



WC70i-LCD Gas Sensor Safety Manual



Specifications

Enclosure Size	8"x7"x4", IP64	
Power	Internal	Lithium primary Battery Pack. Field replaceable. FreeWave Order Code: WC-BAT-4DPak-IS
	Coin Cell	Panasonic CR2032
	External	External approved power supply can be only used in hazardous locations with the following entity parameters: Ui=5.9V Ii= 3.1A Pi= 0.8W Li=8.75 μH Ci=105.55 μF
Temperature Rating	-20°C ≤ T _{amb} ≤ +50°C (-4°F to 122°F) -20°C ≤ T _{amb} ≤ +55°C (-4°F to 131°F) -20°C ≤ T _{amb} ≤ +60°C (-4°F to 140°F) -20°C ≤ T _{amb} ≤ +65°C (-4°F to 149°F) -20°C ≤ T _{amb} ≤ +70°C (-4°F to 158°F) -20°C ≤ T _{amb} ≤ +75°C (-4°F to 167°F)	
Radio Frequency	902-928MHz ISM Band, FHSS radio, internal antenna	
Radio Power	40mW, Received Sensitivity -109dB	
Compliance & Hazardous Area Approvals	Class I Zone 0 AEx ia IIC T4 Ga Ex ia IIC T4 Ga Class I Div 1, Groups A-D, T4 Powered by Intrinsic Safety Power Supply: Class I Zone 0 AEx ia IIB T4 Ga Ex ia IIB T4 Ga Class I Div 1, Groups C-D, T4 Certified to UL 913, 62368-1 Conforms to CSA 62368-1 CSA 60079-0, CSA 60079-1	

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WARNING: Use of this equipment in a manner not specified by the manufacturer may impair the protection provided by the equipment.

AVERTISSEMENT: L'utilisation de cet équipement d'une manière non spécifiée par le fabricant peut nuire à la protection fournie par l'équipement.



WARNING: The WC70i-LCD must be mounted in a location free of high vibrations. Over time vibrations can damage the device or battery pack, which could impair its safety ratings. Do not mount directly to continuous vibrating equipment such as pumps or compressors.



WARNING: The use of any parts not supplied by the manufacturer violates the safety rating of the equipment.

AVERTISSEMENT: L'utilisation de pièces non fournies par le fabricant est contraire à la cote de sécurité de l'équipement.



WARNING: Electrostatic Discharge Hazard! Care must be taken to avoid the potential of creating a change on the enclosure or antenna. Do not wipe with a dry cloth. Do not brush against the enclosure with clothing or gloves.

AVERTISSEMENT: Risque de décharge électrostatique! Il faut veiller à éviter tout risque de changement de l'enceinte ou de l'antenne. Ne pas essuyer avec un chiffon sec. Ne pas broser contre l'enceinte avec des vêtements ou des gants.



WARNING: Only connect to the debug port in a safe area!

AVERTISSEMENT: Se connecter uniquement au port de débogage dans une zone sûre!



WARNING: Perform setup steps in a safe location.

AVERTISSEMENT: Suivez les étapes de configuration dans un endroit sûr.



WARNING: Use of any battery other than the FreeWave part number WC-BAT-4DPak-IS will impair the protection provided by the equipment.

AVERTISSEMENT: L'utilisation d'une pile autre que la référence FreeWave WC-BAT-4DPak-IS compromettra la protection fournie par l'équipement.

The product includes an external conductive part (sensor holder). The product was tested for maximum capacitance, and the measured capacitance of the sensor holder is 10.6 pF. The end user shall determine the suitability of the product for the specific application.

AVERTISSEMENT: Le produit inclut une composante conductrice externe (soutiens du capteur). Le produit a été testé pour une capacitance maximale de 10.6pF du soutiens du capteur.

L'utilisateur devra donc déterminer la pertinence du produit pour une application spécifique.

