MCO14 – COLORIMETRIC CONTROLLER

MCO14 is a rational and precise system for managing analyses and controls of the main parameters in swimming pool plants.
The MCO14 can control the pH, redox and temperature levels using proper probes, but also features a colorimetric control system for free and total (combined) chlorine in the pool. This system is much more accurate than galvanometric measurements, because readings are performed by an optical system, that eliminates all problems related to temperature variations or dissolved products for chlorine generation (hypochlorite, isocyanurate, etc.).
This microprocessor-based digital unit features easy and intuitive configuration and calibration menus, a 2-row LCD display, digital and analogic outputs freely configurable, and a serial port for connection to a PC or modem for remote control.
The inputs are factory configured according to the customer needs.

Other important technical characteristics include:

- Multilingual interface
- Inputs for five measurements (four to be specified upon order + temperature, always provided); if both free and total chlorine analyses are performed, measurements become six, because the combined chlorine value is calculated as difference between total and free chlorine
- Digital outputs: relays configurable as set-point, maximum or minimum alarm, proportional control by time (PWM), proportional control by pulses (PFM), timed control or working schedule; with or without temporizations
- Possible low-voltage output (24V~), for driving small dosing pumps or solenoid valves without adding any transformer or safety voltage
- Analogic outputs for exporting measurement values to external devices; with galvanic insulation
- OFF input to switch off the control relays (to connect to filter pumps contactor)
- FLOW input for monitoring the water flow to the equipment
- OK output for remote indication of the proper functioning of the equipment
- Alarms and errors (diagnostics) directly shown on the display
- Date and time always displayed, even in case of power failure
- Configuration / calibration data recording on nonvolatile internal memory for at least 10 years
- Data log downloadable via serial line (internal data logger)
- RS232C or RS485 (optional) serial port, with galvanic insulation, for communication with PC, RW14 remote control system or µMMC4 data recorder

Colorimeter: The water to be tested coming from the input hose, is kept at the constant level determined by the spillway. When an analysis has to be performed, the water enters through the solenoid valve into the reading chamber. First a turbidity reading is performed, then the zero calibration is done. The two reagents are then injected and properly mixed. If free chlorine is present, the water becomes reddish, with a colour intensity proportional to the chlorine concentration. The detector reads the colour and sends a proper signal to the microprocessor, that calculates and displays the chlorine concentration in ppm units. This value is stored till the next analysis cycle. If total chlorine analysis is also required, the cycle continues adding the third reagent and measuring the new water colour to get the total chlorine concentration in ppm units. When the cycle is completed, the discharge valve is open and the reading chamber is cleaned.

pH-meter / Redox-meter / thermometer: The pH and redox electrodes and the Pt100 temperature sensor are located into the spillway are located. All signals coming from the sensors reach the controller inputs and are converted into the proper measure units. Sensors and cables are supplied with the instrument.

TECHNICAL DATA

Standard Configuration:

In1 (meas1) = pH
In2 (meas2) = RX
In3 (meas3) = to be specified upon order
In4 (meas4) = free chlorine, colorimetric analysis with DPD1 (5 ppm FS)
In5 (meas5) = temperature
(meas6) = total chlorine, colorimetric analysis with DPD3 (5 ppm FS)
(meas7) = combined chlorine (calculated: meas6 – meas4)

Input Specifications

Cl_{2F}	Free Chlorine: 0.00 … 5.00 ppm Cl_2 – with colorimetric method (resolution 0.01 ppm Cl_2 ; precision > ±0.05 ppm up to 1 ppm Cl_2, ±0.15 ppm from 1 to 2 ppm, ±0.25 ppm from 2 to 5 ppm)
Cl_{2T}	Total Chlorine: 0 … 2.00 ppm Cl_2 – with colorimetric method (optional range) (precision better than ±0.02 ppm, repeatability better than ± 0.01 ppm)
Cl_{2C}	Combined chlorine: calculated value as difference Cl_{2T} - Cl_2
pH	0.00 … 14.00 pH; input impedance > 10^12 Ohm (precision better than ±0.02 pH, repeatability better than ± 0.01 pH)
RX	–1000 … +1000 mV; input impedance > 10^12 Ohm (precision better than ± 0.02 mV, repeatability better than ± 0.01 mV)
Amperometric Cell	0 … 1.00 ; 0 … 5.00 ppm – to be specified upon order (precision better than ±0.02 ppm, repeatability better than ±0.01 ppm)
Potentiostatic Cell	0 … 1.00 ; 0 … 2.00 ; 0 … 5.00 ; 0…10.00 ppm – to be specified upon order; other ranges upon request (precision better than ±0.02 ppm, repeatability better than ±0.01 ppm)
Conductivity	range and cell constant to be specified upon order; measurement displayed over 2000 points (precision better than ±4 points, repeatability better than ±2 points)
Standardized Input	range to be specified upon order – for example, turbidity 0 … 100 NTU (precision better than ±0.2% FS, repeatability better than ± 0.1% FS)

Temperature	0.0 … +100.0 °C; direct input from Pt100 (Pt1000 upon request) (precision better than ±0.3°C, repeatability better than ±0.2°C)

Note: Precision and repeatability data refer to the electronics and do not consider the sensor error

Display	2-row (x 16 characters) alphanumeric LCD, with backlight
Power Supply	230 V~ ±10%, 50-60 Hz, 45 VA (110 or 24 V~, 50-60 Hz upon request)
Water Supply	approx. 50-60 litres/h, inlet on hose holder with OD 12 mm; overflow drain and outlet of analysed water (to be disposed) on hose holders with OD 22 mm (each analysis needs approx. 1 litre of disposable water)
Volume of Reagent Bottles	1 litre for reagents 1 and 2; 0.5 litres for reagent 3 (each analysis uses approx. 0.1 ml of reagents 1 and 2)
Autonomy	With new reagent bottles, up to 10000 analyses may be performed; with a sampling time of 10 minutes, the autonomy is 100000 minutes, i.e. 1667 hours, equivalent to 69 days. Anyway, to avoid alteration, it is not advisable to leave the reagents inside the colorimetric unit for more than two months, especially if the device is installed in a warm environment
Relay Outputs	available on removable terminal blocks; 4 control relay (K1, K2, K4, K5); controllable from any of the five measurements; 1 alarm relay (K3); normally energized, deactivates upon anomalies; also configurable NO; K1, K2 and K3 have max load of contacts 250V~, 3A resistive, while K4 and K5 have max load 24 V (V~ or V-), 3A Factory standard configuration (unless otherwise specified by the customer): • K1 and K2 = 230 V~ output • K3, K4, K5 = voltage-free contact output Alternative configurations (to be requested upon order): • K1, K2, K3 = contact type or 230 V~ output • K4 and K5 = contact type or voltage (24 V~, max 20 VA) output for directly solenoid valves (and.g. feeders). K4 and K5 can be also configured as SSR output compatible with pulse input of dosing pumps. This particular configuration must be requested upon order.
Current Outputs	2 outputs, 0-20 or 4-20 mA, on anyone of measurements, selectable through software, with galvanic insulation from inputs and microprocessor, on 700 Ohm max load, error max 0.2% FS
Inputs	accept voltage-free contact; **OFF**: contact from filter pump contactor – if active, locks all outputs; can be configured as NO or NC by acting on jumper S36 **FLW**: contact from flow sensor **LEV1**: contact from level sensor of tank 1 **LEV2**: contact from level sensor of tank 2 **LEV3**: contact from level sensor of tank 3
Serial Line	RS232C or RS485, available on 4-pin miniaturized terminal block

