SeeLevel Special™

In-Cab Remote Display

MODEL 807-ICE 420 MANUAL

IMPORTANT OPERATOR INFORMATION

DATE INSTALLED:_____

UNIT NUMBER:_____

COMPARTMENT: _____

DISPLAY CALIBRATION UNITS (e.g. inches, gallons): _____

MINIMUM TANK READOUT: _____

MAXIMUM TANK READOUT:_____

FULL SCALE ANALOG CALIBRATION VALUE: _____

NOTES :_____

_____

_____

_____

_____

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1-800-617-7384

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

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

GARNET
SeeLevel Special™
Remote Display

MODEL 807-ICE 420

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807-ICE 420_v8.3 - 12-Dec-2019

CHAPTER 1 - INTRODUCTION

Congratulations on purchasing the Garnet Instruments Model 807-ICE 420 SeeLevel Special™ Remote Display. The 807-ICE 420 compliments the 808-P2 or 810-PS2 gauges by providing an additional volume readout in the cab of the truck.

In addition to providing an additional readout of the tank level, the 807-ICE 420 provides a 4-20 mA analog output proportional to the fluid volume displayed. This analog output can be used to communicate the tank level to other pieces of equipment.

The full scale value of the analog output can be set using the buttons on the back of the display, no additional equipment is required for calibration.

The 807-ICE 420 display has been designed to withstand the vibration and shock encountered in mobile applications. While the 808 and 810 series operate on internal batteries, (12 volt truck power is used to operate the back light and external alarms), the 807 display operates on 12V truck power.

CHAPTER 2 - FEATURES OF THE 807-ICE 420

The 807-ICE 420 has been uniquely designed for specific applications and with specific features:

Standard SeeLeveL Remote Display Features

1. The signal between the 808-P2 or 810-PS2 display and the 807 is digitally encoded so the signal line can be connected using a standard 7 pin trailer plug.

2. The display operates on 12 volt truck power, and draws less than 150 mA.

3. All-digital design eliminates reading drift or degradation, ensuring long term accuracy under all operating conditions.

4. Operation from -40 °C to +60 °C (-40 °F to +140 °F) ambient temperature.

5. Easy installation and servicing with a one year limited warranty.

Additional 807-ICE 420 Remote Display Features

6. An analog 4-20 mA output, with 4 mA corresponding to zero displayed volume, and 20 mA corresponding to the full scale displayed volume programmed into the remote display.

7. The model 807-ICE 420 provides an easy-to-read LED display inside a compact, edge-view enclosure, optimized for top-of-dash or overhead console mounting.

8. The display is housed in an aluminum enclosure 2.7" wide x 1.1" high x 3.4" deep (68 mm wide x 29 mm high x 87 mm. deep).

9. A dimmer button switch enables the operator to control brightness.

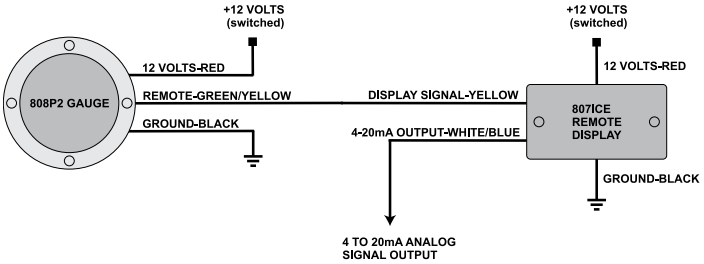
10. Simple 4 wire electrical installation - 12V power (red), ground (black), gauge signal (yellow), and analog output (white/blue).

CHAPTER 3 - WIRING DIAGRAMS

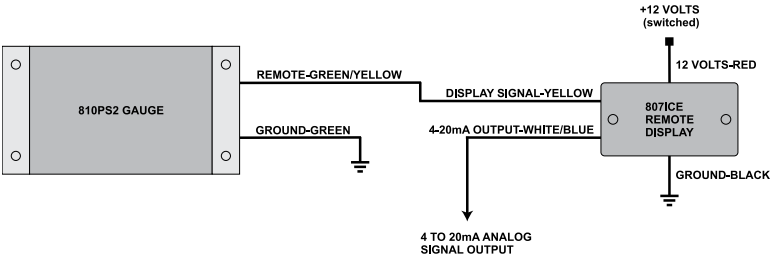
THE 807-ICE 420 has been designed for easy installation with your 808 or 810 series SEELEVEL™ gauge. Installation instructions for the gauge were supplied with the equipment, and are available online at www.garnetinstruments.com.

