

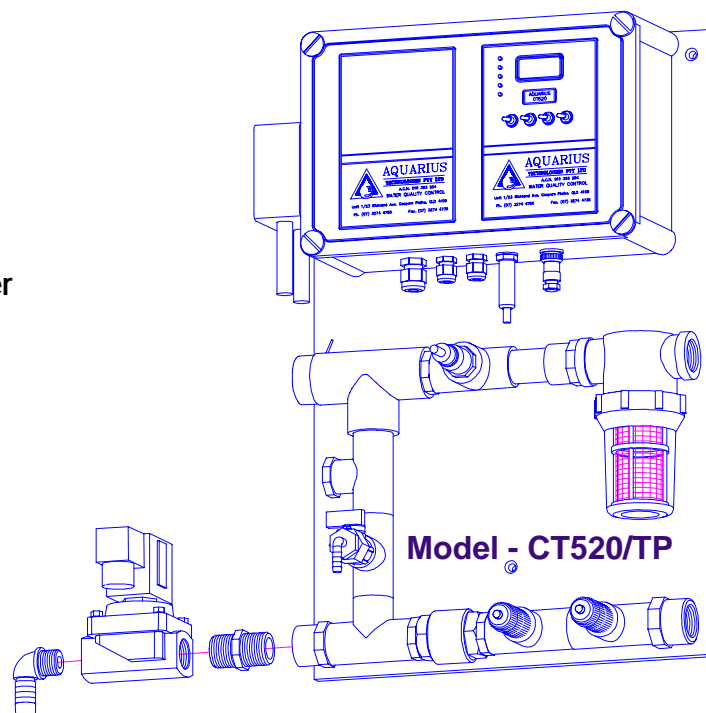
AQUARIUS

CT520 Conductivity Controllers

Microprocessor Control
on
Conductivity with
Auto Bleed Off +
Duty Cycle control on
Inhibitor Dosage
for control on
Cooling Water Systems



- √ Microprocessor Control
- √ Auto Bleed Control
- √ Duty Cycle Inhibitor Dosage
- √ Alarms with delay period
- √ Flow Sensor & Clear View Strainer
- √ Digital Readout Display
- √ Weatherproof Enclosure
- With Optional
- √ Data Acquisition Package
- √ Loop Isolated 4 - 20 mA.
- √ 4 x Opto -Events Outputs



ADVANCED TECHNOLOGY FOR THE NEW MILLENIUM

Aquarius CT520 Conductivity Control

Features and Benefits

- 1. Fully integrated, electronics control, and optional sensors, manifold, and dose pump package.**
- 2. "State of the Art" - Microprocessor Control with embedded custom software for control and dosage - on Conductivity for Auto Bleed Off & Inhibitor dosing with both Duty Cycle and Dose Mode control.**
- 3. ON/OFF control is provided on Bleed Off rates from Conductivity, to maintain tight control even on varying demand, (Evaporation rate on cooling systems, etc.) and maintain very tight control to the set point.**
- 4. Inhibitor Dosing facilities are built into the controller to allow for dosage proportional to Flow rate, Bleed Off rate, or Continuous, and with Duty Cycle control for a wide range of dosage being accurately set via the digital display.**
- 5. In the CT520/AB15 & CT520/TP15 models - the sensor is housed in the manifold, incorporating a clear view bowl strainer and spring assisted flow sensor, sampling point and dosage injection points for both inhibitor and bio-cide, rated to 500 kPa. and 60 °C and having suitable flow and velocity paths for very accurate readings.**
- 6. A comprehensive alarms system is designed into the package**
 - High & Low alarm facilities are available on conductivity level and signals via a NO VOLT common alarm relay. The Common Alarm facility is delayed for 5 minutes to prevent any false alarms.
- 7. Comprehensive computer Data Acquisition output capabilities are an OPTION available on all models.**
 - Loop isolated 4 - 20 mA. analog outputs on Conductivity Values.
 - Optically isolated event outputs on uS/cm, Bleed & Inhibitor relays, Flow and Common Alarm relay
 - Data log to a Lap top, or to a PC with appropriate software
 - Remote data acquisition and monitoring via modem and appropriate software.
 - Historical hard copy record of water treatment chemistry.
- 8. Peristaltic dosage pumps - standard on the CT520/TP15 models are -**
 - Pumps rated to 250 kPa. both as 0.85 lt./hr. or the larger 4.5 lts./hr.
 - Most reliable and long lasting dosage pumps for this application.
 - CT520/S models have a socket output for the use of existing, or larger dose pumps
- 9. Automatic Control of Conductivity on Cooling Systems offers the user many advantages.**
 - Accurate Bleed control can greatly increase the effectiveness of both Inhibitor protection and disinfection levels, save on water and chemical usage, and prevent scaling and severe loss of heat transfer with resulting dramatic increase in electricity running costs.
- 10. Manufactured under a Quality Assurance system to ISO 9001 standards, from a life time experience in water treatment, with many years experience in design of dosing and control equipment, and designed to meet and exceed the requirements of AS3666 and other applicable Australian Standards.**

Aquarius CT520 Conductivity Control

Packages Utilising this Controller and Major Applications

The Aquarius CT520 series control, or control and dosage systems, are offered in a number of different Conductivity control and dosage for cooling water treatment configurations, depending on the particular cooling water system.

1. Basic Controller only with probe and tee piece

Model - CT520/S

2. Controller fitted with manifold, flow sensor, strainer and 15 mm Bleed solenoid - as Cooling system Autobleed unit

Model - CT520/AB15

3. As above, fitted with 0.85 lts./hr. peristaltic Inhibitor dose pump for both control as autobleed and inhibitor dosage - as a Towerpac unit