Environment	Storage Temperature	-20 … +60 °C
	Working Temperature	0 … +50 °C
	RH max	90% no condensing
Protection Rate	IP56	
Dimensions / Weight	L 520 x H 900 x W 250 mm / approx. 13.5 kg	

Notes:

- The colorimeter has been designed to measure chlorine in the 0 to 5 ppm range, but it can reads up to 6.50 ppm Cl_2 (with less precision); in case of higher concentration, the system saturates and the display continues to show the maximum 6.50 value
- All user outputs and inputs are available on removable, high insulation terminal blocks
- Supplied electrodes are supplied already connected to the instrument
- All components for the colorimetric measurement (optical groups, solenoid valve, peristaltic pumps, mixer and level controls) are supplied already assembled and connected

Item	Description	Code
RCO-R1	Reagent 1 for free chlorine analysis with DPD1 method, 1 litre bottle	8009.0103
RCO-R2	Reagent 2 for free chlorine analysis with DPD1 method, 1 litre bottle	8009.0104
RCO-R3	Reagent 3 for total chlorine analysis with DPD3 method, 0.5 litre bottle	8009.0105
EV-MCO07	Solenoid valve for hydraulic group	8050.9910
TB-MCO07	Santoprene tubes for peristaltic pumps, 2 pieces	9600.0111
Pump	Spare peristaltic pump for colorimetric controllers Flow rate 0.25 l/h, Santoprene internal tube, 24 Vdc	9600.0021
MX-MCO07	Mixer for hydraulic group	8050.9901
FT-MCO07	Impurity filter for colorimetric controllers	7010.9069
Valve	Spare valve, ¼" M/F	3630.6590
Optical group	Spare complete optical group for MCO14 units	8050.9912
CAV1	1.2 m cable with connector for glass electrodes	8009.9011
EURO2010pH	pH electrode with glass body, ceramic junction and S7 threaded head	8009.2010
EURO2110RX	Redox electrode with platinum sensor, glass body, ceramic junction and S7 threaded head	8019.2110
PT100S	Pt100 probe with anti-acid Pyrex glass body, dia. 12 mm	8039.0001
Caps for reagent tanks	White cap with level sensor for reagent 1	9600.0116
	Black cap with level sensor for reagent 2	9600.0121
	Black cap with level sensor for reagent 3	9600.0122
Kit	Grounding kit for MCO07	8050.9905
KRE	Maintenance kit for pH and redox electrodes (cleaning and storage)	8009.9902

EF214 – MULTI-PARAMETRIC CONTROL UNIT

The EF214 multi-parametric electronic unit has been designed specifically for managing the analysis and adjustments of the basic parameters for pool water treatment.

This microprocessor-based digital controller features easy and intuitive calibration and configuration menus, a 2-row LCD, digital and programmable analog outputs, and a serial port for the connection to a PC or modem for remote control.
The inputs are factory configured according to the customer needs.

Other important technical characteristics include:

- Multilingual interface
- Inputs for five measurements (four to be specified upon order + temperature, always provided); in case of double input for potentiostatic cell for free and total chlorine analyses, measurements become six, because the combined chlorine value is calculated as difference between total and free chlorine
- Digital outputs: relays configurable as set-point, maximum or minimum alarm, proportional control by time (PWM), proportional control by pulses (PFM), timed control or working schedule; with or without temporizations
- Possible low-voltage output (24V~), for driving small dosing pumps or solenoid valves without adding any transformer or safety voltage
- Analogic outputs for exporting measurement values to external devices; with galvanic insulation
- OFF input to switch off the control relays (to connect to filter pumps contactor)
- FLOW input for monitoring the water flow to the equipment
- OK output for remote indication of the proper functioning of the equipment
- Alarms and errors (diagnostics) directly shown on the display
- Date and time always displayed, even in case of power failure
- Configuration / calibration data recording on nonvolatile internal memory for at least 10 years
- Data log downloadable via serial line (internal data logger)
- RS232C or RS485 (optional) serial port, with galvanic insulation, for communication with PC, RW14 remote control system or µMMC4 data recorder

TECHNICAL DATA

Input Specifications

pH	0.00 … 14.00 pH; input impedance > 10^12 Ohm (precision better than ±0.02 pH, repeatability better than ± 0.01 pH)
RX	–1000 … +1000 mV; input impedance > 10^12 Ohm (precision better than ± 0.02 mV, repeatability better than ± 0.01 mV)
Amperometric Cell	0 … 1.00 ; 0 … 5.00 ppm – to be specified upon order (precision better than ±0.02 ppm, repeatability better than ±0.01 ppm)
Potentiostatic Cell	0 … 1.00 ; 0 … 2.00 ; 0 … 5.00 ; 0…10.00 ppm – to be specified upon order; other ranges upon request (precision better than ±0.02 ppm, repeatability better than ±0.01 ppm)
Conductivity	range and cell constant to be specified upon order; measurement displayed over 2000 points (precision better than ±4 points, repeatability better than ±2 points)
Standardized Input	range to be specified upon order – for example, turbidity 0 … 100 NTU (precision better than ±0.2% FS, repeatability better than ± 0.1% FS)
Temperature	0.0 … +100.0 °C; direct input from Pt100 (Pt1000 upon request) (precision better than ±0.3°C, repeatability better than ±0.2°C)

Note: Precision and repeatability data refer to the electronics and do not consider the sensor error

Standard Configuration:

In1 (meas1) = pH
In2 (meas2) = RX
In3 (meas3) = chlorine with cell CLE12 (5 ppm FS)
In4 (meas4) = chlorine with potentiostatic cell (5 ppm FS)
In5 (meas5) = temperature

Display: 2-row (x 16 characters) alphanumeric LCD, with backlight

Power Supply: 230 V~ ±10%, 50-60 Hz, 45 VA (110 or 24 V~, 50-60 Hz upon request)

Relay Outputs: available on removable terminal blocks;

4 control relay (K1, K2, K4, K5); controllable from any of the five measurements;

1 alarm relay (K3); normally energized, deactivates upon anomalies; also configurable NO;

K1, K2 and K3 have max load of contacts 250V~, 3A resistive, while K4 and K5 have max load 24 V (V~ or V-), 3A

Factory standard configuration (unless otherwise specified by the customer):

- K1 and K2 = 230 V~ output
- K3, K4, K5 = voltage-free contact output

Alternative configurations (to be requested upon order):

- K1, K2, K3 = contact type or 230 V~ output
- K4 and K5 = contact type or voltage (24 V~, max 20 VA) output for directly solenoid valves (and.g. feeders).

Current Outputs: 2 outputs, 0-20 or 4-20 mA, on anyone of measurements, selectable through software, with galvanic insulation from inputs and microprocessor, on 700 Ohm max load, error max 0.2% FS

Inputs	accept voltage-free contact; **OFF**: contact from filter pump contactor – if active, locks all outputs; can be configured as NO or NC by acting on jumper S36 **FLW**: contact from flow sensor **LEV1**: contact from level sensor of tank 1 **LEV2**: contact from level sensor of tank 2	
Serial Line	RS232C or RS485, available on 4-pin miniaturized terminal block	
Environment	Storage Temperature	-20 … +60 °C
	Working Temperature	0 … +50 °C
	RH max	90% no condensing
Protection Rate	IP65	
Cable Glands	5 x PG9 for 5 … 9 mm diameter cables (other configurations upon request)	
Dimensions	L 320 x H 270 x W 120 mm	
Weight	approx. 3 kg	

PANELS PNL-EF214

The EF214 unit is generally supplied on a panel complete with measurement sensors, calibration solutions and dosing pumps.
Here below are listed some STEIEL standard panels, but you can requested tailored versions to suit specific application needs.

