

**4G/LTE CELL MODEM
FOR SENSAPHONE CLOUD DEVICES
USER'S MANUAL
VERSION 1.10**

SENSAPHONE®
REMOTE MONITORING SOLUTIONS

IMPORTANT SAFETY INSTRUCTIONS

Your 4G/LTE Cell Modem has been carefully designed to give you years of safe, reliable performance. As with all electrical equipment, however, there are a few basic precautions you should take to avoid hurting yourself or damaging the unit:

- Read the installation and operating instructions in this manual carefully. Be sure to save it for future reference.
- Read and follow all warning and instruction labels on the product itself.
- To protect the 4G/LTE Cell Modem from overheating, make sure all openings on the unit are not blocked. Do not place on or near a heat source, such as a radiator or heat register.
- Do not use your 4G/LTE Cell Modem near water, or spill liquid of any kind into it.
- Be certain that your power source matches the rating listed on the AC power supply. If you're not sure of the type of power supply to your facility, consult your dealer or local power company.
- Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
- Do not overload wall outlets and extension cords, as this can result in the risk of fire or electric shock.
- Never push objects of any kind into this product through ventilation holes as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock.
- To reduce the risk of electric shock, do not disassemble this product, but return it to Sensaphone Customer Service, or other approved repair facility, when any service or repair work is required.
- Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the unit is subsequently used.
- If anything happens that indicates that your 4G/LTE Cell Modem is not working properly or has been damaged, unplug it immediately and follow the procedures in Appendix C for having it serviced. Return the unit for servicing under the following conditions:
 1. The power cord or plug is frayed or damaged.
 2. Liquid has been spilled into the product or it has been exposed to water.
 3. The unit has been dropped, or the cabinet is damaged.
 4. The unit doesn't function normally when you're following the operating instructions.

CAUTION

To Reduce the Risk of Fire or Injury to Persons, Read and Follow these Instructions:

1. Use only the following type and size battery: 12V 3AH sealed lead acid
2. Do not dispose of the battery in a fire. The cell may explode. Check with local codes for possible special disposal instructions.
3. Do not open or mutilate the battery. Released electrolyte is corrosive and may cause damage to the eyes or skin. It may be toxic if swallowed.
4. Exercise care in handling the battery in order not to short the battery with conducting materials such as rings, bracelets, and keys. The battery or conductor may overheat and cause burns.

1 YEAR LIMITED WARRANTY

PLEASE READ THIS WARRANTY CAREFULLY BEFORE USING THE PRODUCT.

THIS LIMITED WARRANTY CONTAINS SENSAPHONE'S STANDARD TERMS AND CONDITIONS. WHERE PERMITTED BY THE APPLICABLE LAW, BY KEEPING YOUR SENSAPHONE PRODUCT BEYOND THIRTY (30) DAYS AFTER THE DATE OF DELIVERY, YOU FULLY ACCEPT THE TERMS AND CONDITIONS SET FORTH IN THIS LIMITED WARRANTY.

IN ADDITION, WHERE PERMITTED BY THE APPLICABLE LAW, YOUR INSTALLATION AND/OR USE OF THE PRODUCT CONSTITUTES FULL ACCEPTANCE OF THE TERMS AND CONDITIONS OF THIS LIMITED WARRANTY (HEREINAFTER REFERRED TO AS "LIMITED WARRANTY OR WARRANTY"). IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS THIS WARRANTY, INCLUDING ANY LIMITATIONS OF WARRANTY, INDEMNIFICATION TERMS OR LIMITATION OF LIABILITY, THEN YOU SHOULD NOT USE THE PRODUCT AND SHOULD RETURN IT TO THE SELLER FOR A REFUND OF THE PURCHASE PRICE. THE LAW MAY VARY BY JURISDICTION AS TO THE APPLICABILITY OF YOUR INSTALLATION OR USE ACTUALLY CONSTITUTING ACCEPTANCE OF THE TERMS AND CONDITIONS HEREIN AND AS TO THE APPLICABILITY OF ANY LIMITATION OF WARRANTY, INDEMNIFICATION TERMS OR LIMITATIONS OF LIABILITY.