Model - CT520/TP15

4. An OPTIONAL Data Acquisition PCB

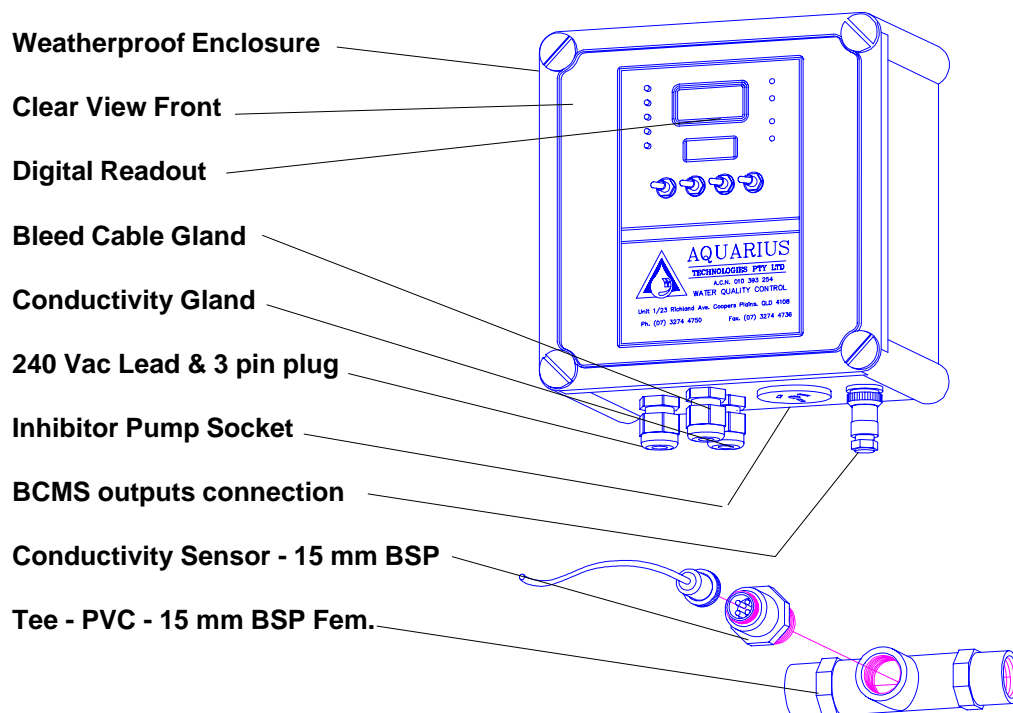
can be included and provides for -

Loop isolated 4 - 20 mA. analog outputs on Conductivity values, and opto-coupled event outputs on Bleed relay, Inhibitor relay, Flow and common alarm status.

This option provides for outputs for continuously monitoring the chemistry performance to a PC or Lap top computer and a hard copy record of the system chemistry performance can be maintained from the data acquisition

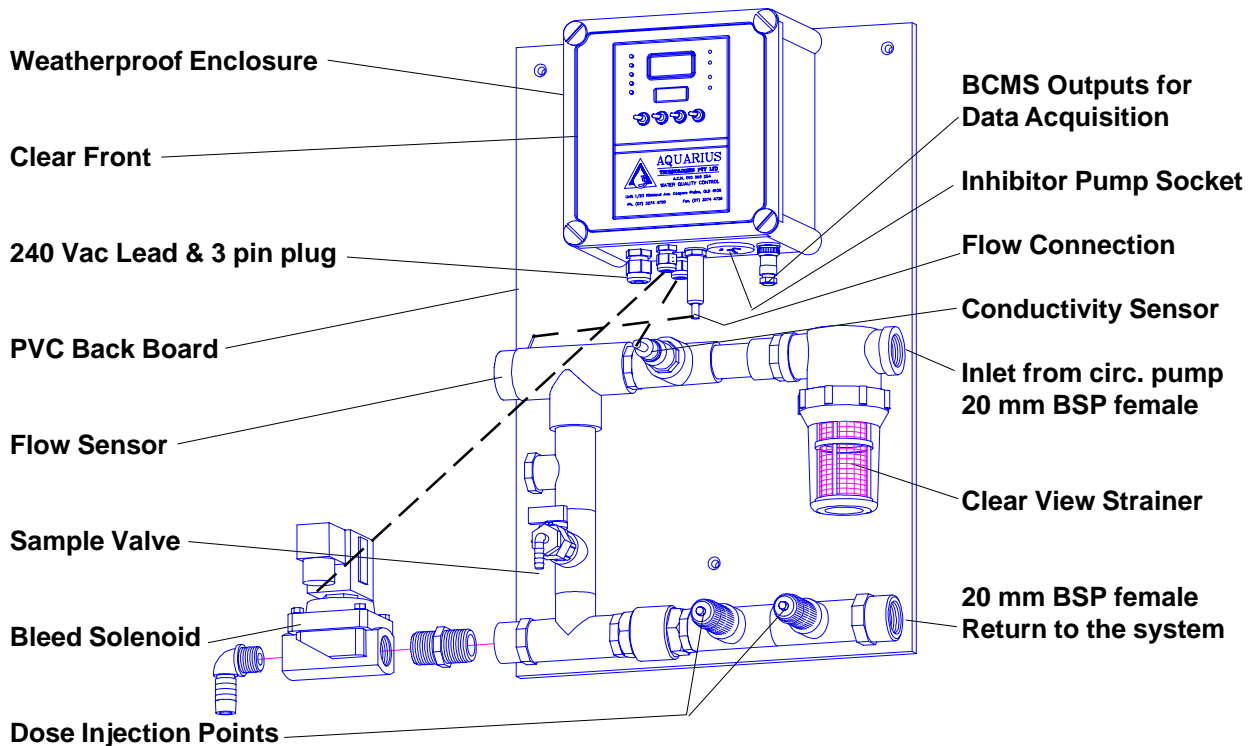
To include this OPTION add --/BMS to the model selected above

