PULSAtrol®

COOLING TOWER CONTROL SYSTEMS

PULSAFEEDER®
A Unit of IDEX Corporation

MC9300 & 9500 Series Cooling Tower Controllers

GENERAL

The controller shall provide microprocessor based control of recirculating cooling water systems. Accurately control the level of dissolved solids based on µS/cm, and depending on model selection,control conductivity, pH, ORP and cycles of concentration based on the conductivity of the system make-up water.

Controller shall also provide:

- Up to four user selectable timers that will operate in any one of seven modes.
- A manually entered data collection field with ten user defined fields and units, stored in controller's history (downloadable with PULSAworks software).
- Four single-point drum level inputs. (9500 only)
- Multiple security levels and lockable viewing window.
- One or two point calibration.
- Ability to reset relay "ON" times with date/time stamp.
- Calibration date/time stamp.
- Two water meter input capability (dry contact or hall effect).
- Alarm powered and dry contact relays.
- Optional 4-20mA input (9500 only) and output capability.
- Alarm LED, relay or optional remote callback status.
- Eight line backlit display.
- Convenient keypad menu access, display contrast adjustment and HOA relay control.
- 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.
- DIN connections for conductivity sensor and I/O.
- Prewired incoming power and relay output connections on specified models (receptacle cords).
- Modular flow assembly with flow switch, quick release sensors and sample port mounted on a polyethylene panel.
- Optional remote communications capability via direct serial line or modem connection.
- A full 24 months warranty.

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 or hall effect 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.
- *Cycle Timer* - User will be able to cycle chemical on and off a specified number of times during a 28 day-per-month calendar basis.
- *Slave Timer* - Timer will turn on its output when one or more selected relays activate. The relays can be slaved in any combination.
- *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.

MC9300 & 9500 SERIES SPECIFICATIONS

MODELS:

(all models and standard flow assemblies are mounted on a polyethylene panel)

MC9310 - Conductivity with four tagable timers, two water meter totalizers and alarm output (relay and dry contact).

MC9320 - Conductivity and ORP control with four tagable timers, two water meter totalizers and alarm output (relay and dry contact).

MC9330 - Conductivity and pH control with four tagable timers and two water meter totalizers.

MC9510 - Conductivity control with four tagable timers, two water meter totalizers, four single point drum level inputs and alarm output (relay and dry contact).

MC9520 - Conductivity and ORP control with four tagable timers, two water meter totalizers, four single point drum level inputs and alarm output (relay and dry contact).

MC9530 - Conductivity and pH control with four tagable timers, two water meter totalizers, four single point drum level inputs and alarm output (relay and dry contact).

MC9540 - Conductivity, make-up conductivity and pH control with three tagable timers, two water meter totalizers, four single point drum level inputs and alarm output (relay and dry contact).

MC9550 - Conductivity, make-up conductivity and pH control and ORP control with three tagable timers, two water meter totalizers and four single point drum level inputs.

MC9560 - 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 and alarm dry contact.

MC9570 - Two cooling tower conductivity controller with four tagable timers, two water meter totalizers, four single point drum level inputs, alarm output relay and alarm dry contact.

FEATURES:

MODEL	COND CONTROL	pH	ORP	MAKE-UP COND.	PROG. TIMERS	4-20mA Options[3] OUTPUT	4-20mA Options[3] INPUT	LEVEL INPUT[4]	WM INPUT[5]
MC9310	1				4	2	0	0	2
MC9320	1		1		4	2	0	0	2
MC9330	1	1[1]			3 or 4[2]	2	0	0	2
MC9510	1				4	4	4	4	2
MC9520	1		1		4	4	4	4	2
MC9530	1	1[1]			3 or 4[2]	4	4	4	2
MC9540	1	1[1]		1	3 or 4[2]	4	4	4	2
MC9550	1	1[1]	1	1	2 or 3[2]	4	4	4	2
MC9560	2				4	4	4	4	2
MC9570	2				4	4	4	4	2

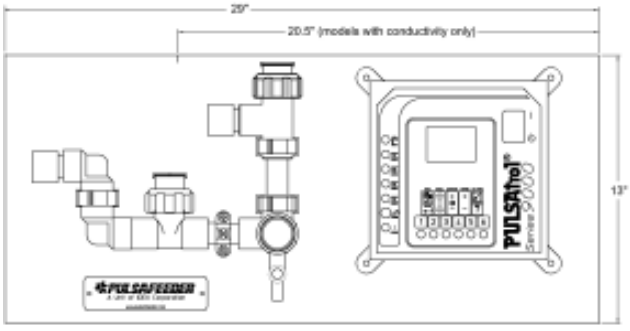
Note: Standard conductivity sensor is stainless steel.

1. pH single or dual control (acid relay, base relay).
2. Dual pH systems have one less timer than single pH systems.
3. See Water Treatment List Price Schedule for 4-20mA options.
4. Level inputs are single point.
5. Water meter is dry contact or hall effect.

FEATURES/SPECIFICATIONS:

Enclosure	Nema 4X - High Impact Resistant Polystyrene
Panel	Polyethylene
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 µS/cm
Standard ORP Scale	0-1000 mV
Front Panel H/O/A Control	Standard
Analog Inputs	Four (9500 only)
Analog Outputs	Four (9500) / Two (9300)
Digital Level Inputs	Four
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 (GFPPL) Slip or Threaded
Environment	0 - 125° F -17.8 - 52° C 100% Humidity
Shipping Weight	approx. 20 lbs (9.2 kgs)

DIMENSIONS:



An ISO Certified Company

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