



G-3 Series Gateway User Manual



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1. Support

Thank you for your purchase of OmniSense wireless remote monitoring equipment! Support is available from your distributor or directly by email or phone shown on the top of each page. If you are frustrated, call us. We want you to be a **really happy** customer!

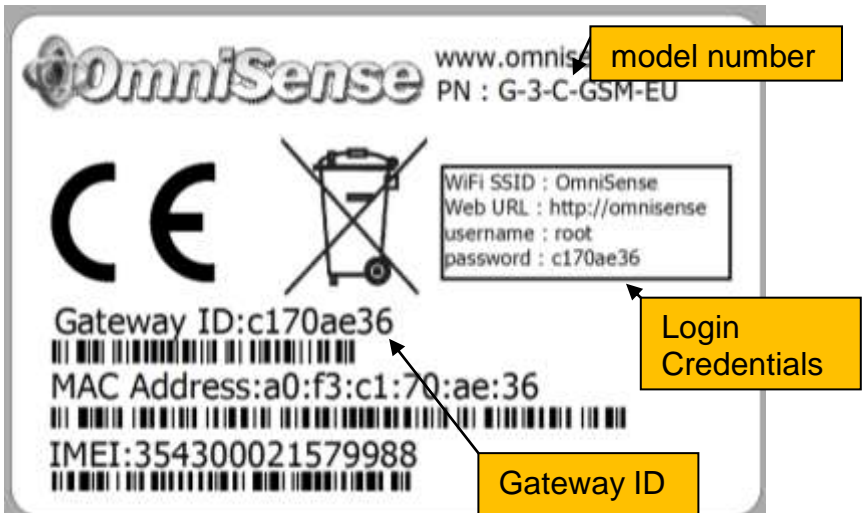
2. Overview

The G-3 series gateway is compatible with all OmniSense and GE HygroTrac sensors. This manual describes how to get your G-3 gateway online and begin monitoring.

3. What is Included

Description
G-3 series Data Acquisition Gateway
Detachable Antenna with RP-SMA connector for Sensor Communication
Detachable Antenna with RP-SMA connector for Cellular Communication (G-3-C-x models only)
USB Power Supply 5VDC/1.0Amp (US, EU or UK plugs available)
Ethernet Cable
Instruction Manual

4. Identifying Gateway Model Number and ID



The image shows a label for an OmniSense gateway with several key pieces of information highlighted by yellow callout boxes:

- model number**: Points to the text "PN : G-3-C-GSM-EU".
- Login Credentials**: Points to a box containing:
WiFi SSID : OmniSense
Web URL : http://omnisense
username : root
password : c170ae36
- Gateway ID**: Points to the text "Gateway ID:c170ae36".

Other information on the label includes the OmniSense logo, a CE mark, a crossed-out trash can icon, and the following text:

www.omnisense.com
PN : G-3-C-GSM-EU
WiFi SSID : OmniSense
Web URL : http://omnisense
username : root
password : c170ae36
Gateway ID:c170ae36
MAC Address:a0:f3:c1:70:ae:36
IMEI:354300021579988

5. Powering up the G-3 Gateway

- Connect power using the supplied USB power supply
- The Internet LED will flash while the gateway is powering up
- Screw on antenna(s) **finger tight. Do not over tighten!**

6. Status LEDs and Their Meaning

The G-3 has useful status LEDs as shown in Figure 1 - LEDs.

- POWER - when on indicates power is ON
- CELLULAR - FLASHES when receiving a cellular signal. Flash rate varies to indicate signal strength. Faster is better signal, slower is worse signal.
- WiFi - ON when WiFi is enabled, blinks to indicate data activity
- WAN/LAN - ON when Ethernet is enabled, blinks to indicate data activity
- INTERNET - When FLASHING indicates gateway is powering up. When ON indicates the G-3 has a working internet connection. When OFF the G-3 does NOT have a working internet connection. **If its NOT ON the gateway is NOT ONLINE.**



Figure 1 - LEDs

7. Accessing G-3 Management Web Page

As a general warning you should not change any settings outside of what is described in this manual. You can restore factory defaults by holding down the reset button for 20 seconds.

The G-3 has a built in web server which serves up the management web pages. The management web server can be accessed directly using any PC, tablet or smart phone. To connect to the G-3 Management Web Page you must connect your PC, smart phone or tablet directly to the G-3 using either WiFi or hard wired Ethernet.

