Cooling Tower Control & Dosing
Bleed, Inhibitor, Timed Biocide, ORP

Ordering Code	Description
DIGI-AB2RX2A-P	**DIGICHEM**®-ORP-XP2 Controller with Inhibitor, Non-oxidising Biocide & Chlorine Peristaltic Pumps with manifold on 1 PVC backboard (Incl. Flow switch, Bleed solenoid valve, Conductivity, ORP & ground probes).
DIGI-AB2RX2A-P-CABG	DIGI-AB2RX2A-P mounted in Polyester hinged cabinet.
DIGI-AB2RX2A-P-X/3S	DIGI-AB2RX2A-P with controller & GPOs for plugging in 3 optional dosing pumps
DIGI-AB2RX2A-P-X/3S-CABG	DIGI-AB2RX2A-P-X/3S mounted in Polyester hinged cabinet.
DIGI-A2RX2A-P	DIGI-AB2RX2A-P without Non-oxidising Biocide pump
DIGI-A2RX2A-P-CABG	DIGI-A2RX2A-P mounted in Polyester hinged cabinet.
DIGI-AB2RX2A-B	**DIGICHEM**®-ORP-XP2 Controller with Inhibitor & Non-oxidising Biocide Peristaltic Pumps with manifold on 1 PVC backboard (Incl. Flow switch, Bleed solenoid valve, ORP Controlled Solenoid for optional Brominator, Conductivity, ORP & ground probes).
DIGI-AB2RX2A-B-CABG	DIGI-AB2RX2A-B mounted in Polyester hinged cabinet.
DIGI-AB2RX2A-B-X/2S	DIGI-AB2RX2A-B with controller & GPOs for plugging in 2 optional dosing pumps
DIGI-AB2RX2A-B-X/2S-CABG	DIGI-AB2RX2A-B-X/2S mounted in Polyester hinged cabinet.
DIGI-A2RX2A-B	DIGI-AB2RX2A-B without Non-oxidising Biocide pump
DIGI-A2RX2A-B-CABG	DIGI-A2RX2A-B mounted in Polyester hinged cabinet.

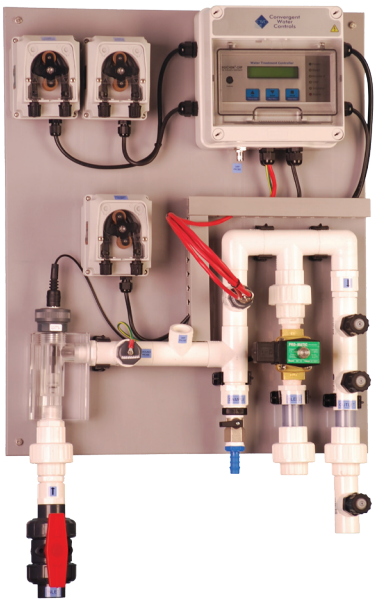
DIGICHEM®
the industry standard

Description

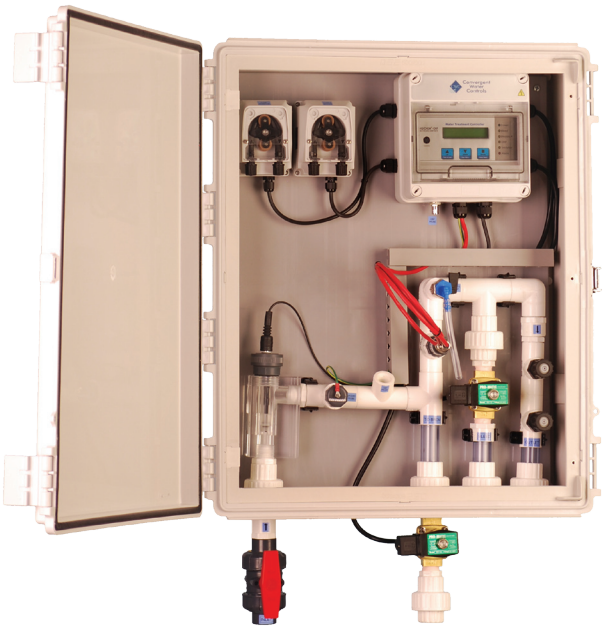
One complete system for cooling towers incorporating ORP Control of Oxidising Biocides with or without Non-oxidising Biocide. With standard features of Conductivity Control & Inhibitor Dosing, the system can be supplied on a PVC backboard or inside a a hinged plastic cabinet.