1. WARRANTOR: In this Warranty, Warrantor shall mean "Dealer, Distributor, and/or Manufacturer."
2. ELEMENTS OF WARRANTY: This Product is warranted to be free from defects in materials and craftsmanship with only the limitations and exclusions set out below.
3. WARRANTY AND REMEDY: One-Year Warranty — In the event that the Product does not conform to this warranty at any time during the time of one year from original purchase, warrantor will repair the defect and return it to you at no charge.

This warranty shall terminate and be of no further effect at the time the product is: (1) damaged by extraneous cause such as fire, water, lightning, etc. or not maintained as reasonable and necessary; or (2) modified; or (3) improperly installed; or (4) misused; or (5) repaired or serviced by someone other than Warrantors' authorized personnel or someone expressly authorized by Warrantor's to make such service or repairs; (6) used in a manner or purpose for which the product was not intended; or (7) sold by original purchaser.

LIMITED WARRANTY, LIMITATION OF DAMAGES AND DISCLAIMER OF LIABILITY FOR DAMAGES: THE WARRANTOR'S OBLIGATION UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT, AT THE WARRANTOR'S OPTION AS TO REPAIR OR REPLACEMENT. IN NO EVENT SHALL WARRANTORS BE LIABLE OR RESPONSIBLE FOR PAYMENT OF ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL AND/OR PUNITIVE DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO ANY LABOR COSTS, PRODUCT COSTS, LOST REVENUE, BUSINESS INTERRUPTION LOSSES, LOST PROFITS, LOSS OF BUSINESS, LOSS OF DATA OR INFORMATION, OR FINANCIAL LOSS, FOR CLAIMS OF ANY NATURE, INCLUDING BUT NOT LIMITED TO CLAIMS IN CONTRACT, BREACH OF WARRANTY OR TORT, AND WHETHER OR NOT CAUSED BY WARRANTORS' NEGLIGENCE. IN THE EVENT THAT IT IS DETERMINED IN ANY ADJUDICATION THAT THE LIMITED WARRANTIES OF REPAIR OR REPLACEMENT ARE INAPPLICABLE, THEN THE PURCHASER'S SOLE REMEDY SHALL BE PAYMENT TO THE PURCHASER OF THE ORIGINAL COST OF THE PRODUCT, AND IN NO EVENT SHALL WARRANTORS BE LIABLE OR RESPONSIBLE FOR PAYMENT OF ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL AND/OR PUNITIVE DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO ANY LOST REVENUE, BUSINESS INTERRUPTION LOSSES, LOST PROFITS, LOSS OF BUSINESS, LOSS OF DATA OR INFORMATION, OR FINANCIAL LOSS, FOR CLAIMS OF ANY NATURE, INCLUDING BUT NOT LIMITED TO CLAIMS IN CONTRACT, BREACH OF WARRANTY OR TORT, AND WHETHER OR NOT CAUSED BY WARRANTORS' NEGLIGENCE.

WITHOUT WAIVING ANY PROVISION IN THIS LIMITED WARRANTY, IF A CIRCUMSTANCE ARISES WHERE WARRANTORS ARE FOUND TO BE LIABLE FOR ANY LOSS OR DAMAGE ARISING OUT OF MISTAKES, NEGLIGENCE, OMISSIONS, INTERRUPTIONS, DELAYS, ERRORS OR DEFECTS IN WARRANTORS' PRODUCTS OR SERVICES, SUCH LIABILITY SHALL NOT EXCEED THE TOTAL AMOUNT PAID BY THE CUSTOMER FOR WARRANTORS' PRODUCT AND SERVICES OR \$250.00, WHICHEVER IS GREATER. YOU HEREBY RELEASE WARRANTORS FROM ANY AND ALL OBLIGATIONS, LIABILITIES AND CLAIMS IN EXCESS OF THIS LIMITATION. INDEMNIFICATION AND COVENANT NOT TO SUE: YOU WILL INDEMNIFY, DEFEND AND HOLD HARMLESS WARRANTORS, THEIR OWNERS, DIRECTORS, OFFICERS, EMPLOYEES, AGENTS, SUPPLIERS OR AFFILIATED COMPANIES, AGAINST ANY AND ALL CLAIMS, DEMANDS OR ACTIONS BASED UPON ANY LOSSES, LIABILITIES, DAMAGES OR COSTS, INCLUDING BUT NOT LIMITED TO DAMAGES THAT ARE DIRECT OR INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL, AND INCLUDING ATTORNEYS FEES AND LEGAL COSTS, THAT MAY RESULT FROM THE INSTALLATION, OPERATION, USE OF, OR INABILITY TO USE WARRANTORS' PRODUCTS AND SERVICES, OR FROM THE FAILURE OF THE WARRANTORS' SYSTEM TO REPORT A GIVEN EVENT OR CONDITION, WHETHER OR NOT CAUSED BY WARRANTORS' NEGLIGENCE.

