3907/3917
IR HC Detector Transmitter

INSTALLATION AND OPERATING INSTRUCTIONS

AMC-3907/3917 IR HC SENSOR-TRANSMITTER MODULE

IMPORTANT:

Please read these installation and operating instructions completely and carefully before installation and use.

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Manual_amc-3907-3917 IR HC sensor-transmitter .doc

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1 WARRANTY

The AMC-IR 3907/3917 HC sensor-transmitter module is warranted against defects in material and workmanship for a **one year** period from date of delivery. During the warranty period, we will repair or replace components that prove to be defective in the opinion of *The Armstrong Monitoring Corporation*. We are not liable for auxiliary interfaced equipment, nor consequential damage. This warranty shall not apply to any product which has been modified in any way, which has been repaired by any other party other than a qualified technician or authorized *AMC* representative, or when such failure is due to misuse or conditions of use.

1.1 LIABILITY

All *AMC* products must be installed and maintained according to instructions. Only qualified technicians should install and maintain the equipment.

AMC shall have no liability arising from auxiliary interfaced equipment, for consequential damage, or the installation and operation of this equipment. *AMC* shall have no liability for labour or freight costs, or any other costs or charges in excess of the amount of the invoice for the products.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE THEREOF.

1.2 MODIFICATIONS AND SUBSTITUTIONS

Due to an ongoing development program, *AMC* reserves the right to substitute components and change specifications at any time without incurring any obligations.

1.3 PRODUCT RETURN

All products returned for warranty service will be by prepaid freight and they will only be accepted with a repair number issued by *AMC*. All products returned to the client will be freight collect.

WARNING

USING ELECTRICALLY OPERATED EQUIPMENT NEAR GASOLINE, OR GASOLINE VAPOURS MAY RESULT IN FIRE OR EXPLOSION, CAUSING PERSONAL INJURY AND PROPERTY DAMAGE. CHECK TO ASSURE THE WORKING AREA IS FREE FROM SUCH HAZARDS, AND USE PROPER PRECAUTIONS.

2 PRODUCT INFORMATION

Transmitter Part Number ……	
Transmitter Serial Number ……	
Power Supply Requirements ……	8-30VDC, 24VDC nom., 5Wmax. Note: At higher voltages a heat sink on the PCB will result an increase in temperature.
Operating Temperature Range ……	
Relative Humidity ……..	0-99% RH, non condensing
Fuses ……	500mA anti-surge in line fuse for circuit protection.
Range……	

Note:

All Armstrong Monitoring systems must be installed and maintained according to instructions, to ensure proper operation. Only qualified technicians should install and maintain the equipment.

3 PRODUCT DESCRIPTION

The AMC-3907/3917 IR HC sensor transmitter is a one-channel gas monitoring system designed to connect to a monitor for continuous monitoring of surrounding air for traces of gaseous hydrocarbons. The sensor-transmitter comes with the following features (see Figures 1, 2 and 3).

1. DIGITAL LCD:	For mode and calibration indication.
2. 4 BUTTON ON-BOARD KEY PAD:	For calibration.
3. 4-20 mA OUTPUT:	PCB mounted screw terminal for 10-bit resolution current source to provide output signal.
4. INPUT VOLTAGE TERMINAL:	PCB mounted screw terminal for 8-30VDC input supply voltage
5. RS232 COMMUNICATIONS PORT:	3-way Molex header for PC communications with the transmitter.
6. PROGRAMMING CONNECTOR:	5-way Molex header for programming the transmitters on board processor.
7. SENSOR INPUT:	5-way Molex header for infrared sensor input signals.
8. IR LAMP DRIVE SUPPLY:	2-way Molex header for infrared sensor lamp drive.
9. EXPLOSION PROOF HOUSING:	Affords protection to the PCB and sensor. Class I, group B, C & D.