CT520/S controller with probe & Tee

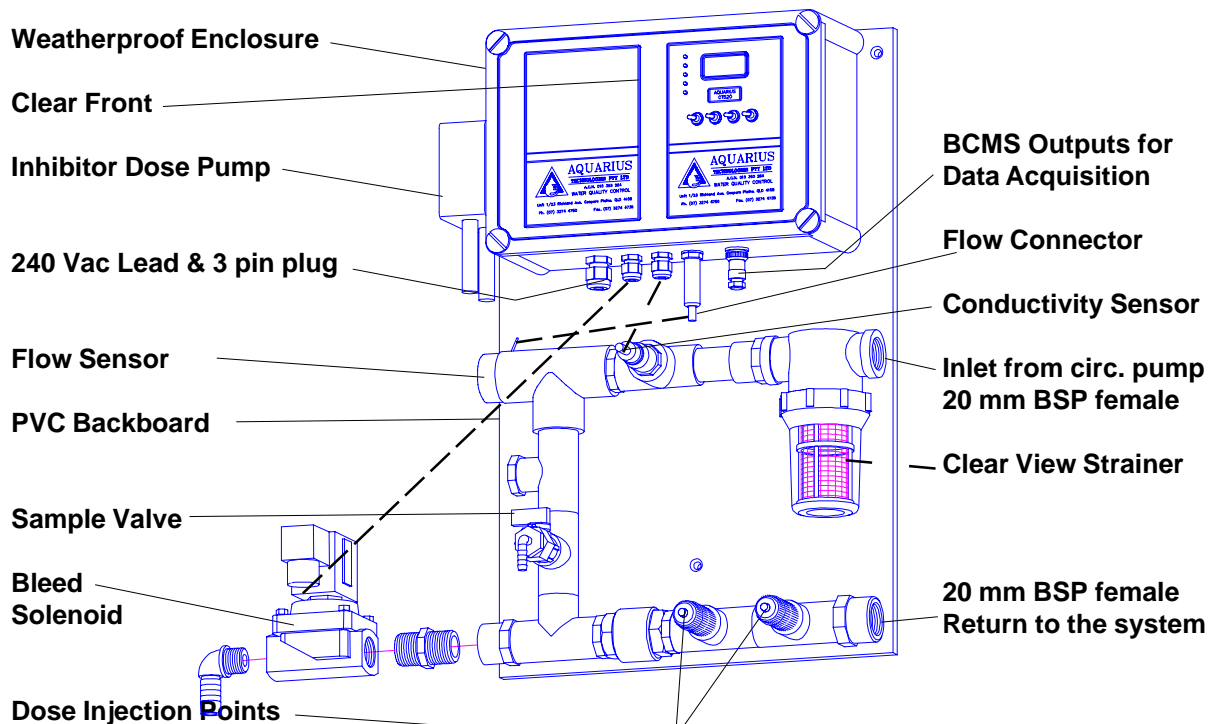


Aquarius CT520 Conductivity Control

Model - CT520/AB15 AUTOBLEED for Cooling Systems



Model - CT520/TP15 TOWERPAC for Cooling Systems



Aquarius CT520 Conductivity Control

INTRODUCTION

Aquarius CT520 Series Conductivity Control Systems have been designed with the benefit of a life time background of water treatment chemistry and are the fourth generation designed over a period of almost 15 years, and utilising the latest microprocessor chip technology.

Aquarius CT520 systems are offered as the solution to a growing demand for good automatic control of Conductivity and Inhibitor dosage, to provide automatic bleed control and inhibitor dosage on the varying demand on cooling water systems.

TECHNICAL DESCRIPTION

At the heart of the **CT520 series controller** is a microprocessor based Printed Circuit Board which processes the inputs from the various front panel controls and conductivity sensor, and sets outputs according to the results of this processing.

All electronics is housed in an IP65 rated enclosure which enables the unit to be used in all weather conditions.

The conductivity section of the **CT520 controller** utilises a **very accurate temperature compensated conductivity sensor** to accurately measure from 0 - 10,000 uS/cm (0 - 10.00 mS/cm). The bleed solenoid output is set, provided flow is present in the system, when the sensor value exceeds the Set Point value.

No Volt Alarm contacts are provided on all **CT520 controllers** to signify High and Low Alarm conditions, or loss of power. The microprocessor delays the High or Low Alarm for 5 minutes to avoid unwarranted false alarms resulting from unavoidable operating condition changes (i.e. a stand-by chiller coming on line).

Inhibitor dosing is controlled either in **FLOW** mode, **BLEED** mode, or **CONTINUOUS** mode. Dosing rates above 10% can be set with a resolution of 0.1% while a resolution of 0.01% can be set for duty cycles less than 10%. Accurate dose rates are set and indicated via the digital display. This precise control allows the more reliable peristaltic pumps to be used as the Inhibitor dosing vehicle.

To provide additional flexibility into the package, a 240 Vac socket output on the **CT520/S and AB15 models** exists to control an externally excited pulsed pump should such a pump pre exist.

An in built AUTO-TEST facility allows for full checking of the entire PCB. The AUTO-TEST is initiated simply by disconnecting the conductivity sensor (Quick Release Plug pulled out of the socket). Under this condition, the controller should operate as if sensing a conductivity of approximately 5.00 mS. All functions can then be easily checked by varying the Bleed Set Point above and below the Self Test Conductivity value (0 - 5.00 mS/cm)..

Four switches on the front panel control the modes of operation and information displayed, while five indicator LEDs quickly identify the status of the Bleed Solenoid and Inhibitor dose pump outputs, the High and Low alarm, and the current manifold flow conditions.

Aquarius CT520 series controllers can be supplied as an **OPTION with a Data Acquisition output package** to allow for remote monitoring performance to a BCMS or to a laptop computer.

An eight pin socket fitted to the base of the enclosure provides for a loop isolated 4-20 mA. signal proportional to the conductivity value. In addition optically isolated outputs report the status of the Bleed, Inhibitor, Flow and Alarm relay outputs.

Refer to the Electrical Wiring Requirements drawing on page 10.

A unique feature of the Aquarius CT520/AB15 and CT520/TP15 series is the carefully designed manifold, which houses the sensors and dosing points, and includes a clear view bowl strainer, conductivity sensor, flow sensor, sampling test valve and dosage injection points.

This manifold design allows for easy service, ease of cleaning and calibration of the sensor, etc, and prolongs the sensor life and the strainer by removing system debris, prevents any blockages of the bleed solenoid and adds reliability, with flexibility to the entire package.

Aquarius CT520 Conductivity Control

SPECIFICATIONS

Controllers

Conductivity Module

Module designation

CT520

Operating Range	0 - 10.00 mS/cm
Resolution	0.01 mS/cm (10.0 uS/cm)
Accuracy	+/- 0.02 mS/cm
Repeatability	+/- 0.02 mS/cm
Alarm Range	+/- 20%
Dead Band	2.5 %
Control Relays	1 @ 8 Amps
Control Type	ON/OFF.
Probe or Sensor Part No.	PR522
Probe or Sensor Rating	500 kPa. @ 60 °C
Electrical Supply	220 -240 Vac. 10 Amps. 50/60 Hz..
Enclosure Rating	IP65 Electrical enclosures.