***Note**: For further technical details about dosing pumps and measurement sensors, please refer to the specific catalogs.*

- ***PANELS WITH DOSING PUMPS***

Dimensions: 900 x 700 mm.
EF214 unit, EF150 PGV dosing pumps, measurement sensors, calibration solutions, with or without filter.

- Measure of pH, RX, temperature and chlorine with CLE12-ACL amperometric cell; 2 dosing pumps for acid and chlorine dosage
- Measure of pH, RX, temperature and chlorine with CP-CLO-M potentiostatic cell; 2 dosing pumps for acid and chlorine dosage
- Measure of pH, RX, temperature and bromine with CLE12-ABR amperometric cell; one pump for acid dosage

- ***PANELS WITHOUT DOSING PUMPS***

Dimensions: 500 x 600 mm.
EF214 unit, measurement sensors, calibration solutions, with or without filter.

- Measure of pH, RX, temperature and chlorine (or bromine) with amperometric cell
- Measure of pH, RX, temperature and chlorine with potentiostatic cell

- ***PANEL PNL-EF214 FA***

Dimensions: 900 x 700 mm.
Thermoformed panel with EF214 unit, for measuring the levels of pH, redox, temperature and chlorine.
Chlorine analysis with potentiostatic or amperometric cell.
Can mount up to four dosing pumps: two standard for controlling the pH and chlorine levels; two additional for example for dosing flocculant and anti-algae products.

Accessories and spare parts	Description	Code
EURO2217-pH	pH electrode with plastic body, 1 m cable with points	8009.2217
EURO2217-RX/Pt	Redox electrode with plastic body, platinum sensor, 1 m cable with points	8019.2217
PT100-CP	Pt100 probe with threaded PVC body, for installation in SD-CP and CLE12 probe-holders, working temperature max 50°C, cable 1.5 m	8039.0009
CP-CLO-M CP-1-RM CP-CLO-RE CP-CLO-RE-AM	Potentiostatic cell for organic chlorine measurements Spare membrane Spare electrolyte, 100 ml bottle Electrolyte for sea water, 100 ml bottle	8061.0208 8061.0241 8061.0231 8061.0229
CAV-CP1	1 m cable with connector for potentiostatic cell	8009.9021
CLE12-ACL	Amperometric chlorine cell with Cu/Pt electrodes, assembled in down-flow probe-holder with flow regulator and housings for 2 electrodes (dia. 12 mm), one temperature sensor and one flow sensor	8061.0120
CLE12-ABR	Amperometric bromine cell with Cu/Pt electrodes, assembled in down-flow probe-holder with flow regulator and housings for 2 electrodes (dia. 12 mm), one temperature sensor and one flow sensor	8061.0122
Kit-sfere/CLE	Kit of 60 Pyrex balls for amperometric cells	8061.0110
CLE12-SENS	Spare Cu/Pt sensors group for CLE12 cells	8061.0108
SD-CP2	Down-flow probe-holder with housings for potentiostatic cell (CP series), 2 sensors of dia. 12 mm (pH and RX electrodes), temperature probe and flow sensor	8061.0250
SD-CP3	Down-flow probe-holder with housings for 2 potentiostatic cells (CP series), 2 sensors of dia. 12 mm (pH and RX electrodes), temperature probe and flow sensor	8061.0253
SD-SF/PNP	Flow sensor for down-flow probe-holder	5450.0009
IL-SF	“In-line” flow sensor	9700.9202
SF02-V	Down-flow electrode-holder with transparent polycarbonate cup and green head, for the installation of 1 sensor of dia. 12 mm	8081.0008
SLP2	Level sensor with 2 m cable and connector	9700.9002
Grounding Kit	Grounding kit for CLE12 and SD-CP probe-holders	8061.0111
Kit electrode	Spare kit including threaded ring and seals for the installation of one electrode in CLE12 and SD-CP probe-holders, max working temperature 50°C	8061.0261
Kit probe CP	Spare kit including threaded ring and seals for the installation of one CP cell in CLE12 and SD-CP probe-holders, max working temperature 50°C	8061.0260
pH4-S	pH 4 buffer solution, 90 ml bottle	8009.0095
pH7-S	pH 7 buffer solution, 90 ml bottle	8009.0096
RX220-S	Redox calibration solution (220 mV), 90 ml bottle	8019.0091
KRE	Maintenance kit for pH and redox electrodes (cleaning and storage)	8009.9902

Note: For a full list of accessories and spare parts for dosing pumps, please refer to the specific catalog.

EF315 – DIGITAL CONTROL UNIT FOR SWIMMING POOLS

EF315 is an electronic unit especially designed for the analysis and control of the main parameters in pool plants.
The unit is available as pH/RX version with inputs for pH and redox electrodes on BNC connectors, or as pH/Chlorine version with inputs for pH electrode (BNC connector) and amperometric or potentiostatic chlorine cell (prewired input).

Main technical characteristics:

- Multilanguage interface
- Three measurement inputs: two to be specified upon order, and one for temperature probe
- Standard version: meas.1 = pH, meas.2 = redox, meas.3 = temperature
- Outputs for driving electromagnetic or peristaltic pumps (to be specified upon order)
- Consent/FLOW input for external consent and/or control of the water flow to the sensors
- Two LEV (level) inputs for controlling the level of reagents to be dosed
- Output for remote signaling the proper operation of the device
- Alarms and errors (diagnostic) directly shown on display
- Configuration and calibration data stored in the no volatile memory for at least 10 years
- RS232C or RS485 serial port (to be specified upon order)
- Configurable maintenance schedule

Note: For a typical pool application, measure 1 is always pH, while measure 2 is used for determining the chlorine concentration indirectly through redox measurement (easy and cost effective), or directly with two-electrode (Pt/Cu) amperometric cell (CLE12) or potentiostatic cell with iono-selective membrane (CP series).

The EF315 unit is suitable for the installation in preassembled panels, complete with dosing pumps (electromagnetic EF150 PGV or peristaltic EF105) and measurement sensors. For further technical details about dosing pumps and measurement sensors, please refer to the specific catalogs.