The integrated **DIGICHEM**®-ORP-XP2 controller, with data logging, maintains the conductivity of the tower water via its bleed solenoid valve, and also main the ORP of the tower water via a Chlorine Pump or via an optional Brominator.

Corrosion Inhibitors are dosed on bleed, on a cycle or proportional to make-up. Non-Oxidising Biocide chemicals are dosed according to 10 independent 28-day timer programs. The circulating/condenser pump can be configured to automatically run during and after any biocide dosing program to ensure that the biocide mixes thoroughly.



DIGI-AB2RX2A-P

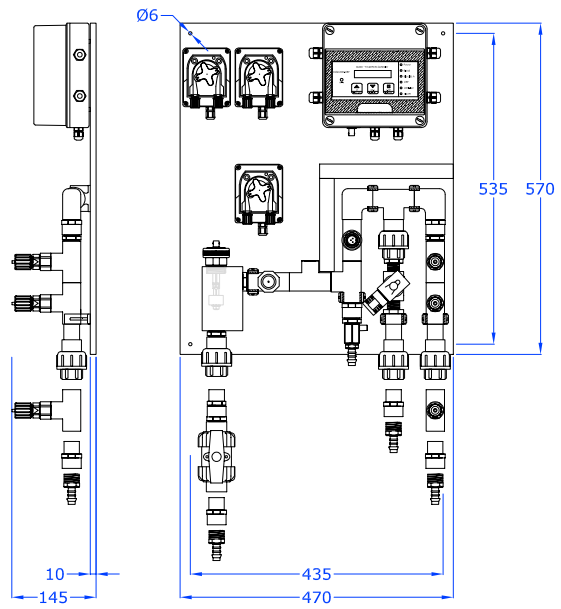


DIGI-AB2RX2A-B-CABG

Features & Benefits

- Bleed Control via solenoid valve (or via optional actuated ball valve)
- Non Oxidising Biocide on 28 day timer
- Inhibitor Dosing on bleed, on cycle or proportional to make-up (via water meter pulses)
- ORP Control (with 28 day timer) of Chlorine and/or Bromine via dosing pumps or optional brominator
- Data logging of Conductivity, ORP, output status, flow, alarm & power status
- Easy to program and calibrate
- Backlit LCDs simultaneously displays Conductivity, Temperature & Setpoint as well as ORP, & Setpoint
- 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 Non-oxidising Biocide dosing
- Integrated flow switch can be configured to disable different combinations of outputs on no-flow
- Weatherproof - can be mounted outside

