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

Ordering Code	Description
DIGI-AB2RX2A-P	**DIGICHEM**® XP2 & ORP-XP2 Controllers with Inhibitor, Non-oxidising Biocide & Chlorine Peristaltic Pumps with manifold on PVC backboards (Incl. Flow switch, Bleed solenoid valve, Conductivity, ORP & ground probes).
DIGI-AB2RX2A-P-CABG	DIGI-AB2RX2A-P with controller & pumps in IP66 Polyester hinged cabinet.
DIGI-AB2RX2A-P-X/3S-CABG	DIGI-AB2RX2A-P with controller & GPOs for plugging in 3 optional dosing pumps in IP66 Polyester hinged cabinet.
DIGI-A2RX2A-P	DIGI-AB2RX2A-P without Non-oxidising Biocide pump
DIGI-A2RX2A-P-CABG	DIGI-AB2RX2A-P-CABG without Non-oxidising Biocide pump
DIGI-AB2RX2A-B	**DIGICHEM**® XP2 & ORP-XP2 Controllers with Inhibitor & Non-oxidising Biocide Peristaltic Pumps with manifold on PVC backboards (Incl. Flow switch, Bleed solenoid valve, ORP Controlled Solenoid for optional Brominator, Conductivity, ORP & ground probes).
DIGI-AB2RX2A-B-CABG	DIGI-AB2RX2A-B with controller & pumps in IP66 Polyester hinged cabinet.
DIGI-AB2RX2A-B-X/2S-CABG	DIGI-AB2RX2A-B with controller & GPOs for plugging in 2 optional dosing pumps in IP66 Polyester hinged cabinet.
DIGI-A2RX2A-B	DIGI-AB2RX2A-B without Non-oxidising Biocide pump
DIGI-A2RX2A-B-CABG	DIGI-AB2RX2A-B-CABG without Non-oxidising Biocide pump

DIGICHEM®
the industry standard

DIGI-AB2RX2A-P-CABG

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 systems are supplied with manifold on PVC backgoards or with controllers and pumps in IP66 hinged cabinet.

The integrated **DIGICHEM**® XP2 controller, with data logging, maintains the conductivity of the tower water via its bleed solenoid valve.

The integrated ORP-XP2 controller, with datalogging, maintains 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.