YOU AGREE TO RELEASE, WAIVE, DISCHARGE AND COVENANT NOT TO SUE WARRANTORS, THEIR OWNERS, DIRECTORS, OFFICERS, EMPLOYEES, AGENTS, SUPPLIERS OR AFFILIATED COMPANIES, FOR ANY AND ALL LIABILITIES POTENTIALLY ARISING FROM ANY CLAIM, DEMAND OR ACTION BASED UPON ANY LOSSES, LIABILITIES, DAMAGES OR COSTS, INCLUDING BUT NOT LIMITED TO DAMAGES THAT ARE DIRECT OR INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL, AND INCLUDING ATTORNEYS FEES AND LEGAL COSTS, THAT MAY RESULT FROM THE INSTALLATION, OPERATION, USE OF, OR INABILITY

TO USE WARRANTORS' PRODUCTS AND SERVICES, OR FROM THE FAILURE OF THE WARRANTORS' SYSTEM TO REPORT A GIVEN EVENT OR CONDITION, WHETHER OR NOT CAUSED BY WARRANTORS' NEGLIGENCE, EXCEPT AS NECESSARY TO ENFORCE THE EXPRESS TERMS OF THIS LIMITED WARRANTY.

EXCLUSIVE WARRANTY: THE LIMITED WARRANTY OR WARRANTIES DESCRIBED HEREIN CONSTITUTE THE SOLE WARRANTY OR WARRANTIES TO THE PURCHASER. ALL IMPLIED WARRANTIES ARE EXPRESSLY DISCLAIMED, INCLUDING: THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR USE AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND THE WARRANTY OF NON-INFRINGEMENT AND/OR ANY WARRANTY ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

It must be clear that the Warrantors are not insuring your premises or business or guaranteeing that there will not be damage to your person or property or business if you use this Product. You should maintain insurance coverage

sufficient to provide compensation for any loss, damage, or expense that may arise in connection with the use of products or services, even if caused by Warrantors' negligence. The warrantors assume no liability for installation of the Product and/or interruptions of the service due to strikes, riots, floods, fire, and/or any cause beyond Seller's control, further subject to the limitations expressed in any License Agreement or other Agreement provided by Warrantors to purchaser.

The agreement between the Warrantors and the Purchaser, including but not limited to the terms and conditions herein shall not be governed by the Convention for the International Sale of Goods. Where applicable, the Uniform

Commercial Code as adopted by the State of Delaware shall apply.

4. PROCEDURE FOR OBTAINING PERFORMANCE OF WARRANTY: In the event that the Product does not conform to this warranty, the Product should be shipped or delivered freight prepaid to a Warrantor with evidence of original purchase.

5. LEGAL REMEDIES AND DISCLAIMER: Some jurisdictions may not allow, or may place limits upon, the exclusion and/or limitation of implied warranties, incidental damages and/or consequential damages for some types of goods or products sold to consumers and/or the use of indemnification terms. Thus, the exclusions, indemnification terms and limitations set out above may not apply, or may be limited in their application, to you. If the implied warranties can not be excluded, and the applicable law permits limiting the duration of implied warranties, then the implied warranties herein are to be limited to the same duration as the applicable written warranty or warranties herein. The warranty or warranties herein may give you

specific legal rights that will depend upon the applicable law. You may also have other legal rights depending upon the law in your jurisdiction.

