

SEELEVEL Soul™

MODULE



INSTALLATION MANUAL

MODEL 708-RVC H

Printed in Canada

CANADA
Garnet Instruments
286 Kaska Road
Sherwood Park, AB T8A 4G7

USA
Garnet US Inc.
5360 Old Granbury Road
Granbury, TX 76049

GARNET

Liquid management solutions, your way.

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INTRODUCTION

The SeeLevel Soul 708-RVC H is a data link module designed for RV OEMs as a cost-effective solution. It does not have a display and is mounted in a concealed part of the RV by the OEM and connects to multiplex systems via the RV-C bus. It can monitor up to seven holding tanks; two FRESH, three GREY, and two BLACK tanks.

The Soul collects tank level information from the SeeLevel senders and transmits it to a multiplex system. The Soul Configuration Tool software is used to configure the Soul using a Micro-USB port, allowing OEMs to select which tanks to report through the RV-C bus and how many senders are utilized on each tank. In addition, the Soul can provide the operating characteristics of each of the tank senders, giving it unsurpassed diagnostic capability.

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SAFETY INFORMATION

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure. "Notes", "Cautions", and "Warnings" have been used to bring special matters to the immediate attention of the reader.

Safety Symbols

⚠ WARNING: explains dangers that might result in personal injury or death.

ℹ NOTE: expands on information for any procedures.

⚠ CAUTION: explains safety information that could cause damage to the product, including data loss.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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INSTALLATION INFORMATION

The installation for the complete system consists of mounting the module in a concealed part of the RV, programming, cutting, and mounting the senders to the sides of the tanks, connecting the wiring, and programming the display.

Installation Documentation Downloads

Other documentation will be required to complete installation for your specific model. Get them from our website Resource Library either by selecting the link below or scan the QR code and search for your model.

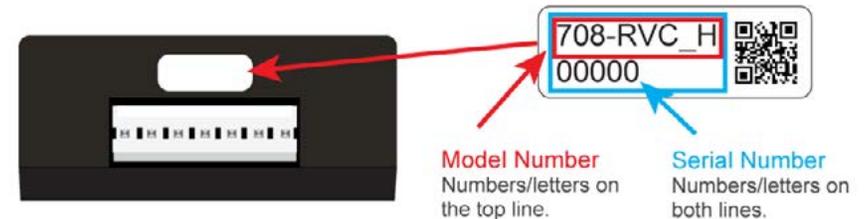
www.garnetinstruments.com/holding-tanks-resource-library/

- Sender Installation Manual
- Sender Specifications



Model and Serial Number Information

Before installing your system, look for the model and serial number on the side of the display, as shown below. Document these numbers for future reference.



ABOUT THE SYSTEM



The Soul Module

The Soul Module receives the information from the sender panels via a single two-conductor wire, and reports the level information data on the RV-C bus. The system is designed to be highly reliable and accurate, providing accurate fluid level readings.

The Senders

Each sender panel is a flexible self-adhesive printed circuit board which is adhered to the outside of the holding tank. The sender panel can be cut to length to match the height of the tank, and it auto calibrates so that it can read from Empty to Full regardless of the height of the tank.

In addition to the level, the sender also transmits diagnostic information about its operation. This information can be used to determine if there is buildup on the inside of the tank, or to determine if the sender is damaged or delaminating from the side of the tank. If sludge buildup in the tank becomes extreme the gauge will cease to operate properly, so by monitoring the signal power the tank can be cleaned before the buildup gets excessive.

Two different sender options are available; 710-AR and 710-ES2 and the ability to double stack the senders provide accurate level measurement for tank heights ranging from 3.5" to 26". **(See Sender Installation guide for available sender options-link on page 2)**

▲ NOTE: New sender models 710-AR and 710-ES2 can be combined with older sender models 710-ES, 710-JS, 710-SS but can only do up to 4 tanks (Fresh, Grey, Galley, Black tanks).

Diagnostics

If a sender is operating properly and connected to the Soul with good wiring, then the Soul will show the level normally. If the wiring is disconnected, shorted, or cut, or if the sender panel is defective, then the Soul will indicate an error code. The various error codes are shown in the section entitled "TROUBLESHOOTING GUIDE".

With these diagnostic features and the digital nature of the tank level sensing technology, it is almost impossible for the system to indicate an incorrect liquid level, and in the very unlikely event it does occur, servicing is greatly aided with the diagnostic information.

Battery Voltage

The system also shows the RV battery voltage by measuring the voltage which powers the module. The voltage is shown with a resolution of 0.1 volt.

LPG

The Soul module can use one existing LPG electrical sender to show the LPG level. It can be automatically calibrated to any sender, and reports level on the Soul RV-C bus in percent of full, from 0% to 100%.

RV-C

The SeeLevel Soul module processes the information received from the senders, and communicates this information to the RV's existing multiplex system via RV-C bus.

CONNECTORS

It is easier to connect the wiring to the module connector first, and then plug the connector into the display panel. The device has two basic connectors, 7-Pin pigtail harness and a RV-C CAN connector.

7-Pin Pigtail Harness: provides Power, Ground, Sender, LPG, and CAN Bus connections. A pigtail cable assembly with 12" AWG18 wires is included.



Wire Colours on 7-Pin Connector

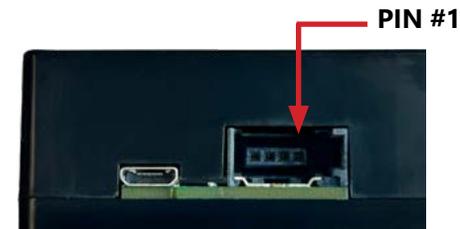
Wire Color	Function
Black 18 gauge	Ground
Yellow 18 gauge	CAN-Lo
Purple 18 gauge	CAN-Hi
Green 18 gauge	LPG
Blue 18 gauge	Senders
Red 18 gauge	+12Vdc Main Power

RV-C CAN Connector: provides an extra CAN BUS connection.

