

## Type 4630 Free Chlorine Analyzer System



### Product Description

The type 4630 Free Chlorine Analyzer System is an integrated all-in-one system designed to measure free chlorine. The 3-4630 Free Chlorine Analyzer with pH sensor is used to accurately calculate free chlorine in applications that have varying pH values ( $\pm 0.20$  pH units).

The advanced 9950-3/-4 Chlorine Controller includes a new feature called the "Chemical Guard" relay control.

Because free chlorine concentration is pH dependent, the Chemical Guard feature interrupts/disables the relay that is assigned to the oxidant chemical (such as sodium hypochlorite) until the pH of the application is corrected. The 4630 series also comes complete with a flow switch that will disable the mechanical relays to the dosing pumps when the system is off or flow is interrupted to the flow cell.

The unique integrated clear flow cell accommodates the free chlorine and pH electrode, flow regulator, filter and variable area flow indicator in one compact unit. An integrated flow regulator with removable filter accepts inlet pressures of 1 to 8 bar (15 to 120 psi), while maintaining constant flow and minimal pressure to the sensors.

Water flows vertically into sensor tip eliminating bubble entrapment. The flow cell is designed to maintain a minimum amount of water to ensure sensors stay submerged, even when the system and flow is turned off.

The 4630 Free Chlorine Analyzer System comes complete with everything needed to support chlorine monitoring for 1 full year of operation. Panel design allows quick and easy installation and comes complete with four 4 to 20 mA outputs, flow switch with relay interrupt, four binary inputs and two mechanical relays. The 9950-3/-4 can also be used with the optional 3-9950.395-M (159 001 905) Modbus Module.

## Features

- EPA 334.0 Compliant
- Reagent free measuring
- Chemical Guard prevents over dosing of oxidants chemicals
- Built in flow switch
- Chlorine and pH electrode performance data
- Automatic time stamp after successful calibration
- Customer enabled alarm feature for recalibration
- Complete panel system allows for quick and easy installation
- Built-in flow regulator maintains constant flow and pressure to the sensors regardless of inlet pressure
- Automatic pH compensation



## Applications

Residual Chlorine Monitoring:

- Water Distribution
- Ground Water
- Surface Water
- HVAC Applications (cooling water)
- Food and Beverage
- Swimming Pools
- Water Parks

### EPA Compliant According to Method 334.0

The 3-4630 Free Chlorine Analyzer System can be used for reporting chlorine residuals in accordance with EPA Method 334.0

## Technical Details

### General

Compatibility	3-2630-1 Free Chlorine Electrode, 0.02 to 2 ppm /
	3-2630-2 Free Chlorine Electrode, 0.05 to 5 ppm /
	3-2630-3 Free Chlorine Electrode, 0.1 to 20 ppm /
	3-2650-7 Amperometric Electronics
	3-2724-00 Flat pH Electrode, 0 to 14 pH/ 3-2751-7 pH Sensor Electronics

### Materials

Panel	Black Acrylic
Flow Cell	Acrylic
Wiring Enclosure	Polycarbonate

### Wetted Materials

Flow Cell, Spacer Rings	Acrylic
Flow Regulator Housing	Polycarbonate
Strainer, E-clip, Regulator Spring, Float	Stainless Steel
Valves, Vent	Polypropylene
Flow Cell O-rings, Diaphragm	EPR (EPDM), FKM
Chlorine Electrode	PVC, PTFE, FKM, Nylon, Silicone
pH electrode	PPS, Glass, UHMW PE, FKM
Flow Switch	Polypropylene
Sealing Tape on Valves, Plug and Vent	PTFE
Plug	Polyethylene

## Max. Temperature/Pressure Rating

System Inlet Pressure Rating	1 to 8 bar	15 to 120 psi
Pressure Regulator	< 0.69 bar (10 psi) variation over all ranges of flow and pressure	
Flow Tolerance	± 15% or rated specification above	
Flow Rate Limits	30.24 to 45.36 LPH	8 to 12 US gal/h
Storage Temperature	0 °C to 65 °C	32 °F to 149 °F
Operating Temperature	0 °C to 45 °C	32 °F to 113 °F
pH Range	5.5 to 8.2 pH	

