
SENSIT-IT[®] RAMP

REMOTE AIR QUALITY MONITORING PLATFORMS

SENSOR OPERATION & CONFIGURATION GUIDE

READ AND UNDERSTAND INSTRUCTIONS BEFORE USE.



851 Transport Drive • Valparaiso, IN 46383 (USA)
Phone: 219.465.2700 • www.GasLeakSensors.com

CONTENTS

RAMP SENSOR OVERVIEW & SPECIFICATIONS	3
GENERAL	3
SENSORS.....	4
SENSOR EXTERIOR FEATURES (FRONT EXTERIOR)	5
SENSOR EXTERIOR FEATURES (BACK SIDE EXTERIOR).....	6
SENSOR EXTERIOR FEATURES (LEFT SIDE EXTERIOR).....	7
SENSOR EXTERIOR FEATURES (RIGHT SIDE EXTERIOR)	7
SENSOR EXTERIOR FEATURES (BOTTOM EXTERIOR).....	7
SENSOR FEATURES (FRONT INTERIOR)	8
QUICK START DEPLOYMENT GUIDE	8
STAT = HEX1, HEX2, HEX3, (EXTENDED INFO)	10
USB COMMUNICATION & CONFIGURATION MODE (SENSOR)	11
REQUIRED COMPONENTS:	11
SENSOR QUICKSTART INSTRUCTIONS.....	11
DETAILED ROOT MENU INFORMATION	12
DETAILED CELLULAR MENU INFORMATION	13
DETAILED OUTPUT MENU INFORMATION	16
DETAILED TIME MENU INFORMATION	16
DETAILED SYSTEM MENU INFORMATION.....	17
HARDWARE AND SOFTWARE INSTALLATION GUIDE.....	18
NOTES.....	22
WARRANTY	24

RAMP SENSOR OVERVIEW & SPECIFICATIONS

GENERAL

OVERVIEW	PARAMETER
Weight	Base unit: 7.5 lbs
Dimensions	Fully assembled without anemometer or antenna ¹ D x W x H (5" x 10" x 12")
Mounting	Attached mounting flanges
Voltage Requirements	18V – 24V DC Charging (wired adapter or solar panel)
Current Requirements	2A max current draw when charging
Operating Runtime	3-15 days battery backup ²
Operating Temp	-20°C to 50°C
Data Outputs	<ul style="list-style-type: none">• Digital wired output (3.3V TTL - USB)• Cellular 4G IoT with 2G Backup Included³• Optional analytics on server ⁴• SD card data backup ⁵

NOTES:

1. The anemometer is to be mounted separate to a pole. Could be same pole as sensor.
2. Battery backup time depends on run mode, sensor configuration, and frequency of transmission.
3. Requires SIM card and suitable data plan on 2G, 4G CatM1, or 4G NB IoT
4. Cloud based analytics can be developed with additional contract
5. When removing SD card to obtain data, it is recommended to power off the sensor box prior to reinserting the SD card to avoid possible errors. If the system stops responding after inserting an SD card, power down the sensor and turn back on.

SENSORS

OVERVIEW	PARAMETER
CO Detection Range	100 ppb – 25 ppm
CO Accuracy	+/- 100 ppb min or 50%
NO Detection Range	20 ppb – 25 ppm
NO Accuracy	+/- 20 ppb min or 50%
NO ₂ Detection Range	20 ppb – 25 ppm
NO ₂ Accuracy	+/- 20 ppb min or 50%
O ₃ Detection Range	20 ppb – 25 ppm
O ₃ Accuracy	+/- 20 ppb min or 50%
CO, NO, NO ₂ , O ₃ Response Times	60-90 seconds ¹
CO, NO, NO ₂ , O ₃ Detection Method	Electrochemical
CO ₂ Detection Threshold	100-2000 ppm ²
CO ₂ Accuracy	+/- 200 ppm min or 20%
CO ₂ Response Time	15-30 seconds
CO ₂ Detection Method	NDIR Optical
PM2.5 Detection Threshold	1 - 1000 µg /m ³
PM2.5 Accuracy	+/- 10 µg /m ³ min or 50%
PM2.5 Response Time	15-30 seconds
PM2.5 Detection Method	Laser Scattering
Periodic Maintenance	Periodic cleaning of sensor openings of dust, offset adjustment, and span adjustment. User replacement of sensors is easily performed as needed.
Additional Included Sensors	Additional sensors can be added (external ports) ³

NOTES:

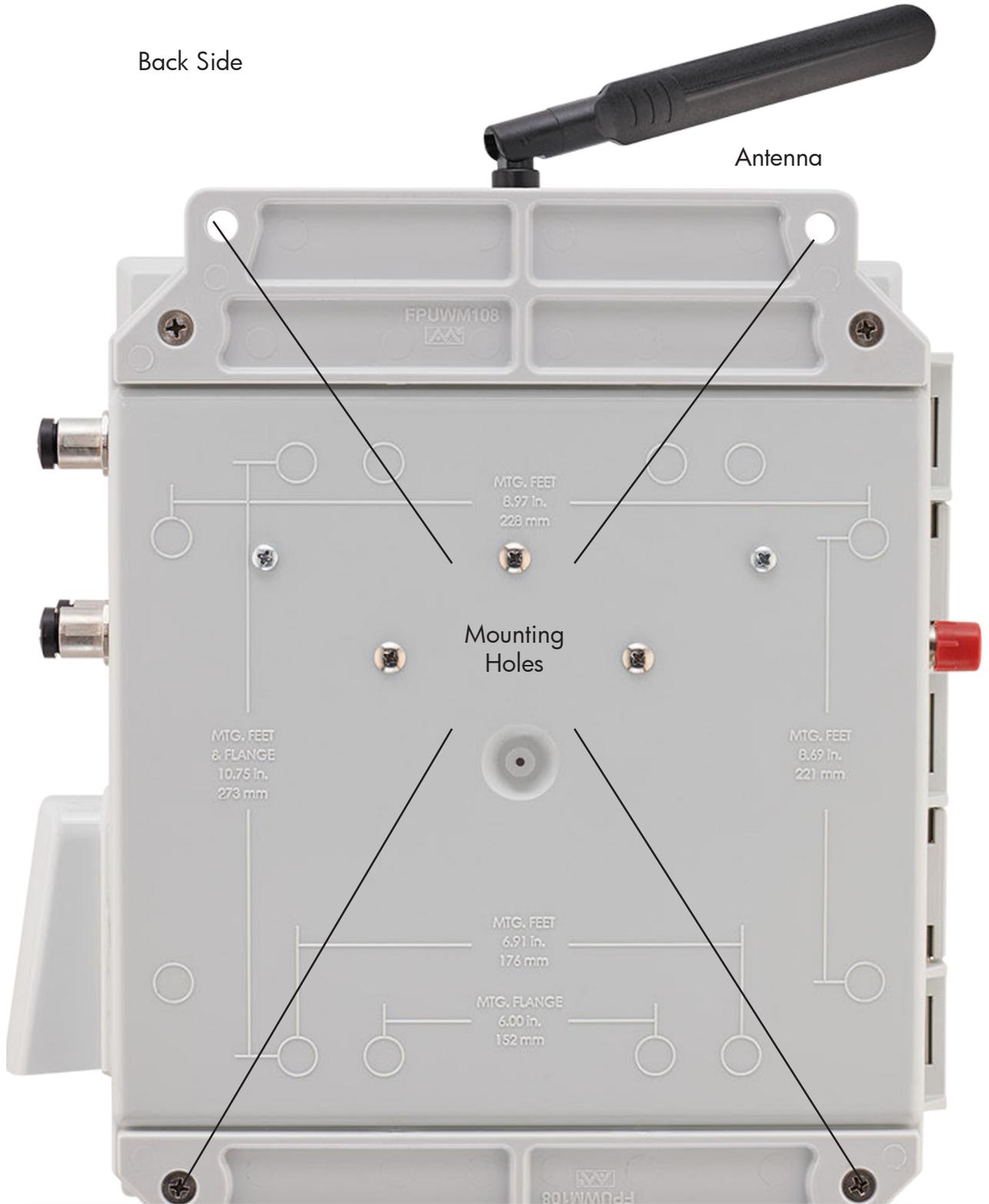
1. If the unit has been off for an extended period of time, it will take approximately 12-24 hours for the electrochemical sensors to stabilize completely.
2. There are additional CO₂ sensors available with identical form factors if higher concentrations (e.g. 10,000 ppm) are determined to be necessary.
3. The anemometer that is designed to work with the RAMP is the Davis Vantage Pro 2 Anemometer (<https://www.davisinstruments.com/product/anemometer-for-vantage-pro2-vantage-pro/>)

SENSOR EXTERIOR FEATURES (FRONT EXTERIOR)

Front View

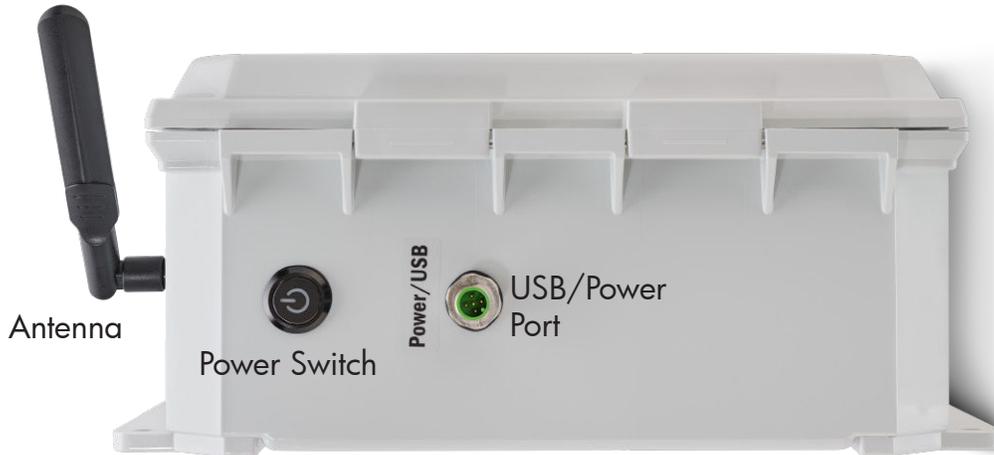


SENSOR EXTERIOR FEATURES (BACK SIDE EXTERIOR)



SENSOR EXTERIOR FEATURES (LEFT SIDE EXTERIOR)

Left View



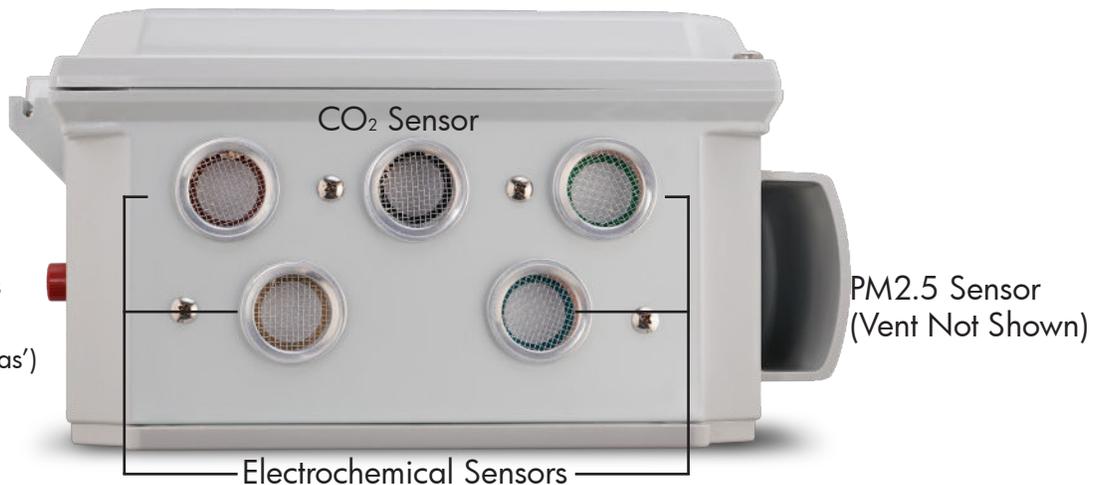
SENSOR EXTERIOR FEATURES (RIGHT SIDE EXTERIOR)