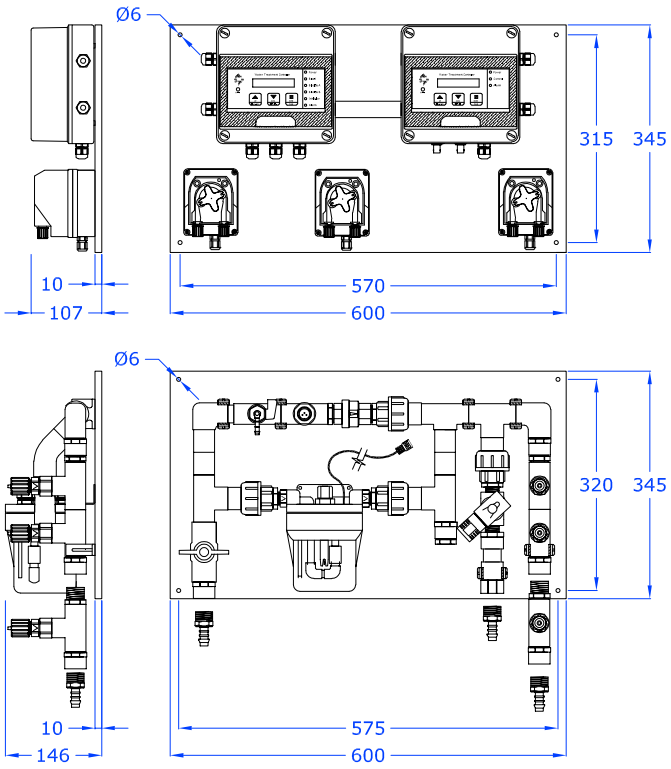
DIGI-AB2RX2A-B-CABG

DIGI-AB2RX2A-P-X-3S-CABG.JPG

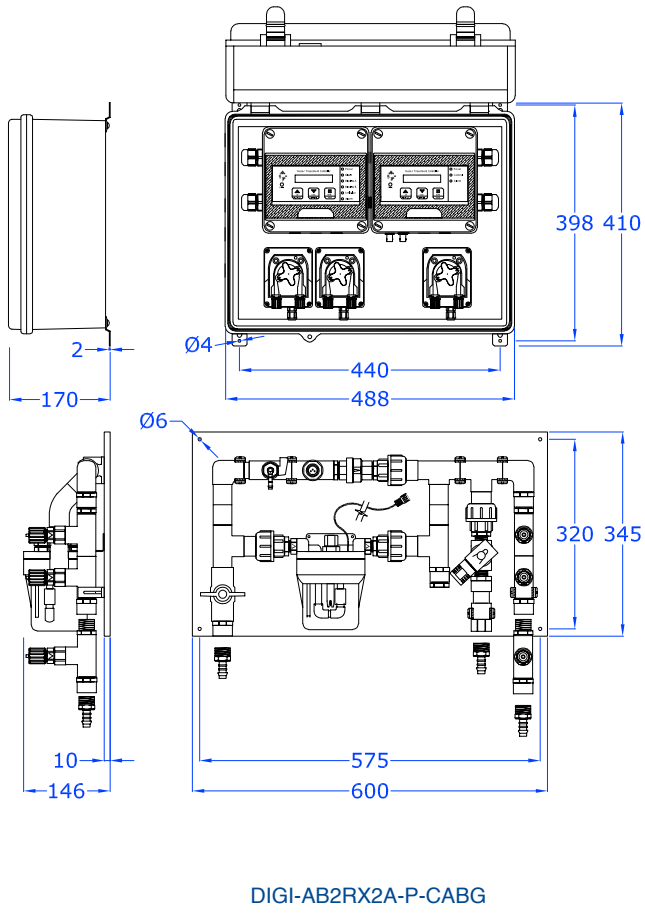
Features & Benefits

- 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

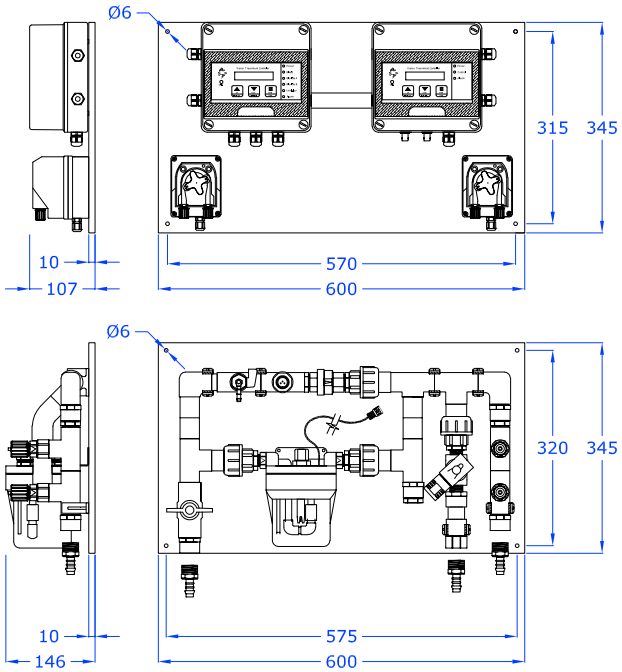


DIGI-AB2RX2A-P



DIGI-AB2RX2A-P-CABG

Dimensional Drawings - Chlorine Systems ctd.