RV-C is a communications protocol based on CAN BUS that is used for control, coordination, and diagnostics.

The sensors use a default source address of 72 and SPN-ISB instances are 0 for fresh, 1 for black, 2 for grey. If more than one tank of any instance is configured in the system, then SPN-ISB instance for the second item will be reported with a shift of 16 from the previous. For example: for the first fresh tank SPN-ISB instance will be 0 but for the second fresh tank it will be 16 and for the third tank 32 and so on. The same procedure applies to the sewer types grey and black. The LPG sensor use the default source address of 73 and SPN-ISB instances 3 and 19.

1. By disabling the LPG or changing the FRESH/GREY/BLACK to zero senders, you will also disable that sender's updates over the RV-C bus.
2. The RV-C has a 4-pin connector as shown below.



Micro USB port



RV-C 4-Pin Connector

Micro USB port: Used to connect the module to a computer for configuration purposes. A standard Micro-USB cable can be used.

RV-C CAN Connector

Pin Number	Signal Description
1	No connection
2	CAN-Hi
3	CAN-Lo
4	No connection

CONFIGURATION TOOL GUIDE

The SeeLevel Soul Configuration Tool (SCT) is a user Interface to configure the Soul through the Micro-USB port. You can choose which tanks report to the RV-C bus and how many senders are utilized on those tanks. Garnet also offers pre-configured devices, saving you time during installation.



Installing the software

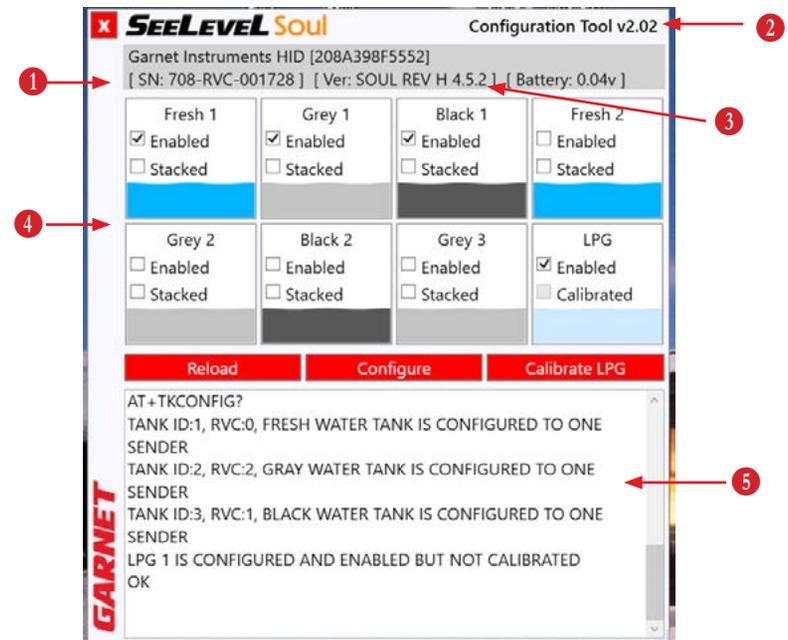
1. From our website, download and launch the Soul Configuration Tool (SCT). www.garnetinstruments.com/seelevel-soul/
2. Open the SCT software on your computer to display the initial window.



3. Connect the Soul device to your computer from the Micro-USB port using a Micro-USB cable. The pigtail harness is not required to configure the Soul.



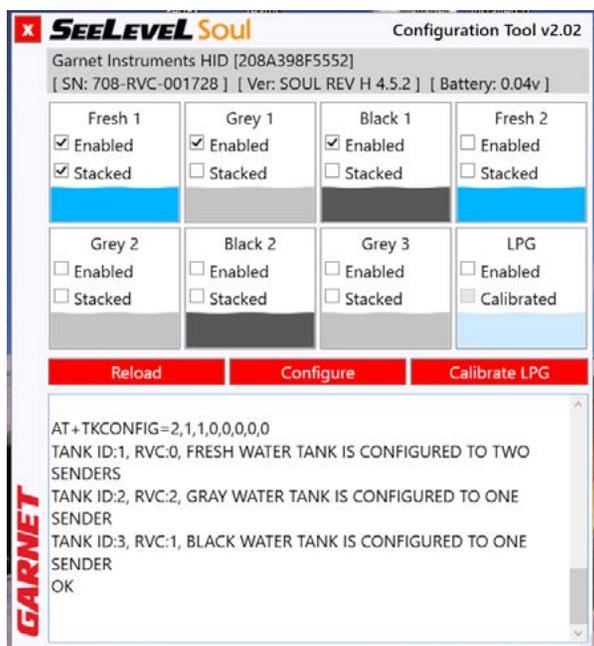
Default Tank Configuration Screen Example



- 1 Serial number
- 2 Configuration Tool version
- 3 Soul Module firmware version
- 4 Configuration window
- 5 Status window

NOTE: If the senders are not connected, the status window will display errors for all tanks. This is normal.

4. Once connected, the SCT software will display the current tank configuration in the status window.
5. Enable the desired tanks by selecting the appropriate check boxes. Be sure to select "Stacked" for any tanks that have two stacked senders.
 - By default, the Soul is pre-configured with single senders on Fresh 1, Grey 1, Black 1 and LPG tanks.
 - If you don't need certain tanks, simply deselect the corresponding checkboxes.
6. Once you have enabled the desired tanks, click the "**Configure**" button. The Soul will be configured according to your settings, and after clicking "**OK**" in the "Saved" window, the results will be displayed in the status window.



7. The "**Reload**" button on the configuration tool is used to simulate a disconnection from the unit being configured and trigger a full reload of the working settings (Soul -> PC).

