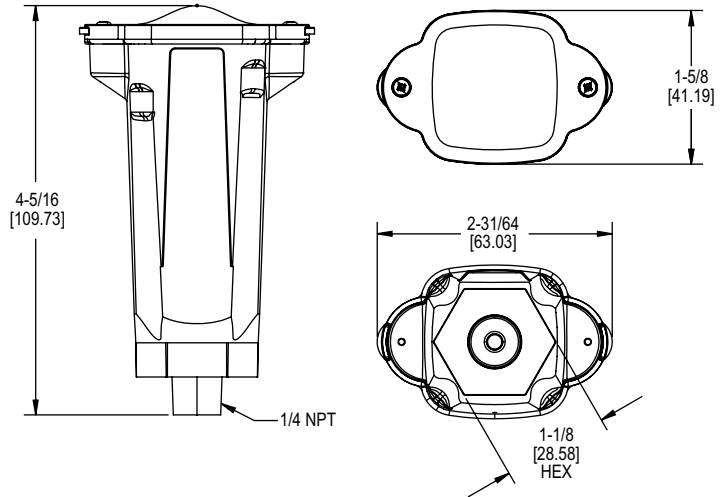




Series 490W Wireless Hydronic Differential Pressure Manometer

Specifications - Installation and Operating Instructions



The **Series 490W Wireless Hydronic Differential Pressure Manometer** is the most accurate and easy to operate manometer on the market. By using wireless transducers and a mobile device, a single operator can monitor and balance a hydronic system in less time than traditional hydronic balancers. The Series 490W transducers connect wirelessly to a UHH6 or newer handheld device, or your own mobile device, to monitor differential pressure and flow on up to three different valves. Being wireless, there are no hoses to carry, snag on equipment or needing to be drained. The 490W utilizes Dwyer's hydronic application software that contains valve charts for numerous manufacturers, which converts differential pressure to flow directly on the screen.

Included with the 490W HKIT

1. Pressure transducers (2 per kit) with case
2. Installation and operating manual (IOM)
3. 1/4" SAE 45° x 1/4" female NPTF straight adapter (2 per kit)
4. 1/4" female NPT x 1/4" male NPT elbow fitting (2 per kit)
5. Piercing gauge adapters [2 per size] (6 per kit) -1/8" DIA x 1-1/2" length; 1/8" DIA x 3" length; 1/16" x 1-1/2" length
6. 1/4" female NPT x 1/4" quick connect coupler (2 per kit)
7. 4 pack AAA batteries
8. 490W hard carrying case

BATTERY INSTALLATION

The kit is shipped with 4 AAA batteries (2 for each sensor), which must be installed before operation. Loosen the two screws on either side of the clear cap (they will stay attached to the cap), and remove the cap from the transducer. Install the batteries according to the housing markings and replace the top cap. Do not over tighten the screws.

With the sensors set to sleep mode via the app (see DISCONNECTING FROM SENSORS), the sensors can be stored in the case with the batteries still installed. If the kit is going to be stored for a long time, however, it is recommended that the batteries be removed to reduce the risk of leakage.

When battery replacement becomes necessary, use only a AAA alkaline (LR03) type such as Energizer® E92. These are recommended due to a decreased risk of battery leakage, and the specified battery life is based on usage of them.

Use of an incorrect battery type could result in product damage or battery leakage. Zinc-carbon types, often labeled heavy-duty, are not recommended because of the increased potential for leakage.

SPECIFICATIONS

Wireless Distance: Up to 65' (19.8 m).
Service: Compatible gases and liquids.
Wetted Materials: Transducer: 316L SS.
Accuracy: 2% of reading, ± 0.5 psi.
Compensated Temperature Range: 32 to 140°F (0 to 60°C).
Pressure Hysteresis: $\pm 0.25\%$ FS.
Pressure Range: 0 to 200 psi (0 to 1379 kPa).
Maximum Pressure: 400 psi.
Engineering Units: psi, ft w.c., in w.c., Pa, kPa, hPa, cm w.c., mm w.c.
Process Temperature Limits: -4 to 185°F (-20 to 85°C).
Resolution: 0.0001 psi.
Process Connections: Two 1/4" male NPT.
Power Requirements: 2x AAA batteries (each sensor), user replaceable.
Weight: Kit: 5 lb (2268 g); Sensor: 0.25 lb (113 g).
Supported Devices: UHH6 and newer, and smart devices with Bluetooth® v5.0 and Bluetooth® Low Energy (LE) wireless technology.
Supported Operating System: Android® firmware version 8.0 and above.
Compliance: CE, FCC.

LED INDICATION

With functional batteries installed, the LED behavior will indicate sensor status. The red LED indicates the High unit and the blue LED indicates the low unit. Refer to the table below for different sensor states.

