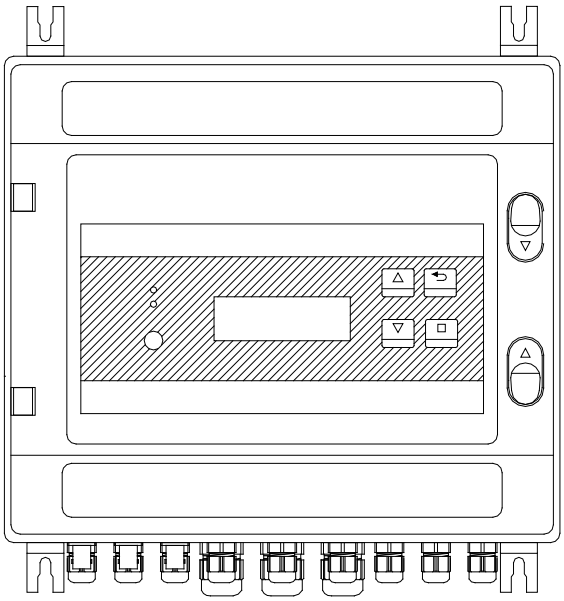
Quick Start **Guide**

Cooling Water Treatment Controller
Model: DIGICHEM® Plus+ Gen II



Scan QR code above for resources including complete instruction manual and installation diagrams

Supplied by:

M1 ver 1.0

Manufacturer:	Convergent Water Controls Pty Ltd, Sydney Australia.
Note:	On-going product development at Convergent Water Controls may lead to changes in the specifications of this product.
Warranty:	This product is guaranteed for a period of 12 months from installation date or 18 months from Invoice date (whichever occurs first). The warranty applies to manufacturing or component defects which may cause the unit to malfunction under specified conditions. The guarantee does not cover damage due to abuse, tampering or improper installation.
Disclaimer:	Convergent Water Controls will not be held liable for any consequential damage or loss arising resulting from product malfunction.

1. Safety Warnings

Only trained/qualified personnel may open and work inside of a DIGICHEM Plus+. When opening the controller encloser please take care of the following:

- Electrical Hazard Warning – Physically disconnect the 240V AC power before opening.
- Static Discharge Warning – discharge any static built up by earthing, use care and common sense.
- Leaking and water ingress – when closing the enclosure, ensure the rubber seal is correctly seated to ensure it does not leak and the IP rating is maintained.