- Power on gateway and wait for the "Internet" LED to stop blinking
- to connect using WiFi
 - From your PC, tablet or smart phone scan for available wireless networks
 - Connect to SSID "OmniSense"
 - open a web browser and enter "<http://192.168.X.1>" in the address field where "X" may be 1, 10 or 88 depending on firmware revision of your gateway
- to connect using hard wired Ethernet
 - Connect G-3 Gateway's WAN/LAN port to your PC's Ethernet port using Ethernet cable
 - You should see the "WAN/LAN" Link LED go on solid or blink
 - open a web browser and enter "<http://10.168.1.98>" in the address field
- You should then see a login page (**see Figure 2 - G-3 Management Login Web Page**) prompting for username and password. Use the default username and password from the label on the bottom of the gateway.
 - **TIP** - The default username is "root" and the default password is the gateway ID. Note password and username are case sensitive and letters are lower case.
 - **TIP** - From the login page with no username or password required you can quickly get useful status like current cellular signal strength and number of active sensors since gateway was turned on. Bookmark this page for easy access.

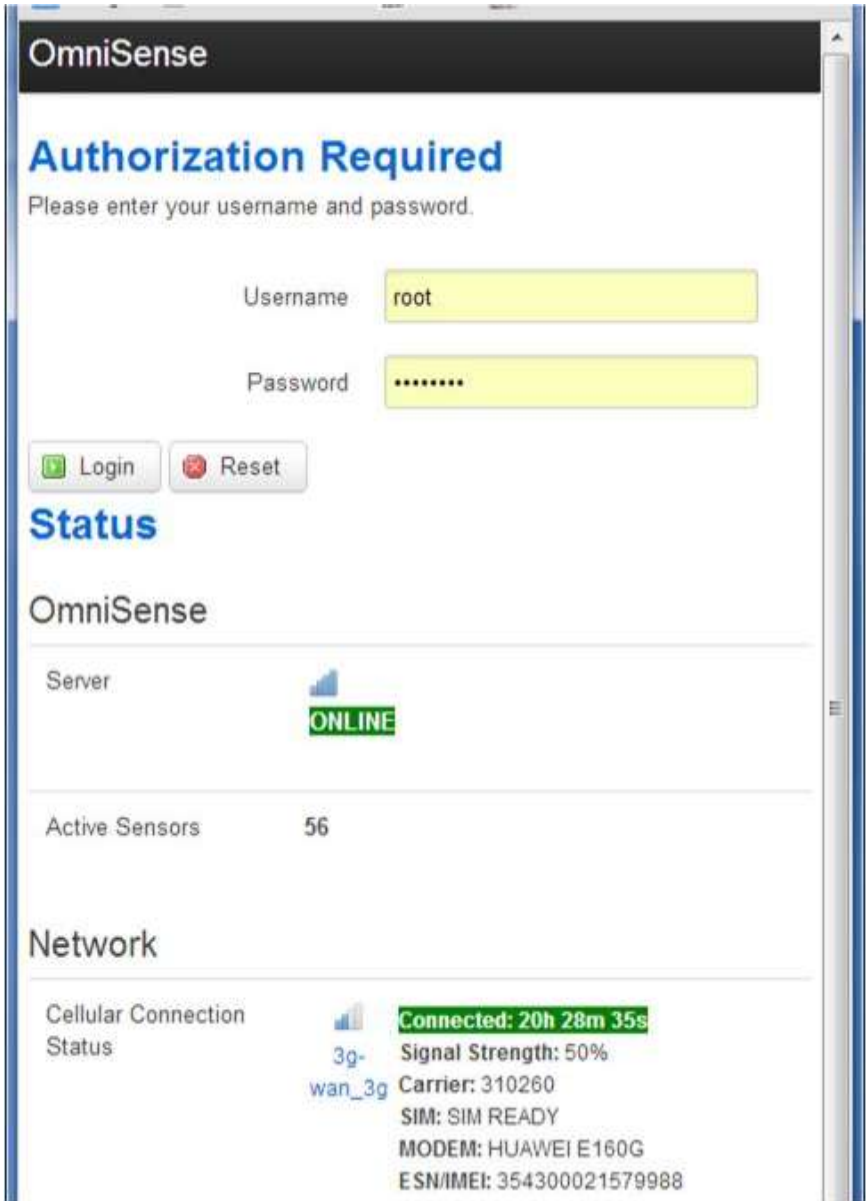



Figure 2 - G-3 Management Login Web Page

8. Connecting G-3 Gateway to the internet

To view your data in real time your gateway must have a internet connection. The G-3 can connect using Cellular (on G-3-C models), WiFi or hard wired Ethernet connections. Follow the steps in this section to connect the G-3 to the internet. To use your G-3 gateway in datalogging mode see section 9.

- power on gateway as described in section 5
- **follow the steps in either section 8.1, 8.2 or 8.3** depending on your method of connecting to the internet, to establish an internet connection
- If you have a internet connection then after a delay of up to 60 seconds **you should see the "Internet" LED go on solid**
- **if the Internet LED does not go on the gateway is not talking to our server** and your internet connection is not working. Check the troubleshooting guide in section 15 and/or our web site forum at shop.omnisense.com for  troubleshooting tips.

