



Cooling Tower Control & Dosing (Internet Enabled)

Bleed, Inhibitor, Timed Biocide, ORP, pH, Dispersant

Ordering Code	Description
DIGICHEM-PLUS	DIGICHEM[®] Plus⁺ Conductivity, pH & ORP Controller for Cooling Towers with data logging and optional remote Internet Access. Relay outputs for optional bleed solenoid valve & for Dispersant, Inhibitor, Non-oxidising Biocide, Chlorine & Bromine dosing pumps. Conductivity, pH, ORP & ground probes, flow switch & manifold not included.
DP-CAPHP-RXP	DIGICHEM[®] Plus⁺ controller with Inhibitor, Non-oxidising Biocide, Acid & Chlorine Peristaltic Pumps with manifold on PVC backboards (Incl. Flow switch, Bleed solenoid valve, Conductivity, pH, ORP & ground probes).
DP-CAPHP-RXP-CAB	DP-CAPHP-RXP with controller & pumps in IP66 Polyester hinged cabinet. Pumps plug into GPOs.
DP-CAPH-RXB	DIGICHEM[®] Plus⁺ controller with Inhibitor & Non-oxidising Biocide Peristaltic Pumps with manifold on PVC backboards (Incl. Flow switch, Bleed solenoid valve, Conductivity, pH, ORP & ground probes). ORP controlled solenoid valve for optional Brominator fitted to manifold.
DP-CAPH-RXB-CAB	DP-CAPH-RXB with controller & pumps in IP66 Polyester hinged cabinet. Pumps plug into GPOs.
DP-CAPH-RXPP	DIGICHEM[®] Plus⁺ controller with Inhibitor, Non-oxidising Biocide, Chlorine & Bromine Peristaltic Pumps with manifold on PVC backboards (Incl. Flow switch, Bleed solenoid valve, Conductivity, pH, ORP & ground probes).
DP-CAPH-RXPP-CAB	DP-CAPH-RXPP with controller & pumps in IP66 Polyester hinged cabinet. Pumps plug into GPOs.
DP-DCAPH-RXP-X/6S	DIGICHEM[®] Plus⁺ controller with 6 GPOs for Optional Dosing Pumps on PVC backboard. Manifold on separate PVC backboard (Incl. Flow switch, Bleed solenoid valve, Conductivity, pH, ORP & ground probes).
DP-DCAPH-RXP-X/6S-CAB	DP-DCAPH-RXP-X/6S with both controller & 6 GPOs fitted inside IP66 Polyester hinged cabinet. Pumps optional.
DP-DCAPH-RXB-X/4S	DIGICHEM[®] Plus⁺ controller with 4 GPOs for Optional Dosing Pumps on PVC backboard. Manifold on separate PVC backboard (Incl. Flow switch, Bleed solenoid valve, Conductivity, pH, ORP & ground probes). ORP controlled solenoid valve for optional Brominator fitted to manifold.
DP-DCAPH-RXB-X/4S-CAB	DP-DCAPH-RXP-X/4S with both controller & 4 GPOs fitted inside IP66 Polyester hinged cabinet. Pumps optional.

Description

The Ultimate Control for cooling tower water treatment is achieved with the revolutionary **DIGICHEM[®] Plus⁺** controller. Incorporating a plethora of features as standard, including data logging, the user-friendly menu system ensures you are up and running in no time. With a SIM card fitted in the optional GPRS modem module, remote access to the unit is child's play - Simply log on at www.digichemplus.com and it is like you are standing in front of the unit. Downloaded logged data is automatically presented in an informative and graphical format. (NOTE: Additional costs may apply).

Accurate control of system Conductivity, pH & ORP is achieved together with dosing control of Biocides, Inhibitors & Dispersants. Tank empty detection, 4-20mA inputs and outputs are available as ordering options.