Dimensional Drawings - Chlorine Systems with Secondary Biocide



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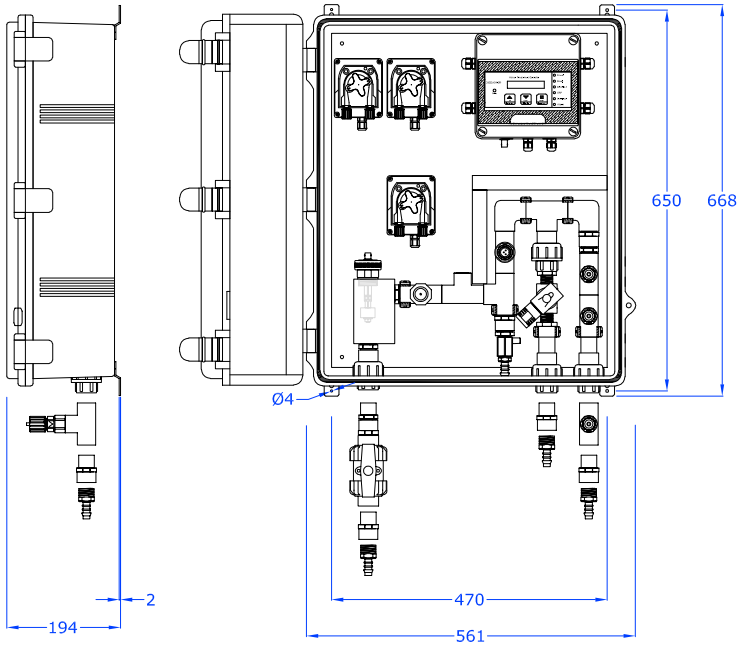
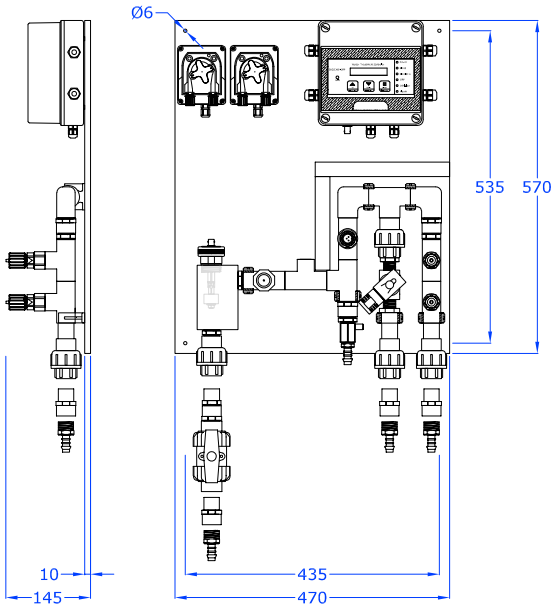
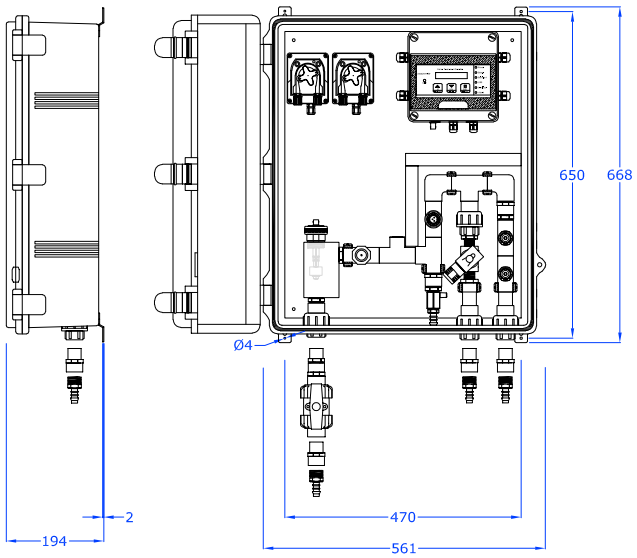