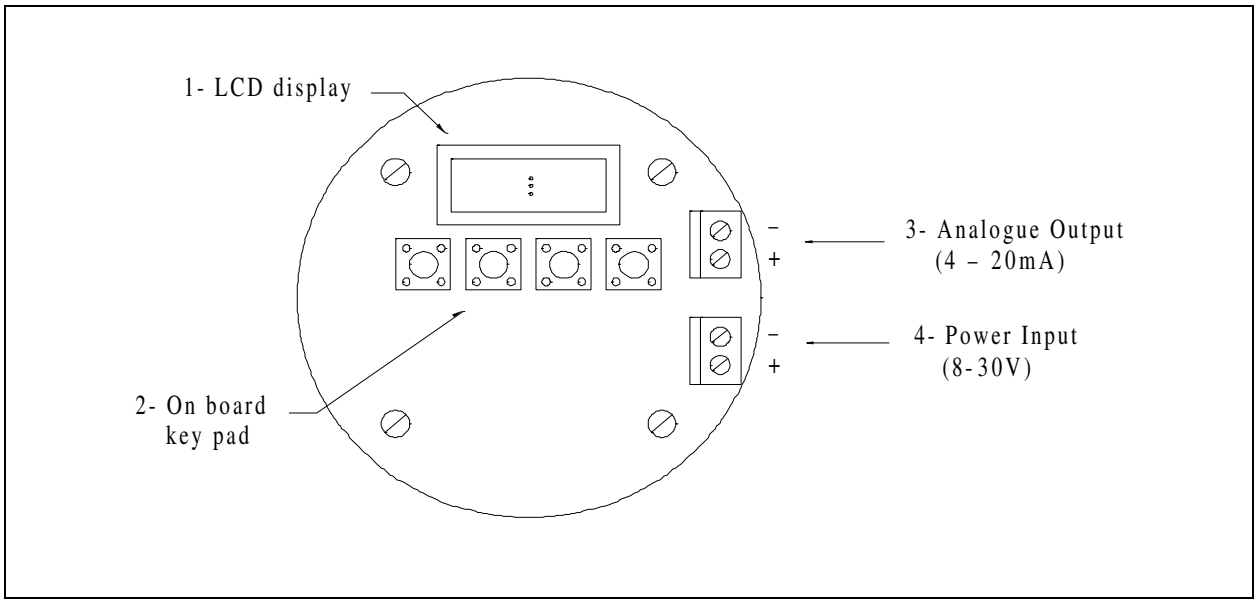

Figure 1: Front view of transmitter PCB.

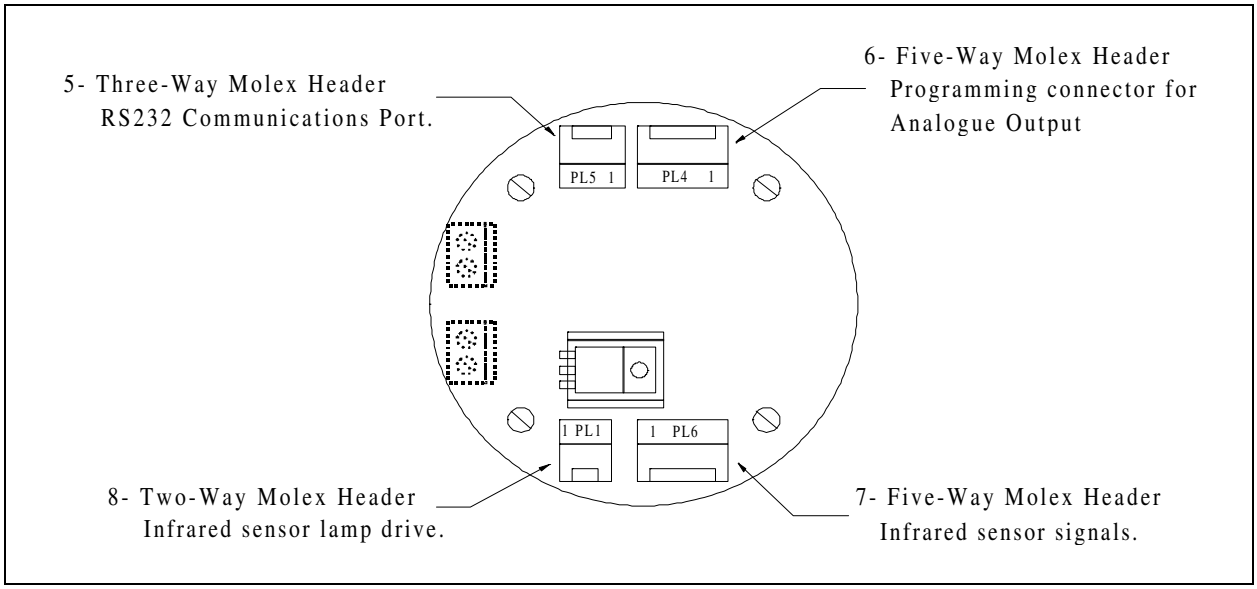

Figure 2: Rear view of transmitter PCB.

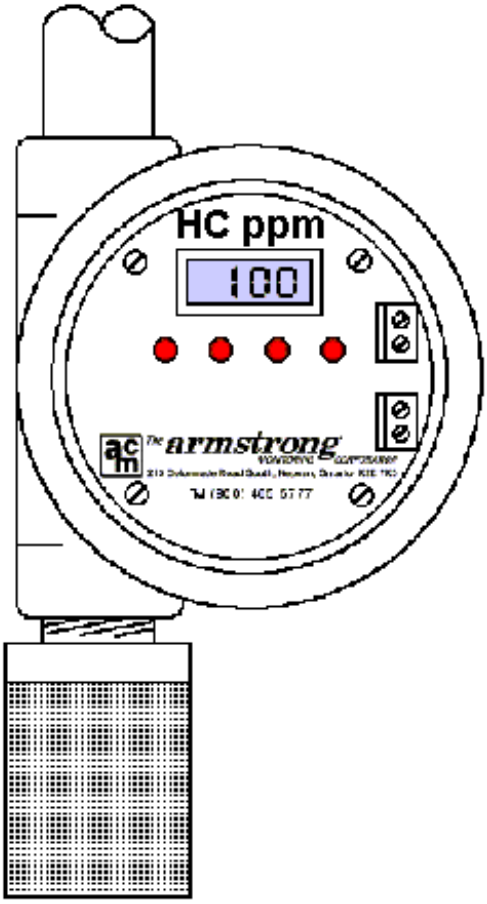

Figure 3: IR HC explosion proof sensor-transmitter.