Right View



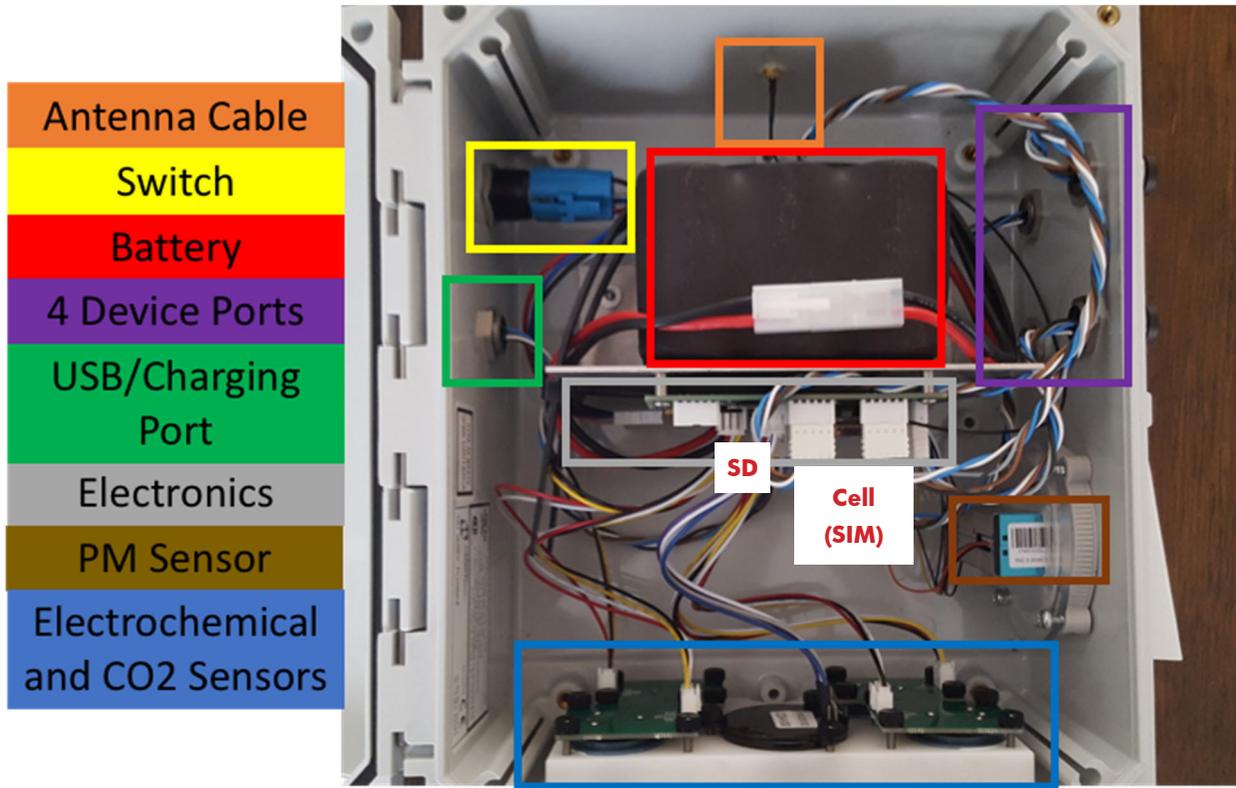
SENSOR EXTERIOR FEATURES (BOTTOM EXTERIOR)

*Alternative sensors exist such as ENVIR (T, RH, P, 'Gas') PID (VOC, T, RH)



NOTE: Do not obstruct sensor openings. User must install sensor enclosure with sensor openings facing downward to avoid water and debris accumulation.

SENSOR FEATURES (FRONT INTERIOR)



QUICK START DEPLOYMENT GUIDE

It is recommended to use a computer and the supplied USB cable when setting up the sensor unit to verify the operation of the sensors, system output, and cellular data connectivity (if applicable).

1. Unpack the sensor unit and check for any physical damage or obstructions at the sensor openings. Open enclosure cover and check for any loose or damaged components. Make sure all wires are securely fastened.
2. Hook up USB cable sensor and initialize terminal connection. Power on unit and verify that the SD card was detected and initialized.
3. Enter into USB mode from startup or from configuration menu. Verify the sensor outputs are reasonable or trending toward reasonable values keeping in mind the stabilization time for the electrochemical sensors. The output format is shown below and will depend on RAMP configuration:

HEADING	DESCRIPTION	UNITS/FORMAT
DATE	Local Date and Time	MM/DD/YY HH:MM:SS (24H)
CO	CO	PPB
NO	NO	PPB
SO2	SO ₂	PPB
NO2	NO ₂	PPB
O3	O ₃	PPB

H2S ¹	H ₂ S	PPB
CO2	CO ₂	PPM
VOC	TVOC	PPB
G	TVOC	Uncalibrated MOS (kOhm)
T	Temperature	°C
RH	Relative Humidity	%
P	Pressure	mBar
PM1	PM1.0	µg /m ³
PM2.5	PM2.5	µg /m ³
PM10	PM10	µg /m ³
PM1_2	PM1.0 redundant	µg /m ³
PM2.5_2	PM2.5 redundant	µg /m ³
PM10_2	PM10 redundant	µg /m ³
PORT1 ²	External Module	Appears only if attached
PORT2 ²	External Module	Appears only if attached
PORT3 ²	External Module	Appears only if attached
PORT4 ²	External Module	Appears only if attached
WD	Wind Dir	Degrees from North
WS	Wind Speed	Mph
BATT	Battery Voltage	Volts (4.2 - 3.4V)
CHRG	Charging Current	mA
RUN	Run Current	mA
SD	SD Status	(1 – OK, 0 – refer to STAT)
RAW	Raw sensor signals	ADC Counts

STAT	System Information	*See Below*
LAT	GPS Latitude	Degrees
LON	GPS Longitude	Degrees
CRC	Checksum	

4. The heading 'STAT' contains diagnostic information detailed below:

STAT = HEX1, HEX2, HEX3, (EXTENDED INFO)

HEX1 BIT	DESCRIPTION
0	SD Init Status (0 – Init Failure, 1 – Init Success)
1	SD Card Presence (0 – Not Installed, 1 – Installed)
2	SD Write Status (0 – No Error, 1 – Write Error)
3	Temp Flag (1 – Normal, 0 – Low Temp)
4	Charge Status (0 – Charge On, 1 – Charge Off)
5	CO ₂ Connection Status (0 – Not Installed, 1 – Installed)
6	PTR 1 Connection Status (0 – Not Installed, 1 – Installed)
7	Always Zero