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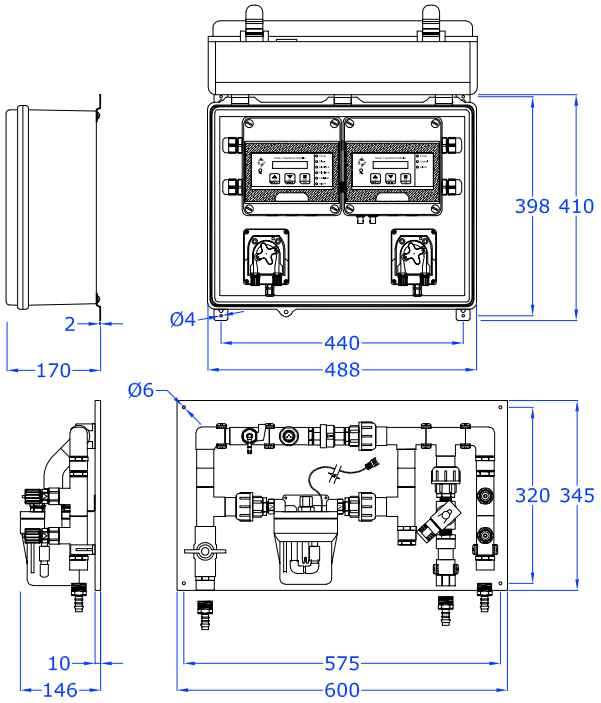
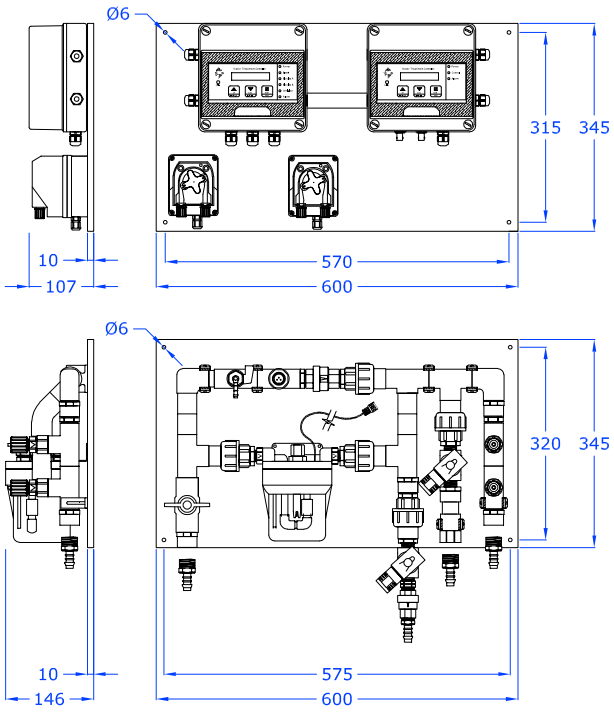
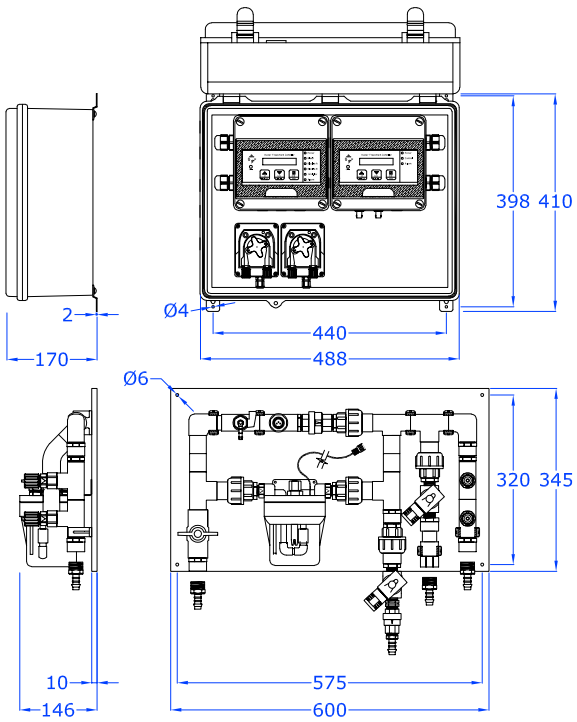