Standard versions:

- **PNL EF315 pH/RX** which includes: EF315 unit, pH and RX electrodes, with or without two dosing pumps for acid and chlorine dosage
- **PNL EF315 pH/CL** which includes: EF315 unit, pH electrode, CLE12-ACL chlorine amperometric cell, with or without two dosing pumps for acid and chlorine dosage
- **PNL EF315 pH/BR** which includes: EF315 unit, pH electrode, CLE12-ABR bromine amperometric cell, with or without one dosing pump for acid dosage
- **PNL EF315 pH/CP** which includes: EF315 unit, pH electrode, CP-CLO-M chlorine potentiostatic cell, with or without two dosing pumps for acid and chlorine dosage

TECHNICAL DATA

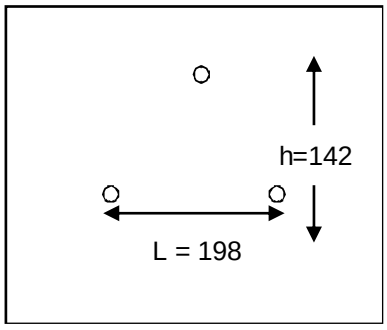
Input Specifications

*(**Note**: The precision and repeatability data refer to the electronics only)*

pH	0.00 … 14.00 pH; input impedance > 10^12 Ohm (precision better than ±0.02 pH, repeatability better than ± 0.01 pH)
RX	0 … +1000 mV; input impedance > 10^12 Ohm (precision better than ± 0.02 mV, repeatability better than ± 0.01 mV)
Cl_2	• amperometric cell input Range 0 … 2.00 ppm Cl_2 (can reach 5 ppm with saturation error) (precision better than ±0.02 ppm, repeatability better than ±0.01 ppm) • potentiostatic cell input Range 0 … 5.00 ppm Cl_2 (0 … 1.00 upon order) (precision better than ±0.02 ppm, repeatability better than ±0.01 ppm)
Temperature	–50.0 … +200.0 °C; input from Pt100 with 3-wire cable (precision better than ±0.3°C, repeatability better than ±0.2°C)
Standard Configuration	**In1 (meas1) = pH / In2 (meas2) = RX / In3 (meas3) = temperature**
Display	4-row (x 16 characters) alphanumeric LCD, with backlight
Power Supply	230 V~, 50-60 Hz, 5 VA
Outputs	• Control outputs **P1, P2**: these outputs can be pulsed (for electromagnetic pumps) or continuous (for peristaltic pumps). Max load: 3A resistive @ 230V~, or pump magnet. • Alarm output (**KAll**): output normally energized, it deactivates upon alarm, error or malfunctioning. Can be also configured as NO. Max load 2A resistive @ 230V~. • **FLOW/ABIL**: signal from flow sensor (3-wire micro-magnetic) of the amperometric or potentiostatic cell, or voltage-free contact from filter pump contactor. Can be configured as NO or NC. • **LEV1, LEV2**: contacts from level sensors of tanks 1 and 2 (for example, acid and chlorine)
Serial Line	(optional) RS232C, available on M8 connector

Environment	Storage Temperature	-20 to +60 °C
	Working Temperature	0 to +50 °C
	RH max	90% no condensing
Material	Polycarbonate	
Protection Rate	IP65	

Dimensions	L 235 x H 185 x W 120 mm
Installation	Using supplied screws and stoppers. Drill first the upper hole and hang the unit. Then drill the bottom fixing holes.
Cable Glands	3 x PG7, 3 x PG9 (included)
Weight	approx. 1.5 kg



PNL EF162-EF163 – pH / CHLORINE CONTROL

These digital professional electromagnetic pumps, with built-in measurement instrument, allow to monitor and control the pH and chlorine leveles in swimming pools.
The preassembled and prewired panel icludes an EF162 pump with pH-meter, an EF163 pump with chlorine meter, a pH electrode with plastic body and BNC, a two-electrode (Cu/Pt) amperometric cell mounted in down-flow probe-holder complete with prewired flow sensor, a connection box for signal splitting, and a net filter (cartridge 50 µm).
The panel is supplied with pH buffer solutions (pH4 and pH7, 90 ml each) and standard kits for electromagnetic pumps (two foot fileters, two injection valves, PVC Crystal tubes for suction and bleed lines, PE tubes for injection lines).

Panel Dimensions	500 x 600 mm
Panel Weight	approx. 12 kg

TECHNICAL DATA FOR PUMPS

Flow Rate	max 10 l/h @ 2 bar	
Frequency	adjustable from 0 to 140 pulses/minute	
Suction Height	max 1.5 m	
Suction / Injection Tubes	4x6 mm	
Dosage Precision	+5% ; -10%	
Power Supply	230 V~, 50/60 Hz, -25…+10% (115 V~ upon order) / max 55 W	
Protection	fuse 4x20; 2 A @ 230 V~ (or 4 A @ 115 V~)	
Level Input	accept voltage-free contact, from level sensor	
External Consent Input	contact for micro-magnetic NPN flow sensor (“cell flow” input) or voltage-free contact	
Thermal Protection	through thermostat on pump magnet	
RTC	real time clock, precision ±5 sec./month, powered by LR44 buffer battery, minimum autonomy of 2 years	
Environment	Storage Temperature:	-20 to +60°C
	Working Temperature:	-10 to + 50°C
	RH max:	90% no condensing
Protection Rate	IP65	
Materials	PP case reinforced with glass fibre, PVDF (or PP) pump head, PTFE diaphragm, Pyrex ball valves, FPM seals (EPDM upon order)	

Analogic Input (depending on model)

pH Input	Model EF162 Available on BNC connector Precision better than 0.3% FS, repeatability better than 0.2% FS pH Range: -1.00 to 15.00 pH
Residual Chlorine Input	Model EF163 Available on axial connector Precision (electronics) better than 0.3% FS Repeatability (electronics) better than 0.2% FS Standard Range: 0.00 to 5.00 ppm chlorine

Accessories and spare parts	Description	Code
EURO2000-PH	pH electrode with plastic body, cable and BNC connector	8009.2000
CLE12-ACL	Amperometric chlorine cell with Cu/Pt electrodes, assembled in down-flow probe-holder with methacrylate body, flow regulator and housings for the installation of 2 electrodes (dia. 12 mm), one temperature sensor and one flow sensor	8061.0120
Kit-sfere/CLE	Spare kit of 60 Pyrex balls for amperometric cells	8061.0110
CLE12-SENS	Spare Cu/Pt sensors group for CLE12 cells	8061.0108
SD-SF/NPN	Flow sensor for down-flow probe-holder, to connect to EF88 units, Pool-Peek-Plus and EF163 pumps	5450.0010
	Filter-holder cup with green threaded ring, complete with mounting bracket and screws	8071.0020
Net Filter	Spare cartridge for net filter, 50 µm	8070.0010
SLP3	Level sensor with 2 m cable and axial connector	9700.9006
Grounding Kit	Grounding kit for probe-holders CLE12 and SD-CP	8061.0111
Electrode Kit	Spare kit with threaded ring and seals for the installation of one electrode in probe-holders CLE12 and SD-CP, working temperature max 50°C	8061.0261
pH4-S	pH 4 buffer solution, 90 ml bottle	8009.0095
pH7-S	pH 7 buffer solution, 90 ml bottle	8009.0096
KRE	Maintenance kit for pH and redox electrodes (cleaning and storage)	8009.9902

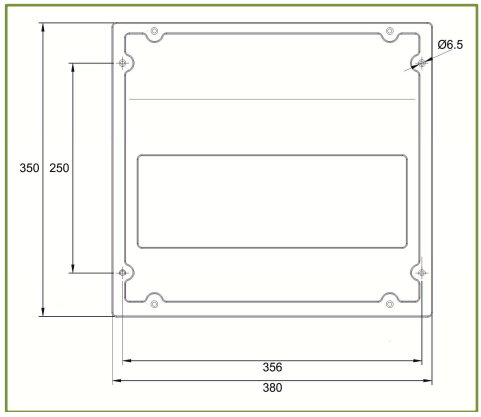
Note: For a full list of accessories and spare parts for dosing pumps, please refer to the specific catalog.