HEX2 BIT	DESCRIPTION
0	CO Read Error (0 – OK, 1 – Error)
1	NO/SO ₂ Read Error (0 – OK, 1 – Error)
2	NO ₂ Read Error (0 – OK, 1 – Error)
3	O ₃ Read Error (0 – OK, 1 – Error)
4	Port 1 Connection Status (0 – Not Installed, 1 – Installed)
5	Port 2 Connection Status (0 – Not Installed, 1 – Installed)
6	Port 3 Connection Status (0 – Not Installed, 1 – Installed)
7	Port 4 Connection Status (0 – Not Installed, 1 – Installed)

HEX3 BIT	DESCRIPTION
0	Port 1 Power Status (0 – Power Off, 1 – Power On)
1	Port 2 Power Status (0 – Power Off, 1 – Power On)
2	Port 3 Power Status (0 – Power Off, 1 – Power On)
3	Port 4 Power Status (0 – Power Off, 1 – Power On)
4	Port 1 Fault Status (0 – No Fault, 1 – Fault)

5	Port 2 Fault Status (0 – No Fault, 1 – Fault)
6	Port 3 Fault Status (0 – No Fault, 1 – Fault)
7	Port 4 Fault Status (0 – No Fault, 1 – Fault)

5. If operating with a weather station, orient the weather sensor such that it is pointing North. Failure to do this will result in arbitrary wind direction.
6. After verifying functionality remove the USB cable. If planning to run in USB mode, install a power adapter or a solar panel for long term deployment applications. Otherwise, power cycle the RAMP, then install a power adapter or a solar panel for long term deployment applications.

NOTES:

1. Other sensors not listed here may be possible to configure within the RAMP device. Contact SENSIT for more information.
2. The Heading for the ports will be specific to the device that is connected not 'Port #'

USB COMMUNICATION & CONFIGURATION MODE (SENSOR)

The RAMP sensors allow for the reconfiguration of several parameters pertaining to the operation of system. Adjustment of these parameters is only accessible for a short period of time after powering on the sensor (~10s). These parameters are stored in non-volatile memory and are retained during subsequent power cycling. Documentation of these parameters is listed below.

REQUIRED COMPONENTS:

- Sensor
- USB data cable
- Computer with a serial port terminal software program (e.g. CoolTerm)

SENSOR QUICKSTART INSTRUCTIONS

1. Connect the USB cable to the RAMP and computer and establish the communication link in the terminal software.

Turn on power switch and observe initialization process. After initializing the microcontroller and printing RAMP information, the system will prompt the user to:

“Enter Configuration Mode? (YES)”

2. Configuration mode allows access to configuration settings and system settings. To enter configuration mode type Yes at the prompt and hit enter. The menus are all text-based and easy to follow. The following list contains all the adjustable within the menu:

MENU ITEM	DESCRIPTION	LOCATION
CELLULAR	Cellular settings	Root Menu
DEFAULT	Reset all settings	Root Menu
DISPLAY	Prints device settings	Root Menu

GPS	GPS Settings	Root Menu
OUTPUT	Sensor Output Behavior	Root Menu
TIME	Time Settings	Root Menu
SYSTEM	System settings	Root Menu

NOTE: With the exception of DEBUG option, all changes made within menu are stored in NVRAM and will be retained on power cycling

DETAILED ROOT MENU INFORMATION

Cellular: Contains all settings associated with the cellular modem. This is required for communication with any online servers.

Default: Resets all options to the factory default. Not recommended without consulting Sensit.

Display: Displays all current settings in the terminal window. An example print out is shown below. Please note that system settings may differ from device to device depending on the application.

```
Sensor ID: 1097
Without MET
Firmware Version: 220224_AQ_v9.70
System DATE,03/23/22 17:29:27
Network Time: Enabled, UTC
Battery Voltage: 3.66
Power Source: Solar Power
Output Mode: Streaming, Standard SD Rate
Communication Mode: Cellular, Unlocked
Network Selection: CATM1
Cellular Protocol: CSV Periodic HTTP Always On with TLS
Output Data Rate: 60
Cellular Output Ratio: 1
Server Address: https://api.sensitconnect.net/sensors- data/addsensorsdata
Access Point Name: zipitwireless.com.attz
GPS Mode: Disabled
Auto-Range Gain: Enabled
Calibration File: Disabled
```

GPS: "ENABLE" or "DISABLE" the GPS. Depending on the cellular data protocol and output mode, the user may be presented with additional options. If cellular output is disabled or if PERIODIC protocol is selected the GPS mode will default to SINGLE (see below). If cellular output is enabled and MQTT or HTTP protocol are enabled the user can select between the following GPS settings:

"CONSTANT": GPS is always on and fixing position (Highest power draw)

"INTERVAL": GPS turns on at an interval determined by "RATIO"x"ODR"

"SINGLE": GPS turns on at power up and remains off until system is reset

OUTPUT: This menu contains settings that modify the output characteristics of the sensor.

TIME: Set the system date and time. If cellular is available and automatic date and time is

enabled, this will happen automatically when the device connects. Note that the initial data may have the wrong date and time until the clock adjusts.

SYSTEM: Adjustment of system settings of RAMP including ADC configuration, CALFILE generation, constrain limits, sensor calibration settings, and weather station input selection.

EXIT: Leave the root menu and starts system operation

DETAILED CELLULAR MENU INFORMATION

MENU ITEM	DESCRIPTION	LOCATION
APN	Carrier APN Setting	Cellular Menu
BAND	Custom Carrier Band Settings	Cellular Menu
CREDENTIALS	MQTT Username and Password	Cellular Menu
HOST	Server Location Address	Cellular Menu
NETWORK	Cellular Network Configuration	Cellular Menu
PROTOCOL	Data Transfer Protocol	Cellular Menu
RATIO	Number of Samples to Buffer	Cellular Menu
SIGNAL	Apply settings and check signal	Cellular Menu
TLS	Activate TLS, Load Server Cert	Cellular Menu
TOPICS	MQTT Topics	Cellular Menu
EXIT	Exit Cellular Menu	Cellular Menu

APN: Set the required APN for data access on the installed sim card. Please note that the APN text entry might be case sensitive for your network provider.