DIGI-A2RX2A-P-CABG

Dimensional Drawings - Brominator Systems

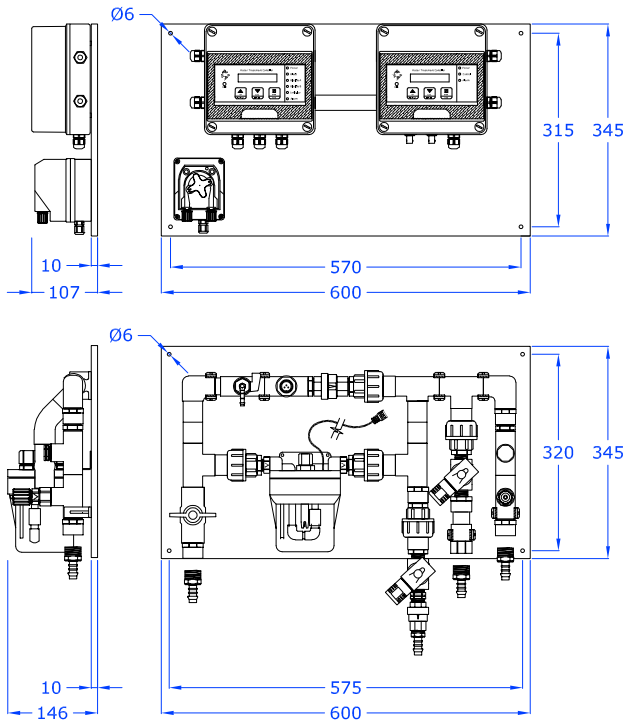


DIGI-AB2RX2A-B

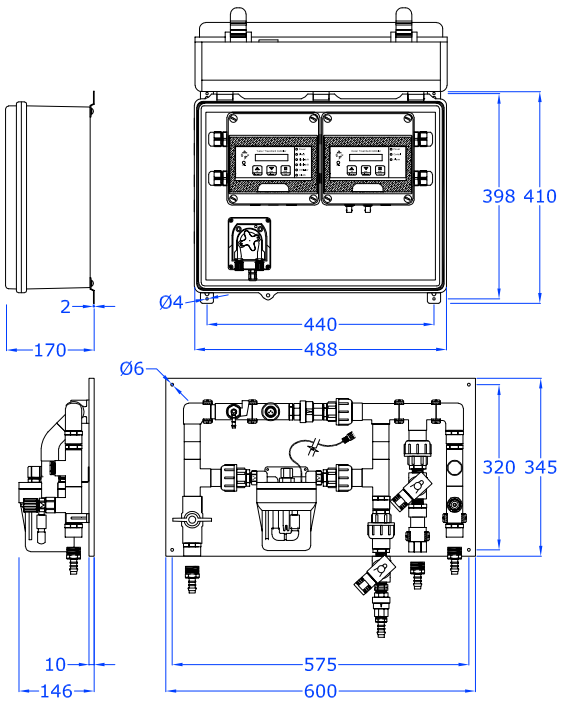


DIGI-AB2RX2A-B-CABG

Dimensional Drawings - Brominator Systems ctd.

