



MATHESON

ask. . .The Gas Professionals™

Gas Watcher™

**Bluetooth Pressure Gauge
&
Receiver/Router**

Installation
&
Operation
Instructions

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LIMITED WARRANTY

This equipment is sold by Matheson Tri-Gas (Matheson) under the warranties set forth in the following paragraphs. Such warranties are extended only with respect to the purchase of this equipment directly from Matheson or Matheson's Authorized Agent as new merchandise and are extended to the first Buyer thereof other than for the purpose of resale.

For a period of one year from date of original delivery to Buyer or to Buyer's order, this equipment, is warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts, provided that this equipment is properly operated under the conditions of normal use and that regular and periodic maintenance and service is performed or replacements are made in accordance with the instructions provided. Expendable parts of this equipment are similarly warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts. The foregoing warranties shall not apply if the equipment has been repaired other than by Matheson or a service facility designated by Matheson, or if this equipment has not been operated and maintained in accordance with written instructions provided by Matheson, or has been altered by anyone other than Matheson, or if the equipment has been subject to abuse, misuse, negligence or accident.

Matheson's sole and exclusive obligation and the Buyer's sole and exclusive remedy under the above warranties is limited to repairing or replacing, free of charge, at Matheson's sole discretion, the equipment or part which is telephonically reported to be a problem to the local Matheson Branch Location, and which if so advised, is returned with a written statement of the observed deficiency, not later than seven days after the expiration of the applicable warranty, to the Matheson Gas Equipment Technology Center during normal business hours, transportation charges prepaid, and which, upon examination, is found to comply with the above warranties. The Buyer shall pay for return trip transportation charges for the equipment or part.

MATHESON SHALL NOT BE OTHERWISE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES, WHETHER SUCH DAMAGES RESULT FROM NEGLIGENCE, BREACH OF WARRANTY OR OTHERWISE.

THERE IS NO EXPRESS OR IMPLIED WARRANTIES THAT EXTEND BEYOND THE WARRANTIES HEREINABOVE SET FORTH. MATHESON MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE EQUIPMENT OR PARTS THEREOF.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically, with the frequency of such inspections depending upon the scope of use. Damaged, worn or contaminated equipment should not be used. Parts that are broken, missing, plainly worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, Matheson Tri-Gas recommends that a telephonic or written request for service advice be made to the Matheson Equipment Engineering Group in Montgomeryville Pennsylvania or to the nearest Matheson Tri-Gas Branch location.

This equipment or any of its parts should not be altered without the prior written approval of Matheson Equipment Engineering Group. The user of this equipment shall have the sole responsibility for any malfunction, which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than Matheson Tri-Gas or a service facility designated by Matheson Tri-Gas. Further, the ultimate user of the equipment is responsible for the training and safe operation of the equipment by personnel in his/her employ.

GENERAL INFORMATION

The Gas Watcher™ is a Bluetooth pressure gauge where the pressure can be read not only at the device but also remotely via connection to a web based portal. Gas Watcher™ has the approximate dimensions similar to standard mechanical pressure gauges and can be easily and quickly installed into regulators and manifold arrangements. Gas Watcher™ is powered using a lithium type battery and can provide continuous service for about 18 months before battery replacement. The operation and control settings for the Gas Watcher™ are performed and accessed through a set of ‘2’ pushbuttons located on the face of the Gas Watcher™.

For additional information contact your local Matheson Tri-Gas Sales Representative.

1.0 Gas Watcher™ Quick Start

To Turn the Gas Watcher™ “ON”

Press and hold PB2 for one second*

To Turn the Gas Watcher™ “OFF”

Press and hold PB2 until the screen goes blank (~ 5 seconds)

Display shows Chg? Cylinder Change out?

