



LevelCon WP01-V

Wireless Pressure Sensor

LevelCon's WP01-V is a Wireless Low Energy wireless transmitter intended for hydrostatic pressure, natural gas, or hydrogen monitoring. Standard ranges from 2.5 to 7500 PSI are available.

The WP01-V consists of a highly accurate and durable 316SSL piezoresistive pressure sensor and BLE transponder PCB board. It is powered with 2 AA Energizer Ultimate Lithium batteries (L91). The WP01 reads the pressure from the sensor interface and sends that pressure data to the LevelCon Gateway which then communicates the pressure level(s) to the LevelCon portal via cellular or satellite data transmission. *The WP01 does not operate as a stand alone remote monitor. It must be paired with a LevelCon gateway for full remote communication.*



Table Of Contents

Quick Installation Guide	3
Servicing the Batteries	3
Android and iOS Mobile App	4
Scan WP01 Live reading	5
Wireless Pairing	5
Wireless Pairing multiple WP01-Vs with a single gateway	6
Setting Sensor Alarms	7
Next Section	8

Quick Installation Guide

The LevelCon WP01V comes preinstalled with Lithium AA batteries. The threading is ¼" MNPT.

1. Follow safety guidance for the installation area/zone.
2. Measure the tank's dimensions in length/height and diameter and record the data for later use.
3. For liquid storage tanks, take a physical dip reading of the fluid and record it for later use.
4. Locate the unused port at the bottom of the tank or pressure line.
5. Be sure to isolate any product by completely closing the valve(s) that lead to the open port. *(image 1.1)*
6. Remove the threaded port fitting to expose the open port. You may need additional fittings to adapt to the 1/4" MNPT fitting of the sensor.
7. Using a thread sealer on the threads of the pressure sensor, hand tighten the WP01 into the open ¼" FNPT port



Image 1.1

8. Using the integrated nut on the sensor body, and with an open end wrench, completely tighten the pressure sensor into the ¼" FNPT port. *(image 1.2)*
NEVER tighten using the plastic housing
9. Once the sensor is completely installed, open the valve to the sensor face to allow for pressure to interface the sensor's diaphragm.
10. Check for any signs of leaking fluid or gasses. If there are signs of leaking fluids or gasses, go back to Step 4 and repeat steps 4-9, with extra attention to the thread sealer in step 6.



Image 1.2

Servicing the Batteries

1. Ensure all valves that lead to the pressure line where the WP01 is installed are turned off.
2. Using an open end wrench, loosen the WP01V via the sensor body's integrated nut turning it counter clockwise. *(image 2.1)*
3. Before completely removing the sensor, allow the excess fluid or gas to bleed out. Follow safety procedures for bleeding/containment.
4. Remove the WP01 from the pressure port.
5. **Move sensor to a unclassified area (non explosive atmosphere)**
6. With a Phillips screwdriver, remove the 3 screws that hold the lid to the monitor body. *(image 2.2)*

- Using your fingertips, gently pull the PCB board from the cavity of the monitor body exposing the batteries. (*image 2.3*)



Image 2.1



Image 2.2

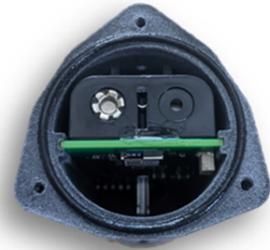


Image 2.3

- Remove the batteries and replace with 2 fresh AA Energizer Ultimate Lithium Batteries. (*image 2.4*)
- Once the batteries are replaced, position the PCB so that the batteries are positioned opposite of the light tube (*image 2.5*).
- Align the edge of the PCB with the grooves in the monitor body (*image 2.6 A&B*)
- Carefully guide and push the PCB back into the monitor's body. (*image 2.3*)
- Replace the cap/lid of the WP01 ensuring the sealing O-ring is in the proper groove.
- Insert and tighten the 3 screws holding the cap, do not overtighten the screws.
- Reinsert the WP01 body back in the pressure port and tighten. You may need some pipe thread tape for a good seal.
- Return to the valve and open it, releasing the pressure back to the sensor diaphragm.

