Boiler-Gard 2200BG



Description

The AquaMetrix Model 2200BG Boiler Gard automatically controls the level of Total Dissolved Solids (TDS) of water in both low pressure and high-pressure boilers.

The operation of the controller is based on the measurement of the electrical conductivity of the boiler water. As the Total Dissolved Solids (TDS) of the boiler water increases the conductivity increases.

By monitoring the conductivity of the boiler water using the unique AquaMetrix BG6 and BG7 conductivity sensors, Model 2200BG will automatically start a boiler blow-down cycle when the TDS level reaches the field selectable Relay On value, and stop the blow-down when the TDS drops to the field selectable Relay Off value.

The result is improved boiler efficiency with reduced scale buildup and reduced energy loss through the elimination of unnecessary boiler blow-downs.

The 2200BG has two operating modes for maximum flexibility in automating small and large volume boilers. The operating mode is selected by a DIP switch on the back of the front panel.

OPERATION
Model 2200BG boiler controller 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 boiler 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 2200BG menu, illuminating a small LED beside the selected item and displaying the stored value. Arrow keys are used to change the value.

Seldom used or set-once adjustments, such as temperature unit and password activation are enabled by DIP switches on the back of the front panel.

CALIBRATION
Calibration is fast and easy. The 2200BG 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 2200BG has a blow-down control relay and a high / low alarm relay. The blow-down 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 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**
- **Eliminates unnecessary blow-downs**
- **Suitable for all types of boilers**
- **Two operating modes**
- **Field selectable set points and cycle times**
- **High pressure and low pressure sensors available**
- **Timeout Alarm safeguards against excessive blow-down**

Operating Modes

1. CONTINUOUS SAMPLING
Mode 1 is used in large volume boilers with bleed-off lines providing a constant sample bleed. When the conductivity is above the field-selectable Relay On value, the Blowdown relay energizes and stays energized until the conductivity decreases below the field-selectable Relay Off value.

To reduce the amount of boiler water lost during blow-down, the Blow-down Relay can be set to cycle on and off until the Relay Off value is reached. The Cycle On and the Cycle Off times are independently field selectable.

2. TIMED SAMPLING
Used on small-volume boilers without a constant sample bleed, Mode 2 initiates samples on a timed basis.

Sample Cycle Time is field-selectable. During the Sample Cycle On interval, Model 2200BG energizes the Blow-down Relay, starting a sample blow-down. If conductivity is below the field-selectable Relay On value at the end of the cycle, the Blow-down relay will deactivate. If conductivity is above the Relay On value, the relay will remain energized and continue the blow-down until the conductivity decreases to the fieldselectable Relay Off value. In the period between samples, the LED read-out will flash, displaying the time remaining until the next blow-down.

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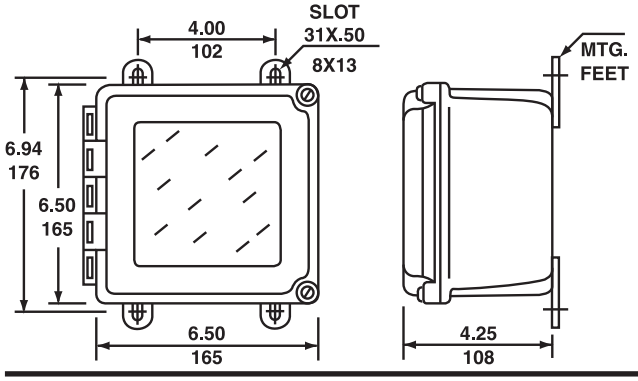
Boiler-Gard 2200BG

Technical Data

Display	4 x 7 segment 1/2" LED Display
Measuring Range	
Range	0 - 5000 uS
Temperature	100°C to 200°C (212°F to 392°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
Blow-Down Relay	
Rating	5A 115/230Vac, 5A 30Vdc, SPDT
Relay On/Off	User selectable full scale
Cycle Timer	On: User selectable 0.1 - 10 minutes Off: User selectable 0 - 360 minutes in Mode 1 Off: User selectable 1 - 360 minutes in Mode 2
Manual Override	AUTO/OFF/ON
Fail-safe	Normal or fail safe operation
Alarm Relay	
Rating	5A 115/230Vac, 5A 30Vdc, SPDT
Alarm High	User selectable full scale
Alarm Low	User 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 blow-down 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	The analog outputs are automatically placed on hold when the instrument is placed in the menu mode.
Sensors	
MSBG6	Max 250 psi,1" NPT Compression Fitting
MSBG7	Max 15 psi; 3/4" NPT Compression Fitting
Calibration	1 point, manual
Temperature Compensation	
Manual	100°C - 200°C (212°F to 392°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 Relay	Alarm relay can be enabled to activate upon high and low process value, memory loss, or under "Timeout Alarm" condition.
Timeout Alarm	The Timeout Alarm feature prevents continuous blowdown. This value is field selectable in the utility menu from 1 -60 minutes. If the Blow-Down Relay remains energized for longer than the Alarm Timeout value: the conductivity display will flash; the Alarm Relay will energize; the Blow-Down Relay will de-energize; Fail LED will illuminate; and Status fault code will display Error Code 1.The User must press the Run key to reset the controller. This alarm function is automatically deactivated in Mode 1 when the Cycle On /Off feature is activate.
Test	Display value and analog outputs can be manually set to any value for testing and diagnostic purposes. This feature allows the operation of the relays and analog outputs to be tested independently of process value.
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 or in Manual Overide for more than 5 minutes.
Sensitivity	0.1% of span
Stability	0.1% of span per 24 hours non-cumulative
Repeatability	0.1% of span or better
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

MSBG6	Sensor for high temperature and pressure boilers
MSBG7	Sensor for low temperature and pressure boilers

Ordering Information

2200BG	Boiler-Gard	
	1	120 Vac, 50/60 Hz Power
	2	240 Vac, 50/60 Hz Power
	A	Surface Mount
	B	Panel Mount
	C	Pipe Mount

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* NOT TESTED ON ANIMALS