DIGICHEM[®] Plus⁺
the new benchmark



DIGICHEM-PLUS



DP-CAPH-RXB



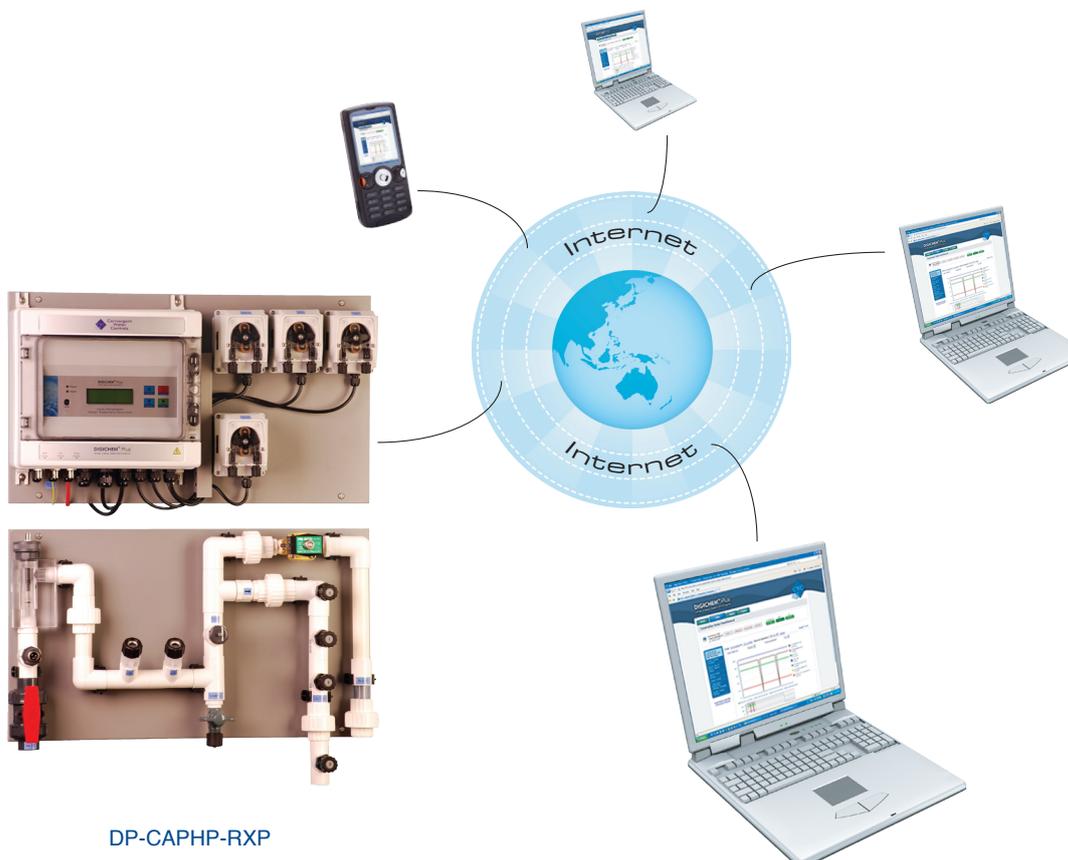
DP-CAPHP-RXP-CAB

Features & Benefits - Controller

- Bleed Control via solenoid valve (or via optional actuated ball valve)
- Up to 3 Non Oxidising Biocides on 28 day timer
- Inhibitor & Dispersant Modes: On Bleed, After Bleed, Cycle, via Make-up or Bleed water meter pulses
- ORP Control (with 28 day timer) of Chlorine and/or Bromine via dosing pumps or optional brominator
- pH monitoring and/or control
- Data logging of approx 17 variables including Conductivity, Temperature, pH, ORP
- Easy to program and calibrate
- 4 line backlit LCD simultaneously displays Conductivity, ORP, pH, Temp & setpoints, as well as output status
- Manual priming & testing via menu
- Automatic Slug Dose Feature
- Fail-safe alarm relays with remote power failure detection
- Condenser pump override facility with delay-off timer - ensures flow through manifold during & after secondary biocide dosing
- Integrated flow switch can be configured to disable different combinations of outputs on no-flow
- Disinfection feature to temporarily run ORP at higher mV level
- Logging of Make-up Water Consumption, Bleed Water Usage & Evaporation & Losses (with optional make-up and bleed water meters connected to the controller)
- Logging of Cycles of Concentration
- Weatherproof - can be mounted outside

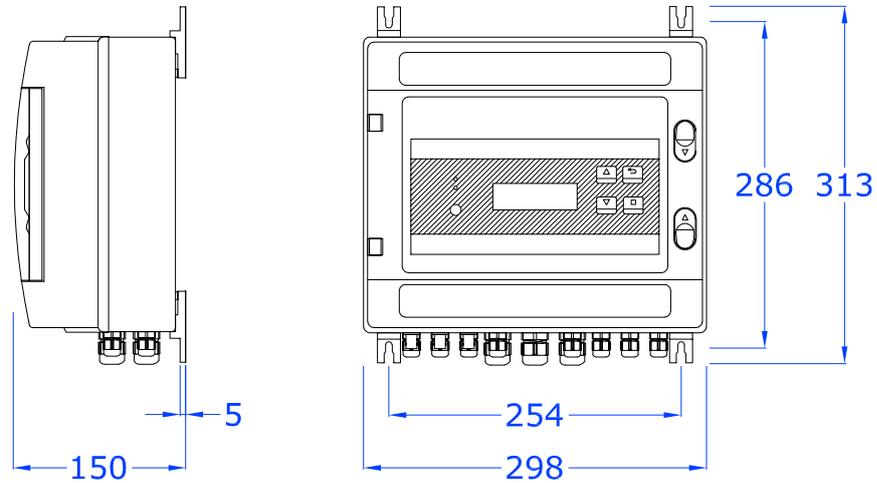
Features & Benefits - Remote Internet Access

- Remote Access via secure website - No software installation or upgrades required. No telephone line required
- View logged data from any Internet connection
- View or change controller settings from any Internet connection
- Complete data history stored on secure webserver
- Alarms & events sent via SMS and/or e-mail
- Different alarms can be sent to up to 8 different people
- Alarm notification when connection lost (eg. power failure)
- Summary view of all controllers on one screen
- Comparison of data trends with customisable graph overlay feature
- Selectable full-scale plots or Min-Max only
- Problems quickly identified with graph zoom feature
- Multiple Access levels, ie from View Only to Full Access