2. Mounting

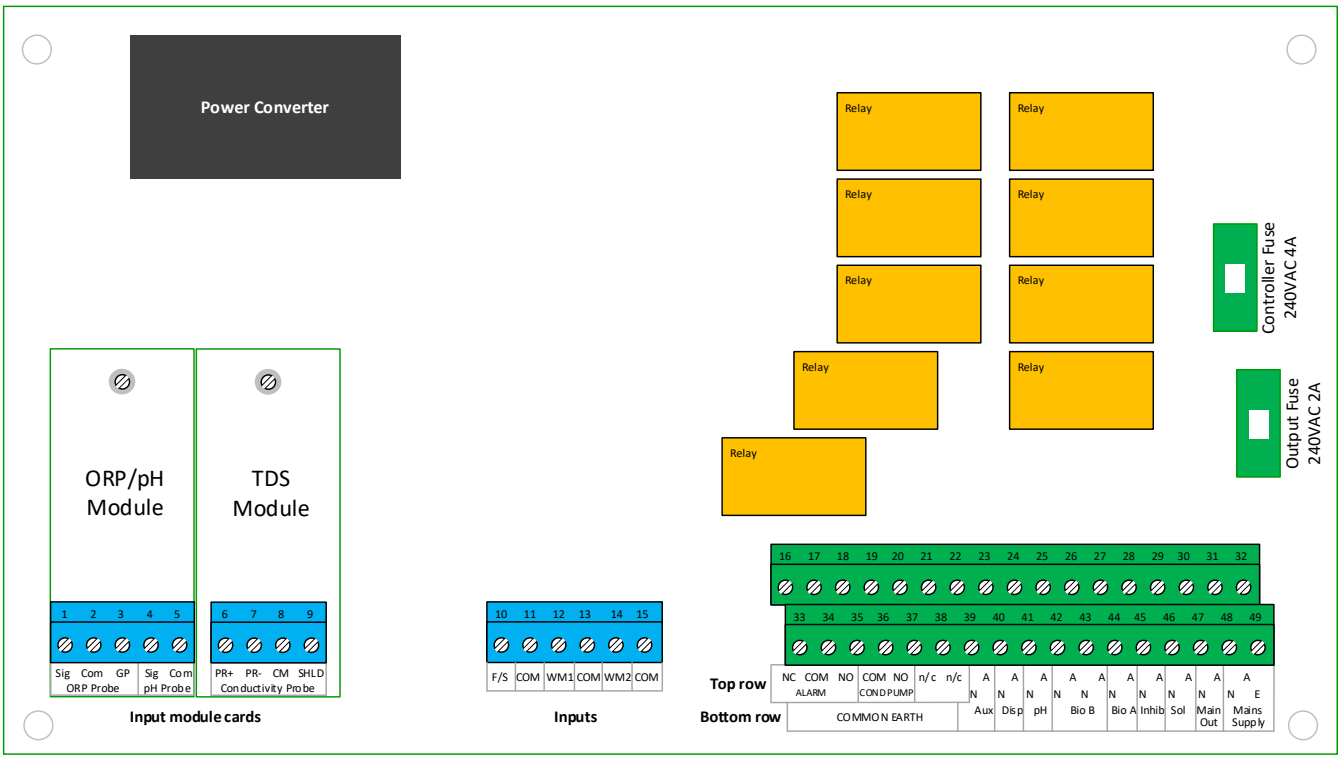
Most DIGICHEM Plus+ Gen II controllers are supplied pre-mounted on a back board or in a cabinet. The board layout can be found on the included Assembly Diagram.

Mount the back board or cabinet on a flat, vertical surface using suitable fasteners appropriate for the wall type (e.g., masonry anchors, timber screws). Mounting holes are pre-drilled. Ensure the board is installed:

1. Above flood level
2. In a well-ventilated area
3. Protected from direct sunlight, chemical spray, water or extreme heat

Specific system dimensions can be found in the DIGICHEM Plus+ datasheet on the website www.cwc.com.au and by following the QR Code link.