BAND: Select and scan available bands to verify cellular connection and select most suitable band. Also features CARRIER band selection in the United States for AT&T, T-Mobile, and Verizon. This is an advanced feature and is not recommended to be used without guidance of SENSIT.

CREDENTIALS: Set the require USERNAME and PASSWORD required for MQTT data access. This menu will prompt the user to type "USERPASS" or "AZUREHUB". To manually configure username and password type "USERPASS". If using Azure

IoT hub, type "AZUREHUB" to send SAS token. The SPOD will parse the relevant connection parameters from the SAS token. The SAS token must have the following parameters to be accepted:

```
SharedAccessSignature sr=<HOSTNAME>%2Fdevices%2F<DEVICEID> &sig=<URI of the resource being accessed, HASH >
&se=<Token Expiry Time, Epoch Time>
```

HOST: Set the server address to send the data to. The target server must be configured to accept the data.

NETWORK: Define network behavior of the cellular module. AUTO mode is enabled by default and under most circumstances will work well. If required it is possible to force the modem to only look for "GPRS", "CATM1", "NBBIOT", "LTE", or "GLOBAL" service instead of

scanning for all network options. It is required to run "SIGNAL" option after adjusting network settings. Note that "GLOBAL" option is no longer recommended for RAMPs using modem based on Quectel BG95.

Contact Sensit for more information and do not make changes to this parameter unless directed.

PROTOCOL: Set the cellular data communication protocol to the following options:

"DATATYPE": Select CSV or JSON data packet to be communicated over wireless data connection. JSON tag delimiters can be provided by SENSIT. JSON datatype not supported by SENSITConnect.

"HTTP": Transfers data using HTTP Post protocol constantly at interval determined by the output data rate (ODR)

"MQTT": Transfers data using MQTT publish constantly at interval determined by the output data rate (ODR)

"PERIODIC": Buffers HTTP data according to the "RATIO" setting at the output data rate. After the required number of samples has been collected the modem will turn on, post all data, and then turn off. The interval of cellular cycles is determined by "ODR" x "RATIO"

RATIO: Set the number of required samples between cellular cycles for the "PERIODIC" cellular protocol. This value also influences GPS signal acquisition interval for certain modes. See information of GPS for more info.

SIGNAL: Acquire cellular signal strength and network registration status. This option also programs the modem with any changes to the NETWORK mode. After 10-15 seconds the serial terminal should display

"CSQ: A,B REG Status: C,D,E" Data Status: F"

Advanced cellular network information will follow if applicable. A description of A, B, C, D, E, and F follow below.

A: (0-31,99) defines the signal strength B: (0-7, 99) defines the data error rate

C: (0-5) defines the general network registration status D: (0-5) defines GPRS network registration status

E: (0-5) defines LTE network registration status

To form a data connection, D and/or E must show a registration status of 1 or 5

F: ONLINE/OFFLINE Indicates if unit can make data connection.

Unit must show ONLINE for it to transmit data via cellular. SIGNAL check should be completed before deployment.

A VALUE		
CSQ VALUE	DBM	MEANING
0	< -113	Absolutely no Signal
1	-111	Very Weak Signal
2-10	-109 to -93	Weak Signal
10-20	-81 to -73	Moderate Signal
21-30	-71 to -53	Strong Signal
31	> -51	Very Strong Signal
99	?	Unknown/Not Detected
B VALUE	MEANING	
0-3	Reliable Data Link	
4-5	Occasional Dropped Posts	
6-7	Unreliable Data Link	
99	Unknown/Not Detected	
C,D,E VALUE	MEANING	
0	Not registered, Not Searching	
1	Registered Successfully	
2	Not registered, Searching	
3	Registration Denied	
4	Unknown Status	
5	Registered Successfully, Roaming	

TLS: Enable or disable TLS encryption for HTTPS or MQTTS. For TLS authentication the user must load a root certificate file for the server on the microSD card. The certificate file must be named "CACERT.CER". If TLS is enabled the terminal should display:

```
TLS Eanbled...Waiting to Load Cert
Deleting Old Files
Loading New Cert From SD
Cert File Found
+QFUPL: 1311,3f41
```

OK

Please note that the values after "+QFUPL" are different for different certificate files. The first number is the number of bytes and the second number is a checksum. The same cert file should always generate the same number of bytes and checksum. If errors are observed verify that the certificate file is loaded on the microSD card and properly named.

TOPICS: Set the publish and subscribe topic used for MQTT cellular protocol.

EXIT: Leave the cellular configuration menu and enter the root menu

DETAILED OUTPUT MENU INFORMATION

MENU ITEM	DESCRIPTION	LOCATION
MODE	Output Mode Settings	Output Menu
ODR	Data Rate Setting	Output Menu
POLL	Output When Polled (any char)	Output Menu
STREAM	Output Continuously	Output Menu
SD	SD Rate and Format	Output Menu
EXIT	Exit Output Menu	Output Menu

MODE: Sets the communication mode of the RAMP. The following options are possible:

“Cellular”:
Sends data with cellular modem at ODR and USB/Power port every 5 seconds

“USB”:
Sends data with USB/Power Port every 5 seconds and turns of wireless

“Cellular”:
Sends data with WiFi modem at ODR and USB/Power port every 5 seconds

“XBEE”:
Sends data with XBEE (optional) at ODR and USB/Power port every 5 seconds

ODR: Sets the output data rate of the cellular modem or XBEE wireless device. The USB port will always show data output every 5 seconds.

POLL: Disable streaming over USB/Port and XBEE. RAMP will return data when receiving any character from control device.

STREAM: Continuous USB and XBEE data output every 5 seconds.

EXIT: Leave the output configuration menu and enter the root menu

DETAILED TIME MENU INFORMATION

MENU ITEM	DESCRIPTION	LOCATION
AUTOTIME	Enable/Disable Autotime	Time Menu
TIMEZONE	Select LOCAL or UTC Timezone	Time Menu
SET	Set Date and Time	Time Menu

AUTOTIME: Autotime sync uses the network time provided by the cellular module if available. For some cellular network SIM card combinations, the provided time can be incorrect and should be disabled to avoid time errors.

