



SAFETY-GUARD BSS02 SAMPLE STATION (SITE SPECIFIC BACTERIOLOGICAL SAMPLING POINT) REMOTE PRESSURE MONITORING SYSTEM

Product Specifications

1. GENERAL DESCRIPTION

- 1.1 The water quality sampling and pressure monitoring equipment furnished under this Section, to the above-named client, shall be designed to capture water quality samples and monitor water pressure conditions from a single installation point.

2. PERFORMANCE

- 2.1 This equipment shall be connected to a water distribution line as required by the plans or standard installation detail.
- 2.2 The self-contained unit is designed for manual sampling and shall provide a means for which the service line can be discharged from a brass or stainless steel blow off.
- 2.3 The Interior of the exterior protective enclosure must be able to be backfilled with #57 stone or equal.
- 2.4 The exterior protective enclosure must feature a below grade base that will support the upper section of the sample station and contain a drain field consisting of #57 stone or equal.

3. CAPABILITIES & FEATURES

- 3.1 Real Time Alerts of pressure conditions via email or cellular telephone via SMS messaging (Warning & Critical Condition Notification).
- 3.2 Transient Pressure Monitoring
- 3.3 Cellular based communication must be provided via the Verizon 4G/LTE/.CAT M-1 network.
- 3.4 SCADA compatible.
- 3.5 Downloadable data log for spreadsheets in Microsoft® Excel® or CSV format.
- 3.6 Secure Web application for pressure reporting with expandability to monitor and manage other products (i.e., Hydro-Guard flushing and monitoring products).

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- 3.7 Customer Configurable low and high pressure warning condition and low and high pressure critical condition alerts for each pressure monitoring device. Alerts allow end user and authorized designees to choose to receive emails or SMS alert messages when pre-set critical high or low conditions have been exceeded.
- 3.8 Secure login web application that is only accessible by authorized personnel identified by the end user's administrator.
- 3.9 Multiple security levels for each customer: site administrator, technician and user.
- 3.10 Authorized personnel have direct access to change monitoring criteria and review data.
- 3.11 Interactive map overview of each pressure monitoring system Installation point.
- 3.12 Pressure value readout and color coded identification on the map, where red means critical, yellow means warning, green means normal.
- 3.13 Weatherproof enclosure and over-molded connectors for in-ground application.

4. ACCEPTABLE MANUFACTURERS

- 4.1 Bacteriological sampling equipment shall be supplied to the above-named client under this specification, by Hydro-Guard (Mueller Co., LLC.). The part number for the only acceptable sampling station shall be BSS, (enter approved part number).

5. COMPONENTS

The bacteriological sampling station must be contained in an enclosure that meets or exceeds the following criteria:

- 5.1 For a device with a **2" blow-off valve**:
 - A. Enclosure must be a minimum of 12-inch x 12-inch x 47-inch lockable cabinet constructed of aluminum, or stainless with a minimum wall thickness of 1/8-inch or greater. Please specify preferred cabinet material option below:
 - Medium to High Density Polyethylene
 - 304 Stainless Steel (*Note: reinforces 304 only, not 304L*)
 - B. The enclosure must include a below grade base (medium to high density polyethylene or Stainless metal) with an above grade housing.
 - C. The internal piping and valves must be constructed of low lead brass or 304 (or higher grade) stainless steel. The blow off component of the sample station must be capable of directing the water discharged through a 90° elbow.
 - D. A minimum 12" air gap must be maintained between the discharge point and the ground.
 - E. All brackets, fasteners, and framing used in the construction of the enclosure must be constructed from stainless steel, anodized aluminum or marine grade polyethylene.
 - F. The enclosure must be capable of being marked with the utility's contact information, site control number, and/or site-specific information (minimum of three lines of engraved print per name plate).

5.2 Housing

- A. The unit shall be supplied with a below-grade base with a minimum bury depth of nine (9) inches. The design must provide stability and anti-buoyancy capabilities. The base shall be constructed of medium to high density polyethylene; stainless, or aluminum with a minimum wall thickness of 1/8-inch or greater.
- B. The unit's above-grade components shall be comprised of the following features and/or components:
Must be constructed of medium to high density polyethylene or stainless that is 1/8-inch or greater in thickness.