3. Wire Connections/Pinout



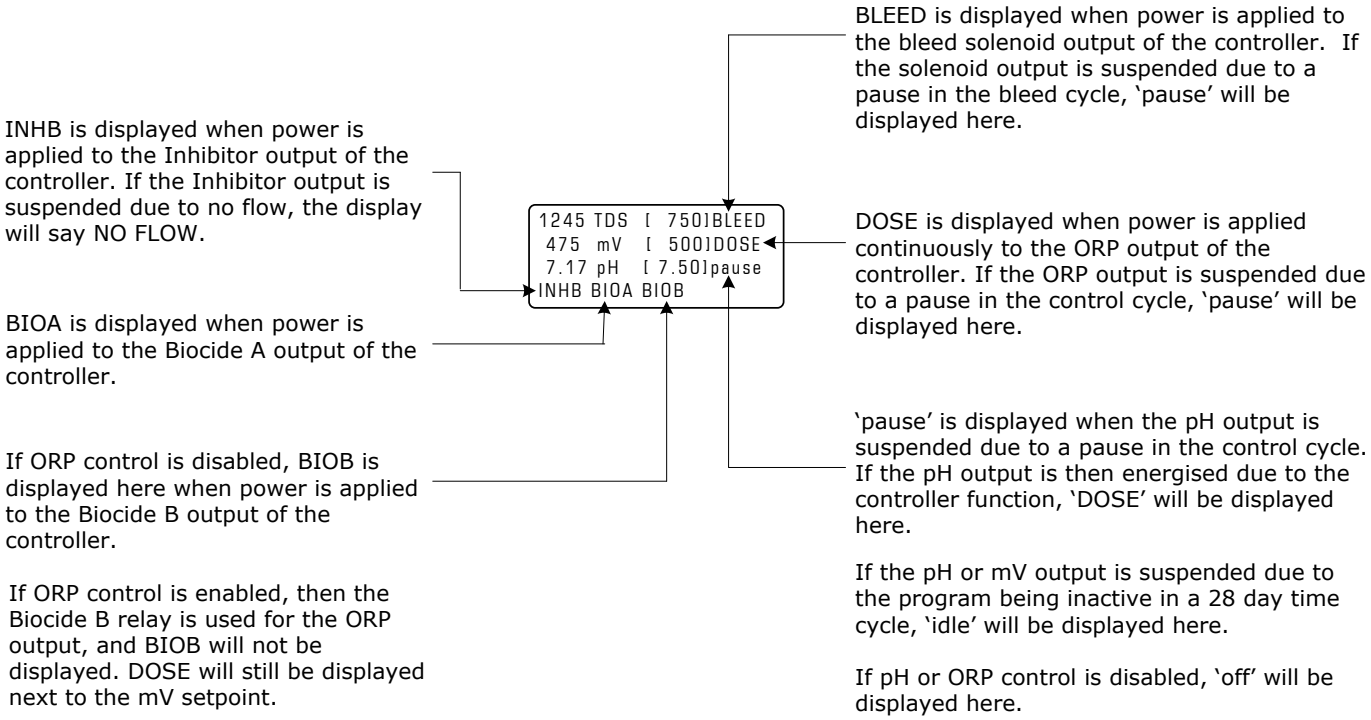
Pin	Description	Wire Colour
1	ORP Probe Signal	White
2	ORP Probe Common	Green
3	Ground Probe	Grey
4	pH Probe Signal	White
5	pH Probe Common	Green
6	Conductivity Probe PR+	Red
7	Conductivity Probe PR-	Yellow
8	Conductivity Probe CM+	Blue
9	Conductivity Probe Screen	Grey
10	Flow Switch	White
11	Flow Switch Common	Green
12	Water Meter 1 - Make Up	
13	Water Meter 1 - Make Up Common	
14	Water Meter 2 - Bleed	
15	Water Meter 2 - Bleed Common	
16	Alarm Relay - NC	
17	Alarm Relay - Common	
18	Alarm Relay - NO	
19	Cond (Condenser) Pump Common	
20	Cond (Condenser) Pump NO	
21	No connection	
22	No connection	
33	Common Earth	Yellow/Green
34	Common Earth	Yellow/Green
35	Common Earth	Yellow/Green

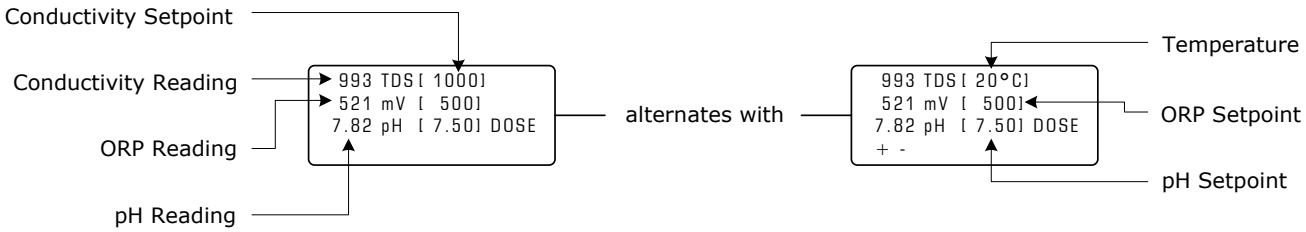
Pin	Description	Wire Colour
36	Common Earth	Yellow/Green
37	Common Earth	Yellow/Green
38	Common Earth	Yellow/Green
23	Auxiliary Active (240VAC)	Brown
39	Auxiliary Neutral	Blue
24	Dispersant Active (240VAC)	Brown
40	Dispersant Neutral	Blue
25	pH Active (240VAC)	Brown
41	pH Neutral	Blue
26	Bio B /ORP Active (240VAC)	Brown
42	Bio B /ORP Neutral	Blue
27	Bio B /ORP Active (240VAC)	Brown
43	Bio B /ORP Neutral	Blue
28	Bio A /ORP Active (240VAC)	Brown
44	Bio A Neutral	Blue
29	Inhibitor Active (240VAC)	Brown
45	Inhibitor Neutral	Blue
30	Bleed Solenoid Active (240VAC)	Brown
46	Bleed Solenoid Neutral	Blue
31	Mains Out Active (fused 240VAC)	
47	Mains Out Neutral	
32	Mains Supply Active (240VAC)	Brown
48	Mains Supply Neutral	Blue
49	Mains Supply Earth	Yellow/Green