EF300 pHCP – COMPACT SYSTEM FOR SWIMMING POOLS, FOR PROPORTIONAL DOSAGE OF CHLORINE / ACID

EF300 is a compact system easy to install (wall mounting) and to maintain, that allows to manage the pH and chlorine (potentiostatic method) levels in the swimming pool plants.
The EF300 system includes a multilingual digital controller, that works accordingly with the set thresholds, a down-flow probe-holder complete with prewired flow sensor, potentiostatic cell for free chlorine analysis, pH electrode with plastic body and BNC connector, prewired Pt100 sensor (optional). Supplied with pH buffer solutions (pH4 and pH7, 90 ml each).
Options: alarm output and RS232 serial port.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH ; 0 to 5.00 ppm chlorine
Precision	±0.5 %
Display	2-row alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
FLOW Input	prewired to micro-magnetic flow sensor
Outputs	2 power outputs for external dosing pumps
Outputs (optional)	1 alarm output, configurable as NO or NC; 1 RS232 serial port
Hydraulic Connections	water inlet and outlet connections for standard tube 8x12; sampling valve
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Casing	self-extinguish plastic material
Protection Rate	IP65
Dimensions	unit: 350 x 380 x 175 mm ; mounting template: 250 x 356 mm
Weight	approx. 2 kg

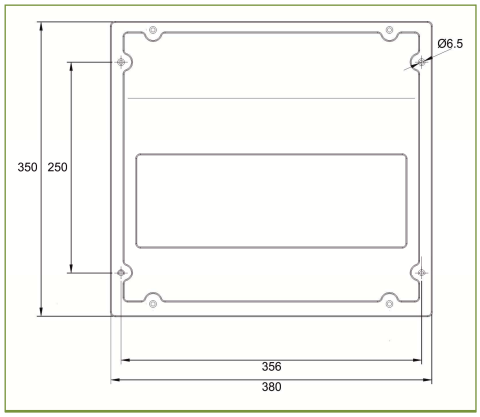


EF300 pHCL – COMPACT SYSTEM FOR SWIMMING POOLS, FOR PROPORTIONAL DOSAGE OF CHLORINE / ACID

EF300 is a compact system easy to install (wall mounting) and to maintain, that allows to manage the pH and chlorine (amperometric method) levels in the swimming pool plants.
The EF300 system includes a multilingual digital controller, that works accordingly with the set thresholds, 2-electrode (Cu/Pt) amperometric cell assembled in a down-flow probe-holder complete with prewired flow sensor, prewired Pt100 sensor (optional). Supplied with pH buffer solutions (pH4 and pH7, 90 ml each).
Options: alarm output and RS232 serial port.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH ; 0 to 5.00 ppm chlorine
Precision	±0.5 %
Display	2-row alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
FLOW Input	prewired to micro-magnetic flow sensor
Outputs	2 power outputs for external dosing pumps
Outputs (optional)	1 alarm output, configurable as NO or NC; 1 RS232 serial port
Hydraulic Connections	water inlet and outlet connections for standard tube 8x12; sampling valve
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Casing	self-extinguish plastic material
Protection Rate	IP65
Dimensions	unit: 350 x 380 x 175 mm ; mounting template: 250 x 356 mm
Weight	approx. 2 kg

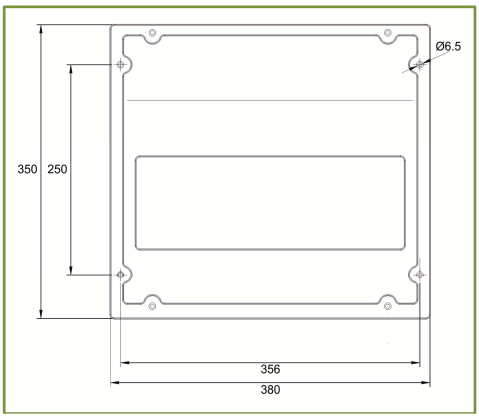


EF310 – COMPACT SYSTEM FOR SWIMMING POOLS, FOR PROPORTIONAL DOSAGE OF CHLORINE / ACID WITH POWER OUTPUT FOR SALT CHLORINATOR

EF310 is a compact system easy to install (wall mounting) and to maintain, that allows to manage the pH and chlorine (analysis with amperometric or potentiostatic cell) levels in the swimming pool plants.
The system includes a multilingual digital controller, that works accordingly with the set thresholds, a 2-electrode amperometric cell or potentiostatic probe with membrane in down-flow probe-holder complete with prewired flow sensor, a pH electrode with plastic body and BNC connector, a prewired Pt100 sensor (optional).
EF310 is also equipped with an additional power output for connection of a salt chlorinator.
Supplied with pH buffer solutions (pH4 and pH7, 90 ml each).
Options: alarm output and RS232 serial port.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH ; 0 to 5.00 ppm chlorine
Precision	±0.5 %
Display	2-row alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
Inputs	2 independent inputs for level sensor; 1 prewired input for micro-magnetic flow sensor
Outputs	2 power outputs for external dosing pumps 1 power output for salt chlorinator (230 V~, max 200 W); 1 serial port RS232
Hydraulic Connections	water inlet and outlet connections for standard tube 8x12; sampling valve
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Casing	self-extinguish plastic material
Protection Rate	IP65
Dimensions	unit: 350 x 380 x 175 mm ; mounting template: 250 x 356 mm
Weight	approx. 2 kg

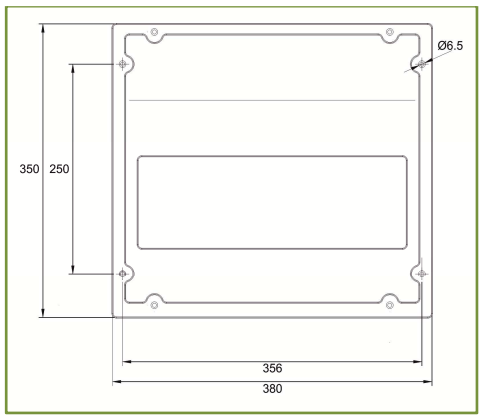


EF300 pHRX – COMPACT SYSTEM FOR SWIMMING POOLS, FOR PROPORTIONAL DOSAGE OF CHLORINE / ACID

EF300 is a compact system easy to install (wall mounting) and to maintain, that allows to manage the analysis and control of pH and chlorine (through redox measurements) levels in swimming pool plants.
The EF300 system includes a multilingual digital controller, that works accordingly with the set thresholds, two dosing pump with PP head and 10 l/h flow rate with input for level sensor, a down-flow electrode-holder, pH and redox electrodes with plastic body and BNC connector.
Supplied with pH and RX calibration solutions (pH4, pH7 and 220 mV).
Options: alarm output and RS232 serial port.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH ; 0 to 1000 mV (redox)
Precision	±0.5 %
Display	2-row alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
Inputs	2 independent inputs for level sensor; 1 voltage-free input for connection of a flow sensor or OFF contact from contactor
Outputs (optional)	1 alarm output configurable as NO or NC; 1 serial port RS232
Hydraulic Connections	water inlet and outlet connections for standard tube 8x12; sampling valve
Electromagnetic Pumps	PP (PVDF upon order) body, Pyrex ball valves, FPM seals (EPDM or PTFE upon order)
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Casing	self-extinguish plastic material
Protection Rate	IP65
Dimensions	unit: 350 x 380 x 175 mm ; mounting template: 250 x 356 mm
Weight	approx. 6 kg



EF270 – COMPACT SYSTEM FOR SWIMMING POOLS WITH PERISTALTIC PUMPS, FOR pH/CHLORINE CONTROL

EF270 is a compact system easy to install (wall mounting) and to maintain, that allows to manage the analysis and control of pH and chlorine (through redox measurements) levels in swimming pool plants.