8. The LPG tank must be full when the sender is calibrated, otherwise the calibration will be invalid. Fill the LPG tank by using an alternate measurement method, such as weight, a spit valve, or a mechanical gauge on the tank.
 - By checking or unchecking the "Enable" checkbox for the LPG tank, the Soul will send (checked) or stop sending (unchecked) LPG information over the RVC-Can network.
 - LPG calibration is performed when the "**Calibrate LPG**" button is selected. To properly calibrate the LPG, connect a transducer with a resistance of 10 to 250 Ohms to the Soul's LPG terminal. This calibration maps the measured resistance to a 100% full tank. Please note that if the resistance is outside the specified range or nothing is connected to the terminal, calibration will fail.
9. Disconnect the Micro-USB cable and the Soul Module is ready for installation in the RV and the following window will display.



MODULE INSTALLATION

The installation consists of mounting the module inside the wall or a concealed area in the RV, cutting and installing the senders to the sides of the holding tanks, connecting wiring, and programming the module. When wiring DO NOT use spade connectors to join wires, only use crimp-on butt connectors or solder the wires together. Soldered connections should be protected using heat shrink or electrical tape.

Module Diagram

This drawing of the module gives dimension data of the device enclosure to be used for locating the holes for mounting screws onto the wall (**Note:** diagram not to scale).

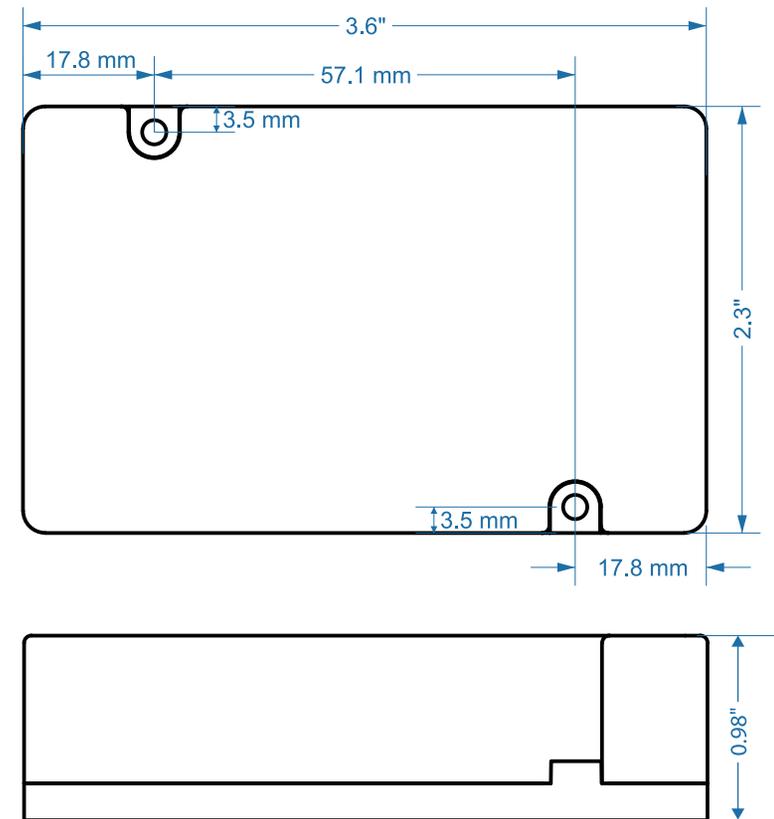
Connect the wiring according to the table on the following page. It is easier to connect the wiring to the Soul Module connector first, and then plug the connector into the Soul Module. The senders need to be grounded to a single ground wire from the Soul Module. Make sure that the system ground is connected to the same ground as the breaker panel ground.

⚠ CAUTION: Please refer to the "TROUBLESHOOTING AND INSTALLATION TIPS" section for details on avoiding installation issues.

⚠ WARNING: All power circuits must be fused. If a fuse is not provided with the system then it is the installer's responsibility to install a fuse with the maximum rating your model requires.

A relay may be required for models with a pump or heater switch.

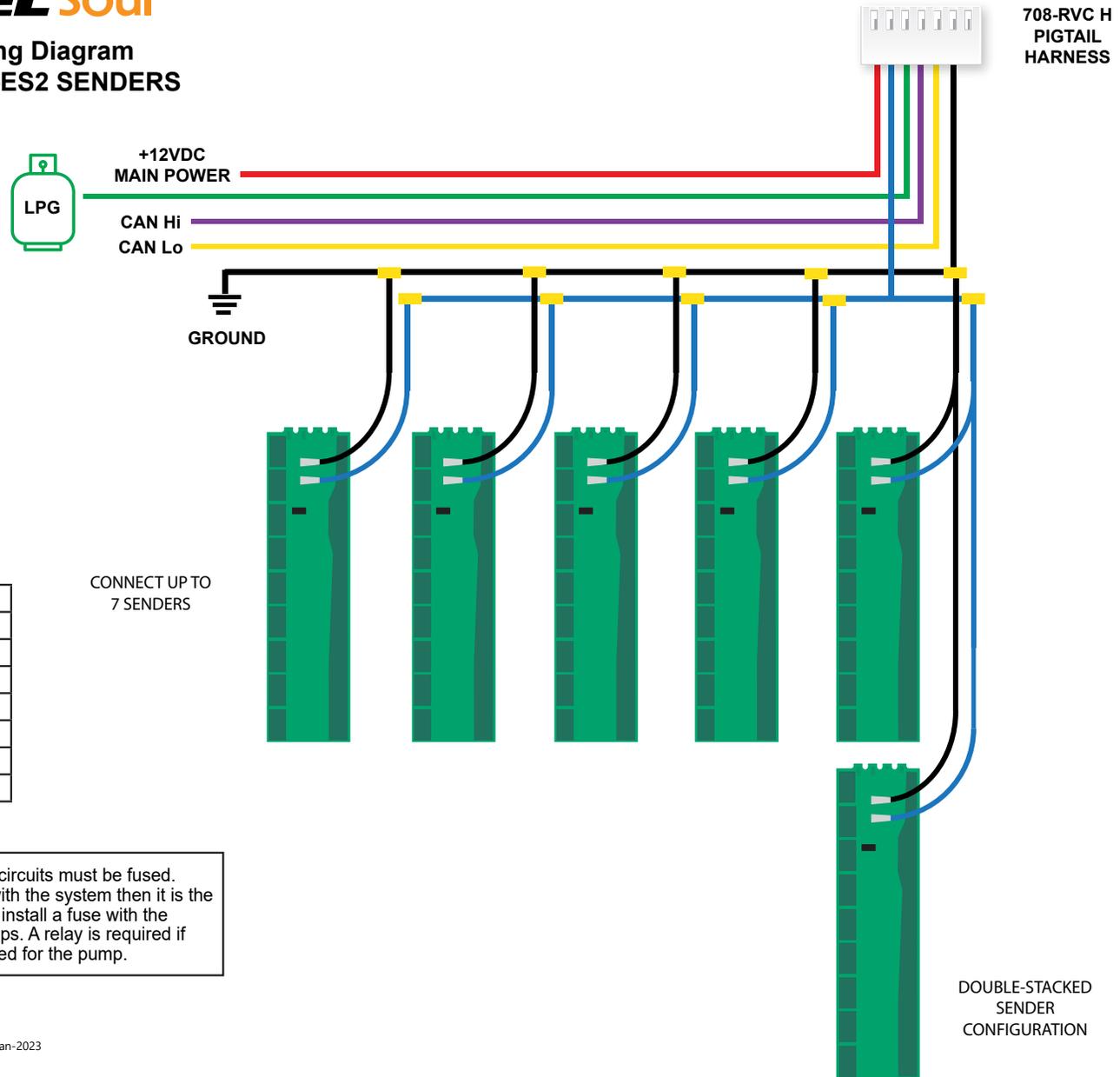
For information about the requirements for your model please refer to the specifications page and wiring diagram.



