



INSTALLATION AND OPERATION MANUAL 4-20 mA ANALOG INPUT OPTION ADDENDUM FOR MODELS MCD-1, 4, 8, 16

Please use this addendum in conjunction with your system manual



INTRODUCTION

This addendum provides the installation and wiring instructions for the 4-20 mA analog input option. The addendum should be used in conjunction with the main Installation and Operation Manual of your system.

The 4-20 mA analog input option for the IR-SNIF-MCD provides up to four analog input connections for remote two wire (and some three wire) sensors. This allows the installer to configure the IR-SNIF-MCD as a combination gas monitor, or a Multi Channel Detector.

The MCD configured with 4-20 mA analog input option becomes a five channel gas detector. The Infrared detector and all zones associated with refrigerant sensing are measured on Channel 1 in the monitor. The four analog connections from remote transmitters are measured on Channels 2, 3, 4 and 5. The analog inputs are referred to as Channel 2, Channel 3, Channel 4 and Channel 5.

INSTALLATION

For 'two-wire' transmitters:

Channel 2 -

- Connect +V in on transmitter to TB6-2
- Connect signal on transmitter to TB6-1

Channel 3 -

- Connect +V in on transmitter to TB6-2
- Connect signal on transmitter to TB6-3

Channel 4 -

- Connect +V in on transmitter to TB6-6
- Connect signal on transmitter to TB6-5

Channel 5 -

- Connect +V in on transmitter to TB6-6
- Connect signal on transmitter to TB6-7

For "three-wire" transmitters:

Contact SenTech Corporation to determine whether your selected transmitter is suitable for the IR-SNIF-MCD.

CAUTION

BECAUSE THREE-WIRE TRANSMITTERS DRAW MORE THAN 20 MA, CARE MUST BE EXERCISED WHEN CONNECTING TO THE IR-SNIF-MCD 24 VOLT LOOP POWER.

Once the transmitter has been verified compatible with the IR-SNIF-MCD, 'three-wire' connections are as follows:

Channel 2 -

- Connect +V in on transmitter to TB6-2
- Connect signal on transmitter to TB6-1
- Connect ground on transmitter to TB6-4

Channel 3 -

- Connect +V in on transmitter to TB6-2
- Connect signal on transmitter to TB6-3
- Connect ground on transmitter to TB6-4

Channel 4 -

- Connect +V in on transmitter to TB6-6
- Connect signal on transmitter to TB6-5
- Connect ground on transmitter to TB6-4

Channel 5 -

- Connect +V in on transmitter to TB6-6
- Connect signal on transmitter to TB6-7
- Connect ground on transmitter to TB6-4

CAUTION

IF THE POWER DRAW OF 'THRE-WIRE' TRANSMITTERS EXCEEDS THE CAPABILITY OF THE MONITOR, IT CAN BE PERMANENTLY DAMAGED, AND MAY NOT FUNCTION PROPERLY. SEPARATE LOOP POWER MAY BE REQUIRED FOR SOME TRANSMITTERS.

SETUP

Once the transmitters have been connected, setup of the monitor is accomplished entriely via the menus. Refer to appendix A of this manual for programming instructions.

APPENDIX A PROGRAMMING AND OPERATOR INTERFACE

SUMMARY

The 4-20 mA analog input option is designed to supplement the refrigerant monitoring function of the IR-SNIF-MCD. As such, the monitor will normally display the status of the refrigerant monitoring.

OPERATIONAL SCREENS

When the monitor is operating normally, it will cycle from Autozero to Autosample, stepping from zone to zone. If and alarm condition is detected the monitor will enter Leak Wait mode to ensure a leak is detected.

Autozero

```
** Auto Zero **  
Timer 24 12:00  
Press ENT For Menu
```

Auto Sampling

```
Auto Sample ZONE 1  
PPM 0 12:00  
Press ENT For Menu
```

Leak Wait

```
Leak Wait ZONE 1  
PPM 0 12:00  
Press ENT For Menu
```

Fault Mode

When the monitor detects a Fault Condition, it will enter fault mode. The Main relay will energize and "Trouble Alarm" will be displayed in the third line of the display.

```
Auto Sample ZONE 1  
PPM 0 12:00  
Trouble Alarm  
Press ENT For Menu
```

Alarm Modes

When the monitor measures analog channels above the alarm trip points (or below depending on the alarm configuration), the associated relays will be energized.

For conventional Low, Main and High threshold alarm configuration, the Low, Main and High relays will be energized if any analog input channel has exceeded the corresponding alarm levels. The specific alarm condition is recorded in memory to be reviewed in the Alarm Status screens.

For Low - High alarm configuration, the Low relay will be energized if any analog input channel is BELOW the low threshold. The High relay will be energized if any analog input channel exceeds the corresponding alarm level. The specific alarm condition is recorded in memory to be reviewed in the Alarm Status screens.

MOMENTARY SCREENS

The monitor has a series of Momentary Screens accessed simply by pressing a key. Key 1 corresponds to the refrigerant channel, or 1 of the multiple channels. Keys 2 through 5 correspond to the four 4-20 mA analog input channels for remote sensors (if so equipped), or channels 2 through 5 of the monitor.