6. CHOICE OF FORUM AND CHOICE OF LAW: In the event that a dispute arises out of or in connection with this Limited Warranty, then any claims or suits of any kind concerning such disputes shall only and exclusively be brought in either the Court of Common Pleas of Delaware County, Pennsylvania or the United States District Court for the Eastern District of Pennsylvania.

Regardless of the place of contracting or performance, this Limited Warranty and all questions relating to its validity, interpretation, performance and enforcement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to the principles of conflicts of law.

Effective date 07/01/2019

PHONETICS, INC. d.b.a. SENSAPHONE

901 Tryens Road

Aston, PA 19014

Phone: 610.558.2700 Fax: 610.558.0222

www.sensaphone.com

Table of Contents

Chapter 1: Introduction

Chapter 2: Installation & Operation

Appendix A: Specifications

Appendix B: Troubleshooting

Appendix C: Returning the Unit for Repair

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	7
FEATURES:	7
LAYOUT:	7
TECHNICAL SUPPORT	8
CHAPTER 2: INSTALLATION AND OPERATION	9
2.1 OPERATING ENVIRONMENT	9
2.2 MOUNTING	9
2.3 USING THE WEATHERPROOF RJ45 CONNECTORS	9
2.4 CELLULAR ACTIVATION	10
2.5 TURNING ON THE DEVICE	10
CHAPTER 3: NETWORK CONFIGURATION FOR MODBUS TCP	
DEVICES	11
CONFIGURING THE MODEM FOR USE ON AN EXISTING NETWORK	11
APPENDIX A: SPECIFICATIONS	12
APPENDIX B: RETURNING YOUR UNIT FOR REPAIR	12

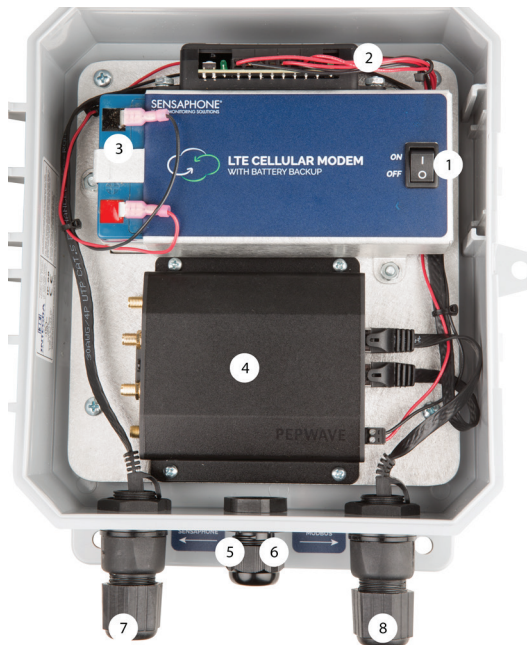
CHAPTER 1: INTRODUCTION

The 4G/LTE Cell Modem for Sensaphone Cloud Devices provides a cellular connection to the internet using AT&T, Verizon, or Rogers Wireless (Canada). The device contains a 12V 3AH sealed lead-acid 8-hour rechargeable battery backup system. The unit is self-contained and mounted in a NEMA 4X enclosure that can be wall mounted. Weatherproof connectors are provided for connecting CAT5 cables as well as the antenna and power supply. The device requires activation through a cellular subscription plan with Sensaphone. Pricing varies depending on which Sensaphone Cloud Device will be connected (see included subscription form). The subscription also enables voice alarms, text messaging, and unlimited datalogging for the Sensaphone connected device.