WIRING DIAGRAM

SEELEVEL Soul™

708-RVC H Wiring Diagram for 710-AR and 710-ES2 SENDERS



Pigtail Wires

Pin	Color	Function
1	Red	Power +12V
2	Blue	Tank Senders
3	Green	LPG Tank
4	Purple	CAN-Hi
5	Yellow	CAN-Lo
6	Black	Ground
7	-	-

⚠ WARNING: All power circuits must be fused. If a fuse is not provided with the system then it is the installer's responsibility to install a fuse with the maximum rating of 7.5 amps. A relay is required if more than 7.5 amps needed for the pump.

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TROUBLESHOOTING GUIDE

If a sender or its wiring is not operating properly, the following codes will be shown in the Terminal window app in response to command **AT+DIAG?** (See below):

Error Code Commands

CODE	POSSIBLE CAUSE	SOLUTION
Opn: Open Circuit	<ol style="list-style-type: none"> 1. If a sender is unresponsive. 2. There is an open circuit in the wiring so the sender is not connected. 	See "Wiring Diagnostics" section.
Sht: Short Circuit	A sender is shorted or there is a short in the wiring.	See "Wiring Diagnostics" section.
Err: Sending Bad Data	<ol style="list-style-type: none"> 1. Senders have not been programmed correctly. 2. The sender is sending bad data. 3. There is damaged wiring. 4. There is electrical interference. 	Check all the senders to make sure they are programmed correctly. If they are, replace the sender that is creating the error.
StA: Double-Stacked Sender	The Soul Module has been programmed for a single sender where double-stacked senders have been connected. The Soul Module has not been set to look for two senders	Change the senders or reprogram the Soul Module as required.
ntP: No Top Sender nbo: No Bottom Sender	<ol style="list-style-type: none"> 1. The Soul Module has been programmed for a single sender and double-stacked senders have been connected. 2. The Soul Module has been programmed for double-stacked senders and one of these error codes are showing: <ul style="list-style-type: none"> • ntP - only the bottom sender is reporting. • nbo - only the top sender is reporting. 	Correct the programming on the sender.
For LPG only OPn: Open Circuit	The wiring to LPG senders is open or the LPG tank internal sensor is open.	Check for open circuit or a resistor value greater than 250 ohms

 **NOTE:** There are no diagnostics for battery voltage.

RV-C Diagnostics

Listed below are the error messages broadcast over the RV-C bus:

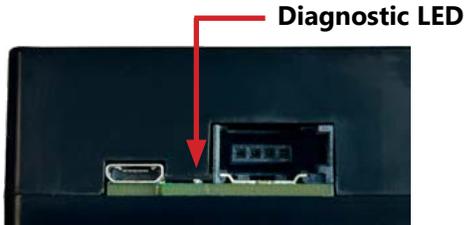
FMI (Failure Mode Identifier)				
Error ID	RV-C Protocol Error Description	Soul internal Error Description	Possible cause	Suggested Solution
0	Datum value above normal range	Nbo. No Bottom Sender	No bottom sender. Soul has been programmed for double-stacked senders and one of these error codes are showing: but only the top sender is working, and the bottom sender is not.	Correct the programming on the sender.
1	Datum value below normal range	ntP. No Top Sender	No Top Sender. No bottom sender. Soul has been programmed for double-stacked senders and one of these error codes are showing: but only the bottom sender is working, and the top sender is not.	Correct the programming on the sender.
2	Datum value erratic or invalid	Err. Sender sending bad data.	<ol style="list-style-type: none"> 1. Senders have not been programmed correctly. 2. The sender is sending bad data. 3. There is damaged wiring. 4. There is electrical interference. 	Check all the senders to make sure they are programmed correctly. If they are, replace the sender that is creating the error.
5	Open circuit, or output current below normal	Opn. Sender is not sending data	<ol style="list-style-type: none"> 1. A sender is unresponsive. 2. There is an open circuit in the wiring, so the sender is not connected. 	Check sender wiring or replace unresponsive sender.
6	Grounded circuit, or output current above normal	Sht.	A sender is shorted or there is a short in the wiring.	Check sender wiring or replace shorted sender.
13	Calibration required (only for LPG tanks)	CAL.	LPG tank level sensor needs to be calibrated by Soul input circuit.	Calibrate LPG tank
15	Datum valid but above normal operational range (least severe)	StA. stacked error	Soul has been programmed for a single sender where double-stacked senders have been connected. Soul has not been set to look for two senders.	Correct Soul configuration programming or disconnect top sender.