DIGI-AB2RX2A-P-CABG

Dimensional Drawings
- Chlorine Systems without Secondary Biocide

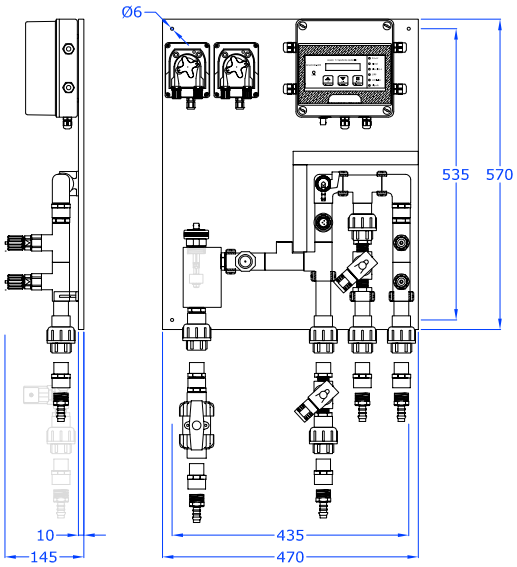


DIGI-A2RX2A-P

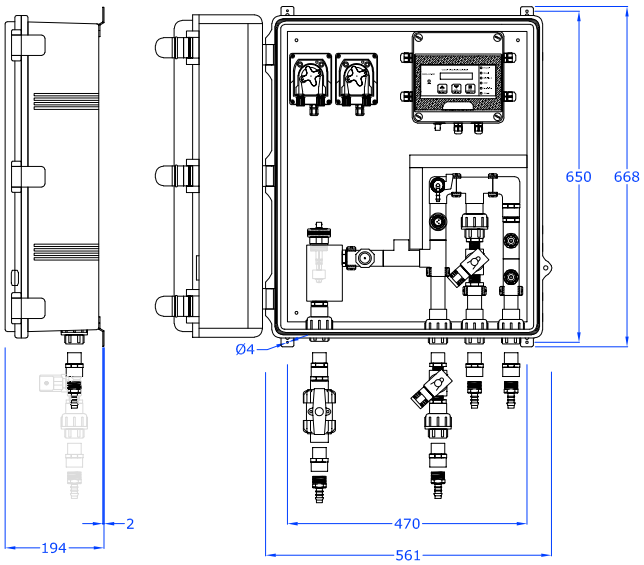


DIGI-A2RX2A-P-CABG

Dimensional Drawings
- Brominator Systems with Secondary Biocide

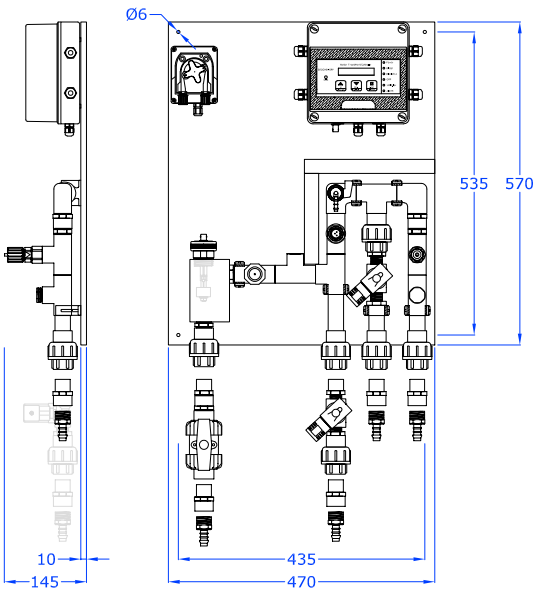


DIGI-AB2RX2A-B

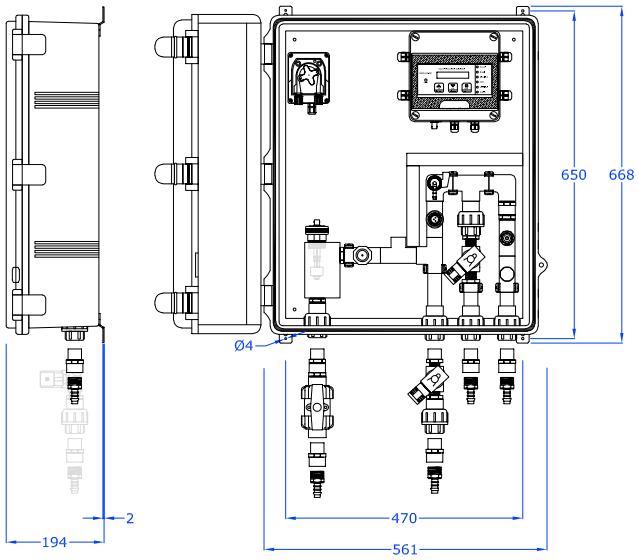


DIGI-AB2RX2A-B-CABG

Dimensional Drawings
- Brominator Systems without Secondary Biocide

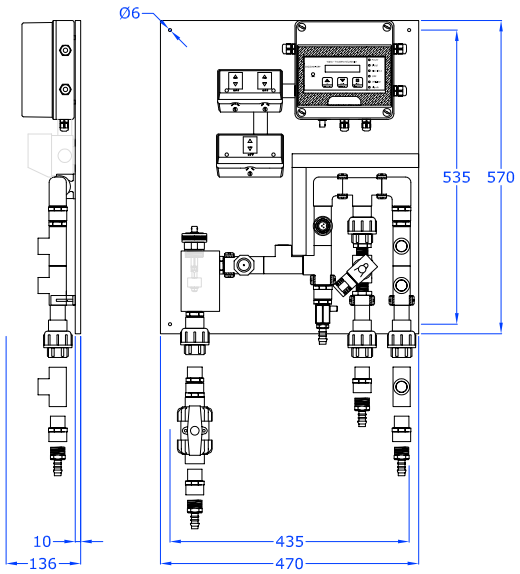


DIGI-A2RX2A-B

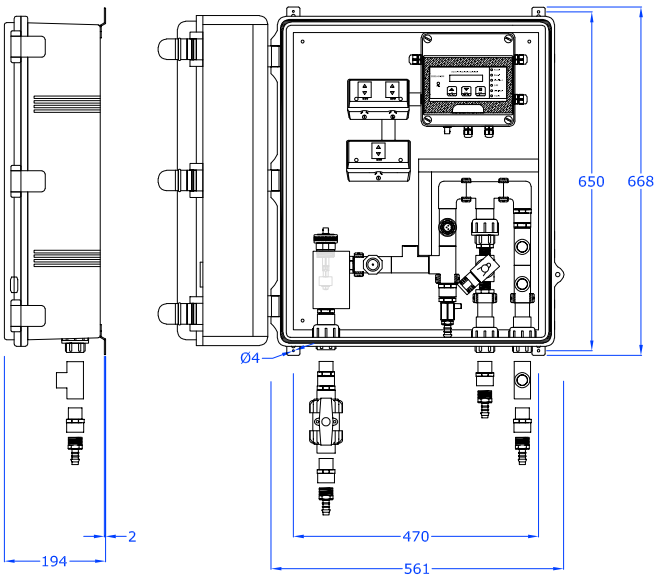


DIGI-A2RX2A-B-CABG

Dimensional Drawings - Systems for Optional Pumps



DIGI-AB2RX2A-P-X/3S



DIGI-AB2RX2A-P-X/3S-CABG

How to Order

Conductivity Bleed & Dosing Systems Supplied with Peristaltic Dosing Pumps

Ordering Code → DIGI - **AB** 2 RX2A - **P** - **CABG**

Non Oxidising Biocide Pumps	
A	none
AB	1 Peristaltic Pump for Non-oxidising Biocide

Explanation of Fixed Part Codes	
DIGI	System with **DIGICHEM®** -ORP-XP2 Series controller
2	2nd Generation **DIGICHEM®**
RX2A	ORP Control Incorporated

Mounting of Controller & Pumps	
blank	Controller & pumps on PVC backboard.
CABG	Controller & pumps in hinged plastic cabinet.