FEATURES:

- 4G/LTE Connectivity to major cellular networks
- Ethernet ports for Sensaphone device and Modbus devices (if required)
- 8-Hour Rechargeable Backup Battery
- External antenna with 16' cable
- Battery Charge Controller to manage battery charging & low voltage disconnect
- NEMA 4X Enclosure with weatherproof fittings

LAYOUT:



1. Power Switch
2. Charge Controller
3. Rechargeable Battery
4. 4G/LTE Modem
5. Power Supply (Not shown in image)
6. Antenna (Not shown in image)
7. Sensaphone CAT5 Connector
8. Modbus CAT5 Connector

TECHNICAL SUPPORT

If any questions arise upon installation or operation of the 4G/LTE Cell Modem, please contact the Sensaphone Technical Service Department at the number shown below, and have the following information:

- Date of Purchase _____
- Serial number _____

Technical Support is available from 8:00am to 5:00pm EST.

You may also e-mail us at support@sensaphone.com.

SENSAPHONE

901 Tryens Road

Aston, PA 19014

Phone: 877-373-2700

Fax: 610-558-0222

www.sensaphone.com

CHAPTER 2: INSTALLATION AND OPERATION

Correctly installing the 4G/LTE Modem will ensure proper functioning of the unit. Please read the entire chapter before starting the installation process. Within the packaging will be a Warranty Registration Card. Please take the time to fill this out and mail. The One Year Limited Warranty is explained in the front of this manual.

2.1 OPERATING ENVIRONMENT

The unit can be mounted indoors or outdoors, however, optimal battery life will be achieved by keeping the device near



room temperature (e.g. ~ 75 deg F). The 4G/LTE Modem should be installed and operated in an area that provides space for mounting the unit and the antenna, as well as connecting the power supply to AC power, and connecting the CAT5 cables to your Sensaphone and Modbus devices (if required). The unit may be used in temperatures ranging from 5° to 122° F (-15° to 50° C).

NOTE: The 4G/LTE Modem is a sensitive electronic device. Do not install near strong electrostatic, electromagnetic, or radioactive fields. Mount the antenna as far from electronic/electromechanical devices as possible to avoid interference. Do not expose the internal components to humid environments, fumes, or corrosive vapors.

2.2 MOUNTING

The unit can be mounted to a wall or panel using four #10 screws. Keep out of direct sunlight if possible. Mount the unit in a location that allows for optimal antenna placement. The antenna cable is 16 ft long. The antenna should be mounted as high as possible and away from electrical equipment that may cause interference like controllers, motors, pumps, etc... Do not add-on to the antenna cable as this will degrade the signal and negatively affect modem performance. Do not install the antenna inside a metal enclosure. Keep in mind that it's better to run a long CAT5 cable to your Sensaphone device (up to 328') then to locate the modem/antenna in a poor location.

The enclosure is fitted with two weatherproof RJ45 connectors. The connector on the left labelled "Sensaphone" is for connecting to the Ethernet port on your Sentinel, Sentinel Pro or Stratus device. The connector on the right labelled "Modbus" can be used for reading registers from ModbusTCP devices connected to your local network. Some network configuration will be required - see Chapter 3 for additional instructions for configuring the modem and your network to work with Modbus devices.

2.3 USING THE WEATHERPROOF RJ45 CONNECTORS

To connect an RJ45 cable to the weatherproof connector, unscrew the ribbed outer part of the connector, then unscrew the inner part that butts up against the enclosure. Use your finger to push the rubber grommet out. Insert your CAT5 cable through the outer ribbed part, then through the fingers of the inner part and connect it the RJ45 jack on the enclosure. Wrap the rubber grommet around the cable and push it into the fingers of the inner piece, then screw the inner piece onto the enclosure. Then screw on the ribbed outer piece.

2.4 CELLULAR ACTIVATION

Before the unit will function you must subscribe to a cellular plan. A subscription form is included in the box. Follow the directions for filling out the form and send to Sensaphone as directed. We will activate the cellular service as soon your form is processed and notify you once it's complete.

2.5 TURNING ON THE DEVICE

Open the door on the weatherproof enclosure and turn on the Power switch. The green LED on the Charge Controller should light up. Allow the modem several minutes to boot-up and connect to the cellular network. Turn-on your Sensaphone device after the modem has been powered-up for 5 minutes. The online LED on your Sensaphone should glow steady after it boots and makes a connection to the Sensaphone.net servers.