Single Diagnostic LED patterns

SOUL DIAGNOSTIC LIGHT PATTERNS		
Status	Description	LED blinking pattern
NORMAL Operation. (Soul is configured to handle, at least, one water/waste Tank and the SENDER for this tank is properly configured and connected to Soul)	No wiring error detected in SENDER'S circuit or in the RV-C connections	One blink per second.
SENDER wiring Error	Sender Circuit is Open or in Short-circuit or a Sender (or more than one Sender) is (are) not properly configured.	Two consecutive blinks.
RV-C wiring Error	Soul is not connected to RV-C network or RV-C network is missing the termination resistor	Three consecutive blinks.
SENDER wiring Error and RV-C wiring Error	Compounded error. Both SENDER wiring Error and RV-C wiring Error are happening.	Four consecutive blinks.

CAUTION: This table is for Rev H and J. If you have an earlier revision please contact us for information.

NOTE: If unit has two LEDs contact Garnet.



Wiring Diagnostics

1. To perform diagnostics, the Soul Module must be connected through its Micro-USB port to a desktop or laptop computer and a Terminal application program must be running on the connected computer. Configuration, diagnostic, and liquid levels information can also be read back in this Terminal application program window.

2. To issue the diagnostic command, type **AT+DIAG?** then press **Enter** key. The Soul Module will display diagnostic information in the Terminal application program window as shown in the following example:

```
DEVICE SERIAL NUMBER: 708-RVC-000001
```

```
HARDWARE REVISION: rev H
```

```
FIRMWARE REVISION: rev 5.0.4
```

```
BATTERY VOLTAGE = 11.9
```

```
SENDER ID:1, RVC:0, FRESH SENDER IS 7 PADS HIGH, SIGNAL POWER IS AT 45 PERCENT
```

```
SENDER ID:2, RVC:2, GRAY SENDER IS IN ERROR STATE, StA: Double-Stacked Sender
```

```
SENDER ID:3, RVC:1, BLACK SENDER IS 7 PADS HIGH, SIGNAL POWER IS AT 10 PERCENT
```

```
LPG 1 IS CONFIGURED, ENABLED AND CALIBRATED TO 105 OHMS
```

```
OK
```

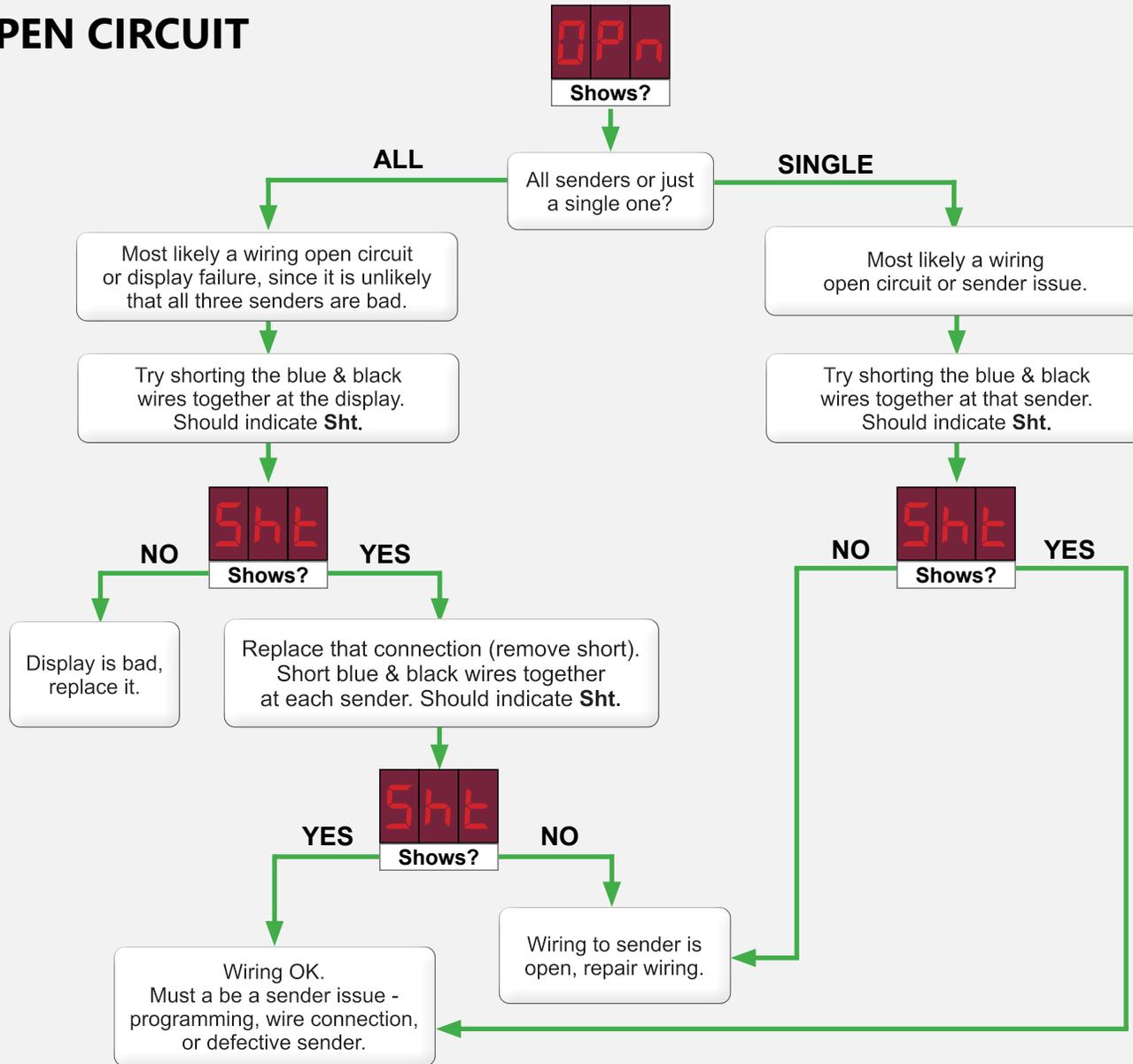
3. If a short circuit is showing, disconnect the senders one at a time at the sender location. If the short circuit indication goes away when a sender is removed, then that sender is bad. If all the senders are removed but a short circuit still shows, then the wiring may be shorted. Disconnect the sender wire at the Soul Module, the short indication should go away. If it doesn't, the Soul Module is bad.

