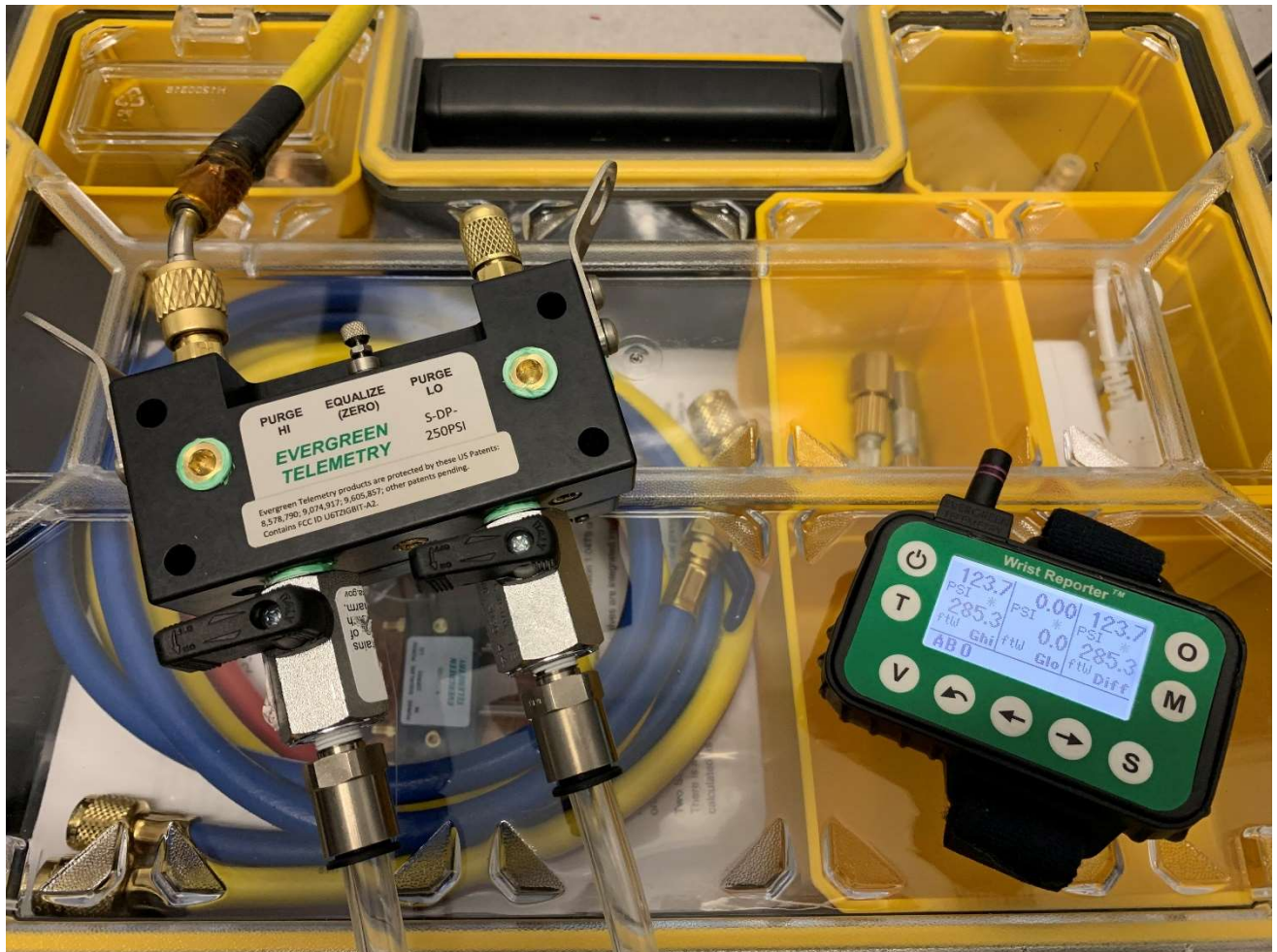


# EVERGREEN TELEMETRY

## User's Guide for 250 PSI Water Pressure Sensing Module

1 October 2020

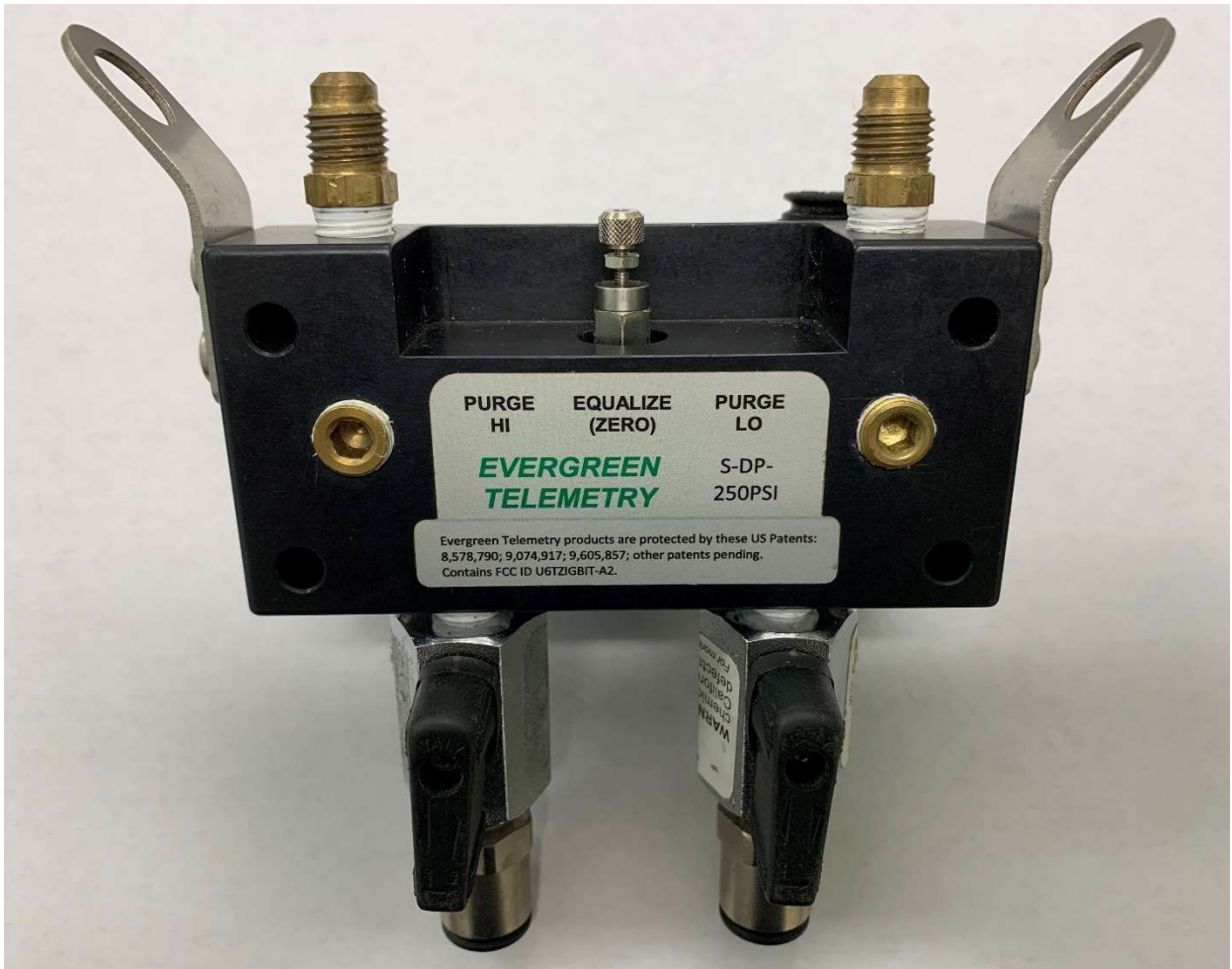


### TECH SUPPORT

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## INSTRUMENT SPECIFICATIONS

Updated 25 September 2018

### Range

Differential Pressure and Gage Pressure:  
0 PSI to + 250 PSI

### Accuracy

Differential and Gage Pressure:  
2% of reading + last digit

### Notes

Specs designed to comply with 2019 NEBB specifications.  
The 2018 spec was also met: Range to include 0 to - 30 in HG.  
Calibration includes three or more test points.

**Manifold.** The top of the Sensing Module Manifold has an input port for the Hi side and one for the Lo side. On the bottom are two exhaust ports.

**Two Sensors.** There is one sensor for the differential pressure between Hi and Lo Ports. There is a second sensor for the gauge pressure between Lo Port and ambient. Hi Gage is calculated as  $Lo\ Gage + Diff$ .

**Vent Valves / Exhaust Valves / Ball Valves.** The two ball valves correspond to Hi and Lo ports. Opening them causes fluid to flow straight through from the input to the corresponding exhaust port. The optional clear tubing assembly may be used to direct the exhaust stream into a bucket or drain.

**Bypass / Zero / Equalize Needle Valve.** This valve connects the Hi port directly to the Lo port for purging or zeroing. The valve closes with clockwise motion. Take care not to overtighten—snug pressure of thumb and fingertip is enough to close off flow. When opening the bypass to equalize Hi and Lo side pressure and to zero the meter, adequate flow is achieved after opening less than one full turn.

**Connecting Hoses with Shutoff Valves.** The shutoff valves are integrated within the two connecting hoses.



## SENSOR LINK AND OPERATION

**Software.** Use Wrist Reporter Software Revision 1.04T9 or higher/later. Turn on the Wrist Reporter (WR). Wait for the screen to display "Turn on the Modules". Turn on the Sensing Module.

After a few seconds, the WR will display Link Status showing WR and S-1. At the right are the respective battery levels, ranging from B3 (highest) down to B0.