8.1. Wired Ethernet Internet Connection

- Typically this is **zero configuration** and you do not need to access the G-3 Management Web Page when using a wired Ethernet connection
- Connect the gateway's WAN/LAN Ethernet port using the supplied Ethernet cable to your LAN, router, cable modem, DSL modem etc. to establish an internet connection
- You should see the "**WAN/LAN**" Link LED go on solid or blinking

8.2. WiFi Internet Connection

- login following instructions in section 7
- Mouse over the "Network" drop down menu and click on "WiFi"
- click "Scan" and you should see a list of available wireless networks
- Click "Join Network" for the network you wish to join
- If the network you are joining uses wireless security then on the next page "Join Network: Settings" enter the "WPA passphrase" then click "Submit".
- On the next page do not change any of the default settings. Scroll down to the bottom and click "Save & Apply"

- When the page finishes reloading the "Status" field shows you are connected if the signal strength is greater than 0%

8.3. G-3-C-x 3G Cellular Data Internet Connection

8.3.1. G-3-C-GSM - Using provided SIM card

If your G-3-C-GSM came with a SIM card it will power on and connect to the internet with **zero configuration**.

8.4. G-3-C-GSM - Inserting your own SIM card

If your G-3-C-GSM did not come with a SIM card follow these instructions for inserting your SIM card and configuring your connection

- Accessing the USB Stick MODEM
 1. Open the gateway case by removing the 4 screws on the bottom of the gateway
 2. Depending on the model of USB MODEM you may have to removed the MDODEM to access the SIM card. Only MODEMS secured with red thumb screws need to be removed, all others MODEMs do NOT need to be removed.
 3. Insert SIM card and assembly is the reverse of disassembly. Use caution if you are re-inserting the antenna connector.
 4. If USB MODEM was removed Insert USB Stick in its original position. Make sure it is fully inserted and two red thumb screws finger tight
 5. Close gateway case, insert 4 screws into bottom of case and hand tighten
- Configuring GSM Connection
 1. Login following instructions in section 7
 2. Click on "Network"
 3. Click on "Edit" for the "WAN_3G" interface
 4. Enter the APN and optionally the PIN, Username and Password
 5. Click "Save & Apply" at the bottom of the page
 6. After about 30 seconds you should see the status show "**Connected: 0h 0m 5s**" as well as see signal strength, the carrier name (i.e. "T-Mobile") and other SIM and MODEM information. While its a good idea to write this down this same information will be available on the OmniSense web site's gateway detail page should you need it.

8.5. GSM Connection Status

- The rate at which the "Cellular" LED flashes varies with signal strength and faster is better
- The "Internet" LED comes on when a connection with the OmniSense server has been successfully made
- more detailed connection status is available on the G-3 Management Web Page which is accessed as described in section 7.

9. Using G-3 gateway in Datalogging mode

The G-3 Gateway always operates in Datalogging mode if it has no internet connection. In this mode no internet connection is required when collecting data and all sensor readings are stored in the local FLASH drive. To upload the saved data to our server the Gateway will require an internet connection. Once it has an internet connection the stored data is automatically uploaded to our server. The time to upload all data varies depending on the amount of sensor readings being uploaded and the speed of the internet connection. Data is uploaded oldest readings first. By default the Gateway can store 262,144 readings after which oldest readings are overwritten. This can be increased to more than 32M readings if required.

10. Create a Monitoring Account

If you already have an account you do not need to create a new account. The OmniSense G-3 gateway can be used with existing GE HygroTrac accounts however all new accounts should be opened on the OmniSense Web site.

- go to <http://www.omnisense.com>, hover your mouse over "My Account" then click "create new account"
- fill in the form to create your account making sure you select the pricing plan that fits your use model
- You will be prompted to create a new job site. Fill in the form that describes the site you wish to monitor

11. Assigning Gateway(s) to a job site

- after completing the site setup in step 1 you will be on the "My Account" page. Click on "jobs Sites" to go to your job sites and you should see the job site you just created.

- Click on the "Gateways" link on that page to manage the gateways assigned to that job site
- Click on the "Add a new gateway" button
- Enter the Gateway ID found on the bottom label of the G-3 gateway and a description and click "Save"

12. Installing Sensors

There are too many variables to address in this guide however case studies of typical sensor installations can be seen here <http://shop.omnisense.com/blog>.