4. If an open circuit for all the senders is showing, it is most likely a wiring open circuit or Soul Module failure, since it is unlikely that all three senders are bad. Try shorting the wiring together at the Soul Module, the Soul Module should indicate a short circuit on the RV-C bus. If it doesn't, the Soul Module is bad. If it does, then remove that connection and short the wires together at the sender locations. If no short circuit is shown, then the wiring is open. If the Soul Module does show a short circuit, then the senders must be bad.

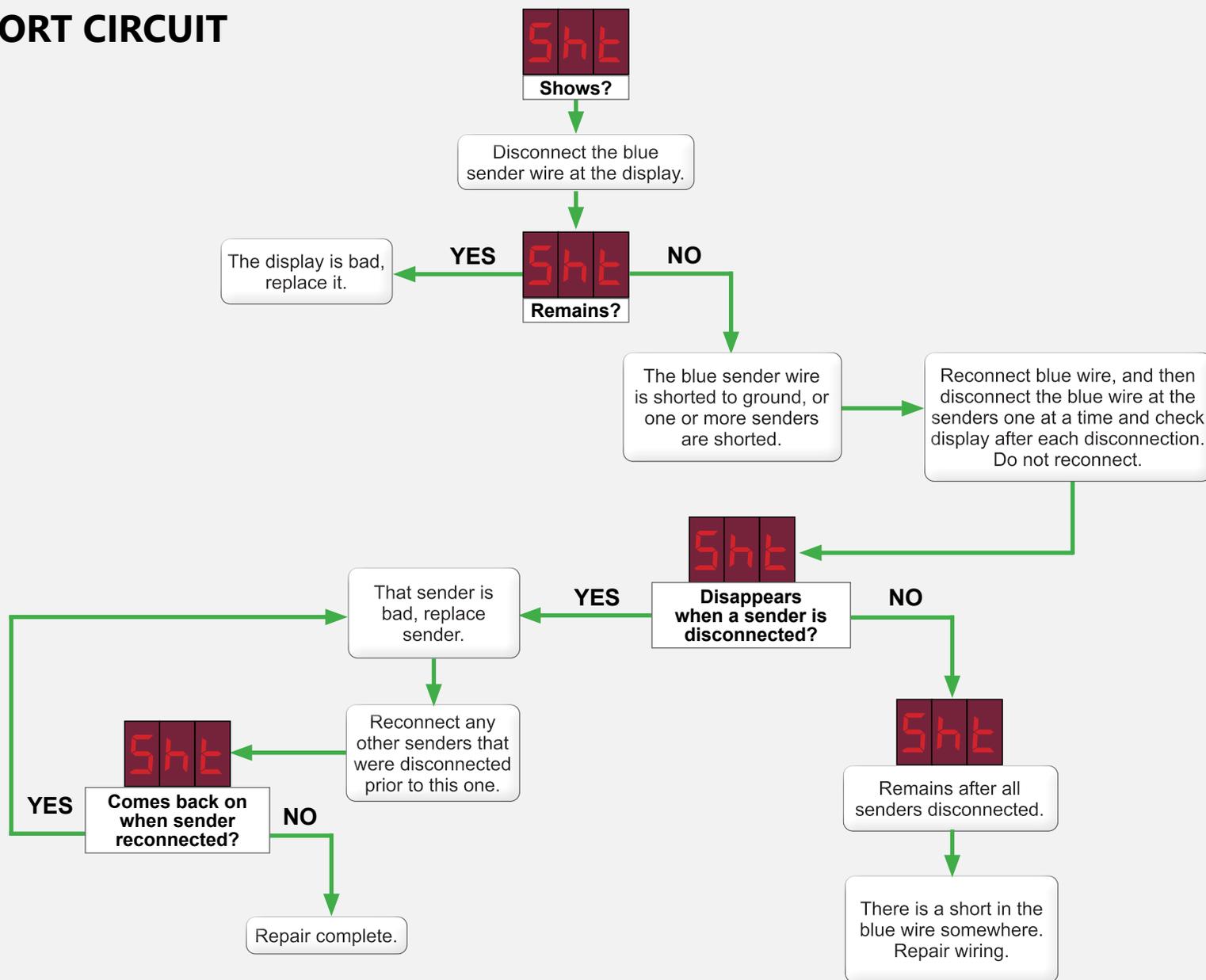
5. If a single sender is showing an open, try shorting the wiring together right at that sender. If a short now shows, the sender is bad or not wired properly. If no short circuit shows on the Soul Module, the wiring to that sender is open.

Wiring Diagnostics Flowchart

OPEN CIRCUIT



SHORT CIRCUIT



Troubleshooting & Installation Tips

What to do if the system freezes or is unresponsive

If the Soul Module is unresponsive, it may be “hung” due to a static discharge or electrical noise. Try rebooting it by shutting off the 12V power to it for a few seconds, then turning it back on.