Sensor Manifold - AB15 & TP15 models

Pressure & Temp. Rating	500 kPa. @ 50 °C - down rate pressure at higher temperatures !!
Velocity across manifold	1.0 m/s @ 24 l/min flow rate from manifold
Strainer	Wire type 80 mesh with clear view bowl
Plumbing	20 mm BSP female threads and/or 19 mm hose tails
Bleed Solenoid	15 mm as standard rated 0 - 250 kPa. pressure - see options below
Dimensions	Mounted on PVC backboard 330 mm wide x 500 mm vertical x 150 mm

Dosing Pumps

CT520/S

CT520/AB15

CT520/TP15

Type	N/A	N/A	Peristaltic
Inhibitor Dose Pump	N/A	N/A	0.85 lt/Hr
Pressure rating	N/A	N/A	Max. 250 kPa.
Bleed Off Solenoid	N/A	15 mm *	15 mm *
Electrical Supply		220 - 240 Vac 50/60 Hz. - all models	

*** *Optional Bleed solenoid - for 20 mm bleed off solenoid - Change ---/15 to ---/20 to the models above***

Dosing Options refer to ***Packages Utilising this Controller and Major Applications on page 3.***

The 0.85 lts./Hr peristaltic pumps can be optioned up to 4.5 Lts./Hr where the chemical demand is required.

Aquarius Technologies Pty Ltd are also able to assist with most dosage options, such as larger magnetic pulse dosage pumps etc..

Dosing Tanks

Dosing Tanks for liquids are not normally supplied by Aquarius, - they should be corrosion resistant for the particular chemical involved and sized to provide a suitable supply period. 200 litre polythene tanks are normally a good choice on larger systems.

Shipping & Weights

Weight

Dimensions

1. CT520/S	3 kgs.	200 mm H x 200 mm W x 100 mm D
2. CT520/AB15	10 kgs.	500 mm H x 330 mm W x 150 mm D
3. CT520/TP15	10 kgs.	500 mm H x 330 mm W x 150 mm D

Aquarius CT520 Conductivity Control

Installation, Commissioning & Operating Instructions

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Aquarius CT520 Conductivity Control

INSTALLATION and PLUMBING GUIDELINES

Select a suitable location for installation of the package, - preferably in close proximity to the cooling system, shielded from the public, and extremes of the environment. The controller LCD displays should be protected from direct sunlight.

A wall area of approx. 0.75 m. wide by 0.75 m high is ideal for mounting the **Aquarius CT520** series control gear, at eye level, with a suitable floor space for the chemical tanks required.

1. Carefully unpack all the gear and check for any apparent damage in transit. Identify all parts and ensure they are located before discarding the cartons.

2. Wall mount the equipment as per the drawings on pages 3 & 4 in this brochure.

3. With the CT520/S controller consideration needs to be given to the plumbing and electrical connections, see diagram below.

4. On the AB15 & TP15 models fit the Bleed Solenoid to left side port on the manifold and connect electrically to the controller using the Din Plug attached

5. Plumb a 20 mm line **from the condenser circulating pump discharge line, to the inlet valve of the manifold**, and a return line **from the manifold**

outlet valve, preferably in PVC pipe, to the cooling tower basin, or condenser pump suction where the pressure does not exceed 250 kPa.

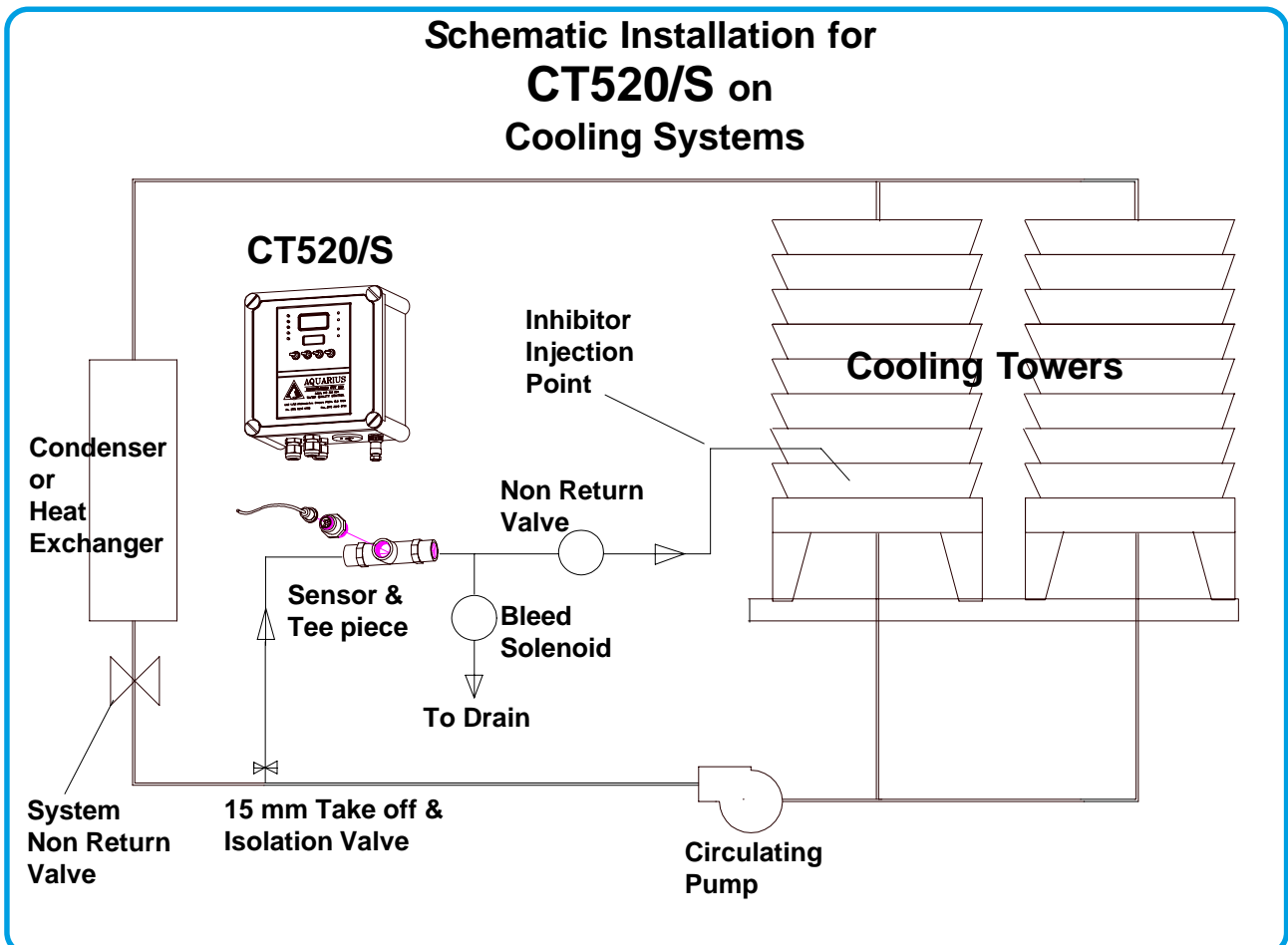
6. Install chemical tanks as required, and connect each dose pump discharge tubing to the manifold injection points provided by referring to page opposite.

