

## For Single or Multi-System Process Applications

### MCT500 SERIES SPECIFICATIONS

#### GENERAL

The controller shall provide microprocessor based control of recirculating cooling water systems. Accurately control the level of dissolved solids based on  $\mu\text{S}/\text{cm}$ , plus, control the following, depending on model selection: the alkalinity of system water in units of pH with dual set point capability; ORP (oxidation reduction potential) in units of mV, for the addition of oxidizing agents; cycles of concentration based on the conductivity of the system make-up water.

#### Controller shall also provide:

- Up to four user selectable timers (depending upon model selection) that will operate in any one of five modes.
- A manually entered data collection field with ten user defined fields and units, stored in controller's history.
- Five single-point drum level inputs. (Four on MCT560 & 570.)
- Multiple security levels.
- One or two point calibration.
- Ability to reset relay "ON" times with date/time stamp.
- Calibration date/time stamp.
- Up to two water meter input capability.
- Alarm powered and dry contact relays.
- Optional 4-20mA input and output capability.
- Alarm LED, relay and callback control.
- Configurable eight line backlit display.
- Convenient keypad menu access, display contrast adjustment and HOA relay control.
- Lockable viewing window.
- Self charging capacitor to maintain time and history for up to two weeks in the event of a power loss to controller.
- EEPROM protection of operating parameters during extended power outages.
- Relay, drum level alarm, general alarm, flow alarm and power status LED's.
- Prewired incoming power and relay output connections on specified models.
- Modular flow assembly with flow switch, quick release sensors and sample port.
- Remote communications capability via direct serial line or modem connection.

#### CONTROL FUNCTIONS

All continuously monitored sensor input functions (conductivity, pH, ORP) will provide user definable set points for maintaining a specific value within the system. Each set point will have a user definable differential as the control band, programmable high and low alarm points and user defined limit timer for the control function.

#### CHEMICAL FEED TIMERS

The chemical feed timers shall be user selectable as any one of the following:

- *Percent* - User will be able to select a percent "ON" time of a user defined "cycle" time.
- *Limit* - Timer will run as controller bleeds until a user programmed "limit" time is met or the bleed is satisfied.
- *Percent of Post-Bleed with Limit Timer* - Timer will run for a user defined percentage of the bleed time after bleed is satisfied with a fail safe user set maximum run time.
- *Pulse Timer* - Timer initiated from dry contacting head water meter. User can define timer run time, water meter input and contact accumulation before timer initiation.
- *28-day Event Timer* - Timer will have multiple user defined initiation times plus user defined "run" time, pre-bleed timer with conductivity minimum set point and bleed lock-out time.
- *Disabled* - Timer can be totally deactivated.

#### REMOTE COMMUNICATIONS

The controller shall have the optional capability of serial communications using PULSAworks software. The serial communications can occur either by direct RS232 port, or remotely via an optional internal modem. PULSAworks allows the user to access real-time system values, remotely change operating parameters, and perform controller diagnostics. The user may download data history files and save files to disk. History files may be viewed and printed in table or graph form, the graph form can be user customized. The optional internal modem allows the controller to perform alarm call back for alarm condition notification to a pager or computer running PULSAworks software.

## MCT500 SERIES SPECIFICATIONS

### MODELS:

**MCT510** - Conductivity control with four tagable timers, two water meter totalizers, five single point drum level inputs, alarm output (relay and dry contact) and standard flow assembly.

**MCT520** - Conductivity and ORP control with four tagable timers, two water meter totalizers, five single point drum level inputs, alarm output (relay and dry contact) and standard flow assembly.

**MCT530** - Conductivity and pH control (dual set point) with three tagable timers, two water meter totalizers, five single point drum level inputs, alarm output (relay and dry contact) and standard flow assembly.

**MCT540** - Conductivity, make-up conductivity and pH control (dual set point) with three tagable timers, two water meter totalizers, five single point drum level inputs, alarm output (relay and dry contact) and standard flow assembly.

**MCT550** - Conductivity, make-up conductivity and pH control (dual set point) and ORP control with two tagable timers, two water meter totalizers, five single point drum level inputs and standard flow assembly.

**MCT560** - One tower and one closed loop conductivity controller with two conductivity inputs, four tagable timers, two water meter totalizers, four single point drum level inputs, alarm output relay, alarm dry contact and two standard flow assemblies.

**MCT570** - Two cooling tower conductivity controller with four tagable timers, two water meter totalizers, four single point drum level inputs, alarm output relay, alarm dry contact and two standard flow assemblies.

### STANDARD FEATURES:

MODEL	COND CONTROL	pH <sup>1</sup>	ORP	MAKE-UP COND.	PROG. TIMERS	4-20mA Options <sup>3</sup> OUTPUT	LEVEL INPUT <sup>2</sup>	WM INPUT
MCT510	1				4	4	4	5
MCT520	1		1		4	4	4	5
MCT530	1	1			3	4	4	5
MCT540	1	1		1	3	4	4	5
MCT550	1	1	1	1	2	4	4	5
MCT560	2				4	4	4	4
MCT570	2				4	4	4	4

1. Single pH sensor with standard dual control - 1 relay for acid & 1 relay for base.

2. Level inputs are single point.

3. 4-20mA options are not standard, but up to four of each can be added.

### OPTIONS: (refer to price book for additional information)

Position	Description
Position 6 MCT50 _ ?	4-20mA Outputs / Inputs
Position 7 MCT500 _ ?	Conduit / Flow Prefab Option
Position 8 MCT500 _ _ ?	Conductivity Sensor Type
Position 9 MCT500 _ _ _ ?	pH Sensor Type
Position 10 MCT500 _ _ _ _ ?	ORP Sensor Type
Position 11 MCT500 _ _ _ _ _ ?	Communications Option
Position 12 MCT500 _ _ _ _ _ _ ?	Agency Approvals / Private Label Option

### FEATURES/SPECIFICATIONS:

Enclosure	Nema 4X - High Impact Resistant Polystyrene
Power Requirements	90 - 250 VAC @ 50/60 Hz, 100 VA
Control Output	Line Voltage @ 600 VA Per Relay (5 amps @ 120 VAC)
Display (8 line)	64 X 128 Pixels Dot Matrix, Back Lit Graphics Display
Recessed Front Panel Power Switch	Standard
Lockable Viewing Window	Standard
Hi / Lo Alarm Indicator	Standard
10 Bit A/D resolution	Standard
Standard pH Scale	0 - 14 pH
Conductivity Scales	0-500, 0-2,000, 0-5,000, 0-10,000 and 0-20,000 $\mu$ S/cm
Standard ORP Scale	0-1000 mV
Front Panel H/O/A Control	Standard
Analog Inputs	Four
Analog Outputs	Four
Digital Level Inputs	Five (four on MCT560 & 570)
Alarm Dry Contact Outputs	Two - NO/NO
Relay Outputs (Powered)	Six - NO/NC (one alarm)
Timers (Tagable)	Programmable
Security Code	Multi-level
Accuracy - At point of measure excluding sensor	+/- 1%
Maximum Pressure of Standard Flow Assembly	125 PSI @ 125° F Max. 8.62 Bars @ 52° C
Plumbing	Glass Filled Polypropylene (GFPP) Slip or Threaded
Environment	0 - 125° F -17.8 - 52° C 100% Humidity
Shipping Weight	approx. 20 lbs (9.2 kgs)

### DIMENSIONS:

