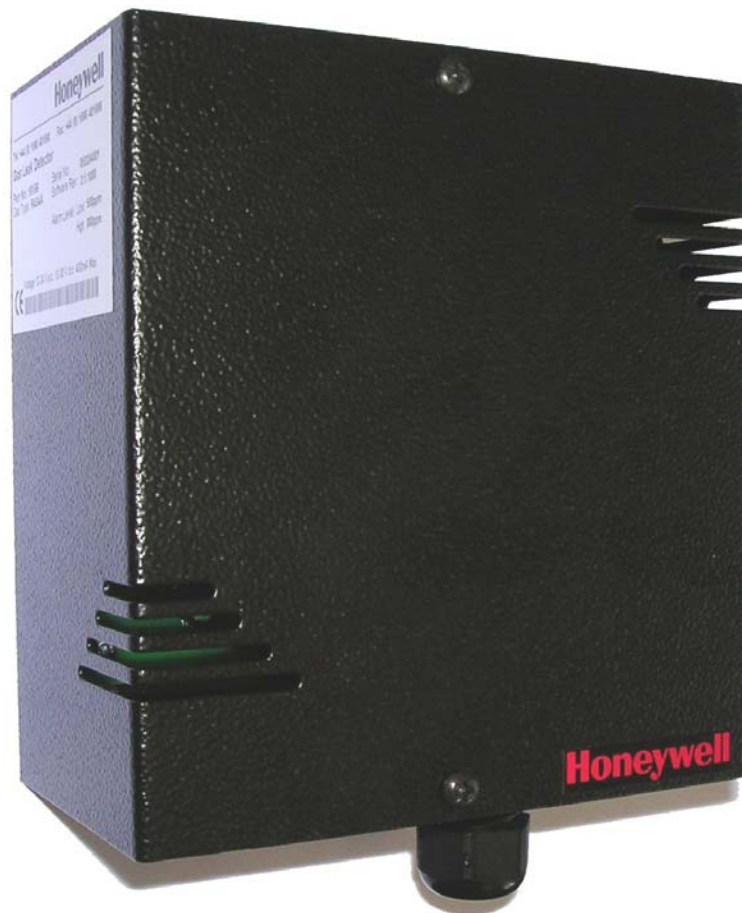


## SN0500 / SN0501 REFRIGERANT GAS LEAK DETECTOR

INSTALLATION / USER GUIDE



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## 1. INTRODUCTION

The Honeywell Refrigerant Gas Detection sensors, SN0500 (for refrigerant R404a) and SN0501 (for refrigerant R410) are used to detect the leakage of refrigerant gas and notify a monitoring system or provide a local indication (i.e. audible or visual signal).

Remedial action can then be taken to stop and replace the lost gas.

## 2. EXTERNAL CONNECTIONS

All external connections are made to the motherboard through a cable gland. A cable tie should be fitted within 20mm of the cable gland inside the enclosure. The connectors will accept wire of 0.5-1.5mm sq.

Note: Earth connection must be made when using the vented metal enclosure or Exd enclosure. The safety of this equipment is dependent on the integrity of the power supply and the earthing of the enclosure.

On power up the sensor may take some time (minutes up to hours) to fully normalize. You can monitor this by checking the 0-10V output as it falls towards zero. If during this normalisation period the red / yellow LED activates indicating the high / low level relay has switched then the reset button (see Fig. 1.) on the sensor must be pushed (if in latched position) after normalisation is complete.

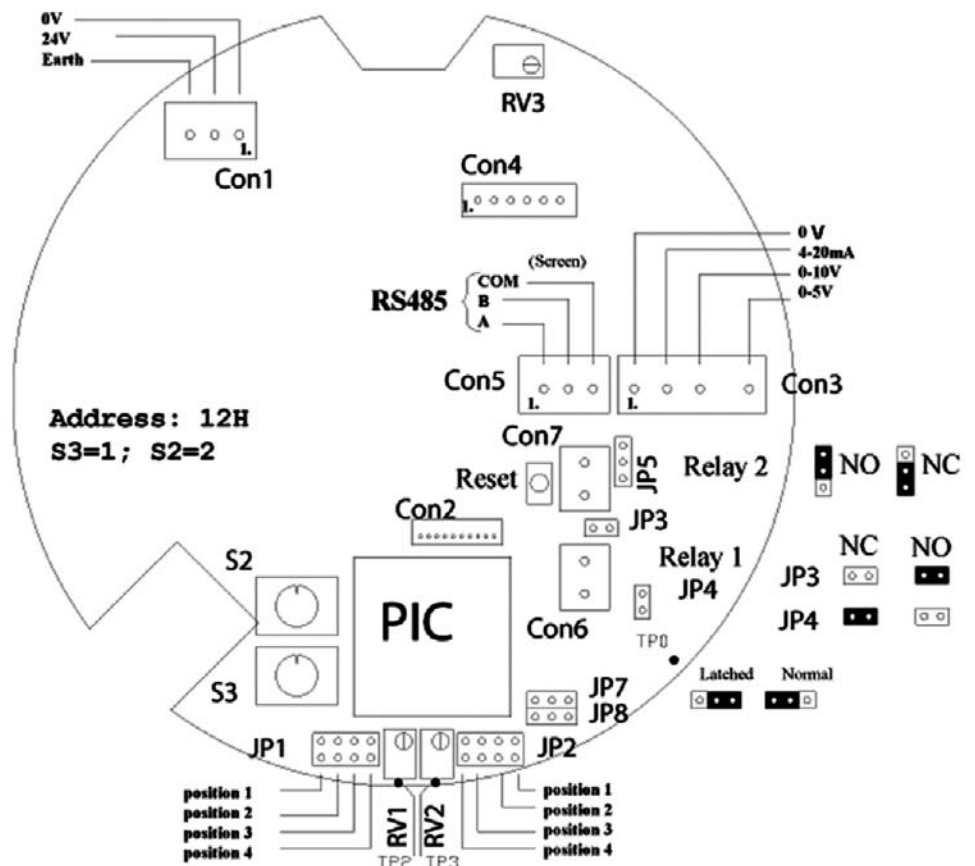


Figure 1. External Connections

### 3. POWER SUPPLY

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The Power supply is connected at Con 1 (see Fig. 1)  
Green LED on - shows power connected.  
Pin 1 = 0V,  
Pin 2 = 12 to 24 VAC or 12 to 30VDC,  
Pin 3 = Earth.

**The 0V (pin 1) on the power supply terminal block (CON 1) can withstand 50V AC or DC with respect to the 0V (Pin 1) on the output terminal block (CON 3). If this is likely to be exceeded use an isolated power supply.**

On the power supply side 12V is the minimum voltage at the terminals. Power consumption is 4W max. It can draw 0.33Amp at 12V, so voltage drop along the supply cable should be considered when selecting supply cable, type and length. For example, for cable resistance 10ohm/100m allowing for the flow and return total cable resistance for 100m is 20ohm and voltage drop along the cable is 6.6V. Minimum DC supply then should be 19V.

If you need to use a cable of greater diameter than 1.5 mm sq, you can use a terminal block at each sensor position capable of taking the larger cable and connect from that into the CON1 terminal block using 1mm sq wire. Alternatively use local power supplies to reduce cable runs and voltage loss.

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### 4. ANALOGUE OUTPUTS

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Analogue Outputs which indicate the concentration of gas refrigerant in the air, are at Con 3 (see Figure 1.)

A two-core communication cable should be used to connect the outputs to a monitoring and control system; a screen is not required.

Pin 1 = 0V  
Pin 2 = 4-20mA. Load resistance must be less than 400Ω  
Pin 3 = 0-10V. Load resistance must be greater than 100Ω  
Pin 4 = 0-5 V. Load resistance must be greater than 10KΩ

When connecting the 4-20mA to the control panel, we suggest using Belden 8761, 22awg single pair shielded or alternatively an alarm type cable of 7/0.2mm, 22awg.

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## 5. RELAY CONTACTS

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**Note: If changing any jumper - power must be removed.**

There are two relays rated up to 1 Amp at 24V DC/AC. The status of the relays is jumper selectable.

**Relay 1** at Con 6. Low-level alarm. Yellow LED on when in alarm.  
 Normally closed when JP4 link inserted, JP3 link removed, as shown on Fig. 1.  
 Normally open when JP3 link inserted, JP4 link removed, as shown on Fig. 1.  
 Latching (manual reset by push button located next to CON 7) - Not latching (automatic reset) set by JP8 see Fig. 1. for link position.

Alarm threshold level is set by pot RV1 and can be set by putting a meter between TP0 (negative) and TP2 (positive) (below RV1) and adjusting RV1 (scale is 0 to 5V e.g. 2.5V is 50% of scale).

Delayed response time is set at JP1 by inserting the link in the required position.

Default settings are:

- Position 1: No delay
- Position 2 : 1 Minute
- Position 3 : 5 Minutes
- Position 4 : 10 Minutes

**Note: If changing any jumper - power must be removed.**

**Relay 2** at Con 7. High-level alarm. Red LED on when in alarm.

Normally open/closed when JP5 link inserted, as shown on Fig.1.  
 Latching (manual reset by push button located next to CON 7) / Not latching (automatic reset) set by JP7 see Fig. 1. for link position.

Alarm threshold level is set by pot RV2 and can be set by putting a meter between TP0 (negative) and TP3 (positive) (below RV2) and adjusting RV2 (scale is 0 to 5V e.g. 2.5V is 50% of scale).

Delayed response time is set at JP2 by inserting the link in the required position.

- Position 1 No delay
- Position 2 1 Minute
- Position 3 5 Minutes
- Position 4 10 Minutes

**Note: If changing any jumper - power must be removed.**

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## 6. GAS DETECTION RANGE

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Gas Detection Range and default settings vary with model and set up, see below for sample settings.

Gas	R404a	R410
Range	0-1000 PPM	0-1000 PPM

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## 7. STANDARD DEFAULT SETTINGS

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- Relay 1** Low-level relay set at 500 PPM, NO, Auto reset mode  
**Relay 2** High-level relay set at 900 PPM, NO, Auto reset mode.

Delays on both alarm outputs are 0 minutes (no delay).

### CON 1: Power Supply input

Power on indicated by Green LED.

Supply voltages to be either 12V to 24V AC or 12 to 30V DC

Power consumption is 4W max at 12V.

The connectors will accept wire of 0.5-1.5mm<sup>2</sup> Refer to Section 3 for maximum cable run.

**CON 2:** Not Used.

### CON 3: Analogue Output

Pin 1: 0V

Pin 2: 4-20mA. Load resistance < 400Ω

Pin 3: 0-10V. Load resistance > 100Ω

Pin 4: 0-5V. Load resistance > 10KΩ

### CON 4: Plug-in detection sensor

**CON 5:** Not Used

### CON 6: Relay 1 contacts (1Amp 24V AC/DC)

Low-level alarm. Indicated by Yellow LED.

Normally closed when *JP4* link inserted, *JP3* link removed, as shown on Fig. 1.

Normally open when *JP3* link inserted, *JP4* link removed, as shown on Fig. 1.

Latching (manual reset by push button located next to CON 7) / Not Latching set by *JP8* (see Fig. 1. in Connection Instructions)

Alarm Threshold level set by *RV1* and can be set by putting a meter between TP0 (negative) and TP2 (positive) and adjusting *RV1* (scale is 0 to 5V e.g. 2.5V is 50% of scale).

Delayed response time set by *JP1* link (see Fig. 1. in External Connections)

Position 1= No delay      Position 3=5 min

Position 2=1 min      Position 4=10 min

### CON 7: Relay 2 contacts (1Amp 24V AC/DC)

High-level alarm. Indicated by Red LED on.

Normally open/closed when *JP5* link inserted, as shown on Fig. 1.

Latching (manual reset by push button located next to CON 7) / Not Latching set by *JP7* (as above)

Alarm threshold level set by *RV2* and can be set by putting a meter between TP0 (negative) and TP3 (positive) and adjusting *RV2* (scale is 0 to 5V e.g. 2.5V is 50% of scale).

Delayed response time is set by *JP2* link (see Fig. 1. in External Connections).

Position 1= No delay      Position 3=5 min

Position 2=1 min      Position 4=10 min

If changing any jumper - power must be removed.

## 8. CONNECTIONS AT A GLANCE

Connector	Pin	Description
CON1	1	0V Supply Voltage.
CON1	2	24V Supply Voltage.
CON1	3	Earth.
CON2	1	Display Connection – not used.
CON2	2	Display Connection – not used.
CON2	3	Display Connection – not used.
CON2	4	Display Connection – not used.
CON2	5	Display Connection – not used.
CON2	6	Display Connection – not used.
CON2	7	Display Connection – not used.
CON2	8	Display Connection – not used.
CON2	9	Display Connection – not used.
CON2	10	Display Connection – not used.
CON3	1	Analogue Output – 0V.
CON3	2	Analogue Output – 4-20mA, load resistance <400Ω.
CON3	3	Analogue Output – 0-10V, load resistance >100Ω.
CON3	4	Analogue Output – 0-5V, load resistance>10KΩ.
CON4	1	Plug-in detection sensor module.
CON4	2	Plug-in detection sensor module.
CON4	3	Plug-in detection sensor module.
CON4	4	Plug-in detection sensor module.
CON4	5	Plug-in detection sensor module.
CON4	6	Plug-in detection sensor module.
CON5	1	RS485 Communication – A.
CON5	2	RS485 Communication – B.
CON5	3	RS485 Communication – Screen.
CON6	1	NO relay contact.
CON6	2	NO relay contact.
CON7	1	NO relay contact.
CON7	2	NO relay contact.

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**Automation & Control Solutions**

Refrigeration Control

Newhouse Industrial Estate

Motherwell

Lanarkshire ML1 5SB

Phone: (44) 01698 481698

Fax: (44) 01698 481699

[www.honeywell.com/refrigeration](http://www.honeywell.com/refrigeration)

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