## MEASUREMENT RESULTS

Press V. Three columns of information are displayed: Gage Hi, Gage Lo, and Differential. Each column has two rows of results, each with different units. The two Gage results are displayed in PSI and ftwc., the same units are used for high levels of Differential. At low differential pressures, the differential units will automatically switch to inwc. and ftwc.

Features that are coming soon include the ability to force all readings into any type of units, and the ability to input a valve Cv to obtain a GPM readout.

## CONNECTING, ZEROING and READING

### USE VALVES TO PURGE AIR BUBBLES FROM FLUID STREAM

Connect hoses to Hi and Lo Ports. Open shut-off valves located in the hoses. Press the two Vent Valves one at a time to purge air from the lines. Open the Bypass Valve briefly to flush bubbles through the Hi to Lo port connecting path (Optional).

### ZEROING THE SENSORS

Before an accurate result can be obtained, the user must manually show the sensors where the zero-pressure point is. This is done by manually connecting the Hi and Lo Ports and telling the Wrist Reporter that the resulting sensor output represents zero. There are two methods for zeroing the sensors in two different situations.

**Method One—Zero to Ambient.** Prepare the module as follows. Close both shutoff valves in the hoses. Use the Vent Valves to drain the hoses and eliminate pressure. Open the Bypass Valve to connect Hi to Lo. Open the Vent Valves again to once more relieve any remaining pressure. Now the pressure at both ports is ambient and therefore the pressure across both sensors is zero.

From the reading screen displaying pressures, press O. The screen will display two options: Zero Both Sensors, or Zero the Differential Pressure Sensor Only. Use the Arrow keys to highlight the first option and press S. The two sensors will begin the zeroing process and “PREPARING ZERO” will be displayed. Then “ZEROING” will be displayed. Several seconds may elapse as the Gage Lo and Differential readings approach and finally attain 0.0. When both readings show 0.0, press S to lock in the zero counts.

If the process stops before 0.0 is obtained, press S to lock in the low, non-zero values. Then wait five seconds and repeat the process.

When zeroing has been completed, return the toggle valves to their original state. Then open the shutoff valves in the hoses and begin reading.



**Method Two—Zero to Lo Port Pressure.** This procedure is for applications like balancing valves when the Gage / Common pressures are relatively high, and the Differential pressure is low. For instance, Gage Hi = 80 PSI; Gage Lo = 79 PSI; Diff = 1 PSI = 2.3 ftwc. This procedure zeroes the Differential Sensor while leaving the Gage Sensor unchanged and therefore able to display accurate Gage results.

Close the Hi shut-off valve in the hose. Leave the Lo shut-off valve in the hose open. Open the Bypass Valve to allow Lo pressure to access both sides of the differential sensor. Now the same pressure is at both ports and across the Differential Sensor, and that pressure is Lo Gage.

From the reading screen displaying pressures, press O. The screen will display two options: Zero Both Sensors, and Zero the Differential Pressure Sensor Only. Select the second option, and press S. The Differential Sensor will begin the zeroing process and “PREPARING ZERO” will be displayed. Then “ZEROING” will be displayed. Several seconds may elapse as the Differential reading approaches and finally attains 0.0. Then press S to lock in the zero counts.

Close the bypass valve. Open the Shut Off valve on the Hi hose. The display will now show accurate readings for both Gage and Differential.

### **Changing Conditions**

Whenever there is a change in temperature, altitude, or common pressure, the zero point of the sensors will shift, and they must be re-zeroed to maintain reading accuracy.

### **Future Enhancements**

1. A feature will be added to allow the user to select any desired measurement units.

## Accessories

Standard accessories include a carrying case, HVAC hoses, and Brass Kit #1



### Brass Kit #1

- (2) Pete's Plug Gauge Adapter 1/8" dia x 1-1/2"
- (2) Bushing, 3/4" male x 1/2" female
- (2) Bushing, 3/8" male x 1/4" female
- (2) Bushing, 1/2" male x 1/4" female
- (1) Bushing, 1" male x 1/4" female, hex
- (10) Straight adapter 1/4" flare to 1/4" NPT male



### Optional Brass Kit # 2 ..... \$249

- (2) Pete's Plug Gauge Adapter 1/8" dia x 3" probe
- (2) Pete's Plug Gauge Adapter 1/16" dia x 1-1/2" probe
- (2) Peterson 110--Pete's Test Plug 1/4" MPT, 500 psi
- (2) 3/4" garden hose swivel to 1/4" flare elbow
- (1) 3/4" MHT x 1/2" FIP & 3/4" MIP adapter
- (2) 90 deg elbow, 1/4" flare x 1/4" MPT

## CARRYING CASE

The Sensor is shipped in a DeWalt carrying case that accommodates the Sensor, charging cable, Brass Kit #1, and hoses. Without the brass and hoses, the Sensor fits into a typical TAB Kit case.

Shown are the Sensor and standard accessories: battery charger and charging cable; HVAC hoses; exhaust port tube assembly; and Brass Kit #1.





**Double Stack Option.** The DeWalt carrying cases are designed to fit together, which would allow the balancer to use a second case for wet hoses and brass, retaining the top kit for the Sensor.