Press PB1 for “Yes” or PB2 for “No”

Programming Mode (Gas Watcher™ must first be off)

- 1) Press and hold PB2 for 1 second (display reads 8.8.8.8)
- 2) Immediately press and hold PB1 for 1 second
- 3) **Pressure Units** can be changed by pressing PB2
- 4) Press PB1 to access **Low Pressure Shutdown**. Pressing PB2 will toggle trough the values from 200 to 500 psig
- 5) Press PB1 to access **Zero Pressure Set**. Press and hold PB2 for 1 second if you want to zero the pressure reading (display does not change) – Ensure no pressure in system
- 6) Press PB1 to go to normal operation

***Note: The display will flash if the pressure is below the setpoint**

Start up



Pressure Unit Change



Low Pressure Shutdown



Zero Pressure Set



2.0 Normal Gas Watcher™ Operation

When operating normally, the Gas Watcher™ displays the operating pressure of the gas being monitored. If the actual pressure falls below the low pressure threshold, the “Low Pressure” icon will be turned on, and the display will flash on/off. Also, if the battery voltage falls below 2.2V, the “Low Battery” icon will be turned on, and the current display will also flash on/off.

2.1 Pushbutton PB1

- 2.11 Press PB1 momentarily to turn on the backlight for the display. The backlight only stays on for three seconds and automatically turns off (to conserve battery life). While the backlight is on, both pushbuttons (PB1 & PB2) are disabled. The backlight feature is disabled when the battery voltage falls below 2.9V in order to further preserve battery life.



- 2.12 Press and hold pushbutton PB1 for at least 3 seconds to display the low pressure setting. Press and hold PB1 for at least 3 seconds again, the serial number is displayed. Press and hold PB1 for another 3 seconds will display the firmware revision. Press and hold PB1 for a final 3 seconds to return to the normal display.

Note: The Gas Watcher™ will return to the normal display if left alone for a few minutes.

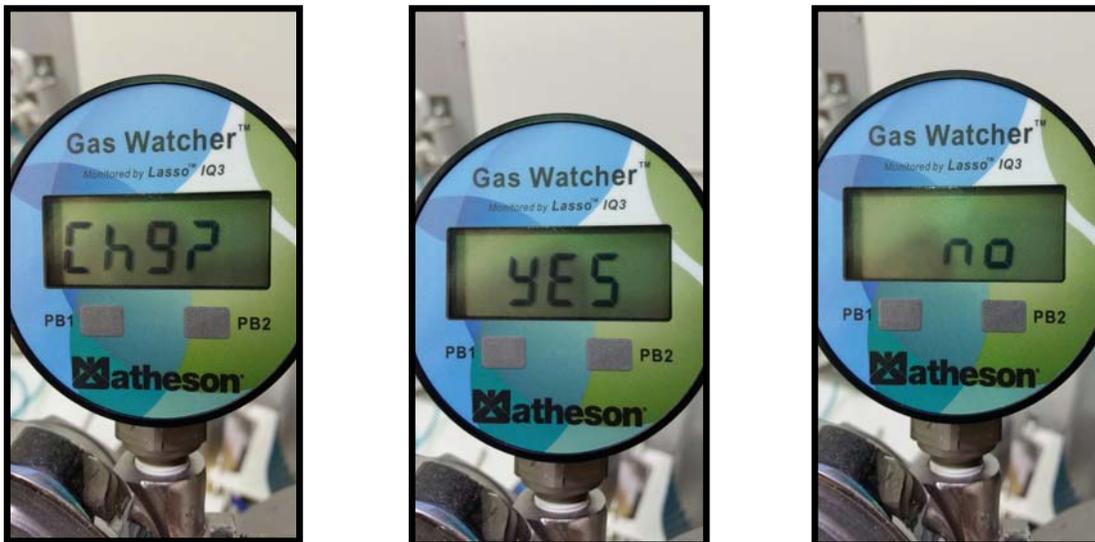


2.2 Change Cylinders

Gas Watcher™ has the ability to transmit the number of cylinders used at a specific location to provide gas usage data. How? **As gas pressure drops below 50 psi and then rises above 55 psi, the Gas Watcher™ will display the text message “Chg?” in a blinking (flashing) pattern. The Gas Watcher™ is asking the user if the existing gas cylinder is being changed out and replaced with a new gas cylinder?**