What to do if operation becomes erratic or stops completely

Make sure all wiring connections are solid. Do not use spade connectors to join wiring as they will degrade over time. Use insulated crimp-on butt connectors or solder and insulate the wire connections.

What to do if readings jump or are inaccurate

1. We have had a few instances where 120VAC interference has caused the readings to stall and create a gap; readings would skip from 50% to 70% and then begin to function again. The cause was wiring between consoles and senders being tied too close to entrance boxes for shore power or bundled with other high AC voltage lines or junction boxes.
2. Always ground the senders and the console to the same ground circuit. This is very important; RV's can have several ground circuits with resistance between them. We have had instances where two consoles are installed with a different ground for the service bay console and interior console. If you see different levels from each console on the same tank, then the ground circuit is not common. Connect both consoles to the same ground back to the breaker panel ground point.

What to do if the system indicates a residual or non-zero water level even though the tank is drained completely

1. This can be due to a convex tank bottom or a sloped tank bottom. In the case of the convex bottom tank, a ring of water may remain after draining. In the case of the sloped bottom (to the drain valve side) a very small amount of water left in the tank will result in a non-zero level indication. In both of these cases, temporary installation of the sender using duct tape or masking tape will allow the installer to check the tank level before committing to a final sender position. After cutting the sender to length and connecting the wires, be sure to tape down both sides of the sender to eliminate air gaps between the sender and tank surface which can cause low signal strength and unpredictable performance. The ends of the sender must be at least $\frac{1}{4}$ " to $\frac{1}{2}$ " away from the tank bottom and top to allow for wall thickness. The exterior bottom & top of the tank are not the same as the interior bottom & top; depending on the tank wall thickness the inside height is $\frac{1}{2}$ " to 1" shorter than the outside height. Knowing the wall thickness of your tank will allow you to find the optimal sender position; placing the sender where it can “see” the water will ensure proper level calculation and sender operation.
2. The signal strength should be in the 50% range for best performance. If the signal strength is in the 20% range it is indicative of a high resistance in a connector, a bad ground, or improper bonding of the sender to the tank (a possible air gap on one or both sides of the sender).

3. With the console installed you can check the level on each tank, if you get an indicated level of 10% to 20% and you know this is too high, reposition the sensor board as follows:

▲ NOTE: In the case of a convex tank bottom, usually found on large flat tanks, raising the sender is the best solution to accomplish a zero reading when the tank is empty. This may result in having to shorten the sender by an additional segment.

On sloped tanks, which are used to promote complete draining, one alternative is to measure the end of the tank opposite from the drain valve. It may be necessary to extend the wire harness to be able to measure on the optimal side. On the drain valve side, the best choice is to elevate the sender to avoid reading a puddle at the drain valve.

4. The close proximity of metal to the sender can be misinterpreted as water since they have similar electrical characteristics. Any metal such as steel, aluminum, copper, or brass can affect the sender reading if it is closer than about 2" from the face of the sender. If there are metal frame pieces, brackets, straps, pipes, ducts, etc. close to the sender you may have to move the sender away from them. Again, trial positioning using tape is necessary until the problem disappears. Flexible pieces of metal can be held away from the sender with rubber wedged between the sender and the metal. If the metal is off to the side of the sender, or just butting to the edge then it is usually not a problem, particularly on the right-hand side of the sender.
5. Make sure that metal doors or covers are far enough away from the sender as well, once everything is closed up the positioning may change. The symptoms of exposure to large metal components are usually a non-zero reading when the tank is empty, or the level appearing to jump suddenly as the tank is drained or filled.
6. On fresh tanks there is sometimes a potential to not be able to use all the water in the tank, we suggest you elevate the fresh sender 1" off the tank bottom and position the top of the sender to allow for vent position (if the vent is on the side of the tank). This way you should see '0' before the pump starts to suck air. Some tanks have a sump style draw system, in this case, there is no concern with unusable water, just allow for the wall thickness when positioning the sender board (usually $\frac{1}{2}$ " to 1" margin from the outer shell). If the sender is positioned above the vent then the maximum reading may be less than 100%.
7. There may be a buildup on the inside walls of black and grey tanks. We get calls occasionally about older coaches that have not been in service for a few years in which the black tank will now indicate a level even though it is empty. The likely cause is that the tank has a significant build-up, probably exceeding $\frac{1}{4}$ " to $\frac{1}{2}$ " thick! Redex is not an acceptable chemical to promote clean tank walls; it is far too slow to get the breakdown action started. Use an RV type of liquid chemical, we suggest Tissue Digester, Sensor Cleaner, or the latest we have used called Happy Campers Holding Tank Extreme Cleaner available at happycampersworld.com. The next time you take a trip, leave with a high concentration of the chemical in the tank and approximately 30% full of fresh water. Hopefully you can drive for 2-3 days allowing the tank levels to rise through normal use. We recommend that

you exceed the level that you see the system report when the tank is empty. After the sloshing and the soaking hopefully the build-up will be flushed away when the tank is drained and flushed. If you still have symptoms the treatment may be required a few more times. The waste did not build up on the tank wall in one day, so it may not dissolve in one treatment! The build-up looks like water to the system since it holds a significant volume of water in the build-up area. It takes much more than a film or piece of tissue to cause the error.

What to do if the system reads a zero water level at all times, or does not reach 100%

1. This may be due to excessive tank wall thickness. We have tested the sender on an actual tank with $\frac{3}{8}$ " wall thickness to ensure proper operation. If you encounter an excessively thick tank wall the symptom will be a zero reading regardless of the actual tank level. The crosscheck would be to test the sender on another tank by taping it in place temporarily, if it now works the tank wall thickness is well over $\frac{3}{8}$ ". You can also use a 1 gallon jug or a 5 gallon pail as a test tank to crosscheck operation of the sender.
2. A symptom we have seen is the sender will not indicate 100% when the tank is full. If the sender is positioned too high on the tank, then water cannot reach high enough on the sender for it to read 100%. The top of the sender must be at least $\frac{1}{4}$ " to $\frac{1}{2}$ " away from the top of the tank to allow for wall thickness.
3. Another possibility is a tank wall thickness issue that may occur at the corners or edges of the tank. This has not been a common issue, and the only correction you can make is to move the board slightly lower, away from the thick area.