The 807-ICE 420 Remote Display is easy to install:

808-P2 Wiring Diagram



810-PS2 Wiring Diagram



CHAPTER 4 - DISPLAY PROGRAMMING

The 807-ICE 420 display shows the tank level by repeating the information shown on the 808-P2 or 810-PS2 gauge. The 4-20 mA analog output is calculated from the display level with a 4 mA output corresponding to a display level of zero, and a 20 mA output corresponding to the full scale level programmed into the 807 display.

For example, if the full scale is programmed to be 500.0, then a display value of 400.0 will result in an analog output of 16.80 mA. The display will recognize the decimal location and adjust the output accordingly, so in this example a display value of 400 will also result in an analog output of 16.80 mA.

To set the full scale level:

1. Determine the maximum volume that can be displayed and pick a full scale amount that is equal to or greater than this volume.

2. Press both the **SEL** and **UP** buttons on the back panel, the display will show SCAL. Release both buttons.

3. The display will show the existing calibration with the left digit bright. Press the **UP** button to change the bright digit. Press the **SEL** button to go to the next digit.

4. Set all 4 digits, then press **SEL** again to set the decimal point, it will be bright to indicate that it is selected. Press the **UP** button to select either x.xxx, xx.xx, xxx.x or no decimal. For best accuracy of the analog output, try to use all 4 digits such as 500.0 instead of just 500.

5. After the decimal as been set, press **SEL** again, the display will show Stor. Press **UP** to store the calibration and exit the setting menu. The display will continue to show Stor for a moment and then will show donE for a second. Then normal operation resumes.

6. If you do not want to store the calibration, press **SEL** again and the display will show Abrt. Press **UP** to abort which exits the calibration menu without saving.

7. If you press **SEL** again from the Abrt display, the menu will return to the beginning with the left digit selected by being bright.

8. If the full scale calibration is below 103, the display will be unable to calculate a valid calibration, and will show cErr (calibration error) after a few seconds. The existing calibration will be retained, and the display will return to normal operation.

To view the existing calibration:

1. Press either the **SEL** or **UP** button (but not both) on the back panel, the display will show the existing full scale analog calibration while the button is held down. Release the button to return to normal operation.

To test the analog output:

1. While either the **SEL** or **UP** button on the back panel is pressed, the display will show the full scale calibration and the analog output will go to full scale (20 mA). This can be used to test or calibrate the equipment connected to the analog output.

2. While the display is in the calibration mode (entered by pressing both the **SEL** and **UP** buttons) the analog output will be at 4 mA.

CHAPTER 5 - TROUBLESHOOTING GUIDE

Error Code	Cause	Solution
no S	The display is not receiving any signal from the 808-P2 or 810-PS2 gauge. The analog output will go to 0 mA. This differentiates the error condition from the zero display condition of 4 mA.	Check the wiring and grounding for errors or bad connections. Also ensure that the 808-P2 or the 810-PS2 is working properly.
Err	The display is receiving corrupted data and the analog output will go to 0 mA.	
EErr	The display cannot communicate with its own memory,	The display will need to be serviced or replaced.
SErr	The display cannot communicate with its own digital to analog convertor.	

Accuracy:

The analog output has an accuracy of ± 0.25% of the full scale value, so any output value should be within 0.05 mA of the "ideal" value. There are no user adjustments that can be made to alter the accuracy.

As with any digital system, there are round off and truncation errors inherent in the mathematical process. However, since the 807-ICE 420 utilizes a 10 bit digital to analog convertor, it has sufficient accuracy to allow the full resolution of the truck gauge to be realized. Note that the truck gauge sending the data has a resolution of only 8 bits (⅓" systems).

CHAPTER 6 - SPECIFICATIONS

Analog output accuracy:	0.25% of full scale value ± 0.05 mA
Minimum input supply voltage:	+10.0 V
Minimum difference between input supply voltage and voltage on analog 4-20 mA output:	4.0 V
Current drain:	150 mA or less
Temperature range:	-40°C to +60°C (-40°F to +140°F)
Enclosure:	*Material:* Aluminum *Size:* 68 mm wide x 29 mm high x 87 mm deep (2.7" wide x 1.1" high x 3.4" deep)
Display type:	LED 4-digit, 7 segment 10 mm (0.4") high digits
Display power:	Operates on 12V truck power
Wiring:	4 wire electrical installation: 12V power (red), ground (black), gauge signal (yellow), and analog output (white/blue)

CHAPTER 7 - SERVICE & WARRANTY INFORMATION

The warranty will only apply if the warranty has been registered online from the Garnet Instruments registration web page.

Go online to seelevelsupport.com/ and select "Register Warranty".

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 Granbury Road
Granbury, TX 76049
USA
email: infous@garnetinstruments.com