4 INSTALLATION

4.1 LOCATION AND MOUNTING

The AMC-3907/3917 IR HC sensor-transmitter should be mounted in a place sufficient enough for the sensor to receive its environment, and secure from potential mechanical damage. It should remain clean and free from debris. Keep the internal area of the enclosure clean and dry. Mount the unit in a location that it will not experience submersion in liquids, exposure to extreme temperatures, and electrical noise signals.

Note:

The Infrared sensor output is a low level signal to which a high gain is applied by the circuitry. For this reason it is important to avoid the pickup of unwanted electrical signals, either low frequency or RFI.
Cables that run to the monitor should be shielded as well.

5 OPERATION AND CALIBRATION

5.1 OPERATION

Note:

Make sure all connections are proper and secure before applying power to the unit.

When power is first applied to the module an initialization procedure is performed as follows:

All the segments on the LCD are shown	8.8 8.8
The software version number is displayed	1.61
The sensor type is displayed	HC
The display then flashes with 3 vertical dots.	:

The module is now operational.

5.2 CALIBRATION

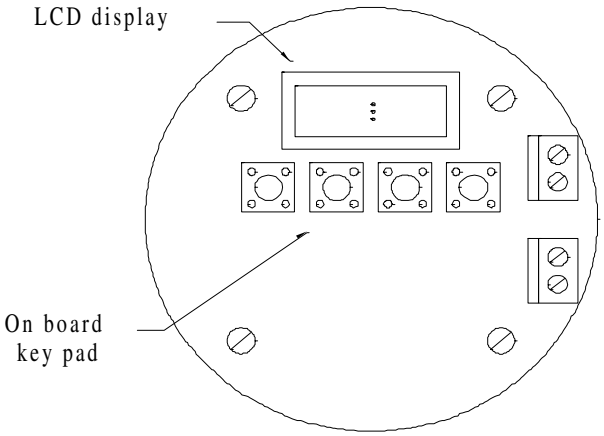

Figure 4: LCD and on board key pad.

Note:

As the calibration procedure may cause the monitoring equipment to give a false alarm, appropriate precautions should be taken.

The menu system featured within the module allows all calibration and configuration activities to be performed. The menu system may be accessed by using the on board key pad while viewing the LCD display (see figure 4).

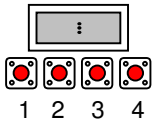

Figure 5: Key pad numbering.

The keypad has the following functionality:

Button	Function
1	Menu Open/Close
2	Enter
3	Next (Increment)
4	Previous (Decrement)

Note:

Ensure that the correct sensor type is selected in the configuration prior to sensor calibration.

5.2.1 MENU 1 – SENSOR ZERO

*(Refer to figure 5, page 5 for key pad numbering).

- Press button 1 to open the menu system.
- Using the NEXT and PREVIOUS buttons (buttons 3 & 4), select menu option: **E: 1**
- Press ENTER (button 2).
- Ensure the sensor is in a hydrocarbon-free environment.
- Press ENTER (button 2) to zero the sensor, '**– – – –**' will be displayed to confirm the sensor zero has been performed.
  Note: Pressing button 1 rather than button 2 exits the zero feature without performing the calibration.
- Press button 1 to close the menu system.
  Note: The ZERO factor will be displayed on exit.

5.2.2 MENU 2 – SENSOR SPAN

*(Refer to figure 5, page 5 for key pad numbering).

- Press button 1 to open the menu system.
- Using the NEXT and PREVIOUS buttons (buttons 3 & 4), select menu option: **E: 2**
- Press ENTER (button 2).
- Apply a known concentration of gas (applicable to sensor type) at a flow rate of between 500 and 1000cc/min. Allow time for the sensor to respond.
- Using the INC and DEC buttons (buttons 3 & 4) set the reading to that of the calibration gas level.
- Press ENTER (button 2) to span the sensor, '**– – – –**' will be displayed to confirm the sensor span has been performed.
  Note: Pressing button 1 rather than button 2 exits the span feature without performing the calibration.
  Wait until the reading is stable, if not press button 2 to span the sensor.
- Press button 1 to close the menu system.
  Note: The SPAN factor will be displayed on exit.
- Turn off and disconnect the calibration gas.

6 ROUTINE MAINTENANCE & SERVICING

The AMC-3907/3917 IR HC sensor transmitter module should be periodically inspected:

- Clean detector heads using a clean damp cloth. Avoid spraying, submersion and other conditions that could cause a liquid to enter the module and cause possible intrinsic damage to internal components
- Inspect the sensor and housing to ensure it is sound and the aperture is not obstructed.

The maximum time interval for maintenance and inspection depends upon the environment in which the equipment is installed. The module should follow a regular maintenance program.

6.1 VERIFICATION OF MODULE PERFORMANCE

A test should be performed to ensure that no transmitter failures are present and that the output is functioning properly. This test should be performed every 2 months, but for more demanding applications, verification should be performed on a weekly basis.