Where metal construction is used for the cabinet, material must be sand blasted and painted with a multi-part paint process that shall include, at a minimum, an epoxy undercoat and a two-layer color top coat (Mueller hydrant grade paint required).

Cabinet must be permanently colored (Identify color option with an "X")

— Dark green

— Blue

- C. Where metal enclosures are specified, then:

The above ground housing must be permanently attached to the below ground base and feature an access door that converts into a shelf for use by sampling personnel to conveniently hold sampling containers during the sampling process.

Shelf must be attached to the main above-ground housing by way of a stainless-steel chain and connected to the housing by way of an Industrial grade, stainless steel, piano hinge.

The above-grade cabinet must be protected against disassembly by way of security screws with a unique locking pattern (key must be included for removal).

The aluminum housing shall be specifically designed for direct exposure to the sun and weather and have a minimum life expectancy of 15 years.

The above-grade enclosure shall be lockable by way of a unique shoulder bolt with a unique locking pattern and key, and/or hasp lock.

Locking mechanism must be located a minimum of 19 inches above the engraved ground bury line stenciled on the below grade base of the exterior of the protective housing.

All mounting brackets and hardware shall be stainless steel.

The interior of the exterior protective enclosure must be able to be backfilled with #57 stone or equal.

The exterior protective enclosure must feature a below-grade base that will support the upper section of the sample station and contain a drain field consisting of #57 stone or equal.

- D. Where medium to high density polyethylene enclosures are specified, then:

The above-grade enclosure shall be lockable by way of a bolt and/or hasp (pad lock by others).

Locking mechanism. Must be located a minimum of 19 inches above the engraved ground bury line stenciled on the below grade base of the exterior of the protective housing.

All mounting brackets and hardware shall be stainless steel, anodized aluminum and marine-grade composite.

The interior of the exterior protective enclosure must be able to be backfilled with #57 stone or equal.

The exterior protective enclosure must feature a below-grade base that will support the upper section of the sample station and contain a drain field consisting of #57 stone or equal.

5.3 Winterization

- A. Where applicable, the device shall be constructed with protection against freeze damage.

Protection must be one of the following (option identified by an “X” associated with the following freeze protection options):

- A mechanical thermal control valve;
- An internally accessible curb stop with a self-draining double check valve; or
- An internally accessible curb stop with a vacuum water evacuation line.

- B. Additionally, the device must be capable of being matched to the utility’s water line. The inlet shall be Male Iron Pipe thread.

5.4 Sampling Point

- A. The sample point must be constructed of copper or stainless-steel tubing. The sample point must be capable of being activated by way of a standard low lead brass or stainless steel ¼ inch ball valve. If the following option is checked an optional A sanitary cap must be provided with the device to protect the sample point from exterior contamination.

- Supply optional sanitary cap to protect the sample point from exterior contamination

- B. The sample point must be located a minimum of twelve (12) inches from the exterior ground line molded into, or marked on, the protective enclosure.

- C. The sample point must be located outside of the flow pattern of the discharge from the blow off valve.

5.5 **Blow-Off Flush Point**

- A. The bacteriological sampling station must offer an option of either a one-inch (or two-inch ii specified) blow-off flush point that is capable of discharging water at a velocity capable of moving potentially stagnant water from the municipal water distribution lines and by drawing treated water into the piping of the bacteriological sampling station.
- B. The blow-off must be constructed of low lead brass or 304 stainless steel.
- C. The blow-off must feature a premium grade ball valve.
- D. The discharge point must be without threads (internal or external) unless noted otherwise by means of an "X" below.

Provide threads on the blow-off 90-degree elbow. Threads must be included in the following manner (select if threads are desired by means of an "X");

- ___ Threads to the exterior of the 90-degree elbow; or
- ___ Threads to the interior of the 90-degree elbow.