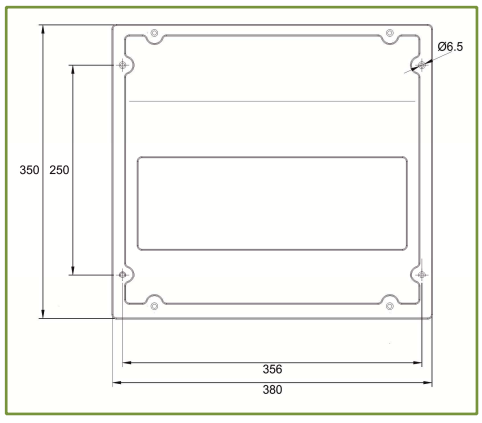
The EF270 system includes a multilingual digital controller, that works accordingly with the set thresholds, two peristaltic dosing pumps (4 l/h), a down-flow electrode-holder, pH and redox electrodes with plastic body and BNC connector.

Supplied with pH and RX calibration solutions (pH4, pH7 and 220 mV).

Options: alarm output and RS232 serial port.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH ; 0 to 1000 mV (redox)
Precision	±0.5 %
Display	2-row alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
Inputs	2 independent inputs for level sensor; 1 voltage-free input for connection of a flow sensor or OFF contact from contactor
Outputs (optional)	1 alarm output configurable as NO or NC; 1 serial port RS232
Hydraulic Connections	water inlet and outlet connections for standard tube 8x12; sampling valve
Peristaltic Pumps	Delrin rollers, PBT roller-holder, Santoprene internal tube
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Casing	self-extinguish plastic material
Protection Rate	IP65
Dimensions	unit: 350 x 380 x 175 mm ; mounting template: 250 x 356 mm
Weight	approx. 5 kg



EF265 – ULTRA COMPACT SYSTEM FOR SWIMMING POOLS WITH PERISTALTIC PUMPS, FOR pH/CHLORINE CONTROL

EF265 is a compact system easy to install (wall mounting) and to maintain, that allows to manage the analysis and control of pH and chlorine (through redox measurements) levels in swimming pool plants.

The EF270 system includes a multilingual digital controller, that works accordingly with the set thresholds, two peristaltic dosing pumps (4 l/h), pH and redox electrodes with plastic body, 2.5 m cable and BNC connector.

Supplied with pH and RX calibration solutions (pH4, pH7 and 220 mV).

Options: alarm output and RS232 serial port.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH ; 0 to 1000 mV (redox)
Precision	±0.5 %
Display	2-row alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
Inputs	2 independent inputs for level sensor; 1 voltage-free input for connection of a flow sensor or OFF contact from contactor
Outputs (optional)	1 alarm output configurable as NO or NC; 1 serial port RS232
Hydraulic Connections	water inlet and outlet connections for standard tube 8x12; sampling valve
Peristaltic Pumps	Delrin rollers, PBT roller-holder, Santoprene internal tube
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Casing	self-extinguish plastic material
Protection Rate	IP65
Dimensions	290 x 280 x 175 mm
Weight	approx. 5 kg

Compact Systems for Swimming Pools

Item	Description	Code
EF300 pHCP	Compact system with digital controller and down-flow probe-holder complete with prewired flow sensor. Supplied with CP-CLO-M potentiostatic cell; pH electrode with plastic body, BNC and 65 cm cable; calibration solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	840030502
EF300 pHCL	Compact system with digital controller, amperometric cell preassembled in a down-flow probe-holder complete with prewired flow sensor. Supplied with pH electrode with plastic body, BNC and 65 cm cable; calibration solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	840030300
EF300 pHRX	Compact system with digital controller, two electromagnetic dosing pumps (PP, 10 l/h) with input for level sensor, and down-flow electrode-holder. Supplied with pH and redox electrodes with plastic body, BNC and 65 cm cable ; calibration solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	84003011111
EF310 pHCP	Compact system with digital controller and down-flow probe-holder complete with prewired flow sensor. 230V~ output for powering a salt chlorinator. Supplied with CP-CLO-M potentiostatic cell; pH electrode with plastic body, BNC and 65 cm cable; calibration solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	843030502
EF310 pHCL	Compact system with digital controller, amperometric cell preassembled in a down-flow probe-holder complete with prewired flow sensor. 230V~ output for powering a salt chlorinator. Supplied with pH electrode with plastic body, BNC and 65 cm cable ; calibration solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	843030300
EF270 pHRX	Compact system with digital controller, two peristaltic dosing pumps (4 l/h) with input for level sensor, and down-flow electrode-holder. Supplied with pH and redox electrodes with plastic body, BNC and 65 cm cable ; calibration solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	84001015959
EF265 pHRX	Ultra compact system with digital controller, two peristaltic dosing pumps (4 l/h) with input for level sensor. Supplied with pH and redox electrodes with plastic body, BNC and 2.5 m cable, two PVC probe-holders with DN50 support and solutions. Options: temperature measurement with prewired PT100 sensor, alarm output, RS232 serial port.	84008015959

Item	Description	Code
EURO2231-pH	Combined pH electrode with short plastic body, 65 cm cable and BNC connector	8009.2231
Euro2231-RX/Pt	Combined redox electrode with platinum sensor, short plastic body, 65 cm cable and BNC connector	8019.2231
SDE	Down-flow electrode-holder with transparent methacrylat ebody, standard connections for 8x12 tubes and sampling valve	8061.0252
Flow Kit	Flow control kit for SDE electrode-holder	9700.9203
EURO2221-pH	pH electrode with plastic body, 2.5 m cable and BNC connector	8009.2221
EURO2221-RX/Pt	Redox electrode with platinum sensor, plastic body, 2.5 m cable and BNC connector	8019.2221
S92	PVC electrode-holder with direct in-line connection ½" GAS, max pressure 5 bar	8082.0005
Collar	DN50 clamp for direct in-line installation of the electrode	3630.7706
CLE12-ACL	Amperometric chlorine cell with Cu/Pt electrodes, assembled in down-flow probe-holder with methacrylate body, flow regulator and housings for the installation of 2 electrodes (dia. 12 mm), one temperature sensor and one flow sensor	8061.0120
Kit-sfere/CLE	Spare kit of 60 Pyrex balls for amperometric cells	8061.0110
CLE12-SENS	Spare Cu/Pt sensors group for CLE12 cells	8061.0108
CP-CLO-M CP-1-RM CP-CLO-RE CP-CLO-RE-AM	Potentiostatic cell for organic chlorine measurements Spare membrane Spare electrolyte, 100 ml bottle Electrolyte for sea water, 100 ml bottle	8061.0208 8061.0241 8061.0231 8061.0229
CAV-CP1	1 m cable with connector for potentiostatic cell	8009.9021
SD-CP2	Down-flow probe-holder with transparent methacrylate body and housings for one potentiostatic cell (CP series), 2 sensors of dia. 12mm (pH and RX electrodes), flow sensor and PT100-CP probe	8061.0250
SD-SF/PNP	Three-wire micro-magnetic flow sensor, for installation in down-flow probe-holders	5450.0009
PT100-CP	Pt100 probe with threaded PVC body, for installation in SD-CP and CLE12 probe-holders, working temperature max 50°C, cable 1.5 m	8039.0009
Grounding Kit	Grounding kit for CLE12 and SD-CP probe-holders	8061.0111
Kit Electrode	Spare kit with threaded ring and seals for installation of one electrode in CLE12 and SD-CP probe-holders, working temperature max 50°C	8061.0261
Kit CP Probe	Spare kit with threaded ring and seals for installation of one CP cell in probe-holders SD-CP, working temperature max 50°C	8061.0260
SLP2	Level sensor with 2 m cable and connector	9700.9002
pH4-S	pH 4 buffer solution, 90 ml bottle	8009.0095
pH7-S	pH 7 buffer solution, 90 ml bottle	8009.0096
RX220-S	Redox calibration solution (220 mV), 90 ml bottle	8019.0091
KRE	Maintenance kit for pH and redox electrodes (cleaning and storage)	8009.9902

Note: For a full list of accessories and spare parts for dosing pumps, please refer to the specific catalog.