13. View System Data Online

- Login at <http://www.omnisense.com>
- Click on "Jobs Sites" to go to the job sites page.
- To View Sensor Data
 - From the "Jobs Sites" page click on "Sensors" to go to the sensors page.
 - Click on any sensor reading to view a graph of that data
 - Note you may have to wait up to 5 minutes for a sensor to show up on the sensors page
- To view Gateway Status
 - From the "Job Sites" page click on "Gateways" to go to the gateways page
 - Click on a gateway ID to open a new window with details about that gateway

14. Network Configuration

- WiFi - By default the G-3's WiFi is configured as an Access Point (also known as master) with a DHCP Server using 192.168.1.x address range. You can configure the WiFi interface as a simultaneous WiFi Client as described in section 5 and still connect to the G-3 as an access point.
- Hard Wired Ethernet - The G-3 automatically acts as a DHCP Server with IP=10.168.1.98 if no other DHCP server is detected on the network or it will automatically act as a DHCP client if a DHCP server is detected

15. Troubleshooting

PROBLEM	SOLUTION
"Cellular" LED Blinking (you have signal) but "Internet" LED never comes on (not getting internet connection)	If you are using your own SIM card check your APN, Username and Password settings
After changing settings you can no longer access your gateway	Restore factory default settings by pressing the reset button for 20 seconds or until ALL LEDS blink on then off
When connected to a building LAN via wired or wireless Ethernet, the "Internet" LED never comes on	Your network is blocking internet access. Contact your IT department and ask them to enable access
The network uses a Proxy Server	Configure the proxy server IP address on the "OmniSense" Settings web page

16. Specifications

Description	Specification	Notes
Power	100-240 VAC input, 5.0 VDC/1.0 Amp 5 Watts output maximum	USB power supply with Mini B type connector.
Size (l x w x h)	7.5 x 4.9 x 1.6 in. (190 x 125 x 40 mm)	Excluding Antenna(s)
Weight	13.0 oz (429 g)	
Mounting Options	Desktop. Wall or ceiling using 2 built in teardrop mounting eyes.	
WiFi	802.11gn	
Ethernet	10/100 Mb/s	
3G Cellular (on G-3-C-GSM models)	Huawei E160G USB MODEM	US models come with T-Mobile SIM Card
Sensor Antenna	RP-SMA, omni-directional 2 dBi gain	
Cellular Antenna (on G-3-C-GSM models)	RP-SMA, omni-directional 2 dBi gain	
Sensor transmitter RF power	10 mW	
Sensor transmitter RF frequency	64 channels in 902-928 MHZ	FCC ISM band
Sensor transmitter RF frequency (-EU models)	3 channels in 868 MHZ band	
Datalogging Memory	Default 262,144 readings, 32M possible	Contact us to increase limit

17. Declaration of Conformity

We,

**OmniSense LLC
72 Sams Point Road
Ladys Island SC 29907**

declare under our sole responsibility that the

OmniSense Monitoring System

to which this declaration relates, is in conformity with the following standards:

For US and Canada Models Only

FCC Part 15

This Product Contains Transmitter Module FCC ID: RY20002 and Transmitter Module FCC ID:TE7MR3020

This equipment complies with Parts 15 of the Federal Communications Commission (FCC) rules for the United States. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

The equipment has been tested and found to comply with 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 the 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 or 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 or on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Part 15 Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada (IC)

This Product Contains Transmitter Module IC ID:6474A-0002.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the interference causing equipment standard entitled Digital Apparatus, ICES-003 of Industry Canada. This device complies with Canadian RSS-210 regulations.

NOTICE: The Industry Canada (IC) label identifies certified equipment. The Department does not guarantee the equipment will operate to the user's satisfaction.

For EU Models Only

Data Acquisition Gateway

The *G-3 Series Gateway* is in conformity with the following standards:

- EN55022:2006+A1:2007
- EN 55024:2010
- EN60950-1:2006 + A11:2009 + A1:2010 + A12:2011

following the provisions of the 2004/108/EC Electromagnetic Compatibility (as amended) and 2006/95/EC Low Voltage Directive (as amended).

Sensors

The *Sensor Module* is in conformity with the following standards:

- EN300 220-3 V1.1.1 (2000-09)
- EN301 489-3 V1.4.1 (2002-08)

following the provisions of the Radio Equipment and Telecommunications Terminal Equipment. (R&TTE) directive: Directive 1999/5/EC.



Ladys Island - May 7, 2013

Chris Hoogenboom
President, OmniSense LLC

18. Warranty

OmniSense LLC warrants its products against defects in material and workmanship for 12 months from the date of shipment.

Products not subjected to misuse will be repaired or replaced.

OmniSense LLC reserves the right to make changes without further notice to any products herein. OmniSense LLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular application nor does OmniSense LLC assume any liability arising out of the application or use of any product or circuit and specifically disclaims all liability without limitation for consequential or incidental damages. The foregoing warranties are exclusive and in lieu of all other warranties, whether written, oral, implied or statutory. No implied statutory warranty of merchantability or fitness for particular purpose shall apply.