Tower-Gard 2200TG



Description

The AquaMetrix Model 2200TG TowerGard automatically controls the level of Total Dissolved Solids (TDS) of water in all types of cooling tower systems.

TowerGard measures the electrical conductivity of the tower water using the unique AquaMetrix MS1P conductivity sensor. As the Total Dissolved Solids (TDS) of the tower water increases the conductivity increases proportionally.

When the TDS value reaches the field selectable Relay On value, Model 2200TG will automatically start a bleed off cycle by energizing a control relay. The bleed off will stop when the TDS drops to the field selectable Relay Off value. A second relay, for chemical feed control, energizes when the bleed off begins and stays energized for a field selectable time after the bleed off is finished.

The result is improved efficiency with reduced scale buildup and reduced energy loss through the elimination of unnecessary bleed offs.

The 2200TG has two operating modes for maximum flexibility.

OPERATION
Model 2200TG TowerGard is a rugged and dependable industrial grade instrument that is extremely easy to use.

Packaged in a NEMA 4X enclosure, the large, bright LED display and simple user interface makes this microprocessor-based unit suitable for use in a wide variety of demanding industrial and commercial tower applications.

Frequently used functions are accessed through an intuitive step-through menu which is printed directly on the front panel for ease of navigation. By pressing the MENU key the user scrolls through the 2200TG menu, illuminating a small LED beside the selected item and displaying the stored value. Arrow keys are used to change the value.

Description
Seldom used adjustments such as temperature unit are enabled by DIP switches on the back of the swing-out front panel.

CALIBRATION
Calibration is fast and easy. The 2200TG can be calibrated to a grab sample that has been measured by a certified lab meter, or it can be calibrated with the internal signal generation option. Proceed through the menu until the Calibration LED is illuminated. Use the arrow keys to select the calibrated value. Push the Enter key twice, and the unit is calibrated.

OUTPUT
Model 2200TG has a control relay, a chemical feed pump relay and a high/low alarm relay. The control relay can be set to activate and deactivate at any point on the scale. There is also a manual override on the front panel which enables the user to manually place the relay in Auto, Off, or On mode.

The chemical feed pump relay energizes when the bleed starts and stays energized for a preset time after bleed stops.

The alarm relay has both high and low set points with fixed deadband.

Three analog outputs including a 4-20mA, 0-5Vdc and 0-1mA are used to interface the controller with external devices such as chart recorders and PLCs.

DIAGNOSTICS
A self-diagnostics program clearly indicates any system errors or faults. When the unit is online, the Run LED on the front panel will illuminate. In the event of a system error the Fail LED will illuminate. When the Fail LED is illuminated, the Status menu item will display a fault code. The User's Manual will indicate the source and likely remedy for the fault. When the fault is corrected the Fail LED will no longer be illuminated.

Advantages/Benefits

- **Easy to use**
- **Two operating modes**
- **Field selectable set points and cycle times**
- **Simple step-through menu design for quick and easy setup**
- **On/Off cycle timer feature**
- **High/low alarm relay**
- **ALARM LED on front panel**
- **Output signal field-scalable for maximum resolution**
- **Status errors illuminate FAIL LED on front panel**
- **Test feature allows sweep through range to test setpoints and alarms or to simulate value for setup**
- **Auto temperature compensation**
- **Password protection**

Operating Modes

1. ON / OFF MODE
When conductivity is above the field selectable Relay On value, the control relay will energize and stay energized until the conductivity decreases below the fieldselectable Relay Off value.

2. ON / OFF MODE WITH CYCLING OPTION
When the conductivity is above the field selectable Relay On value, the control relay will energize and will cycle on and off based on the cycle times set in the cycle on / off time in the operations menu. The relay will continue to cycle until the conductivity has decreased below the Relay Off value.