The user must press pushbutton PB1 to respond “YES,” or press pushbutton PB2 to answer “NO” as to whether or not a NEW Gas Cylinder is being connected to the Gas Watcher™. The Gas Watcher™ will continue to display and flash “Chg?” until the user presses one of the pushbuttons PB1 or PB2 to select a response to answer if a Gas Cylinder Change is taking place. During this time, the Gas Watcher™ components will continue to operate but report zero pressure.

If the user presses “YES” to confirm a NEW Gas Cylinder has been connected, the Gas Watcher™ displays “YES” for three seconds, then returns to normal operation, and the “Change CYLINDER” data will be activated for two minutes. Similarly, if the user presses “NO” to confirm that a NEW gas cylinder HAS NOT been connected then the Gas Watcher™ displays “NO” for three seconds and returns to normal operation.



2.3 Operational Notes for Use of Pushbuttons (“PB1” & “PB2”)

- After the Gas Watcher™ is initially turned on, the pushbuttons are disabled for 15 seconds to allow the Gas Watcher™ to initialize
- The pushbuttons are ignored for about 1-2 seconds every 30 seconds to allow for the pressure measurement and subsequent transfer of the pressure data to the internal processing components

2.4 Battery Location and Replacement

A section of weatherproof tape is applied over top of the removable cover to provide a seal against water penetration. If the Gas Watcher™ is being installed outdoors – this weatherproof tape **MUST** remain on the device until it's time to replace the battery. When the battery requires replacement – the weatherproof tape must be removed and cannot be reapplied/reused.

CAREFUL! When peeling back the tape, the cover may adhere to the tape unless you hold the cover down with a finger as the tape is being removed. **IMPORTANT!** After the battery has been replaced -- a new section of weatherproof tape must be applied in the same location/position as the original.



2.5 Alignment of the Battery after Replacement

After replacing/installing the new battery, the battery should be positioned such that the outer edge of the battery is even with, or just slightly extended beyond, the outer edge of the green circuit board as shown below.



2.6 Troubleshooting: Error Codes

If there is a failure, the “Error Code” will display for 15 seconds and then the Gas Watcher™ will turn off. The Gas Watcher™ must now be removed from service and returned to MATHESON for diagnosis and repair.

- **Err1: PS081 did not initialize properly**
- **Err2: Fault on pressure bridge**
- **Err3: Bluetooth board not detected**

3.0 Router/ Receiver

The Gas Watcher™ Receiver/Router accepts Bluetooth input from up to 49 Gas Watcher™ Bluetooth Pressure Gauges and provides an information gateway to the internet. Information from the sensors is pushed up to an internet Cloud where the data is available in a proprietary password protected portal. Data can be viewed 24/7 anywhere an internet connection is available. The user can set alarms to receive email or text alerts. The data viewed is Real-Time per the specifications of the sensors. Information from the Gas Watcher™ Bluetooth Pressure Gauges is data logged and time stamped. Data can be downloaded in a spreadsheet format. The Gas Watcher™ Receiver/Router is packaged in a NEMA 4 enclosure suitable for outdoor installation and is easy to install with its integrated mounting holes.

If your local network system supports DHCP – then once the Gas Watcher Router is connected to the network, it will be automatically configured and ready for operation.

The Gas Watcher™ Router supports the following types of wireless networks:

- WEP
- WPA-PSK
- WPA2-PSK

3.1 Data Communication & Firewall Configuration

The Gas Watcher™ Router uses HTTP to communicate with the Gas Watcher™ CirrusSense Cloud portal. Data is sent via ports 80 & 443. In/out data communication rules will need to be added to any existing firewalls as applicable to your network set-up to permit the data to be sent to the domain listed below.

The default router configuration uses Google DNS servers for name resolution.