Sensor State	Blink Speed
Sleep	No blink
Disconnected	Slow (every 5 seconds)
Connected	Moderate (every 2 seconds)
Low battery	Fast (every 1 seconds)

CONNECTING TO SENSORS

1. Power on device by installing batteries and re-assembling the cap (if not already installed). Sensors in sleep mode will wake upon connecting in the app
2. Verify that the universal handheld, UHH6 or newer, or compatible smart device has Bluetooth® technology turned on and is within range
3. UPDATE the Dwyer Hydronic App from the Google Play™ Store
4. Open the Dwyer Hydronic App - see tutorial within app for more details
5. Click <Sensor Setup>
6. Select which sensors to use
7. After the sensors are verified, pair the sensors
 - A. If there are two New Style sensors, they will pair automatically
 - B. If there are Legacy sensors, you must pair them manually and select which is high/low
8. Click <Continue>
9. Wait for all sensors to connect (pressure reading will turn white)
10. If one or both sensors don't connect, click on the sensor not connected and select <Connect>

PRESSURE CONNECTION

Zero the sensors before making the pressure connection.

The 490W kit is shipped with 3 different sized piercing gauge adapters (needles) to be used with pressure test plugs. When using these pressure test plug adapters:

1. Remove the cap from the pressure test plug. The operator should always carry spare caps in case they get lost or damaged.
2. Using a small amount of petroleum jelly or silicone grease, lubricate the needles of the gauge adapter. Ensure that the seal on the pressure test plug is clear.
3. The operator must wear protective goggles to avoid debris or liquids being blown into the eyes during removal of the needles. Some leakage after removal of the gauge adapter is normal.
4. After the needle is removed, immediately replace the cap on the test plug.

NOTICE

Do not leave the needle in the pressure plug any longer than necessary. The longer the probe is inserted, the longer it will take for the plug to seal after the probe is removed.

WARNING

Do not exceed the burst pressure of the units (500 psi).

OPERATION

For more details, see app tutorial

1. FLOW (Standard Valve)
 - A. After the sensors are connected click <Calculate Flow>
 - B. From the drop down menu, enter all of the proper information including the make, model, and pipe size of the setup
2. FLOW (Custom Valve)
 - A. Select Manual from the drop down menu
 - i. Enter CV (Valve Flow Coefficient)
 - ii. Enter the Specific Gravity of the fluid. The default is set to 1.0 for water.
 - B. If you would like a custom valve added to the app, please contact your sales representative.
3. Log Data
 - A. From the sensor screen click <LOG THIS READING> to log the current reading
 - B. Click bottom <LOG TAB> to view logs
 - C. Press the floating export button and send the logs (.csv file) to a selected application.
 - D. To clear individual log press <X> or <CLEAR ALL>

DISCONNECTING FROM SENSORS (SLEEP)

While connected to the sensors, push the <back> button on the phone. The app will prompt you to put the sensors to sleep or not.

It is recommended that the sensor be put to sleep to maximize battery life.

TROUBLESHOOTING

Connectivity

For more information on the operation of the software- please launch the "help" tutorial from the app.

If only one sensor shows up to connect on the app. Restart the app.

If there are issues with the valve list, clear the app's cache and force stop the app. Relaunch the app and try again.

App will allow you to pair any set of same range sensors together. Ensure to pair a calibrated set. New Style sensors will automatically pair together. If the paired set is not a calibrated set, the accuracy is not guaranteed.

You can connect up to 3 pairs of sensors on the app at one time.

NOTICE

Case should be vertical when stored so sensors can drip out water.

FCC RF EXPOSURE INFORMATION AND STATEMENT

The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: S09 (FCC ID: ZHN-W63) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for use at the ear is 0.430 W/kg and when properly worn on the body is 0.772 W/kg. This device was tested for typical body-worn operations with the back of the handset kept 1.5 cm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 1.5 cm separation distance between the user's body and the back of the handset. The use of belt clips, holsters, and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements and should be avoided.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modification to this equipment. Such modifications could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one of more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

MAINTENANCE/REPAIR

Upon final installation of the Series 490W, no routine maintenance is required. The Series 490W is not field serviceable and is not possible to repair the unit. Field repair should not be attempted and may void warranty.

WARRANTY/RETURN

Refer to "Terms and Conditions of Sale" in our catalog and on our website. Contact customer service to receive a Return Materials Authorization (RMA) number before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.

Do not dispose of as unsorted domestic or municipal waste. Consult retailer or local authorities for recycling information.

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Bluetooth® is a registered trademark of Bluetooth SIG, Inc.
Energizer® is a registered trademark of Energizer Brand, LLC
Google Play™ is a trademark of Google LLC