Connections and Components

Radio LEDs

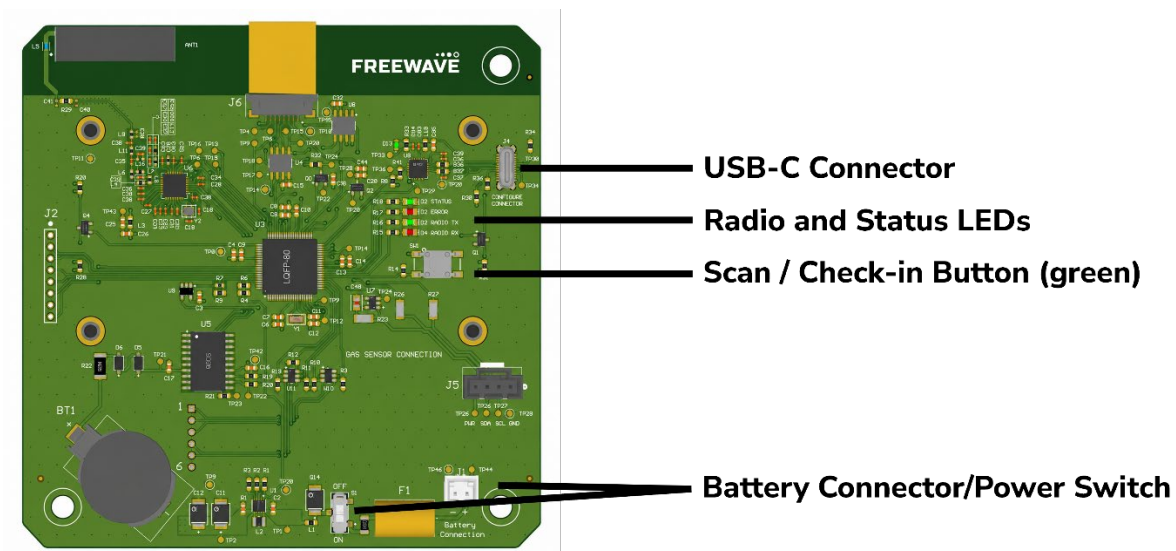
- The Radio TX LED (**green**) blinks each time a radio packet is sent. This LED will blink rapidly while searching for the radio network and at boot up.
- The Radio RX LED (**red**) blinks on each received radio packet.

Status LEDs

- The STATUS LED (**green**) will blink on when the WC70i-LCD sends a message to the Gateway.
- The ERROR LED (**red**) will blink to indicate an error condition.

Scan/Check-in Button

- If this button is pressed the WC70i-LCD will take a reading from the sensor and send the data to the gateway.



Operation

The Gas Sensor is continuously powered and sampled once a second. Values are updated on the LCD in real time and are reported every check-in interval or immediately if the detected gas level exceeds the configured alarm threshold (10ppm by default).

When the gas concentration is above the alarm threshold, the red alarm LEDs on the WC70i-LCD will flash and the LCD will indicate an alarm condition. While in alarm the WC70i-LCD will report its values to the Gateway every 5 seconds until the concentration goes below the threshold.

Setup

The WC70i-LCD needs to be set up for correct operation before being fielded. The configurable items include:

- Network selection
- Check-in period selection
- Modbus Server ID setting
- Optional alarm thresholds

All settings are made using the FreeWave Toolkit PC application and a USB-serial programming cable available from FreeWave.



WARNING: Perform the steps in this section (Setup) in a safe location only.

AVERTISSEMENT: Suivez les étapes de cette section (Configuration) dans un endroit sûr uniquement.

Replacing the Sensor

The smart H₂S sensor module is field replaceable. Replacement sensors must be obtained from FreeWave and must match the required gas type and measurement range.

Use of unapproved sensors may result in incorrect readings, loss of diagnostic functionality, or degradation of system performance.

Procedure

IMPORTANT: Power the unit off prior to replacing the sensor



1. When it is safe to do so, locate the smart sensor module on the bottom of the enclosure.
2. Gently grip the lower section of the smart sensor module and turn it counterclockwise to remove it (the lower section has two flats 180° apart to make this process simpler).



3. Once the lower section of the smart sensor module has been removed, the actual sensor will be exposed.



4. Gently grip the sensor and slowly pull on it until it comes out. The sensor is secured into place with 4 pins. **Do not try to rotate the sensor.**
5. Install the new sensor by carefully aligning the four pins of the sensor with the four holes on the enclosure.