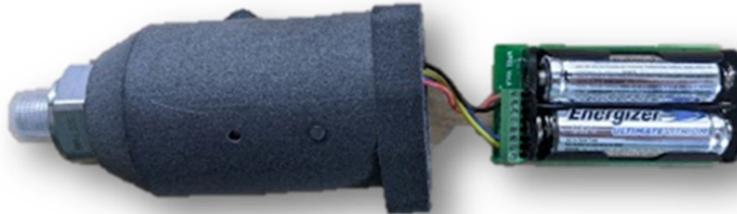


Image 2.4

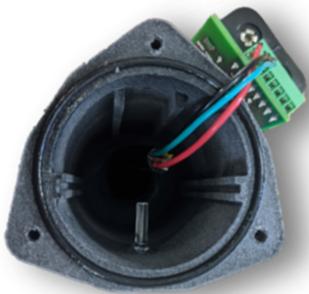


Image 2.5



Image 2.6A



Image 2.6B

Android and iOS Mobile App

The WP01V is a Wireless enabled device that seamlessly connects to any LevelCon BLE cellular or satellite gateways. This simple pairing process requires users to download the LevelCon mobile app from the Google Playstore or Apple iTunes.

Google Play Store: https://play.google.com/store/apps/details?id=com.lcble&hl=en_US&gl=US

Apple iTunes: <https://apps.apple.com/us/app/levelcon/id1542604252>)

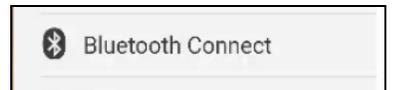
Scan WP01 Live reading

The WP01-V by default chirps out a Wireless data packet roughly every 30 seconds. To obtain the live data reading from the WP01-V, follow the below instructions. Before starting this process, ensure that you have downloaded the latest version of the LevelCon mobile app.

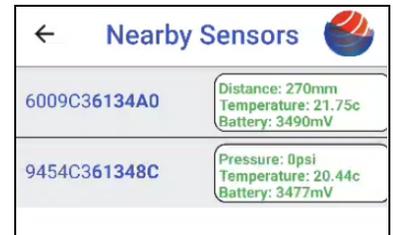
1. Download and install the LevelCon mobile app on your smartphone or tablet. * note this feature is not available for laptops or PCs.
2. Log in using your supplied credentials.
3. Click on the main navigation, three horizontal lines in the upper right corner.



4. Click on option 3, Wireless Connect.



5. Your mobile device will seek and find all eligible LevelCon BLE devices.
6. With the list of devices displayed, click on the green circle with 3 horizontal lines in the bottom right corner.
7. Click on Nearby Sensors
8. The app will load the MAC addresses of the eligible live devices and display the most currently pulled data set.
 - a. Pressure/Distance
 - b. Device temperature
 - c. Battery level
9. To obtain a fresh reading from this same list of displayed devices, simply click on the blue refresh button in the bottom right corner of the screen.



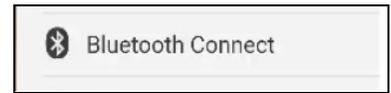
Wireless Pairing

The WP01-V pressure sensor is not a stand alone device for remote level data transmission. The device(s) must be paired with an eligible LevelCon BLE Gateway. Before starting this process, ensure that you have downloaded the latest version of the LevelCon mobile app.

1. Download and install the LevelCon mobile app on your smartphone or tablet. * note this feature is not available for laptops or PCs.
2. Log in using your supplied credentials.



3. Click on the main navigation, three horizontal lines in the upper right corner.
4. Click on option 3, Wireless Connect.
5. Your mobile device will seek and find all eligible LevelCon BLE devices.
6. Click on the device Mac address of your LevelCon gateway
7. The mobile device will establish a connection to the gateway and open the default status page.
8. Using the 5 icon menu bar at the top of the status page, click on AGR
9. In the AGR menu, set the AGR time to a minimum of 60 seconds.
 - a. For WP01-V devices that are more than 40 feet from the gateway, the AGR time should be set to 90-120 seconds.
10. Click on the reconfigure button.
11. In the reconfigure menu, click on the blue QR code scanner feature.
12. Using your camera, scan the QR code on your WP01-V. Once scanned, you will see the message, "XX:XX:XX:XX:XX:XX was added to the list".
13. Confirm the MAC address of your WP01-V matches the MAC address displayed in the Enter Mac window and click the save button.
14. You will be redirected back to the AGR menu, and the MAC address of your WP01-V will be displayed in the MAC table.
15. At this time your WP01-V is paired with your gateway.
16. ***Save your work!*** Click on the green circle with 3 horizontal lines in the bottom right corner to bring up the main menu and click Save to ensure all data has been saved.
17. Again, click green circle with 3 horizontal lines, then click on "report" to force a transmission from the gateway which will now include the WP01-V data



MAC	Type
9454C361348C	0

Wireless Pairing multiple WP01-Vs with a single gateway

Multiple WP01-V external pressure sensors can be paired to a single LevelCon Gateway at the same time. Data from all paired devices will report level data in one gateway transmission.