CHAPTER 3: NETWORK CONFIGURATION FOR MODBUS TCP DEVICES

Stratus EMS and Sentinel PRO devices can read Modbus registers from third party equipment using ModbusTCP over Ethernet. The 4G/LTE Modem contains two Ethernet jacks: one port is for the Sensaphone device to communicate over the cellular network back the Sensaphone.net servers, the other port is for communicating with your ModbusTCP devices. The modem has been configured to allow internet access to the Sensaphone port but not to the Modbus port. It is very important that you connect the proper devices into the proper network ports. See diagram below:

The Modbus port is setup on IP address 192.168.1.1. If you are configuring a 'new' Modbus network device then using this address range will simplify the process. Just set your device IP's to 192.168.1.x. Your Sensaphone will be able to read registers on this IP address.

CONFIGURING THE MODEM FOR USE ON AN EXISTING NETWORK

If you need to monitor Modbus devices on an existing network then you will need to change the IP address of the modem to an address compatible with your network AND add a static route to your existing firewall/router. Follow the steps below:

- 1) Open a web browser on a computer that is connected to the Modbus port.
- 2) Enter the following URL in the address field of the browser `http:// 192.168.1.1`
- 3) Enter the following to access the web admin screen:

User Name: admin

Password: admin

- 4) Select 'Network' from the menu. Then click on 'LAN'.
- 5) Change the IP address to an unused address on your network and click 'Save'. Document the modem's new IP address and post a copy on or near the 4G/LTE Cell Modem for future reference.
- 6) You will need to add a static route on your existing router/firewall that points to the modem's new IP address. This route will allow ModbusTCP devices to communicate with your Sensaphone device connected to the other port on the CELL Modem. The static route needs to direct traffic for 192.168.51.0/24 to the modem's IP address (configured in step 5). Please refer to your router's documentation and/or consult your IT department for help with this step.

APPENDIX A: SPECIFICATIONS

Modem Technology:	4G-LTE (Bands B2, B4, B5, B12 & B13) for US and Canada only
Modem Data rate:	150Mbps downlink, 50Mbps Uplink
Ethernet Ports:	(2) 10/100M (One for the Sensaphone Cloud Device, one for Modbus devices-if needed)
Cellular Carriers:	AT&T, Verizon, or Rogers (Canada)
Antenna:	Omni-directional outdoor IP66 rated, 2G/3G/4G frequencies from 698-960/1710-3800MHz, Peak Gain 5 dBi, Cable 16', Wall or Mast Mount
Battery Backup:	12V 3AH SLA Rechargeable Battery, provides up to 8 hrs backup time
Power Supply:	External 12V 2.5A Power Supply, Input 100-240VAC 50/60 Hz
Enclosure:	High impact polycarbonate, UL Type 4X/6P (IP 66/68)
Dimensions:	11.1”h x 9.4”w x 3.5”d
Weight:	8.5 lbs.
Operating Temperature:	5°F to 122°F (-15°C to 50°C)

APPENDIX B: RETURNING YOUR UNIT FOR REPAIR

In the event that the 4G/LTE Cell Modem does not function properly, we suggest that you do the following:

- 1) Record your observations regarding the device's malfunction.
- 2) Call the Technical Service Department at 877-373-2700 prior to sending the unit to Sensaphone for repair.

If the unit must be sent to Sensaphone for Servicing, please do the following:

- 1) Turn the power switch OFF and unplug the AC power supply from the wall outlet. Disconnect the CAT5 cable(s).
- 2) Carefully pack the unit to avoid damage in transit. Use the original container (if available) or a sturdy shipping box.
- 3) Download and fill-out the Repair form on the Sensaphone.com website (Support>Repair) and place inside the box or include a note with the following information to avoid shipping delays:
 - a) Your name, address and telephone number.
 - b) A note explaining the problem.
- 4) Ship your package to the address below:

SERVICE DEPARTMENT

SENSAPHONE

901 Tryens road

Aston, PA 19014

- 5) Ship prepaid and insured via UPS or US Mail to ensure a traceable shipment with recourse for damage or replacement.