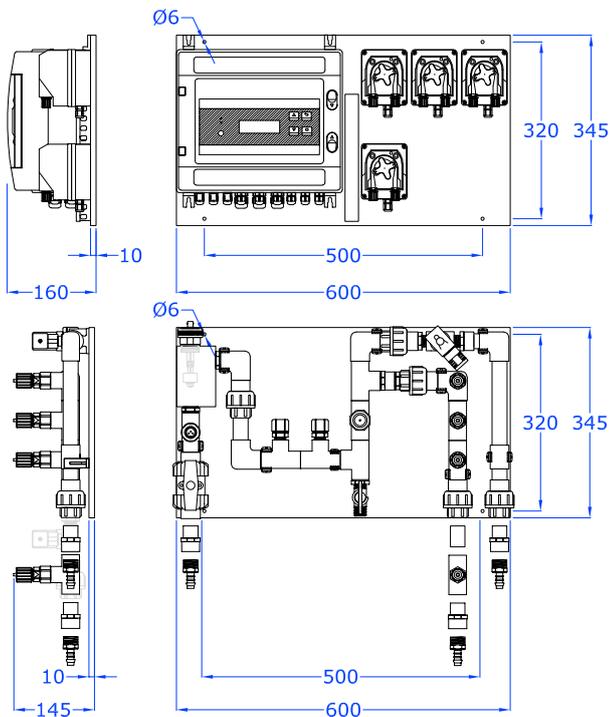
DP-CAPHP-RXP

Dimensional Drawing - Controller only

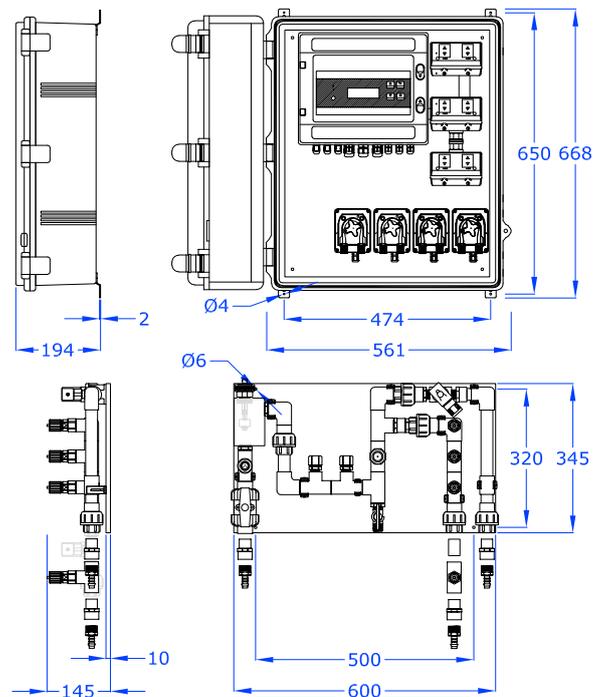


DIGICHEM-PLUS

Dimensional Drawings - Chlorine/Acid Systems

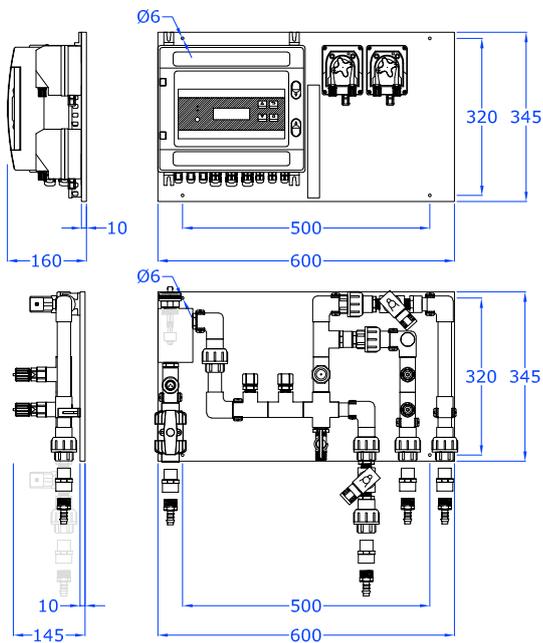


DP-CAPHP-RXP

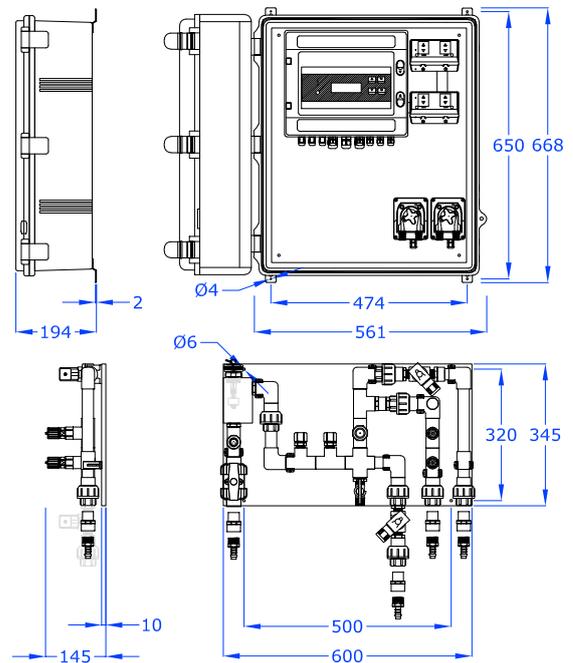


DP-CAPHP-RXP-CAB

Dimensional Drawings - Brominator Systems

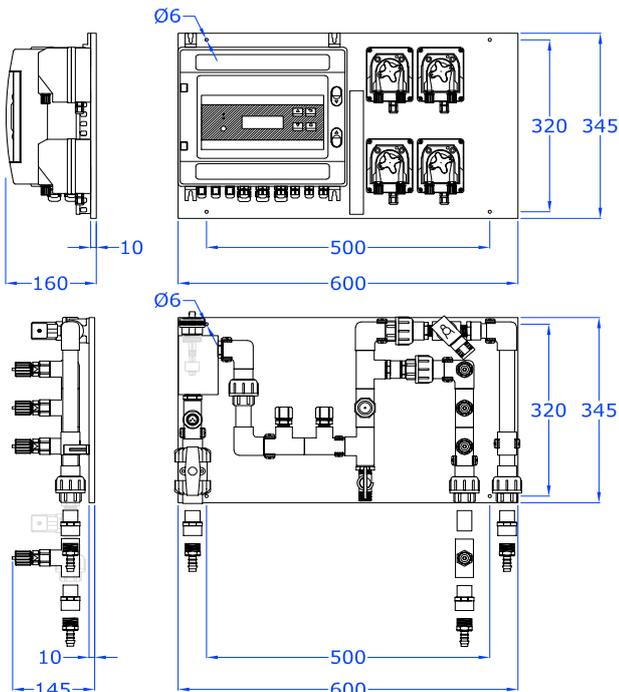


DP-CAPH-RXB

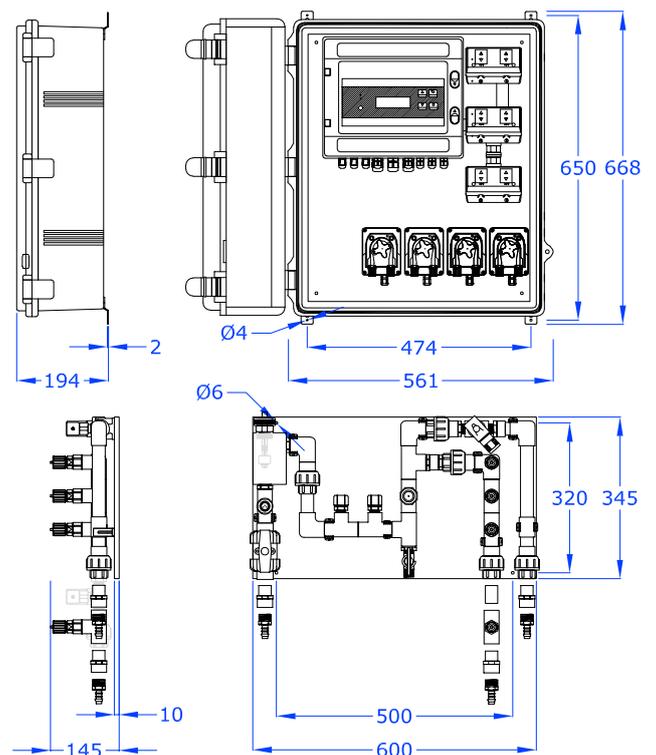


DP-CAPH-RXB-CAB

Dimensional Drawings - Chlorine/Bromine Systems

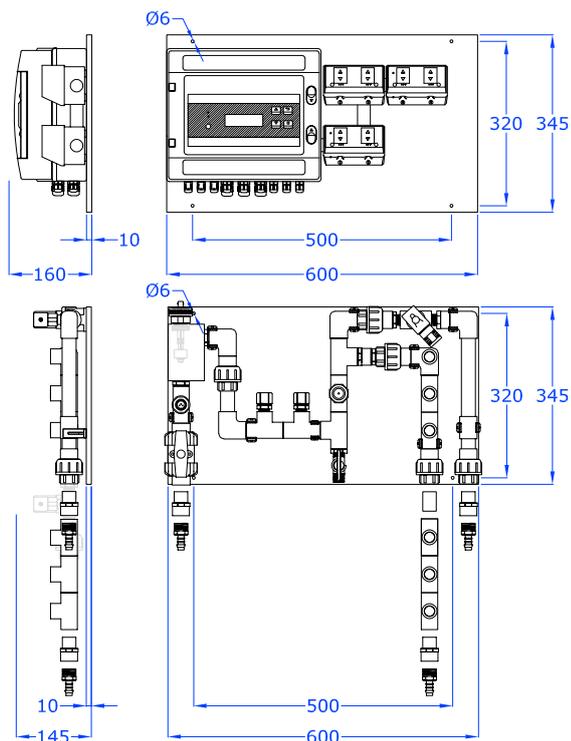


DP-CAPH-RXPP

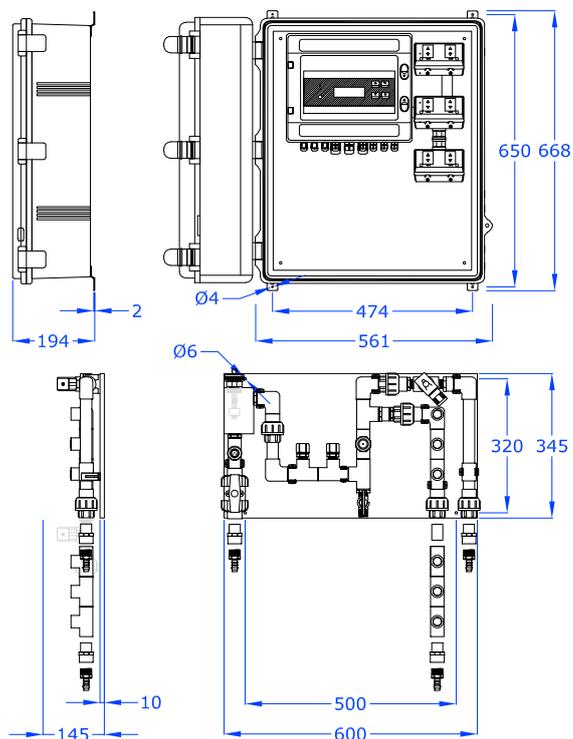


DP-CAPH-RXPP-CAB