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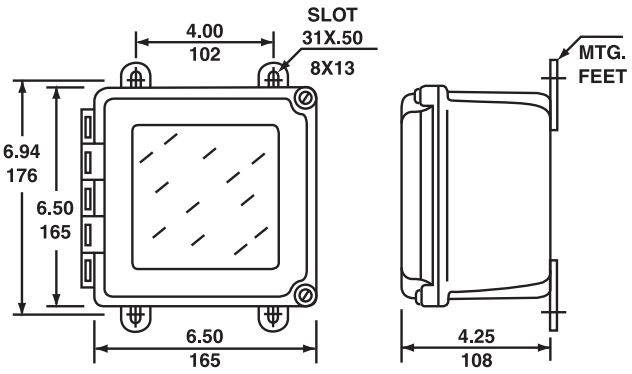
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Technical Data

Display	4 x 7 segment 1/2" LED Display
Indicator Lights	4 LED: Run, Fail, Alarm, Relay
Measuring Range	
Range	0 - 5000 uS
Temperature	0°C to 60°C (32°F to 140°F)
Power Requirements	
Standard	98-132 Vac 50/60 Hz, (less than 10 VA)
Optional	196-264 Vac 50/60 Hz (less than 10 VA) 23-26 Vdc (nominal current: 150 mA)
Ambient Conditions	
Temperature	-30 to 50°C (-22 to 122°F)
Humidity	0 to 90% RH non-condensing
Control Relay	
Number of Relays	One
Rating	5A 115/230Vac, 5A 30Vdc, SPDT
Relay On/Off	Field selectable full scale
Cycle Timer	On: Field selectable 0-600 seconds Off: Field selectable 0 - 120 minutes
Manual Override	AUTO/OFF/ON
Fail-safe	Normal or fail safe operation
Chemical Feed Pump Relay	
Number of Relays	One
Rating	5A 115/230Vac, 5A 30Vdc, SPDT
Cycle Timer	On: Energizes with control relay Off: User selectable 1-60 minutes
Fail-safe	Normal or fail safe operation
Alarm Relay	
Number of Relays	One High and Low Alarm Relay
Rating	5A 115/230Vac, 5A 30Vdc, SPDT
Alarm High	Field selectable full scale
Alarm Low	Field selectable full scale
Deadband	Fixed at 2% of full scale
Fail-safe	Normal or fail safe operation
Relay Indicators	Two individual LED's indicate status of control relay, chemical feed pump relay, and alarm relay
Analog Outputs	
Non-isolated	0-1 mA, 100 ohms maximum load
Non-isolated	0-5 Vdc, 1000 ohms minimum load
Isolated	4-20 mA, 800 ohms maximum load Output is isolated from the input, the ground,line power and all other outputs.
Range Expand	The analog outputs can be scaled to represent any segment of the instrument scale to a minimum of 10% of full scale.
Output Hold	Outputs are automatically placed on hold when the instrument is placed in the menu mode.
Temperature	The 0-1mA and 0-5Vdc output can be selected to track either the process or the temperature

Sensors	
MS1P	Max 150 PSI @ 20°C, 3/4" NPT compression fitting
Calibration	1 point, manual
Temperature Compensation	
Automatic	0°C - 60°C (32°F to 140°F)
Diagnostics	
Fail LED	Illuminated Fail LED indicates Status Fault. Scroll to Status in Menu to determine fault code. Refer to User's Manual for probable cause and remedy.
Invalid Entries	Identified by flashing Menu LED.
Alarm LED	Illuminates red when Alarm Relay is energized, indicating high/low process value or memory loss.
Test	Display value and analog outputs can be manually set to any value for testing and diagnostic purposes.
Safety & Security	
Operator	Password protected (activated by DIP switch)
Memory	Nonvolatile memory (EPROM)
Microprocessor	Watchdog timer monitors microprocessor. Instrument returns to on-line operation if left in Menu mode for more than 10 minutes and no key is pressed.
Sensitivity	0.1% of span
Stability	0.1% of span per 24 hours non-cumulative
Temperature Drift	Zero: 0.01% of span per °C Span: 0.01% of span per °C
Enclosure	NEMA 4X molded fiberglass reinforced polyester enclosure with four 1/2" conduit holes and mounting feet for surface mount. A NEMA 4 plug is provided for one hole
Mounting	
Standard	Surface Mount
Optional	Panel Mount kit P/N C35-68 Pipe Mount kit P/N C35-69
Weight	3.5 lbs. (1.6 kg)
Approvals	CSA

Dimensions



Related Products

PROBES & ACCESSORIES
MS1P Conductivity Cell

Ordering Information

2200TG	Cooling Tower Analyzer/Controller	
	1	120 Vac, 50/60 Hz Power
	2	240 Vac, 50/60 Hz Power
	3	24 Vdc
		A Surface Mount
		B Panel Mount
		C Pipe Mount

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* NOT TESTED ON ANIMALS