.BD	F9.50	F9.51	SENSORS
■	■	■				■	■	F3.00.H
								F3.00.P
				■				F3.00.C
■	■	■		■		■	■	F3.01.H
				■				F3.01.C
	■	■				■	■	F3.15.H
								F3.30.H
■	■	■		■		■	■	F111.H
				■				F111.C
■	■	■				■	■	F111.HT
			■		■			F111.HT.BD
	■	■				■	■	F3.60M
	■	■				■	■	F3.63M
								F9.60M
								F9.63M
	■	■				■	■	F3.61M
	■	■				■	■	ULF01.H
■				■				ULF01.R
	■	■				■	■	ULF03.H
■				■				ULF03.R
	■	■				■	■	ULF3.15
								ULF3.30
	■	■				■	■	F3.81.H
	■	■				■	■	F3.82.H
■	■	■				■	■	F3.10.H

ELECTRODES / SENSORS					CHEMX3
Bulb pH/ORP	Flat Surface pH/ORP	Conductivity	Inductive Conductivity	Temperature	MONITORS
■	■			■	P6.02
		■		■	C5.02



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

an *OAliaxis* company