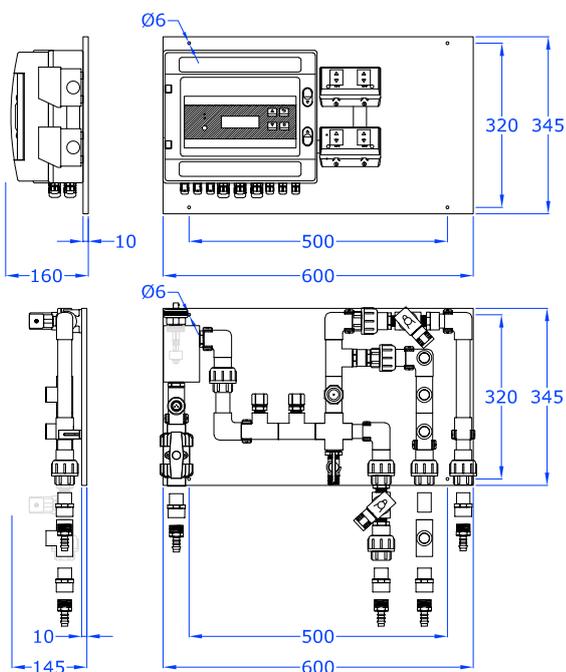
Dimensional Drawings - Systems for Optional Pumps



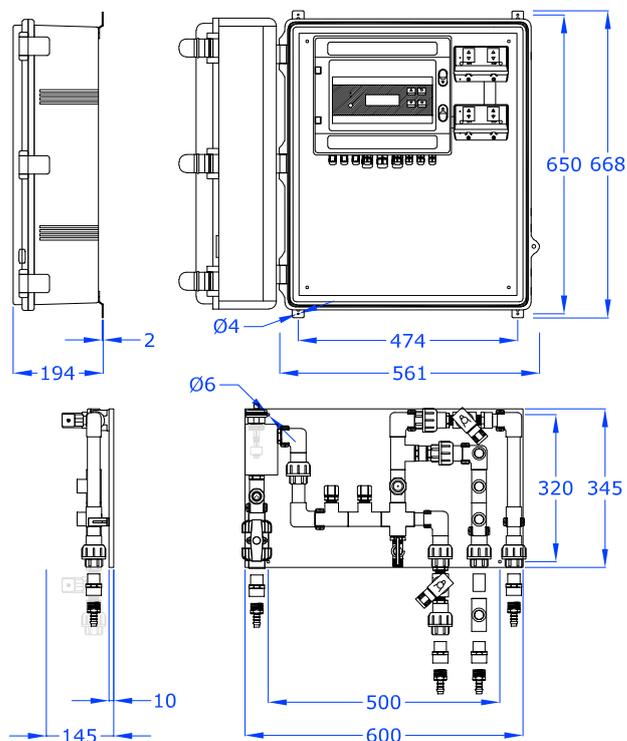
DP-DCAPH-RXP-X/6S



DP-DCAPH-RXP-X/6S-CAB



DP-DCAPH-RXB-X/4S



DP-DCAPH-RXB-X/4S-CAB

Note: Mounting holes 6mm diameter, countersunk

How to Order

Controller Only (excludes probes, pumps, manifold, backboard & cabinets)

Ordering Code → **DIGICHEM - PLUS**

Conductivity Bleed & Dosing Systems Supplied with Peristaltic Dosing Pumps

Ordering Code → **DP - CAPH P - RX P - CAB**

pH Output	
blank	pH Pump optional
P	pH Pump included (only for ORP Output = P)

Explanation of Fixed Part Codes	
DP	System with DIGICHEM[®] Plus⁺ controller
C	Inhibitor Pump included
A	Non-Oxidising Biocide Pump included
PH	pH Monitoring & Logging
RX	ORP Monitoring & Logging

Mounting of Controller & Pumps	
blank	Controller & pumps on PVC backboard. Pumps hard-wired into controller
CAB	Controller & pumps in IP66 hinged cabinet. Pumps plugged into GPO sockets

ORP Output	
P	Chlorine Pump included
B	Solenoid valve included for optional brominator
PP	Chlorine & Bromine Pumps included

Note: Manifold included.
Dispersant Pump Optional on all systems

Conductivity Bleed & Dosing Systems Supplied with GPO sockets for plugging in optional Dosing Pumps

