AquaLogic 500 Controller

The AquaLogic 500 controller is a light to full size commercial irrigation controller easy upgradable via licenses.

Aqualogic 500

The new AquaLogic 500 Smart Irrigation 2-wire controller from Crysberg represents all what is needed and expected of a modern state-of-the-art irrigation solution.

Regardless of the model and the number of stations you have selected the AquaLogic 500 controller is fully equipped a series diagnostic tools and versatile features. This includes Flow Management, Alarms, Reports, and access to international weather stations. Features that will guarantee you a precise irrigation.

Controller Software

Water management/hydraulics
· Up to 20 individual Mainlines with optional flow meter.
· Multiple point of connection for feeding a Mainline including priority.
· Up to 100 pipe sections.
· Automatic individual flow management for each Mainline to minimize water window.
· Station and group priorities for hydraulic override.
· Supervision of flow deviation and leak flow per mainline.
· Learn flow independently for each mainline.
· Automatic verify flow.
· Programable verify flow.

Irrigation methods
· MAD based and Timer based execution.
· Groups of stations.
· 50 programs each with up to 500 steps which defines a run of a station, a group of stations or all by MAD, time (HH:MM:SS), or amount (mm).
· Programs run in parallel.
· A total of 100 start times.
· 365 days calendar, odd/even and specific days per week.
· Exclusion days/times.
· Water window with hard stop selectable per start time.
· Start time repeat for misting applications.
· Program level cycle & soak for quick setup without MAD data.
· 30 soil type definition for supporting MAD irrigation or station specific cycle & soak in non-MAD irrigation.
· 30 plant types to support MAD irrigation.
· User selectable execution strategy as sequential or auto for the flow management.
· Correction of program run by water budget (1-300%) or by ET reference data.
· 5 sets of ET reference with optional remote ET from Davis, CIMIS, COAGMET or tomorrow.io.
· Remote ET updated hourly.
· MAD data recalculated every second.

· Over spraying programs for MAD based station without affecting the water balance (selectable).
· Rain delay in minutes.
· Rain correction of MAD based stations.
· Non-irrigation stations.
· Simulation of program run's flow and water usage within seconds in months advance.

Operation
· Fully automated program execution.
· Manual program and station run via Dashboard.
· Diagnostic overview via Dashboard.
· Pause mode for easy pause, fix issues and resume.

Logic engine
· User programmable logic engine with 230 blocks and 50 variables.
· Possible to operate outputs, enable/disable programs, stations, flow rules etc. on conditions like sensor input, water engine state, program state etc.
· Typically used for:
   - Adjust water budget based on soil moisture.
   - Activate irrigation program via a button in the field.
   - Fertilizer injection.
   - Filter flush.
   - Fill a water tank.

User Interface
· Built-in WEB server which supports local operation via the Ethernet.
· Responsive WEB which adapts to actual screen size whether that is a PC browser, tablet, or mobile phone.
· Local user administration with daily operator and manager.
· Individual usernames with password protection and user rights.
· User selectable languages.

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Remote server
· Remote service via servers in Europe, America, and Asia.
· Servers provide WEB access to the controller with the same user rights as local.
· Servers provide admin rights for customers to organize large installations in sub-organizations with assigned operators.
· Servers provide a broad selection of log data to customize reports.
· Servers provide alarm email setup on organization and/or controller level with a broad selection of alarm to subscribe for.
· Servers provide access to pause subscription during winter.

3rd party integration
· The controller is accessible via a Rest/JSON API on both 2-wire command level as well as the controller level.
· The access is either local non-encrypted on RS232/ Ethernet or encrypted via remote server using Bearer Token Authentication/Auto generate API token.
· Servers provide Rest/JSON API for log data and user admini-stration via Bearer Token Authentication/ Auto generate API token.
· Create your own user interface or take advantage of Crysberg's.
· Access Building Management Systems and other smart integration platforms.

Diagnostic features
· Automatic 2-wire shutdown on overload.
· Email alarms on errors.
· Short finding mode.
· Leakage finding mode.
· Built-in 2-wire leakage and wire capacitance measurements.
· Automatic search for decoders with low 2-wire voltage.
· Automatic search for decoders with leaking coils.

Decoders & installation

2-wire installation
· Supports star and loop installation.
· With 250 decoders, 10 active & 2 flow sensors in a star:
   - 1.5mm2: 3500m
   - 2.0mm2: 4500m
   - 2.5mm2: 5700m
· Grounding every 150m and at the end of 2-wire with LSP decoder. Resistance < 50Ω.
· Grounding of controller with resistance < 10Ω.
· Built-in corrosion protection.

Output decoders
· 2-Way communication:
   - Voltage @ decoder
   - Line resistance to decoder.
   - 2-wire leakage
   - Coil leakage.
   - Coil resistance & inductance.
   - Coil status and operation.
· Supports a broad selection of 24VAC solenoids.
· Auto discover.
· Automatic assignment of standard drive parameters for driving solenoids.
· Autoswitch function to optimize solenoid drive for increased performance.
· Nominal/minimum 2-wire voltage: 42V/21V.
· Standby current: 0.3mA.

Input decoders
· Auto discover.
· Electrical configurable for:
   - Digital on/off.
   - Digital pulses 0-1000 Hz.
   - Analog current 4-20mA.
   - Analog voltage 0-10V.
   - Coil resistance & inductance.
   - Coil status and operation.
· Digital pulse measurements in frequency, pulse counting, time between pulses.
· Nominal/minimum 2-wire voltage: 42V/21V.
· Standby/maximum current: 0.6/12mA.
· Advanced expression definition.
· Power management.

SDI-12 data decoders
· Auto discover.
· Advanced configuration tool for SDI-12 sensor integration.
· Advanced data trigger setup.
· Power management.
· Nominal/minimum 2-wire voltage: 42V/21V.
· Standby/maximum current: 0.1/90mA.
· Advanced expression definition.

Environment
· Operating temperature 0 to 60ºC.
· Storage temperature -20 to 70ºC.
· Humidity 95% non-condensing.

Electrical
· 100-240VAC, 1.8A, 50/60Hz switch mode power supply.
· 65W

Certificates
· CE.

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