

Utility Hole Water Level Transducer

Providing remote warning of rising water levels

Preventing water from entering a cable sheath, saturating conductor insulation, and causing damage to conductors is one of the primary purposes of a cable pressurization system. Providing remote monitoring information to help in this effort is another. Data from pressure and flow transducers alert technicians to changes in the system. From this information it is possible to track flows and determine the location of a leak. But when known leaks exist, and there is no way to access and repair them — as is the case in some large wire centers — then the threat of water accumulating in utility holes poses an even more immediate concern.

That's why System Studies developed the Utility Hole Water Level Transducer (Part No. 9800-4445). Designed to monitor the level of water in critical utility holes, this 4-20 milliamperes (mA) sensor reads up to 30 feet of water in tenths of a foot (1.20 inches). It is set to alarm when the water level rises to three feet above the transducer; it clears when the level drops back down to two feet above the device.

Physical Description

The Utility Hole Water Level Transducer, which is similar in size and appearance to one of System Studies' High Resolution Pressure Transducers™, is comprised of three sub-assemblies: a transducer housing (containing the solid-state sensor components), a barrier plate, and a removable wire cover splicing assembly (containing a primary and backup pair of conductors). In addition, the transducer is equipped with a length of 3/8-inch plastic tubing mounted to the side of the housing using a 90o nickel-plated brass fitting. A stainless steel mounting bracket is supplied to facilitate installation in utility holes.

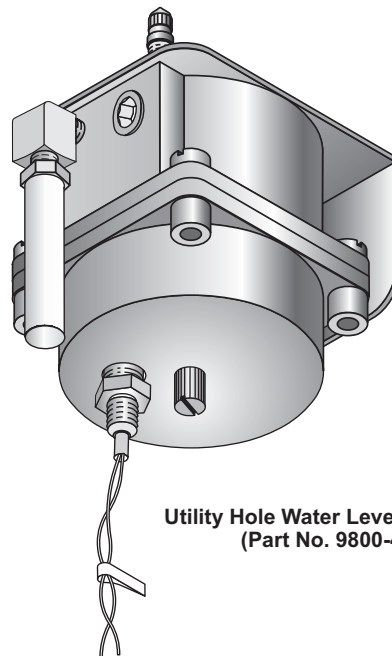
How it Works

The transducer is designed to be mounted in a vertical position (bottom of tube down) in a utility hole at a point below the desired maximum water level. Because the pneumatic tubing is open at one end, it traps air — preventing moisture from entering the transducer when it becomes submerged in water. As the water level in

the utility hole rises to the height of the transducer and above, it exerts pressure on the air inside the tubing. The change in air pressure acts upon the transducer's internal sensor and generates an electrical current output valve. The more water there is above the device, the greater the pressure on the device's internal sensor.

This electrical current value is read by a 289H Loop Surveillance System™ monitor installed in a central office and converted to water level measurement by the PressureMAP™ software. When the water level rises to three feet above the top of the transducer, PressureMAP generates a four star alarm. The alarm is cleared when the water level drops twelve inches (to a position two feet above the transducer).

The PressureMAP device type designating the Utility Hole Water Level Transducer is "WF." This device type must be programmed into the PressureMAP database in order to obtain readings from the device. Also, because the transducer uses an open tube for its pneumatic input, it is position sensitive. Caution must be taken to ensure that it is mounted in an upright position (with the pneumatic tube pointing straight downward).



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(Part No. 9800-4445)

System Studies Incorporated



2-1340 East Cliff Drive
Santa Cruz, CA 95062
(831) 475-5777
(800) 247-8255
(831) 475-9207 FAX
www.airtalk.com

Pair Access

Like our other transducers, the Utility Hole Water Level Transducer is equipped with an internal splicing cavity that simplifies the process of troubleshooting the device pair. The protective bottom cover of the transducer can be removed to expose both the working pair and the backup pair. This internal splicing cavity eliminates the need for additional hardware and facilitates access to conductors.

Model Specifications

Electrical The Utility Hole Water Level Transducer outputs electrical current between 4 and 20 mA. Transducer operates on dedicated telephone circuit only.

Construction Nickel-plated brass housing, mineral filled center barrier plate, nickel-plated brass tubing connectors, 3/8-inch plastic pressure tubing. Supplied with stainless steel mounting bracket.

Pressure Readings Via single access valve for manual reading with C pressure gauge.

Physical Dimensions 2.5 inches x 2.625 (excluding pressure valve).

Reading Output Between 0 to 30 feet of standing water. Reading resolution is one tenth of a foot (0.10 feet/1.20 inches). PressureMAP Device Type WF

Monitor Compatibility 289H Loop Surveillance System (LSS).

High Resolution Pressure Transducer™, 289H Loop Surveillance System™, and PressureMAP™ are trademarks of System Studies Incorporated.

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