TIMEZONE: “LOCAL” or “UTC” The time can be reported as local time according to the location of the device or UTC time.

SET: Allows user to manually set date and time. The indicated format must be followed exactly with no exceptions and all numbers must be padded with 0’s as required. The specified format is:

MM/DD/YY HH:MM:SS (e.g. 01/01/20 00:00:01)

DETAILED SYSTEM MENU INFORMATION

MENU ITEM	DESCRIPTION	LOCATION
AUTORANGE	Automatic ADC Gain Selection	System Menu
CALFILE	Enable continuous file collection	System Menu
CONSTRAIN	Limit sensor readings above 0	System Menu
ECHEM	Sensor Parameters	System Menu
ECHEMPARAM	Display echem parameters	System Menu
OFFSET	Offset and slope settings	System Menu
OFFSETPARAM	Display offset/slope	System Menu
WIND	Wind sensor settings	System Menu

AUTORANGE: Default operation is to leave ADC gain fixed. Higher resolution data may be obtained by enabling autorange gain by reducing the full-scale range of the ADC. This will scale the raw values by the gain multiplier and care must be taken if using the raw values for post data processing if previously using fixed gain.

CALFILE: Enables a continuously running CAL.TXT. This is useful for compiling a continuous set of collocation data but is not recommended to leave on as file size will become extremely large.

CONSTRAIN: Enables or disables a constraint on negative values. It is recommended to disable constrain to allow better indication of offsetting calibration.

ECHEM: This can be used to adjust electrochemical sensor parameters. This should not be edited unless directed by SENSIT. If unintentional changes are made the user should apply the '0: Default' setting

ECHEMPARAM: This shows the current sensors installed and the sensors parameters. If adjustments are made they should be verified here.

OFFSET: This allows the user to adjust the calibration offset and slope correction for all sensors. The user will be prompted to type [SENSORTYPE]: and apply offset and slope corrections. All corrections can be removed by typing RESET within this option.

OFFSETPARAM: This shows the current sensors installed and the offset and slope correction parameters. If adjustments are made they should be verified here.

WIND: Select 'Analog' for Cup and Vane style anemometer, 'Digital' for ultrasonic weather station, or NONE

3. Typing 'CAL' instead of 'YES' enter calibration mode. Calibration mode allows the user to observe a continuous sensor output as well as calibrate the zero and slope of the following sensors: CO, NO, NO₂, O₃, CO₂, PM_{2.5} reading. Calibration mode is temporary and will be lost upon a system power cycle. To enter calibration mode type Cal at the prompt.

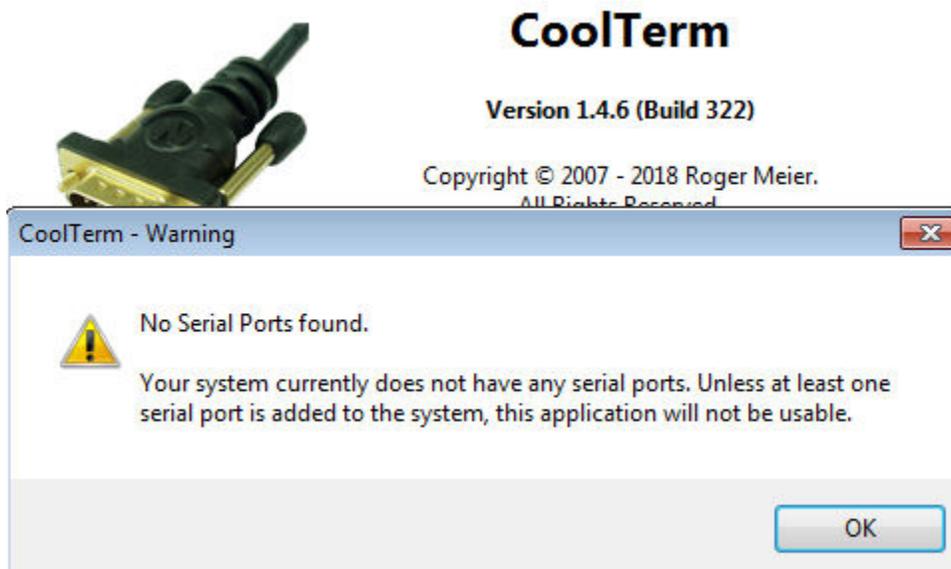
- To set new zero level expose the sensor to zero air and type the following: CO:zero, NO:zero, NO₂:zero, O₃:zero, CO₂:zero, or PM_{2.5}:zero
- To calibrate the sensor to a known level of target gas replace 'zero' with the actual ppb reading for CO, the actual ppm reading for CO₂, or the µg / m³ reading for PM_{2.5}

(e.g. CO:10000 would calibrate to 10000 ppb CO, CO2:1500 would calibrate 1500 ppm CO2, or PM25:20 would calibrate 20 µg / m3)

NOTE: Please allow 1-2 outputs for the sensor reading to update.