1. Repeat steps 1-11 in the above section "Wireless Pairing".
2. In the reconfigure menu, click on the blue QR code scanner feature.
3. Using your camera, scan the QR code on your WP01-V. Once scanned, you will see the message, "XX:XX:XX:XX:XX:XX was added to the list".
4. Confirm the MAC address of your last WP01-V matches the MAC address you see in the Enter Mac window. Click the QRcode button again and scan the next BLE asset.
5. Without leaving the scan feature, continue to scan all remaining BLE assets desired to pair to the gateway.
6. Be sure to click the save button after all MAC addresses have been scanned.
7. You will be redirected to the AGR menu and the MAC addresses will be displayed.
 - a. Be sure you set the AGR Time between 60-120 seconds
8. At this time your BLE Assets are paired with your gateway.



MAC	Type
6009C361349A	0
9454C361348C	0
6009C36134A0	0

9. ***Save your work!*** Click on the green circle with 3 horizontal lines in the bottom right corner to bring up the main menu and click Save to ensure all data has been saved.
10. Finally, click green circle with 3 horizontal lines again and then click on report to force a transmission from the gateway which will now include the WP01-V data

Setting Sensor Alarms:

Setting sensor alarms is completed via the LevelCon Wireless App. Alarms are set at the **Monitor** Level, not the **Sensor** Level. ***Please note, that the BLE sensor must first be paired with the monitor before entering this configuration.***

1. Downloaded the app and logged in.
2. Navigate to the 3 horizontal lines in the upper left hand corner and click on **Wireless Connect**.
3. In the BLE connect menu or nearby sensors menu, click on the Mac address of the **monitor** for which you want to set the alarms, which automatically brings up the **Status Page Menu**.
4. Using an Android phone in the status page menu, click on the **Alarm** or **Bell** symbol to enter the Alarms and Strapping menu
5. Using an Apple Phone, in the status page, click on the **green circle** in the bottom right, and click on the Alarms and Strapping menu.
6. In the Alarms and Strapping menu, using the top configuration menu, click the word ADD to add an alarm
 - a. **Type:**
 - i. Delta = +/- the trigger input
 - ii. Lo = Low trigger value input
 - iii. LoLo = Lowest trigger value input
 - iv. Hi = High trigger value input
 - v. HiHi = Highest trigger value input
 - b. **IDX** = Mac address of the BLE sensor you are setting up
 - c. **Chan** = 0
 - d. **Trig** = value of the sensor in raw # or for WP01V the value in PSI
 - e. **Hyst** = historises value (normally .5)
 - f. **Alm IDX:**
 - i. Blank if no output is desired
 - ii. Local DO = Digital output of the monitor
 - iii. Local DI = Digital input of the monitor
 - g. **AlmTmr** = The length of time to hold the Local DI/DO
7. **EXAMPLE- A:**
 - a. If you want to set an alarm based on a delta of 100psi: Type= Delta, IDX = Mac Address, Chan = 0, Trig = 100, Hyst = .5
 - b. When the sensor value of the WP01V changes +/- 100psi the sensor triggers the monitor to automatically report.
8. **Example- B:**
 - a. If you want the monitor to automatically report at a set PSI, either Lo, LoLo, Hi, HiHi, the configuration is as follows: Type= Lo (LowLo, Hi,HiHi), IDX = Mac Address, Chan = 0, Trig = 100, Hyst = .5
 - b. Thus if the sensor is reading 500psi and drops below 100psi, the sensor automatically forces the monitor to report.
9. **Multiple Settings:**
 - a. You can set multiple layers of alarm settings combining lo, Hi, LoLo, HiHi or any of these and a Delta.
10. **WARNING: The more alarms you set, and the more alarms that trigger reports from the monitor, the more power your monitor will burn, causing a shorter life of the monitor's power.**