4. Pre Service Setup & Checks

- ☐ Connect Power to the controller after installation. After a start-up sequence, the controller automatically goes into NORMAL MODE.
- ☐ Check/set Time and Date
- ☐ Saved settings can be applied by use of the USB port.
- ☐ Once wiring is completed and system started, outputs can be tested using the Test Inputs/Outputs function to verify correct operation.
- ☐ If the system has a modem, make a settings change to a setpoint and verify mobile connection with 'FTP Done' message.
- ☐ Connect probes, note do not install pH or ORP probes if system will be left with no water/stagnant as this will affect life and performance of these probes.
- ☐ The display will read the measured conductivity, ORP, and pH, as well as the Setpoints for these measured variables within square brackets.
- ☐ Perform commissioning calibration
  - pH 7 buffer then either 4 or 10 buffer
  - TDS slope
  - ORP factory calibration usually sufficient
- ☐ Use the Test Inputs/Outputs function to prime chemical pumps

5. Controller Display Functionality



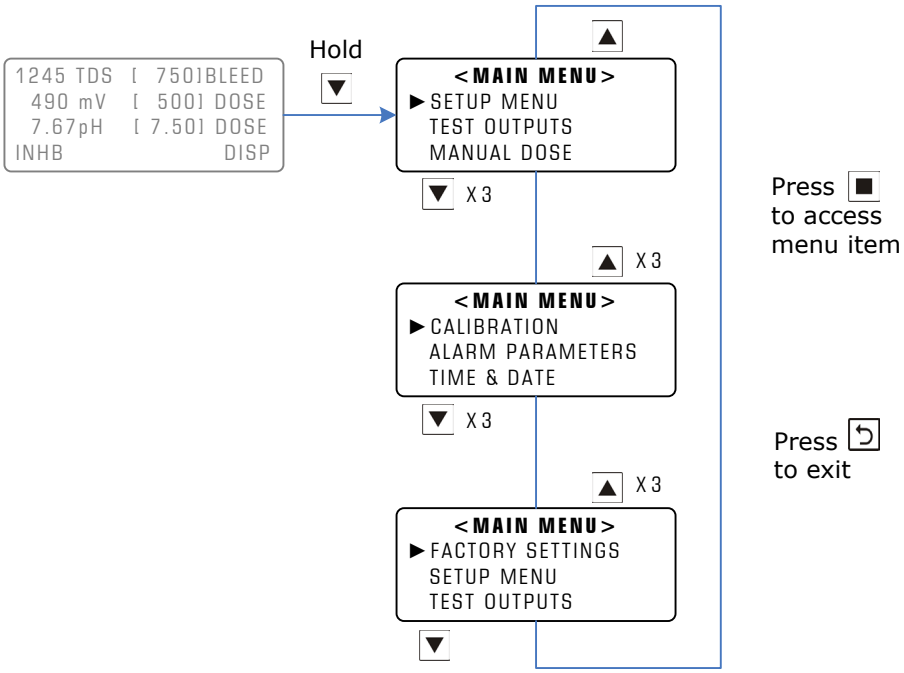


Note:

If a pulse from a make-up water meter is received, a '+' will be momentarily displayed on the bottom line of the LCD screen.

If a pulse from a bleed water meter is received, a '-' will be momentarily displayed on the bottom line of the LCD screen.