## Power Requirements

DC Input (3-9950-3, standard)	24 VDC nominal (12 to 32 VDC, ± 10% regulated), UL 60950-1 or UL 61010-1	
AC input (9950-4)	100 to 240 VAC. 50 to 60 Hz. 24 VA	
3-9950-3/-4 Relay Mode	Current draw up to 500 mA	
Current Loop	12 to 32 VDC, ±10% regulated, 4 to 20 mA (30 mA max.)	
Overvoltage Protection	Protection 48 Volt Transient Protection Device. Current limiting for circuit protection. Reverse-voltage protection.	

## Environmental

Relative Humidity	0 to 95%
Maximum Altitude	4'000 m (13'123 ft)
Enclosure	NEMA 4X (with output wire glands sealed)

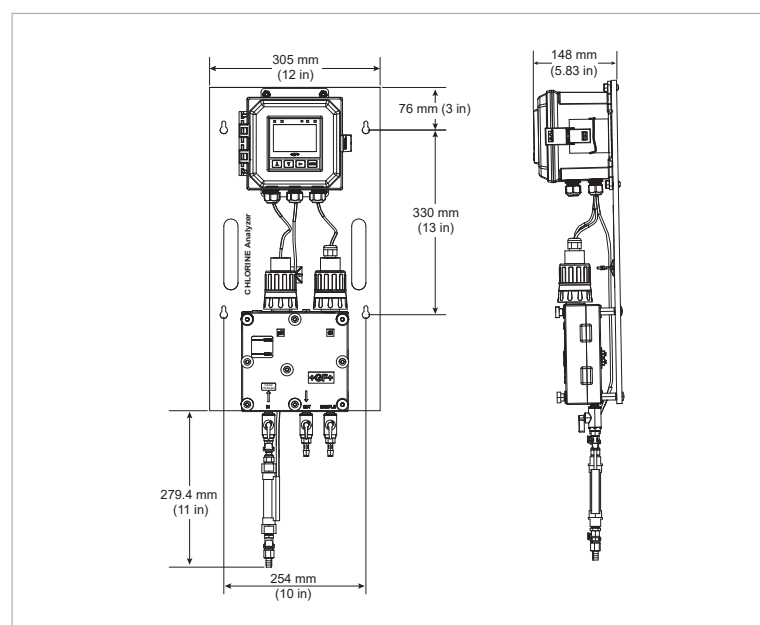
## Shipping Weight

	10 kg	22 lb
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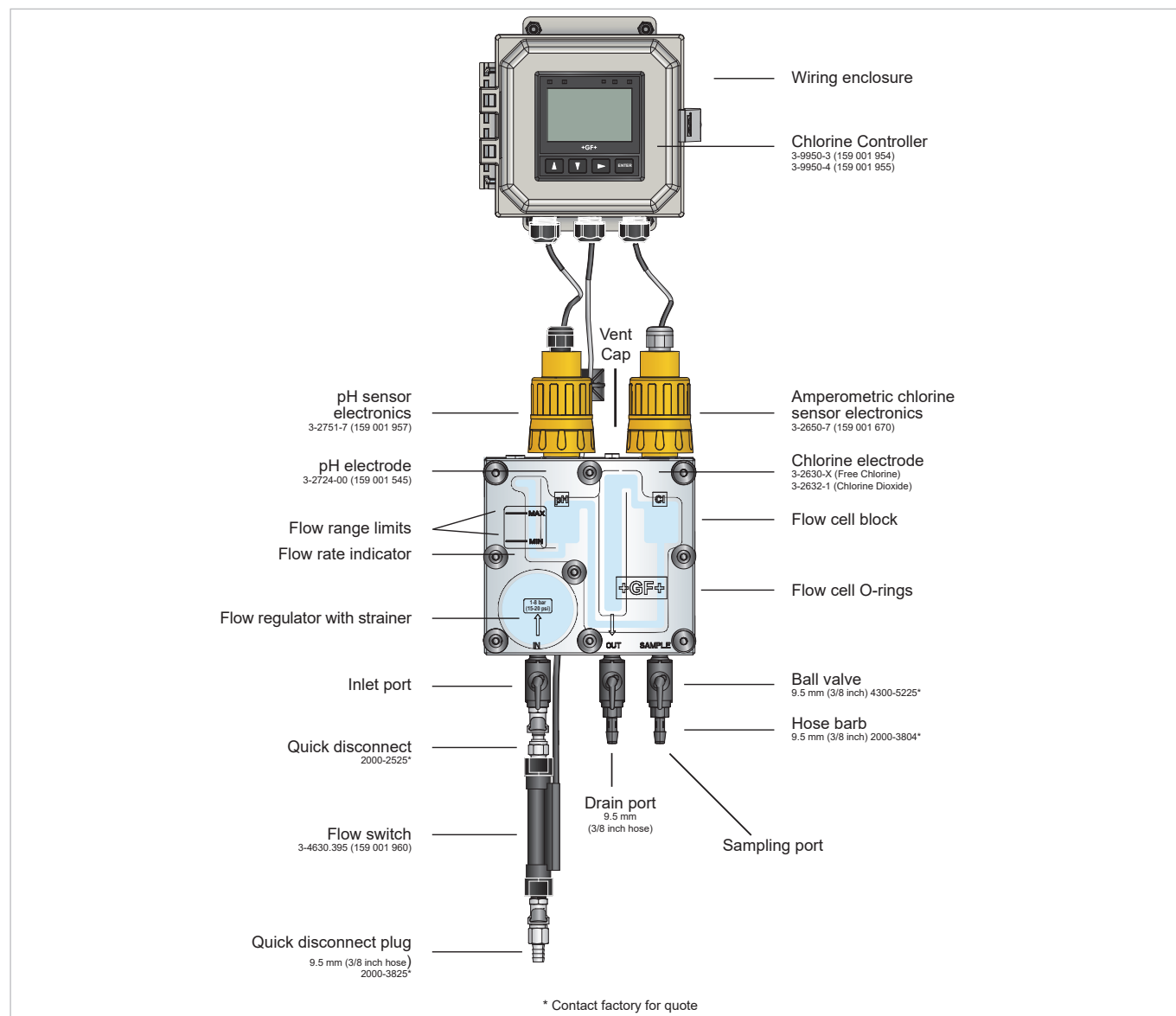
## Standards and Approvals

UKCA, CE, FCC, UL, CUL, WEEE
China RoHS
Manufactured under ISO 9001, ISO 14001, and ISO 45001