7. Refer to page 10 for electrical wiring for power and wiring connections to the **Optional** computer Data Acquisition outputs.

8. Run a flow of water through the system under normal operating pressures, check for, and repair and eliminate any leaks, etc.

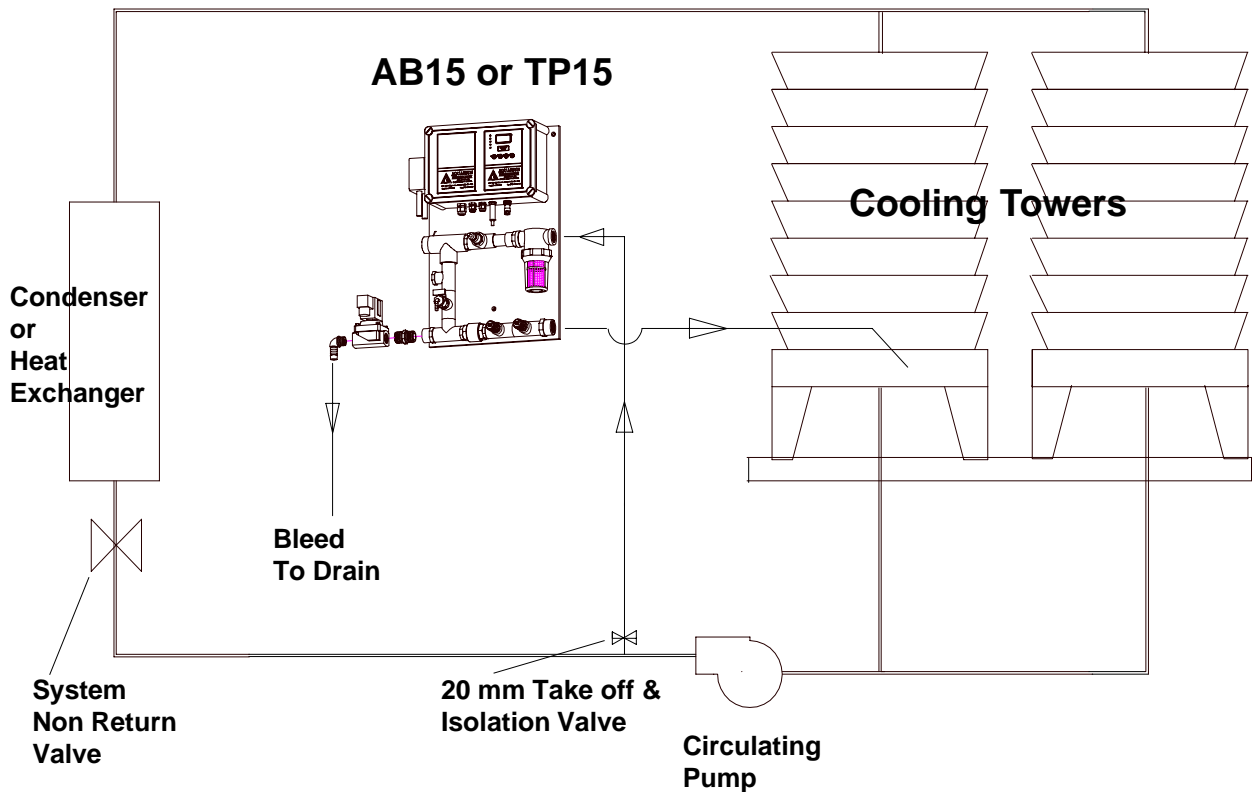
9. The **Aquarius CT520** series system is now ready for commissioning and commencement of the water treatment programme

10. **Liaise with your chemical specialist, or department, for recommendations regarding - any bunding requirements around the chemical tanks, floor drainage requirements, a fresh water supply in the vicinity of chemical tanks, Local regulations for discharge of trade waste, chemical storage and hazards, etc.**