The Main Menu as per the screen on the DIGICHEM Plus+ is shown below:



In the above diagram, TEST OUTPUTS can be selected to prime pumps / and test the various outputs of the system.

Please note that only basic relevant functions have been included in this quick start guide. For full details, please follow the QR Code link.

6. Default Factory Settings

Default Factory Settings:

Menu Setting/Item	Default
Start-Up Delay	Count-Down: 0000s
Conductivity Units	TDS (i.e. ppm Total Dissolved Solids)
Bleed Setpoint	1000 ppm TDS
Hysteresis	3%
Bleed Cycle	ON/OFF = 00s/00s (ie. Disabled)
pH Operation	Dose Acid
pH Control Setpoint	7.50pH
pH Dose Timer Alarm	Max Dose: 120m
ORP Operation	Dose Oxidant
ORP Control Setpoint	500mV
ORP Dose Timer Alarm	Max Dose: 120m
pH and ORP Control Methods	Proportional
pH and ORP Proportional Bands	50%
pH and ORP Control Cycles	60s
Ground Probe	Enable? [Yes]
High Alarms	0000 for all (ie. Disabled)
Low Alarms	0000 for all (ie. Disabled)
No Flow Alarm	Enable? [No]
Delay on Alarm	Trip Delay: 3600s
Bleed Timer Alarm	Max Bleed: 000m (ie. Disabled)
Timer Alarm Hysteresis	3% (Feature only available for v0.91 or later)
Inhibitor Mode	On bleed
Inhibitor Duty Cycle	ON/OFF = 0050s/0050s (ie. On Bleed Only)
Dispersant	24hr/day, ON/OFF = 0000s/0000s (i.e. Disabled)
Biocide Programs	All programs disabled
Pre-Bleed Setpoint	Setpoint -15%
Bleed Lockout Setpoint	Setpoint +20%
Condenser Pump Timer	Biocide Dose + 000m
Flow Switch	Logic [Normal]
Outputs disabled with no flow	Bleed, Inhibitor, Dispersant, pH & ORP
Data Logging	LOG Every: 60 mins
Disinfection ORP Setpoint	500mV but disabled
Extra Inhibitor Dose Start Time	00:00
Extra Inhibitor Dose Duration	0000s i.e. disabled
Water Volume Counters	All Set to 0000p/m^3 i.e. disabled
Cycles of Concentration	Set to 0001
Password Setup	Enable?: [No]
Controller Name	--------

Specifications:

Item	Specification
Power Supply	220-240VAC, 50/60Hz
Power Consumption	10W max (with no loads on outputs)
Inputs	Conductivity Probe ORP Probe Solution Ground Probe (SS) pH Probe Flow Switch (Volt-free contact) Water meter Make-Up volt-free contact Water meter Bleed volt free contact
Auxiliary Mains Output	240VAC continuous (4A fused)
Control Outputs – Switched 240VAC	6A/240VAC resistive (4A fused)
Alarm Relay Output	N/O & N/C Volt-free (6A/250VAC resistive) (4A fused)
Condenser Pump Relay Output	N/O Volt-free (6A/250VAC resistive) (4A fused)
Measured Conductivity Resolution	1µS / 1 ppm TDS
Conductivity Accuracy	0.5% of measured range
Conducitivity Repeatability & drift	1.0% of measured range
Measured ORP Resolution	1 mV
ORP Accuracy	0.4% of measured range
ORP Repeatability & drift	0.8% of measured range
Measured pH Resolution	0.01 pH
pH Accuracy	0.4% of measured range
pH Repeatability & drift	0.8% of measured range
Data retention	100 years
Battery backup	1 year (approx)
Battery type	CR2032 (3Vdc)
Enclosure rating	IP65
Operating	0 - 50°C

7. Support

Should support be required of the system not perform as expected please contact us for support and refer to the following resources.

- Full Manual
- Installation diagrams
- Spare Parts
- Firmware upgrade guide
- Tips for remote setup and troubleshooting
- Instructional Videos

Telephone: 1800 137 954

Email: support@cwc.com.au