The threaded elbow must be equipped with an optional pipe extension that will direct discharged water flow below the sample collection point on the sample valve if noted by an "X" below.

- ___ Provide device with a Quick Connect Swivel adapter that will direct discharged water flow from the sample station to a directed discharge point that shall be determined by _____. The Quick Connect shall accommodate a hose connection.

5.6 **Execution**

- A. Prior to the Installation, the drainage patterns for the intended Installation location shall be viewed to ensure that any discharged water will not create hazardous conditions for pedestrian or vehicular traffic. The selected location's drainage pattern shall also permit discharged water to flow away from the bacteriological sampling station or be absorbed by the surrounding soil as not to create pooling over the device.
- B. Remove rock or other debris that might create uneven pressure on the unit from the bottom of the hole. Compact the bottom of the hole to minimize settling after installation. Add an appropriately sized layer of #57 stone or equal suitable materials which will allow for drainage of discharged water from the sample station when in operation.
- C. Backfill the hole around the bacteriological sampling station with your selection of appropriate materials or combination of materials including #57 stone and clean fill. Backfilling shall be accomplished in 6" lifts. Use a level to ensure the unit remains level during this process.

- D. Using extreme care, backfill the interior of the bacteriological sampling station with your selection of appropriate materials or combination of materials including #57 stone and clean fill. Backfilling process must be conducted in such a manner to prevent damage to the internal piping of the sample station or its various components.
- E. A suitably sized area around the bacteriological sampling station shall be sodded to prevent erosion, or to achieve a similar end, a concrete splash pad may be installed.
- F. The bacteriological sampling station shall be disinfected in accordance with AWWA standards.

Contact Information for Mueller Sales and Technical Support	
Primary Contact:	Secondary Contact:

6. INSTALLATION OF DEVICE EQUIPPED WITH PRESSURE MONITORING

- 6.1 Standard length of shielded sensor cable provided to be 15 feet 9.8 feet (3 meters). The Device’s lid mounted antenna shall be installed in the lid of the Hydro-Guard Sample Station and locked in place by way of a unique security bolt. a maximum of 6-inches below-grade to ensure cellular communication is not impeded. *(Note: Composite lids must be utilized on vaults or meter boxes to ensure cellular communication).*
- 6.2 A lockable lid shall be standard.



7. MATERIAL SPECIFICATIONS

- 7.1 **Field Replaceable Battery Life** - 5 Year minimum using recommended settings. (Frequency of transient monitoring can impact battery life.)
- 7.2 **Standard Pressure Range** - 0 to 250 psi.
- 7.3 **Standard Over Pressure** - In the event that the system pressure were to exceed 250 psi, according to manufacturer's specification, the sensor can endure overpressures up to 700 psi; however, the RTU and Standard pressure sensor will only record pressures up to 250 psi.
- 7.4 **Optional High Pressure Range** - If desired to monitor pressures exceeding 250 psi, please contact Mueller technical service for the correct high pressure sensor and device configuration at (844) 263- 5395 or technicalservice@muellercompany.com.
- 7.5 **Operating Temperature Range** - 150°F to -30°F.
- 7.6 **Pipe Diameter Range** - ½" or larger.
- 7.7 **Sampling Range** - Steady-state pressure is sampled at a rate of 1 reading every 15 seconds. Scheduled transient state pressure monitoring is sampled at a rate of 256 readings per second.
- 7.8 **Valve Box Lid** - (Containing RTU) - Waterproof design and rated to AASHTO H-20 standard.
- 7.9 **Antenna** - Antenna is specifically tuned to maximize cellular transmission of data from the RTU module.
- 7.10 **Data Transmission Security** - Data is secured via the use of AES (Advanced Encryption Standard). AES level security is authorized by the NSA for the protection of classified to top secret Intelligence.

8. ADDITIONAL SPECIFICATIONS

- 8.1 The pressure sensor monitor shall be provided by a manufacturer with over 150 years of experience in the waterworks industry.
- 8.2 The pressure sensor monitor shall be the Hydro-Guard Remote Pressure Monitoring System or approved equal.