In summary, the following ports will need to be open for all Router communications on the networks:

- 80
- 443
- 53 (only if using Google DNS or any other DNS service outside of your local network)

3.2 Router installation

3.2.1 Wait approximately 2-5 minutes for the Gas Watcher™ Router to come online and be recognized by the network. If your local network supports DHCP, then the Gas Watcher™ Router will be automatically configured and no further set-up will be needed. After 2-5 minutes, proceed to the next steps below. This process must be performed for each Gas Watcher™ Router installed within the facility.

3.2.2 If you are using a “Wired” network connection and your network does not support using DHCP, you will have to follow the steps outlined below for the “Wireless” connection and manually assign an IP Address to the Router to complete the configuration process.

3.3 Wireless Router Installation

You can connect each Gas Watcher™ Router by using your cell phone and following the steps below. This process must be performed for each Gas Watcher™ Router within the facility.

3.3.1 Obtain the information listed below from your IT/Network Administrator regarding the wireless network each Gas Watcher™ Router will be connecting to:

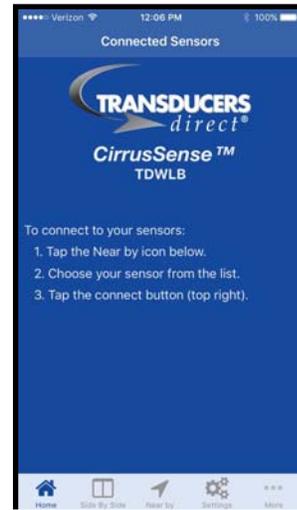
- a. Security Password (same for each Router)
- b. Static IP Address to be assigned to each Router (different for each Router)
- c. “Gateway” Address (same for each Router)
- d. “Netmask” Address (same for each Router)

3.3.2 Using your cell phone -- download the Gas Watcher™ TDWLB app depending on what type of cell phone OS you are using.

- iPhone iOS (@ Apple App Store): <https://itunes.apple.com/app/id663789450>
- Android (@ Google Play Store): https://play.google.com/store/apps/details?id=com.transducersdirect.rongjau_lin.blwdt

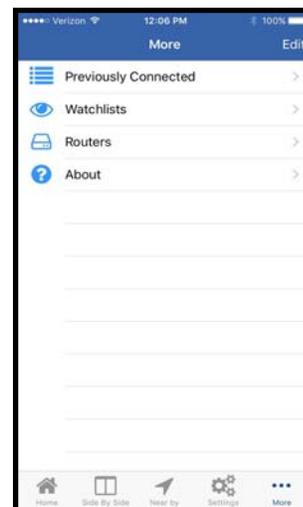
Note: You must have your cell phone in hand and be physically within 10-15 feet of each Gas Watcher™ Router before beginning the process.

3.3.3 Launch the Transducers Direct TDWLB App



3.3.4 If you are using an Android phone – touch the “Routers” icon that appears in the tab bar at the bottom of the App screen.

3.3.5 If you are using an iPhone – you will need to touch the “More” icon that appears to display the “Routers” icon. Touch the “Routers” icon to begin the setup process.



3.3.6 If you are using a “Wired” Ethernet connection, the App will automatically search for your Gas Watcher Router and will automatically connect once it is located – this may take a few minutes.

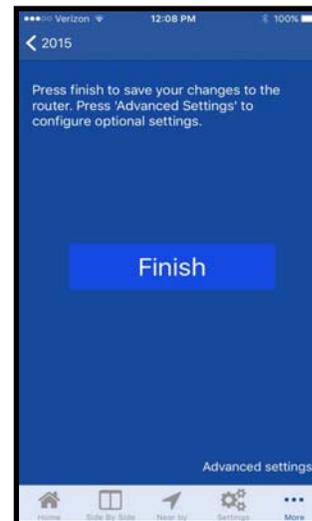
NOTE: To ensure a successful connection when performing this setup operation, please be within 10-15 feet of your Gas Watcher Router.