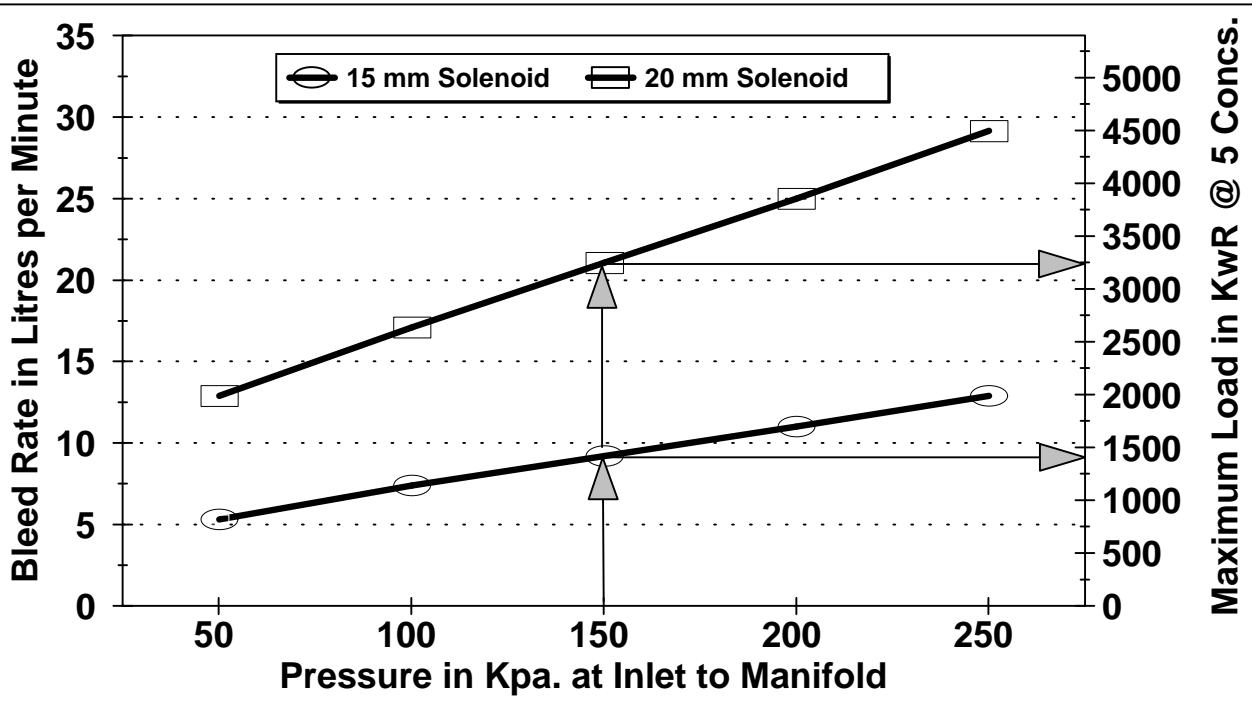


Aquarius CT520 Conductivity Control

Schematic Installation of CT520/AB15 or CT520/TP15 on a Cooling Water System



Bleed Rate Capacity of AB15 or TP15 versus the Inlet Line Pressure



With a 15 mm Solenoid and 150 kPa. pressure available to the manifold, the capacity in kW R at 3 concs = 725 kW R, at 5 concs = 1450 kW R, at 10 concs = 2900 kW R, and 15 concs = 4350 kW R. load. A 20 mm solenoid effectively doubles the bleed flow rate and doubles the capacity in kW R. - Check the actual or likely pressure available to the manifold on each job as the pressures will vary from job to job.

Aquarius CT520 Conductivity Control

ELECTRICAL WIRING REQUIREMENTS

Aquapac CT520/AB15 & TP15 series control systems are presented as complete packages, they are internally wired and only require a continuously powered single G.P.O. outlet rated at 220 - 240 Vac, 10 Amps, and 50 or 60 Hz. with a weatherproof G.P.O. recommended for external installations.

The power circuit should be a "clean circuit" free from power surges, spikes and interference, similar to that for computer requirements.

Analog & Events Outputs wiring to BMS or DDC systems

An eight pin chassis sockets on the right hand side of base of the controller provide for **loop isolated 4-20 mA. analog signals** for Conductivity values, as well as event status of the various relays.

These signals are suitable under most industrial conditions for **direct Data Acquisition to computers, such as DDC, BMS or Lap top computer systems without further conditioning.**

BMS sockets outputs on the CT520 series Controllers are as follows: -

BMS Socket

1. Analog 4 - 20 mA. = Conductivity Value as 0 - 10.00 Millisiemens/centimetre
2. Not used in this controller.
3. Analog GROUND signal for 1 above.
4. Bleed relay status = Bleed Dose ON/OFF status
5. Inhibitor relay status = Inhibitor dose ON/OFF status
6. Flow status = Flow ON/OFF status (if applicable)
7. Common Alarm relay status = either High or Low alarm on either pH, ORP or Cond. = Alarm ON
8. Either a + 5 or + 12 volt signal **FROM the computer or BMS system as common supply signal for event status in items 1 - 7 above.**

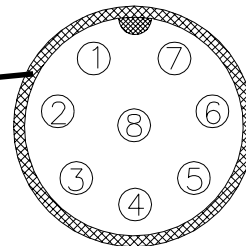
SHIELD. - should be connected to GROUND at the computer or BMS system **ONLY and NOT connected at the conductivity & ORP - controllers** to minimise any interference to the low voltage signals being sent to the computer.

The **Event outputs are optically isolated** and are configured as **NO VOLT** outputs, being supplied or fed by **either a + 5 or + 12 volt supply, from the host computer system.**

BMS outputs - wiring diagram

The diagram below shows the MIC socket for BMS plug connections, fitted to the bottom right bottom side of the enclosure and the "pin outs" shown are looking into the socket from the outside of the enclosure.

FRONT OF ENCLOSURE



Contact Aquarius for software and a package to allow for data acquisition to a lap top computer for either verification of conditions & chemistry after commissioning or for trouble shooting later.

FRONT PANEL FUNCTIONS AND FEATURES

Module - CT520 - Cond.

INDICATOR LEDS

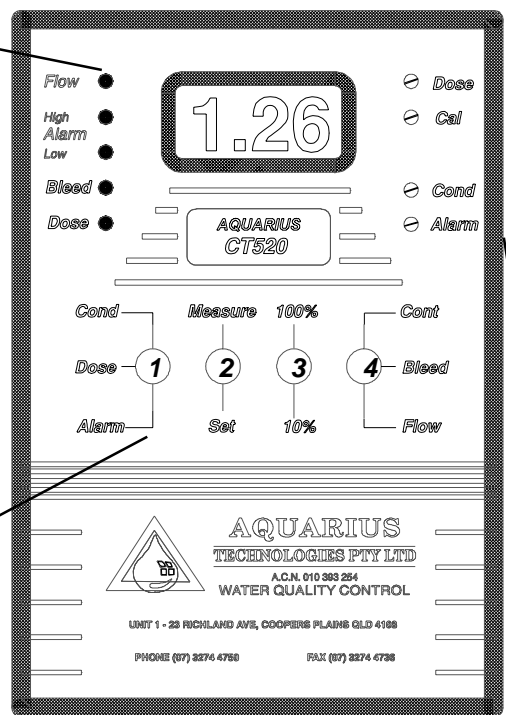
1. **Flow** - gives an indication from a Flow Sensor in the manifold.
2. & 3. **Alarm leds** - **High Alarm led is ON** when the measured value **exceeds the Set Point conductivity value plus the Alarm set value.**
Low Alarm led is ON when the measured value is lower than the **Set Point conductivity minus the Alarm Set value.** A 5 minute delay is used before these leds are illuminated, to avoid any false signals to the BCMS
4. **Bleed Led** - is ON when **the conductivity exceeds the Bleed Set Point** conductivity value and is used to energise a solenoid relay in ON/OFF control
5. **Dose Led** is ON continuously when the **Dose output relay is energised**, for Inhibitor dosing and flashes

