



WATER LEVEL MEASUREMENT AND INDICATION FOR THE STEAM POWER INDUSTRY

WATER LEVEL MEASUREMENT

Aquarian 3000Classic

The Aquarian 3000Classic was developed to satisfy basic level indication needs utilizing vacuum brazed probes for boiler drum, feedwater heaters and other liquid level applications. The Aquarian system consists of three major components: the column with probes, the detection and verification unit (D&V) and the remote display.

The Fossil conductivity probes with zirconium vacuum brazed insulators has been used and proven reliable for many years of service. The Swagelok metal to metal seal of the Aquarian probe insures leak proof installation in the Aquarian column.

The electronic system in the D&V unit is connected to 5, 8, 10, 12 or more probes on the water column. The number of probes can be selected and spaced to indicate liquid level through a desired operating range. The Aquarian column is custom manufactured to provide the most accurate indication for any application. An individual PCB is provided for every probe level to provide versatility in selecting high/low or other system alarm and trip points.

A remote LED display panel, customized for the number of probes and their levels, is standard. Local visual display of probe levels and faults is standard on the D&V unit.

Operation of the system is based on measurement of the difference in resistance between water and steam, which is compared with a known reference resistor. The signal output to the probes is a symmetrical source wave ± 5 VDC current which precludes electroplating of the probe. The Aquarian 3000Classic measures the returning signal to indicate 'water' or 'steam'.

System fault indication is provided by a relay which monitors the internal power supply, clock and level fault (activates if water is detected above steam). A second process alarm relay provides high/low level detection.

FEATURES AND BENEFITS

- Solid state electronics and two color display
- Solid state output to drive up to three remote displays
- NEMA 12 enclosed detection and verification unit
- Two way adjustment for water conductivity
- Electronic self-monitoring and indication in the D&V unit, power supply failure (redundant power supplies), clock (DC detection circuit) failure
- 5 amp power relay contact output for electronic faults
- 5 amp power relay contact output for level fault (water over steam)
- On board water detection indication in the D&V unit
- Standard junction box



Controlling
the **power**
of **steam**



Aquarian 3000Classic

SPECIFICATIONS

SUPPLY VOLTAGE

120 VAC, 50-60 Hz
240 VAC, 50-60 Hz

SUPPLY CURRENT

1 Amp @ 120VAC
1/2 Amp @ 240VAC

OUTPUT VOLTAGE

Probes: ± 5 VDC

RELAY CONTACT RATING

- 5 Amp at 30 VDC (resistive)
- 5 Amp at 120 VAC (resistive)
- 3 Amp at 120 VAC (inductive)
- 5 Amp at 240 VAC (resistive)

OPERATING TEMPERATURE

Electronics: 32°F-140°F (0°C - 60°C)
Column: 750°F (400°C)

ENCLOSURE

- Type: NEMA 12 (NEMA 4 & 4X optional)
- Dimensions: 13-3/4" x 23-1/2" x 15-1/4"
- Weight: 220 lbs (100 Kg)
- D&V Cubicle to Column Junction Box: 18-20 AWG shielded 221°F (105°C), PVC 15 conductor, working voltage 300VAC
- D&V Cubicle to Remote Display: 18-20 AWG shielded 221°F (105°C), PVC 24 or 28 conductor, working voltage 300VAC

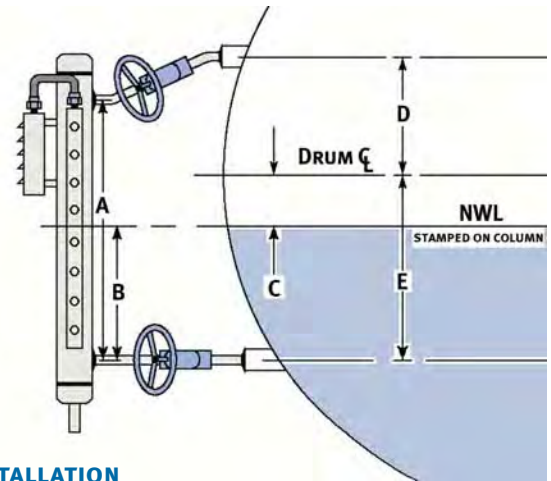
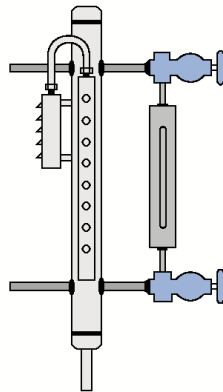
OPTIONS

Additional options can be purchased to customize the Aquarian 3000Classic System to individual applications.

- Additional remote displays
- Column ratings: Up to 3000psi maximum and 1200°F maximum
- Column materials: carbon steel, stainless steel and chrome moly
- 4-20mA analog output
- Auxiliary relay module
- Trip bypass pushbutton

** American Society of Mechanical Engineers

The manufacturer reserves the right to change the designs and materials of its products without notice.



TYPICAL INSTALLATION

APPLICATIONS

For high and low pressure feedwater heater and boiler drum level indication.

The 1998 ASME** Boiler and Pressure Code (Section I, Para. PG-60) states: "Two independent remote level indicators may be provided instead of one of the two required gage glasses for boiler drum water level indication in the case of power boilers with all drum safety valves set at or above 400 psi. When both remote level indicators are in reliable operation, the remaining gage glass may be shut off, but shall be maintained in serviceable condition".

"When the direct reading of gage glass water level is not readily visible to the operator in the area where immediate control actions are initiated, two dependable indirect indications shall be provided, either by transmission of the gage glass image or by remote level indicators".

The Fossil Aquarian 3000Classic was designed to satisfy the described code requirement.

An Aquarian installed as one of two remote indicators along with the required gauge is shown above. A duplicate Aquarian can be used as the second remote indicator. The Aquarian column with probes provides remote indication and it also acts as a stabilizer for the gauge.

ORDERING

Request Form # 9340-1202

*Water column to be certified in accordance with ASME** Section I.*

DISTRIBUTED BY:

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