## Dimensions

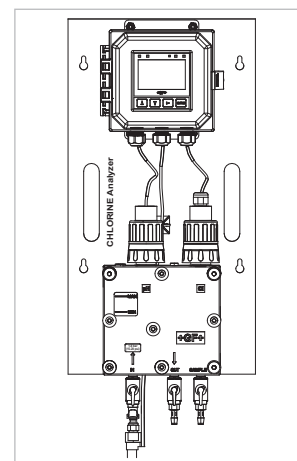


## System overview



## Ordering Information

Mfr. Part No.	Code	Description
Chlorine System: Chlorine controller, Free chlorine electrode with electronics, pH electrode with electronics, flow cell, flow switch all mounted on one single panel.		
3-4630-13	159 001 949	Chlorine panel, free chlorine sensor (0.02 to 2 ppm) w/ pH sensor, 12/24 VDC
3-4630-14	159 001 996	Chlorine panel, free chlorine sensor (0.02 to 2 ppm) w/ pH sensor, 100 - 240 VAC
3-4630-23	159 001 950	Chlorine panel, free chlorine sensor (0.05 to 5 ppm) w/ pH sensor, 12/24 VDC
3-4630-24	159 001 997	Chlorine panel, free chlorine sensor (0.05 to 5 ppm) w/ pH sensor, 100 - 240 VAC
3-4630-33	159 001 951	Chlorine panel, free chlorine sensor (0.1 to 20 ppm) w/ pH sensor, 12/24 VDC
3-4630-34	159 001 998	Chlorine panel, free chlorine sensor (0.1 to 20 ppm) w/ pH sensor, 100 - 240 VAC



## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-9950-3	159 001 954	Chlorine Controller, with four 4 to 20 mA output and binary/Relay Module, 12/24 VDC
3-9950-4	159 001 955	Chlorine Controller, with four 4 to 20 mA output and binary/Relay Module, 12/24 VDC or 100 - 240 VAC
3-9950-5	159 001 956	Chlorine Monitor, no relays or output modules, 12/24 VDC
3-9950-6	159 002 013	Chlorine Monitor, no relays or output modules, 12/24 VDC or 100 - 240 VAC
3-9950.393-1	159 310 268	Relay Module with 4 Mechanical Relays
3-9950.393-2	159 310 269	Relay Module with 2 Mechanical and 2 Solid State Relays
3-9950.393-3	159 310 270	Relay Module with 2 Mechanical Relays and 4 Binary Inputs
3-9950.395-M	159 001 905	Modbus Module
3-9950.398-2	159 001 848	Dual Channel 4 to 20 mA Current Loop Output Module
3-2630-1	159 001 746	Free Chlorine sensor, 0.02 to 2 ppm (mg/l)
3-2630-2	159 001 662	Free Chlorine sensor, 0.05 to 5 ppm (mg/l)
3-2630-3	159 001 747	Free Chlorine sensor, 0.1 to 20 ppm (mg/l)
3-2724-00	159 001 545	pH Electrode, Flat Glass, Pt1000 Temp Element, ¾ in. MNPT
3-2650-7	159 001 670	Chlorine - In-line Amperometric Electronics, Digital (S3L), 4.6 m (15 ft) cable
3-2751-7	159 001 957	pH - Inline Electronics, Digital (S3L), 4.6 m (15 ft) cable
3-4630.390	159 001 688	Rebuild kit: O-rings, boots, screws, 1 filter screen
3-4630.391	159 001 689	Pressure Regulator with 1 spare filter screen
3-4630.392	159 001 690	Acrylic Flow Cell complete with all components and connections
3-2630.391	159 001 674	Electrolyte kit, 30 ml bottle with syringe and needle
3-2630.394	159 310 164	Free Chlorine Replacement PTFE membrane (1 pcs.)
3-2630.398	159 310 166	Free Chlorine Sensor maintenance kit - 2 pcs. 30 ml bottles electrolyte, 2 pcs. PTFE membranes and 2 pcs. silicone bands
3-0700.390	198 864 403	pH Buffer Kit: 1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each
3822-7004	159 001 581	pH 4.01 buffer solution, 1 pint (473 ml) bottle
3822-7007	159 001 582	pH 7.00 buffer solution, 1 pint (473 ml) bottle
3822-7010	159 001 583	pH 10.00 buffer solution, 1 pint (473 ml) bottle
3-2700.395	159 001 605	Calibration kit: 3 polypropylene cups, box used as cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3800-5000	159 838 107	3.0M KCl Storage Solution for pH and ORP, 1 pint (473 ml) bottle
3-2700.397	159 001 870	Protective Cap for pH/ORP electrodes, 5 pieces
3-2700.398	159 001 886	Lubricant Kit
7300-0024	159 001 693	VDC Power Supply
3-2759	159 000 762	pH/ORP System Tester (adapter cable sold separately)
3-2759.391	159 000 764	2759 DryLoc Adapter Cable (for use with 2751)

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