PROGRAM SWITCHES

- Switch 1. - Conductivity/Dose/Alarm** switch - when used in conjunction with **switch 2** in the **Set** position - (a) **Conductivity** allows the **Conductivity set point** to be set and displayed (b) **Dose** allows the **Inhibitor pump per cent dose rate** to be set and displayed and (c) **Alarm** allows the **Alarm window** to be set and displayed.
- Switch 2. - Measure/Set** - **Measure** allows the display to show the **Conductivity value at the sensor during run mode or calibration.** **Set** allows the display to show the **Conductivity, Dose %, and Alarm set points.**
- Switch 3. - 100% & 10%** - Used with **switch 1** set to **Dose** allows the dose pump dose rate to be set via the **Dose trim pot** from 0 -100 % or 0 - 10% - allows for tighter control on low dose rates.
- Switch 4. - Continuous/Bleed/Flow** - is the **Inhibitor dose mode** selection switch - **Cont** setting will allow the inhibitor to dose continuously at the duty cycle and per cent set, whilst the **Bleed** setting will only allow for

dosage proportional to the **Bleed ON** time, and **Flow** setting allows for dosage in proportion to the **Flow sensor ON** time

NB The different **Inhibitor Dose modes - Cont/Bleed/Flow** require different dose rate settings and the dose rate should be recalculated and reset if changing the mode, other than for a momentary pump test. !!



SET POINTS & CALIBRATION POTS

Dose set rate - sets the **Inhibitor pump dose rate** by turning the trim pot to set the desired dosage per cent dose rate in the LCD display. With **switch 1** set to **Dose**, and **switch 2** set to **Set**, and **switch 3** set to **100 %**, (if dosage is in the 100 - 850 mls./hr. range) or set **switch 3 to 10%** (where the dosage rate is 0.5 -100 mls./hr. range) to set % dose rate.

Cal - a 10 turn pot **allows for calibration of the conductivity probe** after cleaning when - (a) the probe is placed in the appropriate conductivity standard solution for the range involved (b) **Switch 2** is set to the **Measure** position Calibration is effected by turning the **Cal** trim pot to give the value of the conductivity standard in the LCD display e.g. **2740 uS/cm conductivity standard = 2.74 mS/cm on 0 - 10.00 mS/cm range**

Cond set point - with **switch 1** set to **Conductivity**, **switch 2** set to **Set**, - turn the **Conductivity trim pot** to show in the LCD display the **Conductivity set point**, the maximum conductivity for the system and the value at which the **Bleed off is to commence** - the range is 0 -10.00 mS/cm (0 - 10,000 uS/cm)

Alarm set point - with **switch 1** set to **Alarm**, **switch 2** set to **Set**, - turn the **Alarm trim pot** to show in the LCD display the amount the **Conductivity set point** is to be exceeded by or less than to bring on the **Alarm** relay - the range is 20 % above or below the Dose set point.

Aquarius CT520 Conductivity Control

COMMISSIONING and START UP GUIDELINES

It is strongly recommended that your professional water treatment specialist carry out the following commissioning of the system.

Inspect the installation for completeness and ensure an adequate flow of water is via the manifold and that no leaks are evident.

Check that all dose pumps, solenoids, sensors are plugged into the correct sockets - see pages 3 & 4.

Power up the unit and with flow isolated commence to set up the controller functions as follows.

1. CT520 - Conductivity module - see front panel functions and features on page 11.

a. Set **the CT520 - Measure / Set** switch to **Measure**.

b. Calibrate **the Conductivity probe to the controller as per the Conductivity calibration procedure** on the following page.

c. Set **switch 3** to **100%** and **switch 4** to **Continuous** to prime up the Inhibitor dose pump if applicable.

d. Set up appropriate Bleed Set Point, Inhibitor Dose Rate and Dose Mode, and Alarm windows, and verify actions of controller.

CARE of, CLEANING & CALIBRATION OF SENSORS

The information displayed on the digital display and subsequent control, is only as accurate as the information sent to it by the sensor.

Hair, dirt, oils, scale, bacteria, etc, all lead to the sensors becoming inaccurate from minor amounts of foulants. Therefore sensors should be cleaned and calibrated on a regular basis by using the following steps.

Cleaning of Flow sensors.

After isolation of flow, the internals of the flow sensor can be removed by (a) withdrawing the locking band and (b) pulling the flow sensor from its housing, for cleaning and removal of any debris and physical verification of its correct action. Return the internals to its housing ensuring the locking band is pushed fully home.

Cleaning of the wire strainer

After isolation of flow to the manifold, and the strainer bowl is unscrewed, the wire strainer can be withdrawn and cleaned by flushing with water, and brushing, then reverse the process to reinstall the strainer assembly ensuring the rubber o-ring seal is in place.

Cleaning of Conductivity sensors

1. After isolation, remove the sensor from the manifold, and thoroughly abrade the sensor surface with 300 - 400 grade, wet and dry paper until the surface is clean, the two carbon electrode surfaces are clearly visible and the surface wets out freely.

2. Thoroughly rinse the sensor clean, in fresh water and proceed to the section on **Conductivity calibration procedure** on the following page.

Conductivity calibration procedure

1. With the **CT520 - Measure / Set** switch set to **Measure** and **switch 1 set to Cond** proceed to calibrate as follows

2. After cleaning and rinsing, Calibrate the conductivity probe in **1413 uS/cm standard solution**, (or 2740 uS/cm standard solution) ensuring the probe is clean and wets out evenly. Do not allow the probe connector to enter the solution, and keep the electrode tip at least 10 mm from bottom of beaker.

3. Allow 30 - 60 seconds for temperature stabilisation, then adjust **CAL** trim pot for a reading of **1.41 mS/cm** (or 2.74 mS/cm) on the display.

4 Rinse the probe and return it to its position, secure it in the manifold, and connect the probe cable.

ROUTINE MAINTENANCE

For optimum results and continued accuracy, the complete operation of the controller system should be verified on at least on a monthly service basis, all sensors should be inspected, cleaned and calibrated as necessary every month.

Where fitted, flow sensors, solenoid valves and wire strainers should be checked for correct operation and cleaned of any debris every month so as they work efficiently.

Injection non return valves, and pumps should be cleaned and checked at least annually.

On the peristaltic dose pumps, the squeeze tubes and roller block should be checked at least annually and should be replaced every 12-24 months.