Ordering Code → **DP - DCAPH - RX B - X / 4S - CAB**

ORP Output	
P	Double GPO included for optional Chlorine and/or Bromine Pumps (only for GPO Sockets = 6S)
B	Solenoid valve included for optional brominator (only for GPO Sockets = 4S)

Explanation of Fixed Part Codes	
DP	System with DIGICHEM[®] Plus⁺ controller
D	Dispersant Pump optional
C	Inhibitor Pump optional
A	Non-Oxidising Biocide Pump optional
PH	pH Monitoring & Logging
RX	ORP Monitoring & Logging
X	Excl. Pumps, Incl. Manifold

Mounting of Controller & Pumps	
blank	Controller & GPOs on PVC backboard.
CAB	Controller & GPOs in IP66 hinged cabinet.

GPO Sockets for Optional Pumps	
4S	4 GPOs included for optional Inhibitor, Non-oxidising Biocide, pH & Dispersant pumps. (ORP via optional brominator)
6S	6 GPOs included for optional Inhibitor, Non-oxidising Biocide, pH, Dispersant, Chlorine & Bromine pumps



Options & Accessories - Dosing System

Ordering Code	Description
DP-OPT-PUMP-PH	Add pH Pump (Acid or Base) to DP-CAPH-RXB or DP-CAPH-RXPP, incl. extra fittings
DP-OPT-PUMP-PH-CAB	Add pH Pump (Acid or Base) to DP-CAPH-RXB-CAB or DP-CAPH-RXPP-CAB, incl. extra manifold fittings
DP-OPT-PUMP-DIS	Add Dispersant pump to any PVC mounted system, incl. extra manifold fittings
DP-OPT-PUMP-DIS-CAB	Add Dispersant pump to any Cabinet mounted system, incl. extra manifold fittings
AF02-1/2-LRU230	Upgrade 1/2" bleed solenoid valve to Belimo actuated ball valve. Manifold on PVC backboard with this upgrade is not weatherproof. It must be protected from rain.
DP-OPT-R215-CAB	Upgrade 1/2" bleed solenoid valve to Belimo actuated ball valve, mounted inside cabinet (Available in certain CAB models only. Please confirm before ordering)
DP-OPT-MIX-PVDF	Add PVDF (Kynar) Mixing chamber for neat mixing of Chlorine & Bromine to return neat via tube to tower basin
DP-OPT-MIXS-PVDF	Add PVDF (Kynar) Mixing chamber to go in-line with manifold outlet
DP-OPT-CARD-IP-TL	Input card to monitor 6 tank levels with optional low level tank switches (available soon)
DP-OPT-CARD-OP	Output card for BMS/DDC incl. 4 x isolated 4-20mA outputs, 9 x NPN open collector logic outputs for each pump & solenoid valve status, and for flow, alarm & power status
SP-XP2-COMCABLE-1	Serial cable for local download of logged data from DIGICHEM® Plus⁺ controller (plugs into Comms port on controller fascia. Software for download at www.cwc.com.au). NOTE: HOB0 CABLE-USB-232 also required if serial port not available on laptop
HOB0 CABLE-USB-232	USB to Serial Adaptor to connect SP-XP2-COMCABLE-1 Serial cable to USB port. (Converts any serial DE-9 or DB-9 Connector to USB)
Available on Request	BROMINATORS - refer to Brominators Data Sheet
Available on Request	CIRCULATION PUMPS - refer to Onga Pumps Data Sheet
Available on Request	WATER METERS - refer to Water Meters Data Sheet
Available on Request	LOW LEVEL TANK SWITCHES - refer to CWC for further information
Available on Request	CORROSION COUPON RACKS - refer to Corrosion Coupon Racks Data Sheet

Recommended Spare Parts & Consumables

Ordering Code	Description
SP-DCON-P10T-P	Replacement conductivity probe 3/4" BSPM
SP-DCON-P10AT-P-PL	Replacement probe lead
IONODE IH30-01m	Replacement ORP probe 12mm dia smooth body, 1m cable (alt code WA SOTA-ORP-A-1.5m)
WA OPF10-PBN10-1.5m	Replacement ORP probe, 1/2" MNPT thread, 1.5m cable
IONODE IH40-01m	Replacement pH probe, 12mm diameter smooth body, 1m cable (alt code WA SOTA-A-1.5m)
WA OPF10-NNN-1.5m	Replacement pH probe, 1/2" MNPT thread, 1.5m cable
SP-SOL-1/2-S	Replacement SMC direct acting solenoid valve (0-2.7bar)
SP-SK-01A-BK	Replacement Squeeze tube, EPDM 3x8mm (pre-greased with connectors) for SEKO PE-1.3 peristaltic pump with SP-SK-06 rotor assembly
SP-SK-06	Replacement rotor assembly for SEKO PE-1.3 pump with SP-SK-01A-BK squeeze tube
SP-DP-BAT	Replacement battery type CR-2032 (3.0VDC) for DIGICHEM Plus+ controller