ORP Output	
P	Chlorine Pump included
B	Solenoid valve included for optional brominator

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

Ordering Code → DIGI - AB2RX2A - **B** - X / **2S** - **CABG**

ORP Output	
P	GPO included for optional Chlorine Pump (only for GPO Sockets = 6S)
B	Solenoid valve included for optional brominator (only for GPO Sockets = 4S)

Explanation of Fixed Part Codes	
DIGI	System with **DIGICHEM®** ORP-XP2 Series controller
AB	1 GPO socket for Non-oxidising Biocide
2	2nd Generation **DIGICHEM®**
RX2A	ORP Control Incorporated
X	Excl. Pumps, Incl. Manfold

Mounting of Controller & Pumps	
blank	Controller & GPOs on PVC backboard.
CABG	Controller & GPOs in hinged plastic cabinet.

GPO Sockets for Optional Pumps	
2S	2 GPOs included for optional Inhibitor & Non-oxidising Biocide pumps. (ORP via optional brominator). (only for ORP Output = B)
3S	3 GPOs included for optional Inhibitor, Non-oxidising Biocide & Chlorine pumps. (only for ORP Output = P)

Options & Accessories

Ordering Code	Description
AF02	Upgrade ½" bleed solenoid valve to ¾" solenoid valve
AF02-1/2-LRU230	Upgrade ½" bleed solenoid valve to Belimo actuated ball valve. Manifold on PVC backboard with this upgrade is not weatherproof. It must be protected from rain.
RV ILS-3/4-T20E	In-line Strainer, ¾" NPTF ports, transparent Nylon bowl, 20% glass filled PP body, EPDM gasket, 20 mesh (915 micron) SS304 screen, max 6.9 bar @ 52 degC or 10.3 bar @ 21 degC, mounting in any orientation
RV ILS-1-T20E	In-line Strainer, 1" NPTF ports, transparent Nylon bowl, 20% glass filled PP body, EPDM gasket, 20 mesh (915 micron) SS304 screen, max 6.9 bar @ 52 degC or 10.3 bar @ 21 degC, mounting in any orientation
SEKO PE-0.4-FP	Peristaltic Pump (0.4 l/hr, 2.7 bar) for Bromine to add to ORP output so that pump doses simultaneously with Chlorine Pump to produce Hypobromous Acid (DIGI-A[B]2RX2A-P only)
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
AF10/10A-XP2	DIGICHEM-ORP-XP2 option: Card with 2 x Isolated 4-20mA & 6 event outputs (NPN open collector) - (4-20mA = 0-5000uS/TDS & 0-1000mV). Incl. 2 F/F spacers w/screws and one-way interconnecting lead
SP-XP2-COMCABLE-1	Serial cable for local download of logged data from **DIGICHEM®** XP2 & ORP-XP2 controllers (plugs into Comms port on controller fascia. Software for download at www.cwc.com.au). NOTE: HOBO CABLE-USB-232 also required if serial port not available on laptop
HOBO 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	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
WA OPF10-PBN10-1.5m	Replacement ORP 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-DIGI-XP2-BAT	Replacement battery type CR-2032 (3.0VDC) for DIGICHEM-ORP-XP2 controller