More regular maintenance may be required for 5 l/hr pumps, due to increased pumping rates.

Chemical suction and discharge tubes should be inspected monthly and replaced as necessary

As hazardous chemicals may be in use, the appropriate safety equipment should be worn whilst servicing the equipment.

Aquarius CT520 Conductivity Control

Routine Testing

Whilst the use of an **Aquarius CT520** series will automatically maintain good conductivity control even with wide fluctuations in system load or demand, etc, **both "Best Practice" and "Duty of Care" responsibilities of the cooling system owner, dictate that all systems should be routinely serviced and tested chemically on a regular basis and results logged as required to ensure maximum control and performance.**

RECOMMENDED ACCESSORIES AND SPARE PARTS for - CT520 SERIES MODELS.

Sensors

PR522 Replacement Conductivity Sensor

Reagents

AS1413 1413 uS/cm solution (500ml)
AS2764 2.76 mS/cm solution (500ml)

Peristaltic Pumps

TUBE2N Squeeze Tube
TUBE2NINS White barb tube connectors
A014HD-6V Injection non return fitting
TUBE6 Pink tubing - chemical lines

Test Meters

HI8673 - portable conductivity meter, or equivalent.

TROUBLE SHOOTING & FAULT FINDING GUIDELINES

INCORRECT CONDUCTIVITY LEVEL

1. Check the **Conductivity sensor is clean & calibrated**, by following the procedure in Care of, Cleaning & Calibration of Sensors on page 12.
2. Check the **set point** Conductivity value is set at the desired level.
3. If **conductivity is less** than the set point - check
 - (a) for overflows from the system especially at shut-downs and
 - (b) for debris in the body of the solenoid which is preventing it from shutting off.
4. If **conductivity is higher** than set point - the bleed rate is insufficient - possible causes are
 - (a) "blown" coil on the solenoid
 - (b) the solenoid is not large enough for the particular system
 - (c) a blockage or restriction in the solenoid or bleed line.

The most common cause of low conductivity is overflowing cooling towers especially at shutdowns. Fouling of the sensor probes especially in hard water areas is the most common cause of high conductivity values.

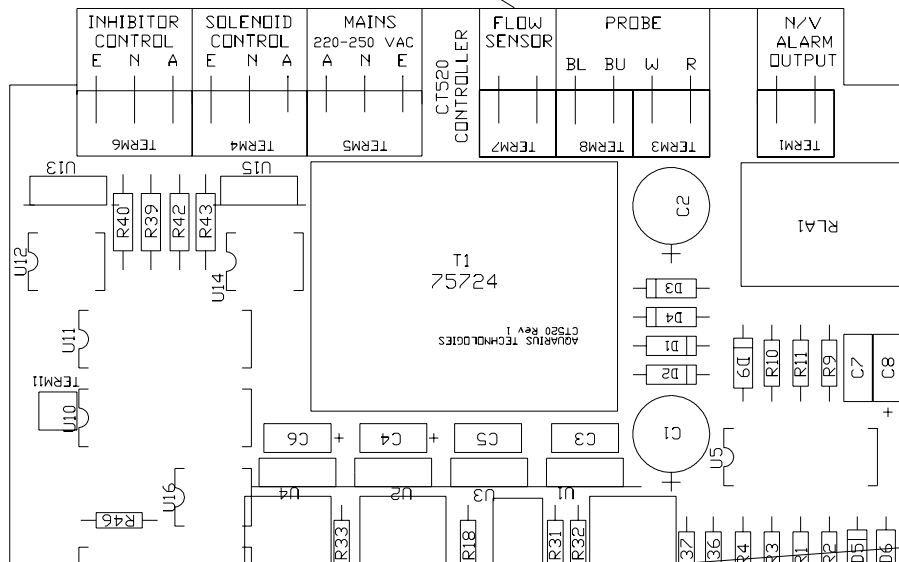
Aquarius CT520 Conductivity Control

Printed Circuit Board - Terminals and Outputs

**No Volt Flow
Switch Contacts -
Closed equals
FLOW = ON
N.B. If Flow sensor
is not supplied i.e
CT520/S - loop
these terminals to
allow control of
solenoid and pump
outlets**

**Conductivity
Sensor with
Auto
Temperature
Compensation**

**Fail Safe No Volt Relay
Contacts rated 240 Vac
10 amp
Close on High or Low
Conductivity or
Loss of Power**



Aquarius CT520 Conductivity Control

MANUFACTURER'S PRODUCT WARRANTY

AQUARIUS TECHNOLOGIES PTY. LTD. manufactures a range of equipment under a Quality Assurance system to ISO9001:1994 standards and warrants equipment of its manufacture to be free of defects in material or workmanship.

Liability under this policy extends for 12 months from the date of installation, or 24 months from the date of shipment from our factory, which ever occurs first. The manufacturer's liability is limited to repair or replacement of any failed equipment or part of, which is proven to be defective in material or workmanship upon the manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed its selling price of such equipment or part.

Aquarius Technologies Pty Ltd. disclaims all liability for damage to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorised repair. Aquarius Technologies Pty Ltd. will not be responsible for any consequential or other damages, injuries, or expense incurred through use of its products.

This warranty is in lieu of any other warranty, either expressed or implied. Aquarius Technologies Pty Ltd. make no warranty of fitness or merchantability. No agent of ours is authorised to provide any warranty other than above.

This warranty does not exclude any condition or warranty implied by the Trade Practices Act 1974 or separate State Laws in Australia and is in addition to any other right that the original purchaser or any subsequent purchaser may have under Australian law.

Should a unit fail to function normally, please contact our Customer Service Department by phone or fax quoting, Model Number, and Serial Number, for initial discussion of the problems encountered, and if it is necessary to return the item to the factory, a Return Authorisation number will be given to facilitate return, and repair or replacement of the item.

The item for return should be carefully packaged to prevent any damage in transit, contain the Return Authorisation identification number, customer identification, and return delivery details, and the freight prepaid to our factory. If in the opinion of our factory, after examination, the failure was due to materials or workmanship, repair or replacement will be made with out charge for parts, labour and return freight. A reasonable service charge will be made for diagnosis and/or repairs due to normal wear, abuse, tampering or damage in transit.

AQUARIUS TECHNOLOGIES PTY Ltd. reserve the right to continue development and improvement of the entire range of our equipment, and therefore minor changes may occur due to these improvements and the continuing development.