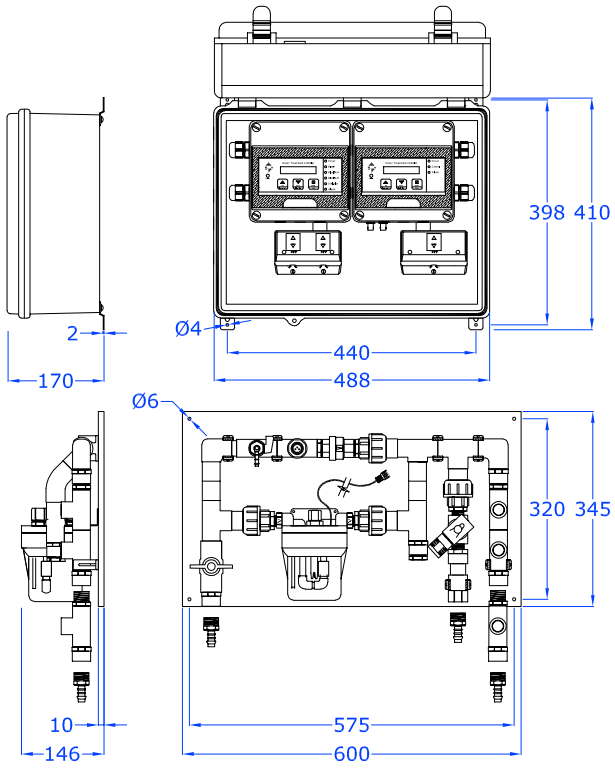


DIGI-A2RX2A-B

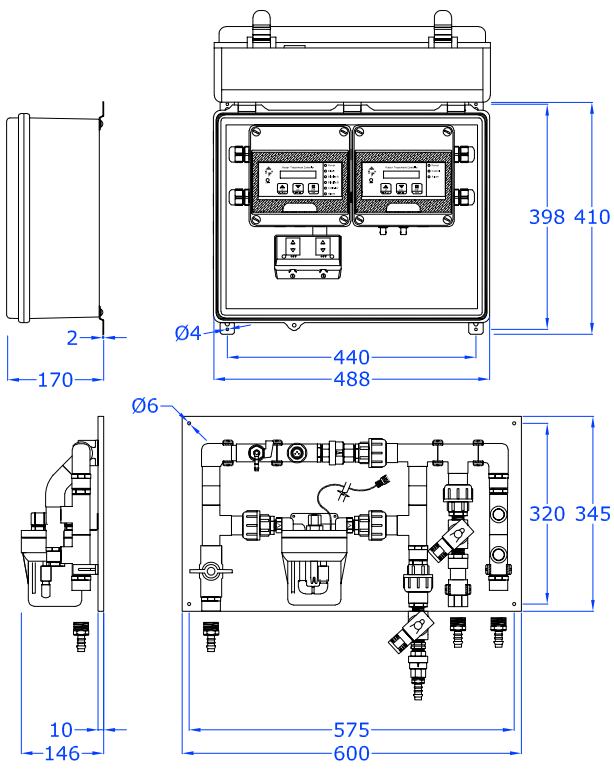


DIGI-A2RX2A-B-CABG

Dimensional Drawings - Systems for Optional Pumps



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



DIGI-AB2RX2A-B-X/2S-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®** 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 IP66 hinged 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®** 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 IP66 hinged 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	Replace ½" direct acting bleed solenoid valve with pilot assisted ¾" solenoid valve
AF02-1/2-LRU230	Replace 1/2" solenoid valve with Actuated Ball Valve 1/2" F/F (15mm) 240VAC, Full bore, Continuous voltage to close, Apply voltage to open (3-wire connection A, A, N), 3.5 bar, 100 degC max, IP54 (Weather protection recommended)
RV ILS-3/4-T20E	In-line Strainer, 3/4" 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
AF09-XP2	Isolated 4-20mA output card (proportional to 0-5000uS/TDS)
AF09A-XP2	Isolated 4-20mA output card (proportional to 0-1000mV)
AF10-XP2	Output Card for BMS/DDC, incl. isolated 4-20mA (proportional to 0-5000uS/TDS), plus open collector NPN logic outputs for each pump & solenoid valve status, and for alarm & power status.
AF10A-XP2	Output Card for BMS/DDC, incl. isolated 4-20mA (proportional to 0-1000mV), plus open collector NPN logic outputs for pump/solenoid valve status, and for alarm & power status.
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)
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
IONODE IH30-01m	Replacement ORP probe
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

Specifications

	DIGICHEM® XP2 CONTROLLER	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	3% 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		
Dispersant	-	
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 Single Line LCD displays Conductivity (µS/TDS), Setpoint, Water Temp, Flow & Alarm Status	Backlit Single Line LCD displays ORP (mV), Setpoint, Flow & Alarm Status
Keypad	UP, DOWN & ENTER pushbuttons	
LED Indication	green (Power on), yellow (Bleed, Inhibitor, Biocide A, Biocide B), red (Alarm)	green (Power on), yellow (Dose), red (Alarm)
Manual Test	All outputs independently activated via menu	
Flow Sensing	Flow sensing individually set per output	Can be enabled/disabled
Calibration	Menu driven	
Datalogging Interval	Programmable from 5 min to 240 min	
Logged Variables	Conductivity, Temp, %Bleed, %Inhib, %Biocide A, %Biocide B, %Bleed, %Alarm	ORP, %Output, %Alarm
Data Retention	100 years	
Battery Backup	1 year (approx)	
Battery Type	CR2032 (3VDC)	
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)	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 (4A fused)	
Alarm Relay Outputs	N/O & N/C Volt-free (6A/250VAC resistive) 2A fused. Relay Coil de-energises on power failure	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) 4A 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)	-	-	-	-
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 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)	-	-
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 240VAC NC Direct Acting 0-2.7 bar (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 with check 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 (IH30-01m), Solution ground SS rod, N/O volt-free flow switch (incorporated in EMEC PED4 flow cell)	
Inlet & Outlet	¾" BSP Female thread (3/4" Male x 12mm hosetails supplied loose)	
Max Pressure & Temp	270 kPa (2.7 bar), 50°C, (500kPa, 5 bar with optional higher pressure solenoid valve). (ORP Probes and EMEC PED4 flow cell rated to 500kPa)	
Physical		
Protection	IP55	IP66
Operating Temperature	0-50°C	
Controller pump, and/or GPO mounting	PVC backboard	IP66 Polyester Hinged cabinet
Manifold mounting	PVC backboard	
Packaged dimensions	2 boxes: ea 630(l) x 370(w) x 290(h) mm	2 boxes: 560x450x220mm & 630x370x290mm
Actual Packaged weight	9kg + 9kg = 18kg	12kg + 9kg = 21kg