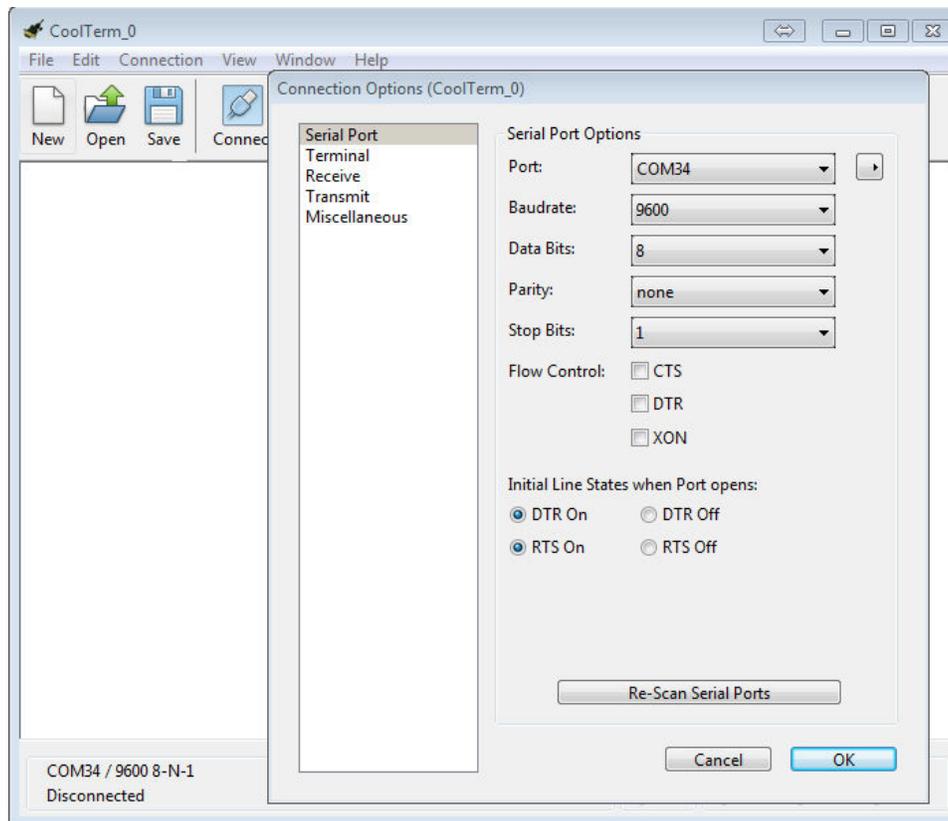
HARDWARE AND SOFTWARE INSTALLATION GUIDE

1. Download drivers for FTDI Serial Adapter and install drivers <http://www.ftdichip.com/Drivers/VCP.htm>
2. Open serial terminal program of your choice. CoolTerm is recommended and instructions for using CoolTerm are found below. CoolTerm is available for Windows, Mac, and Linux. CoolTerm can be downloaded for free from here: <http://freeware.the-meiers.org/>
 1. Extract 'Software_CoolTerm' to the directory of your choosing. To avoid certain permissions issues do not extract into "Program Files". It is recommended to extract to the desktop if possible.
 2. Open the 'CoolTerm' application. You may receive an error indicating that no serial ports are found depending on what is hooked up to the computer. Click okay to continue.

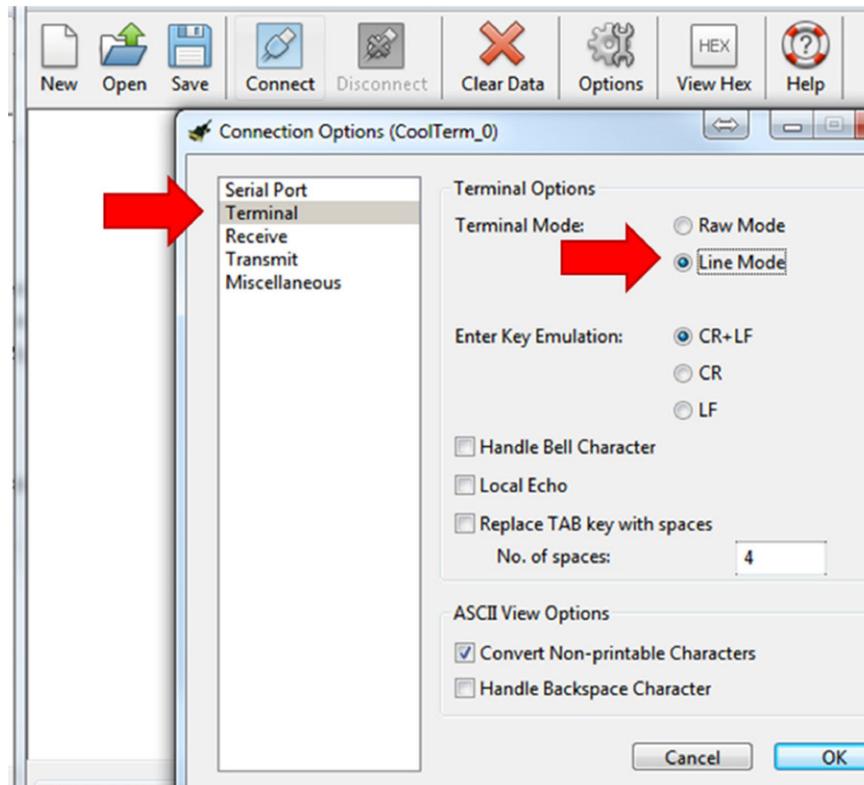


3. Click 'Options' as shown below

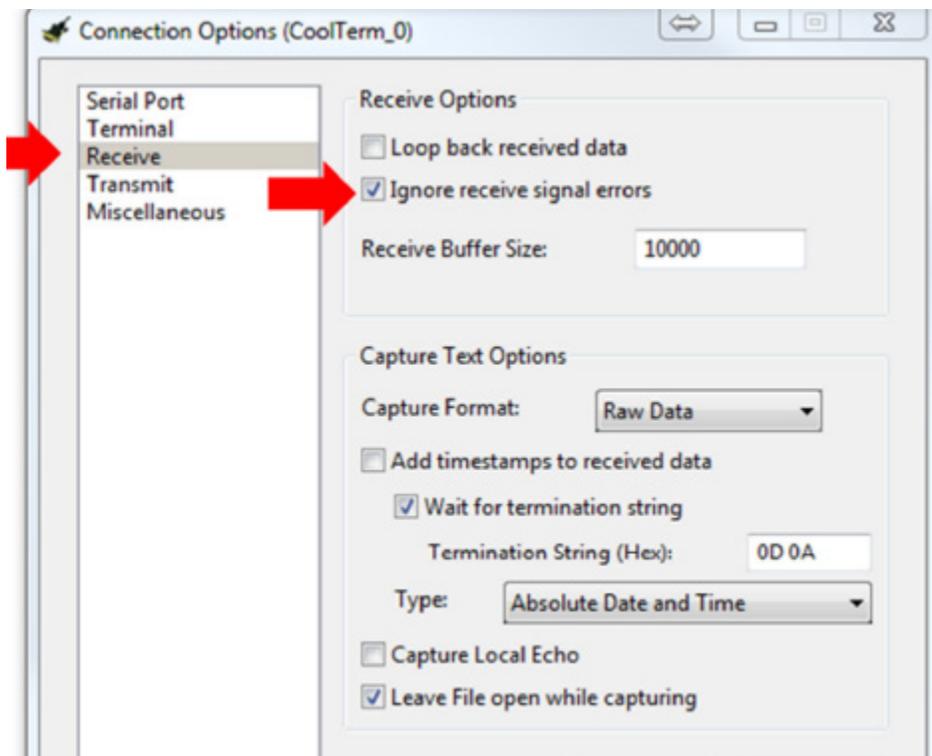
- a. 'Serial Port' options should open by default. If not, select Serial Port options from the list of available options as shown below. All default options should be correct but please verify. Click on 'Port' dropdown list and make note of any available ports. Plug in the USB cable and wait for hardware installation to finish. Click "Re-Scan Serial Ports". The newly added port is the USB cable. Select this port.