What to do if sender delamination occurs

1. We have had reports of the senders literally falling off the tanks or showing serious delamination. This is likely caused by a lack of tank surface preparation. Surface prep is very simple, wipe the area to be adhered to with products like Pro Bond, alcohol, or acetone. Do not use thinners because they leave residues that attack the adhesive. Ambient temperatures of less than 60°F or 15°C prevent the bonding agents in the adhesive from working properly; use a heat gun to warm the tank surface if necessary. Also, be sure the surface is dry, again a heat gun is the best way to dry the bonding area. Finally, the surface of the tank must be smooth. The adhesive works much better on smooth surfaces, if necessary use an orbital sander with fine grit paper (220 grit) to quickly accomplish the desired smoothness.
2. Another possibility is the wiring harness pulling on the sender. Make sure the wiring to the tank sender is well supported so that it does not put a load on the sender. Be sure to support all connecting harnesses; do not let the board support the harness, this will in time cause delamination of the board from the tank. One simple way to do this is to use Gorilla tape across the top of the sender at a 90-degree angle to the sender orientation, with the wiring held in place by the tape. The wires from the sender must be routed straight up or to the right for reliable operation.

How to protect the sender from road spray and debris

1. On installations where the holding tank is exposed to under chassis road spray and flying rocks etc., we recommend the use of an auto body undercoat, which is easily purchased in auto parts stores. This tar-based material clings well to the senders and protects from water and debris.
2. One material, in particular, is 3M Professional Grade Rubberized Undercoating, product code 03584. Another product that works well is a Dominion Sure Seal rubberized undercoating such as Gravel Guard Rocker Guard Coating.
3. After the system is completed and tested apply the undercoat over the complete board using two coats. Do not use lacquer, enamel paint, or plastic paint for auto bumpers as these contain chemicals that will dissolve the conformal coating on the board and cause malfunctions.

WARRANTY & SERVICE INFORMATION

Find warranty claim process information refer to our support page on our website:

www.garnetinstruments.com/support/

DISCLAIMER OF WARRANTY ON HARDWARE

Garnet Instruments warrants equipment manufactured by Garnet to be free from defects in material and workmanship under normal use and service for a period of one year from the date of sale from Garnet or an Authorized Dealer. The warranty period will start from the date of purchase or installation as indicated on the warranty card. Under these warranties, Garnet shall be responsible only for actual loss or damage suffered and then only to the extent of Garnet's invoiced price of the product. Garnet shall not be liable in any case for labor charges for indirect, special, or consequential damages. Garnet shall not be liable in any case for the removal and/or reinstallation of defective Garnet equipment. These warranties shall not apply to any defects or other damages to any Garnet equipment that has been altered or tampered with by anyone other than Garnet factory representatives. In all cases, Garnet will warrant only Garnet products which are being used for applications acceptable to Garnet and within the technical specifications of the particular product. In addition, Garnet will warrant only those products which have been installed and maintained according to Garnet factory specifications.

LIMITATION ON WARRANTIES

These warranties are the only warranties, expressed or implied, upon which products are sold by Garnet and Garnet makes no warranty of merchantability or fitness for any particular purpose in respect to the products sold. Garnet products or parts thereof assumed to be defective by the purchaser within the stipulated warranty period should be returned to the seller, local distributor, or directly to Garnet for evaluation and service. Whenever direct factory evaluation, service or replacement is necessary, the customer must first, by either letter or phone, obtain a Returned Material Authorization (RMA) from Garnet Instruments directly. No material may be returned to Garnet without an RMA number assigned to it or without proper factory authorization. Any returns must be returned freight prepaid to: Garnet Instruments, 286 Kaska Road, Sherwood Park, Alberta, T8A 4G7. Returned warranted items will be repaired or replaced at the discretion of Garnet Instruments. Any Garnet items under the Garnet Warranty Policy that are deemed irreparable by Garnet Instruments will be replaced at no charge or a credit will be issued for that item subject to the customer's request.

If you do have a warranty claim or if the equipment needs to be serviced, contact the installation dealer. If you do need to contact Garnet, we can be reached as follows:

CANADA

Garnet Instruments
286 Kaska Road
Sherwood Park, AB T8A 4G7
CANADA
email: info@garnetinstruments.com

UNITED STATES

Garnet US Inc.
5360 Old Granbury Road
Granbury, TX 76049
USA
email: infous@garnetinstruments.com

SPECIFICATIONS

Soul Module:	Size: 3.6" wide x 2.3" high x 0.98" deep (91.4 mm wide x 58.4 mm high x 25 mm deep) Enclosure mounts to the wall with screws.
System power requirements:	Data Module requires 12 volts from the RV battery, the system will function from 11 volts to 16 volts. Current drain is less than 200mA.
Wiring:	A single two-wire conductor required from the Soul Module to the senders. All the senders are wired in parallel. 12 V power and ground required for the Soul Module. A separate two-wire conductor required from the Soul Module to the LPG sender.
LPG:	The Soul Module will work with an LPG sender with a maximum resistance of 10 ohms to 250 ohms. Display the Soul Module shows increasing level as resistance increases. System must be calibrated with the LPG tank full.
Compliance and Certifications:	CAN ICES-003(B)/NMB-003(B) This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Warnings:	WARNING: This product can expose you to chemicals including Nickel and Lead, which are known to the State of California to cause cancer, and lead which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov . All power circuits must be fused. If a fuse is not provided with the system then it is the installer's responsibility to install a fuse. The fuse rating must be 7.5 amps for the display. For more detailed information please refer to " TROUBLESHOOTING GUIDE " and section "How to avoid damaging the display or pump switch due to excessive current".