Key "2", "3", "4" or "5", - Displays current measurement of the corresponding analog input channel.

```
Analog Channel 2  
% 20.0 12:00  
OXYGEN O2  
Press ENT For Menu
```

MENU SCREENS

The Menu Screens can be accessed from any Operational Screen by pressing the ENT or enter key. In the first menu, the operator is given the choice to review Zone Alarms, manually perform an Autozero, enter Manual Override mode or enter Setup.

```
1)...ZONE Alarms  
2)...Rezero  
3)...Manual  
4)...Setup ABORT
```

Alarm Status

The Alarm Status Screen is accessed by pressing the "1" key. If any Zones are in Alarm, the operator will have access to a series of screens formatted to show the Zone, the Alarm level, the peak reading in that zone, and the time and date of

the alarm. Additional alarm screens can be accessed by pressing the left and right arrow keys. If there are no alarms to display, or the last alarm has been displayed, "No More Alarms". If the "RESET" or "ABORT" keys are pressed, the monitor will exit and return to normal operation.

```
Alarm Status
ZONE 1 LOW PK 36
03/06 12:00
<- RESET or ABORT ->
```

Once all of the Zones in alarm have been displayed, the Monitor will display any analog input channel alarms. Once all of the Channel alarms have been displayed the monitor will check for Trouble Alarms. Trouble Alarms will be generated if the monitor senses a fault in the remote transmitter or wiring from the transmitter to the monitor.

The Analog Input Channel trouble alarm will be displayed if the monitor an input of less than 4 mA. This is an indication that the transmitter is defective, or possibly that it has become disconnected.

```
Trouble Alarm
Channel 2 (4-20mA)
Check Sensor or Wire
<- RESET or ABORT ->
```

Once all of the trouble alarms have been displayed, the monitor is returned to normal operation by pressing the "ABORT" key.

Setup

The Setup Menus are accessed by pressing the "4" key. The operator will be asked to enter a password to continue into the Setup Menus. There are five passwords. Passwords 1 through 4 are user definable (default passwords are 111, 222, 333, 444). The last password is permanently set at 999.

```
* SenTech Monitor *
ENTER PASSWORD
Followed by ENT
Code: XXX
```

If the correct password is entered, the unit will display the Setup Menu Screen. From the Setup Menu, the operator can access the refrigerant monitoring settings (IR Setup), the analog input settings (4-20 mA Setup - If so equipped), system configurations settings and the contact screen.

Setup Menu (w/4-20 input option)

```
1)...IR Setup
2)...4-20 mA Setup
3)...System Setup
4),,,Contact ABORT
```

Channel Setup

The Channel Setup screen is accessed by pressing the "2" key. This menu will give the operator access to a list of gasses programmed into the monitor (Gas Codes). The operator will be able to change the setup for each channel (Setup), and to Enable and Disable specific channels (Enable).

```
Determine Gas Codes
FOR Each CHANNEL
1-Gas Codes 2-Setup
3-AREAS ABORT
```

Gas Codes

As of January 1, 2002 the standard IR-SNIF-MCD monitor is programmed for a list of 20 remote transmitters, plus a generic gas.

The Gas Code list is accessed by pressing the "1" key. The entire list of gasses can be viewed by pressing the left and right arrows to scroll from screen to screen. The initial screen is shown below.

```
Gas Code Selections
31-NH3 32-AsH3
33-CO 34-Cl2
ABORT ->
```

Setup

The Setup menu is accessed by pressing the "2" key. This menu consists of three screens that will allow the operator to select a channel and modify the Gas, the units measured, the alarm type, the full scale units measured by the transmitter, and the Low, Main and High alarm levels for each channel. Pressing the left and right arrows will scroll from one channel to another. Pressing enter enters the current information and moves the cursor to the next entry. Pressing abort saves the information and returns to the previous menu.

```
CHANNEL 2 <- ->
Gas 44
1)PPM 2)% 3)%LEL 2
ENT or ABORT
```

Refer to the remote transmitter manufacturer's information for the correct units to be displayed for the gas to be sensed.

```
Alarm Type 2
1) LoMainHi 2)LoHi
Full Scale: 30.0
ENT or ABORT
```

Alarm Type 1 is the conventional threshold alarm. The Low, Main and High relays will be energized if any analog input channel has exceeded the corresponding alarm levels.

Alarm Type 2 is the Low - High alarm. The Low relay will be energized if any analog input channel is BELOW the low threshold. The High relay will be energized if any analog

input channel exceeds the corresponding alarm level.

The transmitter full scale units to be measured is entered from the remote transmitter manufacturer's information for the correct full scale range for the gas to be sensed.

Alarm LOW	25
Alarm MAIN	50
Alarm HIGH	500
ENT or ABORT	

The alarm thresholds are entered in the last setup screen. If a channel is set up with alarm type "2", the MAIN alarm will be displayed as N/A.

Enable

The Channel Enable/Disable screen is accessed by pressing the "3" key. This menu will allow the operator to select a zone and enable it or disable it. Pressing the left and right arrows will scroll from one zone to another. Pressing enter enters the current information and moves the cursor to the next entry. Pressing abort saves the information and returns to the previous menu.

CHANNEL 2	<- ->
Status	1
1-Enable	0-Bypass
ENT or ABORT	