EF260 Series – COMPACT SYSTEMS FOR POOLS AND SPA FOR pH and CHLORINE LEVELS CONTROL WITH POWER OUTPUT FOR SALT CHLORINATOR

Model EF266

Model EF267

The EF260 compact systems are easy to install (wall mounting) and to maintain, and allow to manage the analysis and control of pH and chlorine levels in the swimming pool plants.
Each system includes a multilingual digital unit with output for powering a salt chlorinator, one electromagnetic or peristaltic dosing pump with input for level sensor, pH and redox measurement electrodes with BNC connector, down-flow probe-holder or clamps for direct installation of the electrodes on pipeline.

TECHNICAL DATA

Measure Ranges	0.00 to 14.00 pH, 0 to 1000 mV (redox)
Precision	±0.5 %
Display	2-row, alphanumeric LCD, with backlight
Configuration	2 configuration levels, user and installer
Inputs	1 input for level sensor; 1 input for flow sensor / OFF contact
Outputs	1 output for powering a salt chlorinator (230 V~, max 200 W) 1 serial port RS232 (optional) for communication with PC or RW08
Power Supply	230 V~ ±10%, 50 Hz, max 80 VA (other options upon order)
Case	self-extinguish plastic material
Protection Rate	IP65
Dimensions	290 x 280 x 175 mm

Dosing Pump

for acid dosage (pH control), two options:

- **Models EF263 / EF266**: peristaltic pump, 4 l/h @ 1 bar, with Delrin rollers, PBT roller-holder and Santoprene internal tube (other materials upon request)
- **Models EF264 / EF267**: electromagnetic pump, 10 l/h @ 2 bar, with PP head, Pyrex ball valves and FPM seals (other materials upon request)

Compact Systems for Swimming Pools

Item	Description	Code
EF266	Compact system for pH/chlorine control with output for salt chlorinator, peristaltic pump 4 l/h, down-flow probe-holder, pH and redox electrodes with plastic body, BNC and 65 cm cable	84009010359
EF267	Compact system for pH/chlorine control with output for salt chlorinator, electromagnetic pump (PP 10 l/h), down-flow probe-holder, pH and redox electrodes with plastic body, BNC and 65 cm cable	84010010311
EF263	Compact system for pH/chlorine control with output for salt chlorinator, peristaltic pump 4 l/h, pH and redox electrodes with BNC connector and 2.5 m cable, two PVC electrode-holders with DN50 clamps for direct in-line installation of electrodes	840110159
EF264	Compact system for pH/chlorine control with output for salt chlorinator, electromagnetic pump (PP 10 l/h), pH and redox electrodes with BNC connector and 2.5 m cable, two PVC electrode-holders with DN50 clamps for direct in-line installation of electrodes	840120111
EURO2231-pH	Combined pH electrode with short plastic body, 65 cm cable and BNC connector	8009.2231
EURO2231-RX/Pt	Combined redox electrode with platinum sensor, short plastic body, 65 cm cable and BNC connector	8019.2231
EURO2234-RX/Au	Combined redox electrode with gold sensor, short plastic body, 65 cm cable and BNC connector	8019.2234
SDE	Down-flow electrode-holder with transparent methacrylat ebody, standard connections for 8x12 tubes and sampling valve	8061.0252
Kit	Flow control kit for SDE electrode-holder	9700.9203
EURO2221-pH	pH electrode with plastic body, 2.5 m cable and BNC connector	8009.2221
EURO2221-RX/Pt	Redox electrode with platinum sensor, plastic body, 2.5 m cable and BNC connector	8019.2221
S92	PVC electrode-holder with direct in-line connection ½" GAS, max pressure 5 bar	8082.0005
Collar	DN50 clamp for direct in-line installation of the electrode	3630.7706
SLP2	Level sensor with 2 m cable and connector	9700.9002
pH4-S	pH 4 buffer solution, 90 ml bottle	8009.0095
pH7-S	pH 7 buffer solution, 90 ml bottle	8009.0096
RX220-S	Redox calibration solution (220 mV), 90 ml bottle	8019.0091
KRE	Maintenance kit for pH and redox electrodes (cleaning and storage)	8009.9902

Note: For a full list of accessories and spare parts for dosing pumps, please refer to the specific catalog.

EF250 Series – DIGITAL COMPACT SYSTEMS FOR pH and RX CONTROL in PRIVATE POOLS and SPA

Model EF251

Model EF252

These new digital and compact systems, dedicated to private pools, are the evolution of the renowned *Pool-Peek Plus* panels.
It is a line of modular single-parameter automatic systems, easy to install and use even for unskilled users. Complete with peristaltic or electromagnetic dosing pump.
Models are available for monitoring and controlling the pH or redox level, equipped with alphanumeric LCD with backlight, BNC plug for measurement electrode, inputs for level and flow sensors.
Supplied complete with pH or redox electrode with BNC connector and 2.5 m cable, calibration solutions (90 ml), PVC electrode-holder with DN50 clamp for installation on pipeline, and standard accessories for the pump.

Bottom view

TECHNICAL DATA

pH or RX Input	available on BNC connector, input impedance > 10^12 Ω	
Measure Range	0.00 to 14.00 pH or 0 to 1000 mV (redox); 0 to 100°C (optional)	
Precision	better than 1% F.S	
Repeatability	better than 0.2% F.S.	
Configuration	intuitive and adapted also unskilled personnel, with multilingual menu	
Level Input	5 V / 5 mA contact, available on service connector for a solder-free wiring	
Flow Input	5 V / 5 mA contact, available on service connector for a solder-free wiring; input for connecting a flow sensor or OFF contact from contactor	
Display	2-row alphanumeric LCD, with backlight	
Power Supply	standard 230 V~, 50 Hz (other voltages upon request)	
Protection Fuse	F1A 5x20 (@ 230V~)	
Environment	Storage Temperature	-20 to +60 °C
	Working Temperature	-10 to +45 °C
	RH max	90% no condensing
Casing	self-extinguish plastic material, with polyester front panel	
Protection Rate	IP65	
Installation	wall mounting, with supplied screws and stoppers	
Dimensions	290 x 280 x 175 mm	
Weight	approx. 3 kg (EF252) / approx. 1.5 kg (EF251)	