Specifications

	DIGICHEM® ORP-XP2 CONTROLLER	
Control Functions		
Measured Variables	Conductivity	ORP
Range	0-9999 µS/TDS	1-999mV
Resolution	1 µS / 1 ppm TDS	1mV
Accuracy	0.2% of Range	0.4% of Range
Repeatability & drift	1% of Range	0.8% of Range
Control Type	ON/OFF	ON/OFF or proportional
Hysteresis	1-90% fixed	1-90% (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 µS/TDS	High & Low ORP
Max Dose [Bleed] Timer Alarm	0-999m (0=disabled)	0-999m (0=disabled)
Alarm Output	Common alarm via N/O & N/C failsafe volt-free contact	
Dose Settings		
Inhibitor	Programmable Cycle (ON/OFF) – in Modes: Continuous, On Bleed, or Proportional to Make-up pulses (pulse water meter optional)	
Primary Biocide	ORP controlled (ON/OFF or Proportional modes with 28 day timer)	
Secondary Biocide	Non-oxidising Biocide Timed 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)	
General		
Display	Backlit Dual Line LCD displays Conductivity (µS/TDS), ORP, Setpoints, Water Temp, Flow & Alarm Status	
Keypad	UP, DOWN & ENTER pushbuttons	
LED Indication	green (Power on), yellow (Bleed, Inhibitor, Biocide A, ORP), red (Alarm)	
Manual Test	All outputs independently activated via menu	
Flow Sensing	Flow sensing individually set per output	
Calibration	Menu driven	
Datalogging Interval	Programmable from 5 min to 240 min	
Logged Variables	Conductivity, Temp, ORP, %Bleed, %Inhib, %Biocide A, %ORP, %Bleed, %Alarm	
Data Retention	100 years	
Battery Backup	1 year (approx)	
Battery Type	CR2032 (3VDC), part no SP-DIGI-XP2-BAT	
Electrical		
Power Supply	220-240 VAC, 50/60Hz (110VAC available on request)	
Power Consumption	10W max (with no loads on outputs)	
Fuse	2A, 5x20mm (in-line with circuit & powered relays)	
Auxiliary Mains Output	240VAC continuous (2A fused)	
Control Relay Outputs	Switched 240VAC outputs rated 6A/250VAC resistive (2A fused)	
Alarm Relay Outputs	N/O & N/C Volt-free (6A/250VAC resistive) 2A fused. Relay Coil de-energises on power failure	
Condenser Pump Relay	N/O Volt-free (6A/250VAC resistive) 2A fused	
Water Meter Input	Make-up (volt-free pulse)	

	DIGI-AB2RX2A-P [-CAB]	DIGI-A2RX2A-P [-CAB]	DIGI-AB2RX2A-B [-CAB]	DIGI-A2RX2A-B [-CAB]
Dosing Pumps Incl.				
Inhibitor	1.3 l/hr	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)	optional	optional	-	-
Secondary Biocide (28 day timer control)	1.3 l/hr	-	1.3 l/hr	-
Acid/Base (pH controlled)	N/A as controller does not have pH measurement or control function			
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, 2.7bar			
Solenoid Valves				
For Bleed	1/2" (15mm)			
For optional Brominator	-	-	1/2" (15mm)	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)			

	DIGI-AB2RX2A-P-X/3S [-CABG]	DIGI-AB2RX2A-B-X/2S [-CABG]
GPOs for Optional Dosing Pumps		
Inhibitor	3 pin socket	3 pin socket
Chlorine (ORP controlled)	3 pin socket	-
Bromine (ORP controlled)	-	-
Secondary Biocide (28 day timer control)	3 pin socket	3 pin socket
Acid/Base (pH controlled)	N/A as controller does not have pH measurement or control function	
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)	

	DIGI-A[B]2RX2A-P DIGI-A[B]2RX2A-B	DIGI-A[B]2RX2A-P-CABG DIGI-A[B]2RX2A-B-CABG DIGI-AB2RX2A-P-X/3S-CABG DIGI-AB2RX2A-B-X/2S-CABG
Manifold		
Description (Inlet to Outlet)	Inlet, isolation valve, flow switch, solution ground probe, ORP Probe, Conductivity Probe, sample point, Bleed solenoid valve, check valve, injection points, outlet. Additional Solenoid valve fitted for optional brominator (DIGI-A[B]2RX2A-B & DIGI-A[B]2RX2A-B-X/2S systems only)	
Probes Included	Conductivity (SP-DCON-P10AT-P), ORP (WA OPF10-PBN10-1.5m), Solution ground (SP-DCON-CMR), N/O volt-free flow switch	
Inlet & Outlet	20mm solvent weld union ends, or ¾" 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	IP55	IP66
Operating Temperature	0-50°C	
Mounting	PVC backboard	Polyester Hinged cabinet
Packaged dimensions	860x580x220mm	860x580x220mm
Actual Packaged weight	18kg	20kg