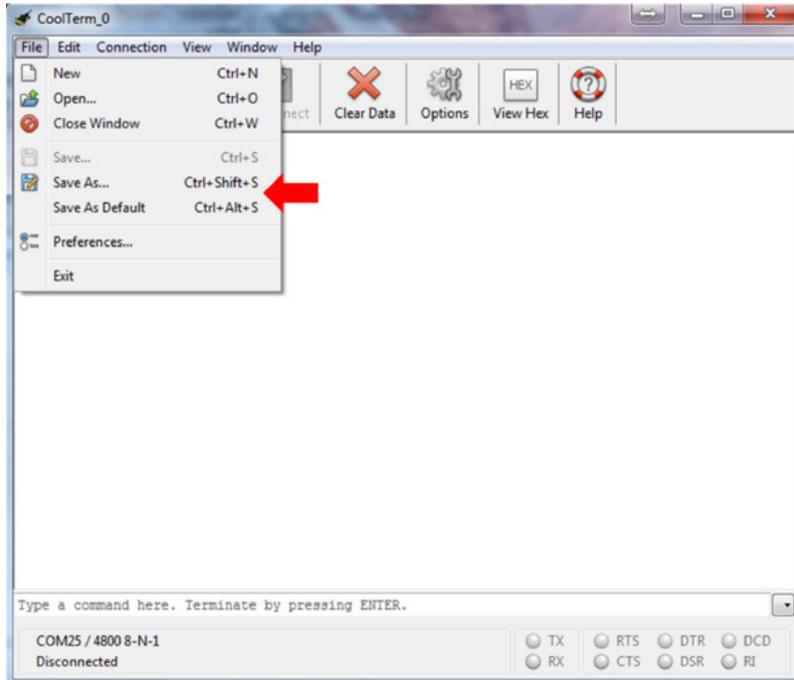
- b. Select 'Terminal' options from list of available options and select 'Line Mode' as shown below. Line mode adds a text entry bar at the bottom of the screen that is useful for sending commands to the connected sensor.



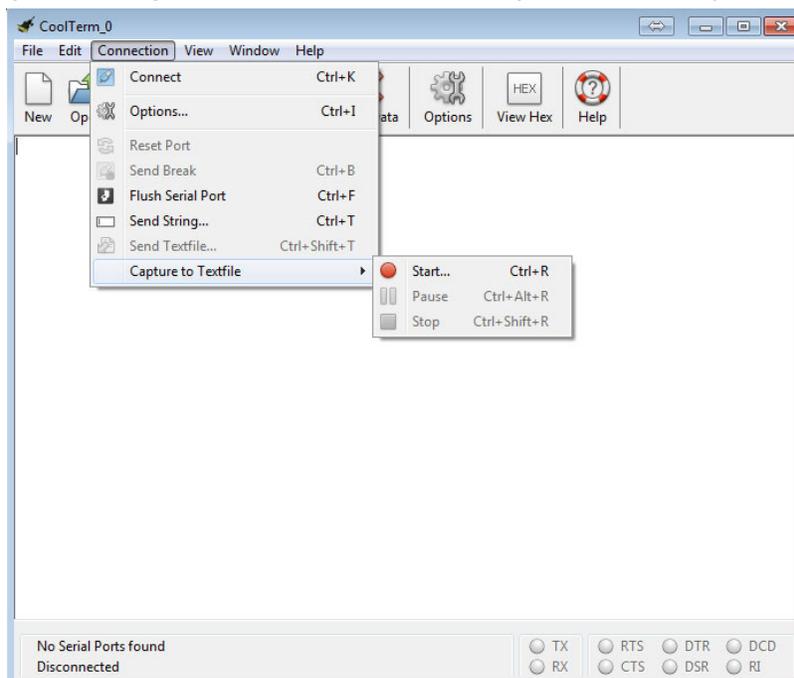
- c. Select 'Receive' options from list of available options and check "Ignore Receive Signal Errors". Selecting this option reduces the possibility of the serial connection closing upon a received serial error such as connecting or disconnecting the cable or power cycling the unit.



4. To avoid having to configure the terminal every time you open it, you have 2 options to save the configuration as shown in Figure 4.
 - a. Click "Save As" and save the connection settings as a file that you can share or store on the computer
 - b. Click "Save As Default" to change these settings to the default settings when starting the program. If you are running off the CD this option will give you an error as there is no default file.



5. Coolterm can be configured to record all data received over serial. This will be useful for evaluation purposes.
 - a. To start a capture go to 'Connection' dropdown menu → Capture to Textfile → Start or hit Ctrl-R ((⌘-R). Enter a file name and click save.
 - b. To stop the capture navigate back to the menu entry and click stop or hit Ctrl-Shift-R ((⌘-Shift-R)



WARRANTY

Your **SENSIT® RAMP** is warranted to be free from defects in materials and workmanship for a period of one year after purchase. If within the warranty period the instrument should become inoperative from such defects the instrument will be repaired or replaced at our option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Proof of purchase may be required before warranty is rendered. Units out of warranty will be repaired for a service charge. Internal repair or maintenance must be performed by a Sensit Technologies authorized technician. Violation will void the warranty. Units must be returned postpaid, insured and to the attention of the service department for warranty or repair.

This warranty gives you specific legal rights and you may have other rights which vary from state to state.

851 Transport Drive
Valparaiso, IN 46383-8432
Phone: 219.465.2700
Toll Free: 888.4.SENSIT (473.6748)
Fax: 219.465.2701
Email: info@gasleaksensors.com
Website: www.GasLeakSensors.com

MADE IN THE USA
WITH GLOBALLY SOURCED COMPONENTS