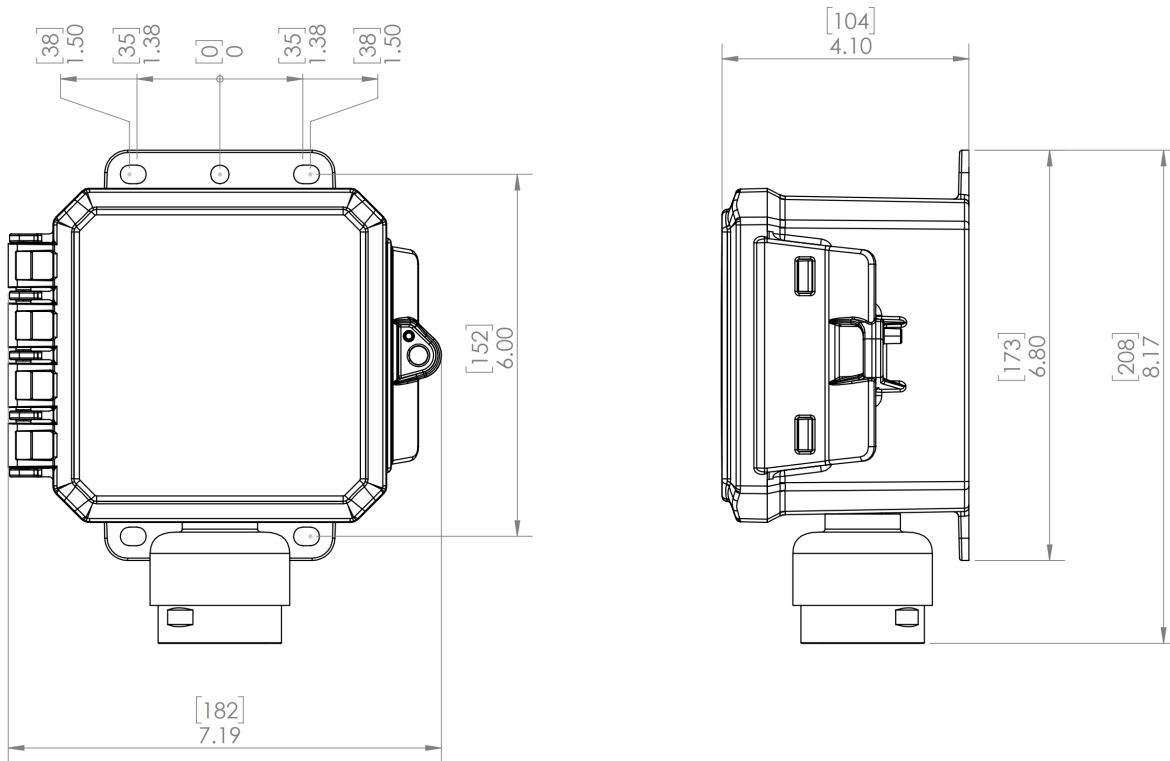
Mounting and Care

The WC70i-LCD has a built-in mounting flange. Mount device so that the gas sensor faces downward. When mounting to a flat surface use at least three exterior rated screws. Screws should be installed in both enclosure flanges.

Provided screws may be substituted for screws with a shear strength in excess of 25lbs(11.3 kg) and a head in excess of 0.31in (7.9mm) A washer may be substituted for the head diameter requirement. Screws should be of sufficient length to not pull out of mounting location.

Example: 1/4" bolt, #10 construction screw, #6 screw with washer.

If mounting location is not thick enough to support device a backing panel or flange nuts may be used.



WARNING: The WC70i-LCD must be mounted in a location free of high vibrations. Over time vibrations can damage the device or battery pack, which could impair its safety ratings. Do not mount directly to continuous vibrating equipment such as pumps or compressors.

Note This equipment design typically applies to commercial equipment expected to be installed in locations where only adults are normally present. This equipment is not suitable for use in locations where children are likely to be present.

Internal Lithium Battery Replacement

Battery Packs can be changed with the node in place.

1. Open the cover of the WC70i-LCD
2. Turn Power switch to “OFF”
3. Unplug the battery from the PCB, by depressing the locking clip on the connector.
4. Remove the two screws holding the battery strap to the battery bracket
5. Remove/Replace the battery.
6. Reinstall the batter strap and screws
7. Connect the battery to the main PCB battery connector
8. Close the enclosure cover, use care to ensure that the wires are not pinched by the cover.



WARNING: Use of any battery other than the WaveContact part number 4DPak will impair the protection provided by the equipment.

AVERTISSEMENT: L'utilisation d'une pile autre que la référence WaveContact 4DPak compromettra la protection fournie par l'équipement.

Cleaning Instructions

The outside of the enclosure may be cleaned with water, mild soap, and a damp cloth as needed. High Pressure washing is not recommended.



WARNING: Electrostatic Discharge Hazard! Care must be taken to avoid the potential of creating a charge on the enclosure or antenna. Do not wipe with a dry cloth. Do not brush against the enclosure with clothing or gloves.

AVERTISSEMENT: Risque de décharge électrostatique! Il faut veiller à éviter tout risque de changement de l'enceinte ou de l'antenne. Ne pas essuyer avec un chiffon sec. Ne pas brosser contre l'enceinte avec des vêtements ou des gants.

Configuration / Debug

Debug and configuration information is available if a connection is made via the debug port on the main board. A USB-C cable must be used for this interface.



WARNING: Only connect to the debug port in a safe area!

AVERTISSEMENT: *Se connecter uniquement au port de débogage dans une zone sûre!*

FreeWave WaveContact WC70i-LCD Safety Manual

Revision	Date	Changes/Updates
1.0	8/6/2026	Initial release

Product and Technical Support

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