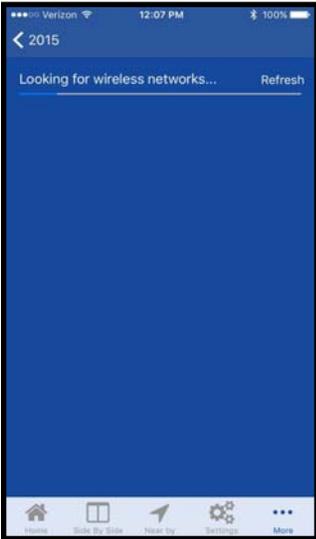
3.3.7 Select the type of internet connection you desire for use with your Gas Watcher Router



3.3.8 If you previously selected a “Wired” network connection and your network uses DHCP – you do not need to perform any further settings, simply touch “Finish” to complete the set-up process. If you selected using a “Wireless” network connection or are using a “Wired” connection without DHCP, then proceed to the next steps.



3.3.9 If you selected a “Wireless” network connection, the Gas Watcher Router will scan for nearby wireless networks that are in range. Scanning for the local networks takes up to 60 seconds.



3.3.10 Select the appropriate network that the Gas Watcher Router will connect to from the list displayed.



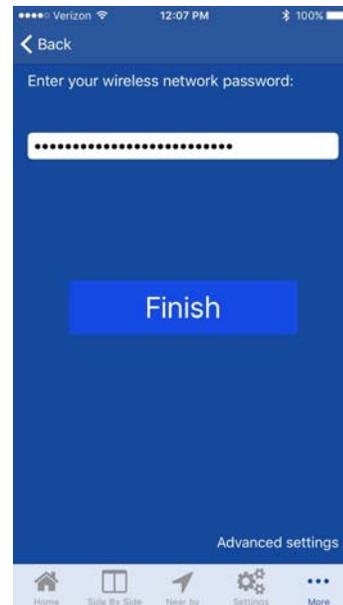
3.3.11 Enter the security Password applicable to the network selected.



3.4 Advanced Configuration Settings for Wireless Configuration & Connection

To specify/assign a static IP address, or static name-servers to the Gas Watcher™ Router, follow the steps below. **Once more, this procedure MUST be performed for each Gas Watcher™ Router installed.**

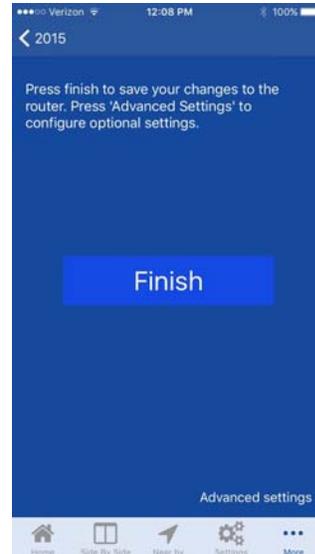
- 3.4.1 Touch “Advanced settings” after entering your wireless network password.



- 3.4.2 To set/assign a static IP address to the Gas Watcher Router, disable the “Use DHCP” option. Once this option is disabled, you will be able to provide (assign), a Static IP Address, Netmask and Gateway for each Gas Watcher™ Router. You can also specify custom name servers at this time. When you are satisfied with your network configuration, press the “Done”



3.4.3 SAVE YOUR Gas Watcher™ Router Configuration -- Press the Finish button.



3.4.4 Your Gas Watcher™ Router will now reboot; and will typically be available for use after approximately 30-60 seconds.



4.0 Data Access

The Gas Watcher™ Router sends its information to the following domain: <http://cirrussensecloud.transducersdirect.com/>. The Subscription Code for the Router is on a card attached to the router.

5.0 Technical Support

If you have any questions regarding the set-up and operation of the Gas Watcher™ device, please contact MATHESON Tech Support at: **800-416-2505** or by email at: **gaswatchersupport@mathesongas.com**.