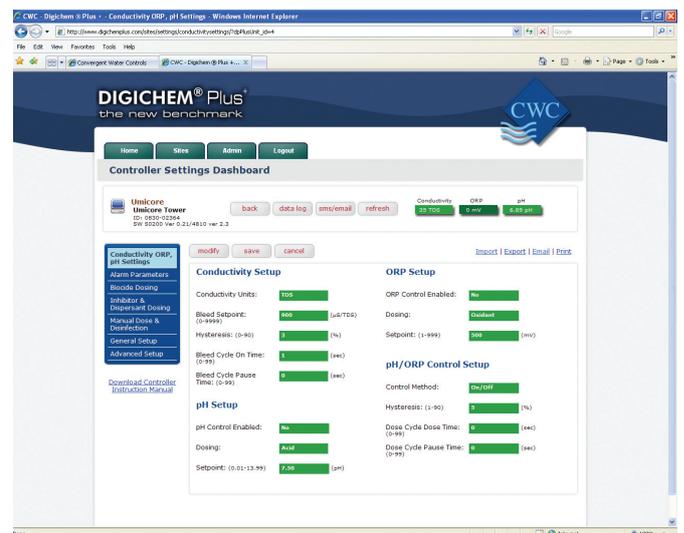
Optional Remote Internet Access

Ordering Code	Description
DP-OPT-CARD-GPRS	GSM/GPRS Modem card to enable full remote connectivity via the Internet from any Internet browser. Enables changing controller settings and viewing logged data remotely. Automatic notification of alarms sent up to 8 recipients via SMS and/or e-mail. (Excludes Access Fees - see options below)
DP-OPT-AERIAL-2M	Weatherproof, external mount antenna with mounting bracket for DIGICHEM Plus+ modem, 2m cable, including Male/Female adaptor to connect to Modem (Required if controller installed inside metal enclosure, or reception with standard antenna is weak)
DP-OPT-WEB-SIM-V-12M	Annual Fee per Controller to access the Webserver incl. e-mail & SMS costs. SIM card provided and all data costs included (Uses the Vodafone network)
DP-OPT-WEB-SIM-T-12M	Annual Fee per Controller to access the Webserver incl. e-mail & SMS costs. SIM card provided and all data costs included (Uses the Telstra network)
DP-OPT-WEB-12M	Annual Fee per Controller to access the Webserver incl. e-mail & SMS costs (Excludes SIM card & associated data costs)

www.digichemplus.com



Screen Shot of Graphical Data Log from www.digichemplus.com



Screen Shot of Settings from www.digichemplus.com

Specifications

DIGICHEM® Plus⁺ CONTROLLER

Control Functions

Measured Variables	Conductivity	ORP	pH	Temperature
Range	0-9999 μ S/TDS	1-999mV	0.01-13.99pH	0-100°C
Resolution	1 μ S / 1 ppm TDS	1mV	0.01pH	1°C
Accuracy	0.2% of Range	0.4% of Range	0.4% of Range	1% of Range
Repeatability & drift	1% of Range	0.8% of Range	0.8% of Range	-
Control Type	ON/OFF	ON/OFF or proportional		-
Hysteresis	1-20%	1-20% (ON/OFF control only)		-
ON/OFF Dose [Bleed] Cycle	ON/OFF=0-99s/0-99s	ON/OFF = 0-99s/0-99s (ON/OFF control only)		-
Proportional Band	-	1-90% (Proportional control only)		-
Cycle Time	-	10-100s (Proportional control only)		-

Alarms

Level Alarms	High & Low μ S/TDS	High & Low ORP	High & Low pH	-
Max Dose [Bleed] Timer Alm	0-999m (0=disabled)	0-999m (0=disabled)	0-999m (0=disabled)	-
Tank Level Low Alarms	With optional card, ordering code DP-OPT-CARD-IP-TL (available soon)			
Alarm Output	Common alarm via N/O & N/C failsafe volt-free contact			

Dose Settings

Dispersant	Programmable Cycle (ON/OFF) – in Modes: Continuous, On Bleed or After Bleed. Or Proportional to Make-up pulses or Bleed pulses (pulse water meter optional) NOTE: Dispersant output functions independently of Inhibitor output
Inhibitor	Programmable Cycle (ON/OFF) – in Modes: Continuous, On Bleed or After Bleed. OR Proportional to Make-up or Bleed pulses (pulse water meter optional)
Primary Biocide	ORP controlled (ON/OFF or Proportional modes with 28 day timer) Or timed only doses via 28 day timer programs (10 max per day)
Secondary Biocide	Non-oxidising Biocide Timed doses via 28 day timer programs (10 max per day)
Aux (Ver 0.83 and later)	Doses via 28 day timer programs (10 max per day)
Pre-Bleed	Conductivity Setpoint lowered by (0-50%), Duration (0-999 min) before timed Biocide dosing
Bleed Lock-out	Conductivity Setpoint raised by (0-50%) when timed Biocide Starts until (0-999min) after Biocide stops)
Condenser pump override	During timed Biocide dosing and during Manual Dose with delay-off timer (15-240min)
Acid or Base	pH controlled (ON/OFF or Proportional modes with 28 day timer)