Dosing Pump (EF251)	Type: peristaltic pump Flow rate: 4 l/h @ 1 bar Materials: polycarbonate front panel, PBT roller-holder, Delrin rollers (self-lubricant), Santoprene internal tube, PP connections Suction height: max. 1.5 m
Dosing Pump (EF252)	Type: electromagnetic pump Flow rate: 10 l/h @ 2 bar Working frequency: max 140 injections/minute Materials: PP pump head, PTFE diaphragm, Pyrex ball valve, FPM seals Suction height: max. 1.5 m

Compact Systems for Private Pools

Item	Description	Code
EF251/pH	pH control system with peristaltic pump 4 l/h and complete with pH electrode, electrode-holder with DN50 clamp for in-line installation, calibration solutions	840060459
EF251/RX	Redox control system with peristaltic pump 4 l/h and complete with redox electrode, electrode-holder with DN50 clamp for in-line installation, calibration solution	840060559
EF252/pH	pH control system with electromagnetic pump (PP 10 l/h) and complete with pH electrode, electrode-holder with DN50 clamp for in-line installation, calibration solutions	840070411
EF252/RX	Redox control system with electromagnetic pump (PP 10 l/h) and complete with redox electrode, electrode-holder with DN50 clamp for in-line installation, calibration solution	840070511
EURO2221-pH	pH electrode with plastic body, 2.5 m cable and BNC connector	8009.2221
EURO2221-RX/Pt	Redox electrode with platinum sensor, plastic body, 2.5 m cable and BNC connector	8019.2221
S92	PVC electrode-holder with direct in-line connection ½" GAS, max pressure 5 bar	8082.0005
Collare	DN50 clamp for direct in-line installation of the electrode	3630.7706
IL-SF	"In-line" flow sensor	9700.9202
SLP2	Level sensor with 2 m cable and connector	9700.9002
pH4-S	pH 4 buffer solution, 90 ml bottle	8009.0095
pH7-S	pH 7 buffer solution, 90 ml bottle	8009.0096
RX220-S	Redox calibration solution (220 mV), 90 ml bottle	8019.0091
KRE	Maintenance kit for pH and redox electrodes (cleaning and storage)	8009.9902

Note: For a full list of accessories and spare parts for dosing pumps, please refer to the specific catalog.

Pool-Peek Plus – CONTROL SYSTEMS FOR CHLORINE (BROMINE) ADJUSTMENT IN PRIVATE POOLS

The series of *Pool-Peek Plus* panels has been designed to satisfy the chlorine control needs in private swimming pools. It is in fact a line of automated systems for easy installation and use, even for users who are not familiar with this type of instrumentation.
The standard measurement range is 0-5 ppm for chlorine and 0-2 ppm for bromine.
If you need different measurement ranges, please contact STEIEL Elettronica.

Pool-Peek Plus CL

Modular electronic systems for analysing and controlling free chlorine concentration.
The system includes:

- Electronic controller (IP56 protection rate)
- Dosing pump with accessories
- CLE12-ACL cell in down-flow probe-holder
- Adjustment screwdriver

Pool-Peek Plus BR

Modular electronic systems for analysing and controlling bromine concentration. The system includes:

- Electronic controller (IP56 protection rate)
- CLE12-ABR bromine cell in down-flow probe-holder
- Adjustment screwdriver

Pool-Peek Plus CP

Modular electronic systems for analysing and controlling free chlorine concentration.
The system includes:

- Electronic controller (IP56 protection rate)
- Dosing pump with accessories
- CP-CLO-M potentiostatic cell
- SD-CP0 probe-holder with flow sensor
- Adjustment screwdriver

TECHNICAL DATA

Dimensions	panel: 650 x 290 mm / installation template: 630 x 270 mm
Weight	approx. 4.5 kg (box and accessories included)
Installation	wall mounting
Power Supply	230 V~ ±10%, 50/60 Hz
Power Consumption	approx. 20 VA (pump), 2 VA (electronics)
Protection Fuses	5x20 mm, fast fuses (100mA electronics, 3.15A electronics out, 1A pump)

Electronic Unit

Standard Ranges	0 to 5 ppm Chlorine / 0 to 2 ppm Bromine
Input	automatic zero polarization
Precision / Repeatability	better than ±0.05 ppm / better than ±0.02 ppm
Display	high-contrast LCD, 3 ½ digit
Environment	Working Temperature 0 to +50 °C Storage Temperature -20 to +60 °C
Casing	self-extinguish plastic material
Protection Rate	IP56

Dosing Pump

Flow Rate	max 4 l/h @ 5 bar
Materials	PP pump head, Pyrex ball valves, FPM seals
Dosage Precision	± 5%
Suction Height	max 1.5 m

Pool-Peek Plus : Panels, Accessories and Spare Parts

Item	Description	Code
POOL-PEEK-PLUS/CL	Panel complete with electronic unit, CLE12-ACL amperometric chlorine cell and pump EF150 C11	9505.0029
POOL-PEEK-PLUS/BR	Panel complete with electronic unit and CLE12-ABR amperometric bromine cell	9505.0028
POOL-PEEK-PLUS/CP	Panel complete with electronic unit, CP-CLO-M potentiostatic chlorine cell and pump EF150 C11	9505.0027
CLE12-ACL	Amperometric chlorine cell with Cu/Pt electrodes, assembled in down-flow probe-holder with methacrylate body, flow regulator and housings for 2 electrodes, temperature sensor and flow sensor	8061.0120
CLE12-ABR	Amperometric bromine cell with Cu/Pt electrodes, assembled in down-flow probe-holder with methacrylate body, flow regulator and housings for 2 electrodes, temperature sensor and flow sensor	8061.0122
Kit-sfere/CLE	Spare kit of 60 Pyrex balls for amperometric cells	8061.0110
CLE12-SENS	Spare Cu/Pt sensors group for CLE12 cells	8061.0108
CP-CLO-M	Potentiostatic cell for organic chlorine measurements	8061.0208
CP-1-RM	Spare membrane	8061.0241
CP-CLO-RE	Spare electrolyte, 100 ml bottle	8061.0231
CP-CLO-RE-AM	Electrolyte for sea water, 100 ml bottle	8061.0229
CAV-CP1	1 m cable with connector for potentiostatic cell	8009.9021
SD-SF/NPN	Flow sensor for down-flow probe-holders, for Pool-Peek-Plus	5450.0010
SLP2	Level sensor with 2 m cable and connector for EF150 pumps	9700.9002

Note: For a full list of accessories and spare parts for dosing pumps, please refer to the specific catalog.

POOL-TIMER Plus

Timed dosing system, with weekly setting of the daily switching on and off times.

Pool-Timer includes a clock for setting the activation times of the system and a peristaltic pump for dosing the chemical product in the pool.

The system comes complete with standard accessories for peristaltic pumps (suction and head tubes, foot filter and injection valve), screws and stoppers for wall mounting, technical manual.

TECHNICAL DATA

Working Temperature		0 to +50 °C
Storage Temperature		-20°C to +60°C
Power Supply		230 Vac ±10%, 50/60 Hz
Casing		self-extinguish plastic material
Protection Rate		IP54
Installation		wall mounting with supplied screws and stoppers
Dimensions		290 x 280 x 175 mm
Weight		approx. 2 kg

Peristaltic Pump

Flow Rate		4 l/h @ 1 bar
Materials	Casing	PP 30% reinforced with fiberglass
	Protection	Polycarbonate
	Roller-holder	PBT
	Rollers	Delrin (self-lubricant)
	Internal Tube	Santoprene
	Connections	PP
External Tube		4x6 mm
Protection Rate		IP65

ORDERING CODE: 9505.0023