General

Display	4 line x 20 character backlit LCD display
Keypad	UP, DOWN, ENTER & BACK (ESC) pushbuttons
LED Indication	None required as all output status indicated on backlit LCD display
Manual Test	All outputs independently activated via menu
Flow Sensing	Flow sensing individually set per output
Calibration	Menu driven (Auto-buffer detect for pH)
Datalogging Interval	Programmable from 5 min to 240 min
Logged Variables	Conductivity, Temp, pH, ORP, %Bleed, %pH, %ORP, %Inhib, %Secondary Biocide, %Dispersant, %Aux, %Flow, %Alarm, Cycles of Concentration, Make-up water volume, Bleed water volume, Evap & Losses
Data Retention	100 years
Battery Backup	1 year (approx)
Battery Type	CR2032 (3VDC), part no SP-DP-BAT

Electrical

Power Supply	220-240 VAC, 50/60Hz (110VAC available on request)
Power Consumption	10W max (with no loads on outputs)
Fuses	Circuit Fuse (2A, 5x20mm), Output Fuse (4A, 5x20mm)
Auxiliary Mains Output	240VAC continuous (4A fused)
Control Relay Outputs	Switched 240VAC outputs rated 6A/250VAC resistive (4A fused)
Alarm Relay Output	N/O & N/C Volt-free (6A/250VAC resistive) 4A fused. Relay Coil de-energises on power failure.
Condenser Pump Relay	N/O Volt-free (6A/250VAC resistive) 4A fused



	DP-CAPHP-RXP [-CAB]	DP-CAPH-RXB [-CAB]	DP-CAPH-RXPP [-CAB]
Dosing Pumps Incl.			
Dispersant	optional	optional	optional
Inhibitor	1.3 l/hr	1.3 l/hr	1.3 l/hr
Chlorine (ORP controlled)	1.3 l/hr	-	1.3 l/hr
Bromine (ORP controlled)	-	-	0.4 l/hr
Secondary Biocide (28 day timer control)	1.3 l/hr	1.3 l/hr	1.3 l/hr
Acid/Base (pH controlled)	1.3 l/hr	optional	optional
Pump Type	Peristaltic Pump (SEKO PE-1.3-FP-T), 2.7 bar max (EPDM Compound Squeeze tube, PP injection valve, PVC foot valve, Clear PVC suction tubing, Black UV stable PE discharge tubing). Bromine Pump 0.4 l/hr, 2.7 bar		

Solenoid Valves			
For Bleed	1/2" (15mm)		
For optional Brominator	-	1/2" (15mm)	-
Valve Type	SMC (or similar type) 240VAC NC Direct Acting 0-2.7 bar, 10mm orifice (higher pressure valve, larger sizes, and actuated ball valves available as options on request)		

	DP-DCAPH-RXP-X/6S [-CAB]	DP-DCAPH-RXB-X/4S [-CAB]
GPOs for Optional Dosing Pumps		
Dispersant	3 pin socket	3 pin socket
Inhibitor	3 pin socket	3 pin socket
Chlorine (ORP controlled)	3 pin socket	-
Bromine (ORP controlled)	3 pin socket	-
Secondary Biocide (28 day timer control)	3 pin socket	3 pin socket
Acid/Base via pH	3 pin socket	3 pin socket
Recommended Pump Type	Dosing pump with Australian mains plug (EMEC brand recommended) to plug into GPO sockets provided. Check chemical compatibility with materials of pump wetted parts.	

Solenoid Valves			
For Bleed	1/2" (15mm)		
For optional Brominator	-	1/2" (15mm)	
Valve Type	SMC (or similar type) 240VAC NC Direct Acting 0-2.7 bar, 10mm orifice (higher pressure valve, larger sizes, and actuated ball valves available as options on request)		

DP-CAPH-RXP, DP-CAPH-RXB, DP-CAPH-RXPP DP-DCAPH-RXP-X/6S DP-DCAPH-RXB-X/4S	DP-CAPH-RXP-CAB, DP-CAPH-RXB-CAB DP-CAPH-RXPP-CAB DP-DCAPH-RXP-X/6S-CAB DP-DCAPH-RXB-X/4S-CAB
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Manifold	
Description (Inlet to Outlet)	Inlet, isolation valve, flow switch, solution ground probe, ORP probe, pH Probe, Conductivity Probe, sample point, Bleed solenoid valve, check valve, injection points, outlet. Additional Solenoid valve with check valve fitted for optional brominator (DP-CAPH-RXB & DP-DCAPH-RXB-X/4S systems only)
Probes Included	Conductivity (SP-DCON-P10AT-P), ORP (WA OPF10-PBN10-1.5m), pH (WA OPF10-NNN-1.5m), Solution ground (SP-DCON-CMR), N/O volt-free flow switch
Inlet & Outlet	20mm solvent weld union ends, or 3/4" BSP Female thread (3/4" Male x 12mm hosetails supplied loose)
Max Pressure & Temp	270 kPa / 2.7 bar (690 kPa / 6.9 bar in systems that are supplied without dosing pumps). 50°C

Physical	
Protection	IP65
Operating Temperature	0-50°C
Controller pump, and/or GPO mounting	PVC backboard
Manifold mounting	IP66 Polyester Hinged cabinet
Packaged dimensions	PVC backboard
Actual Packaged weight	2 boxes: ea 630(l) x 370(w) x 290(h) mm 9kg + 9kg = 18kg
	2 boxes: 860x580x220mm & 630x370x290mm 19kg + 9kg = 28kg