

**ENMET CANADA LTD
ISA-66RL
OPERATIONS MANUAL**

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THEORY OF OPERATION

1.0

The ISA-66RL employs a metallic oxide semi-conductor (MOS) sensing element in its detector head. In the presence of a gas an output is produced, sensor resistance decreases, enabling the activation of alarms, relays etc. at specific levels.

DESCRIPTION

2.0

The ISA-66RL is a multiple channel dual level gas detector consisting of up to ten sensors per alarm (zone) connected together in parallel. The alarm module has three indicating lights. See section 7.0 for details.

Each alarm module has a pair of DPDT 10 amp. relay contacts. Additional contact and time delay relays are optional.

UNPACKING AND INSPECTION

3.0

Inspect all parts of the gas detector upon receipt for any damages that may have occurred during shipping and that all parts ordered were received. Contact Enmet Canada or your local Representative if anything is in error or damage is suspected.

INSTALLATION

4.0

This manual includes the necessary drawings to install and service your gas detector. These drawings are listed on the specification sheet at the back of the manual.

4.1

The control panel containing the alarm module is installed in a central or convenient location and the sensors are wired in parallel with a maximum distance between sensors of 100 feet. The maximum number of sensors per alarm module (zone) is 10. The sensors are to be wired with a four-strand 16-18-gauge shielded wire.

4.2

CARBON MONOXIDE gas is a by-product of incomplete combustion and as such is usually hot. It is also slightly lighter than air in molecular weight and will disperse evenly throughout an area. Therefore, the sensors should be mounted in the breathing zone; 4 to 6 feet above the finished floor.

4.3

If you have an unusual or difficult installation problem please contact Enmet Canada or your local Representative for further details.

START UP

5.0

This equipment is designed to operate from 115 VAC 60 Hz. Other voltage supplies may seriously damage the circuit and will void the warranty.

5.1

After proper connection to the power supply (see subplate drawing), apply power to the instrument. The sensor voltages must then be set. With a digital voltmeter set on D.C. volts, measure the voltage across TP1 and TP2 (see remote sensor drawing) and adjust green pot (N) to 2.5 VDC. After all sensors are adjusted leave the instrument powered up for at least 48 hours prior to proceeding with the gas test.

GAS TEST

6.0

To properly test the instrument, a standard calibration kit (P/N: E90020) consisting of a calibration adapter and case. The specific gases (typically 50 and 100 PPM CO), are ordered separately. .

The calibration kit as well as replacement gas cylinders and parts are available from Enmet Canada or your local Representatives. Please specify gases and concentrations when ordering.

6.1

Your ISA-66RL should be checked for proper calibration on a regular basis, or if there has been an alarm module, sensor module or sensor changed. Always ensure that the gas detector has been turned on for at least 24 to 48 hours prior to the gas test. Follow these procedures closely and always allow 15 minutes clearing time for re-testing the same sensor.

6.1.1

Connect the calibration adapter to the canister of low level gas (50 PPM). Fill the humidifier bowl with clean water to $\frac{1}{2}$ above the bottom of the bubbler tube.

6.1.2

Open the gas valve slowly and adjust the flow so that the gas bubbles through the water just faster than you can count. **DO NOT OPEN THE VALVE FULLY.** The rotameter on the humidifier should read approximately .5 SCFH (Newer calibration adapters will not have a rotometer but a regulator set for 0.5 LPM).

6.1.3

Firmly place the calibration cup over the sensor allowing the gas to pass over the sensor for approximately 1 to 2 minutes or until the voltage has stabilized. If the gas detector is out of calibration it may alarm prior to or just after the correct time has elapsed. A few seconds either way will make little difference. If the unit does not alarm correctly, adjust L-1 yellow pot (sensor module drawing) until yellow LED is illuminated (see sec. 6.1.5). This indicates that the

low alarm has been activated. Allow 15 minutes clearing time and gas the sensor again to confirm proper setting.

6.1.4

Using the high level gas (100 PPM), follow the same procedure as in 6.1.3 only adjust H-1 pot until the red LED is illuminated. Both the yellow and red LED's should be on.

6.1.5

Due to the deadband action of the gas detector, there are approximately three full turns between tripping in and out of alarm. To turn the alarm off, turn the appropriate pot clockwise (L-1, H-1). Then, while applying calibration gas, turn the pot counter-clockwise until the unit trips back into alarm. Adjusting for instantaneous alarm when the gas is first applied, or using excessively high flow rates will result in improper calibration and extremely high sensitivity.

VISUAL ALARMS

7.0

The ISA-66RL has three LED alarm lights visible through a window in the control panel door at the main panel as well as at the sensor housing.

7.1 **GREEN:**

Gas concentration is below both alarm setpoints. Relays are de-energized.

7.2 **YELLOW:**

Gas concentration has reached the lower level and the low-level relay is energized. This relay is non-latching and will drop out when the gas concentration drops.

7.3 **RED:**

Gas concentrations now reached high level and both LED's will be on the both relays will be energized.

ALARM CONTACTS

8.0

The ISA-66RL includes one 10-amp DPDT non-latching relay contact for each level (see subplate drawing). Optional 5 amp time delay relays and 10 amp control relays are available.

8.1

DELAY "ON" RELAY: This optional relay is mounted on the subplate and will delay the relay action for up to 60 minutes to ignore momentary alarms. Fully adjustable, the time delay relay provides a 10-amp DPDT control contact. See delay "ON" drawing for details.

8.2

DELAY "OFF" RELAY: This optional relay is also mounted on the subplate and will lock in a 10 amp DPDT relay for up to 60 minutes when gas alarm level is reached. This relay is fully adjustable. See delay "OFF" drawing for details.

AUDIO ALARMS

9.0

Enmet Canada offers two types of audio alarms as options on the ISA-66RL. There is a door-mounted buzzer and a door or top mounted grill horn. When this optional equipment is supplied and audio/off switch is included.

FAULT INDICATION

10.0

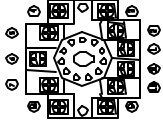
Should a sensor fail the green LED on the sensor housing will go out. Should there be a break in the sensor wiring, the green LED's on all sensors after the break will go out.

PARTS AND SUPPLIES

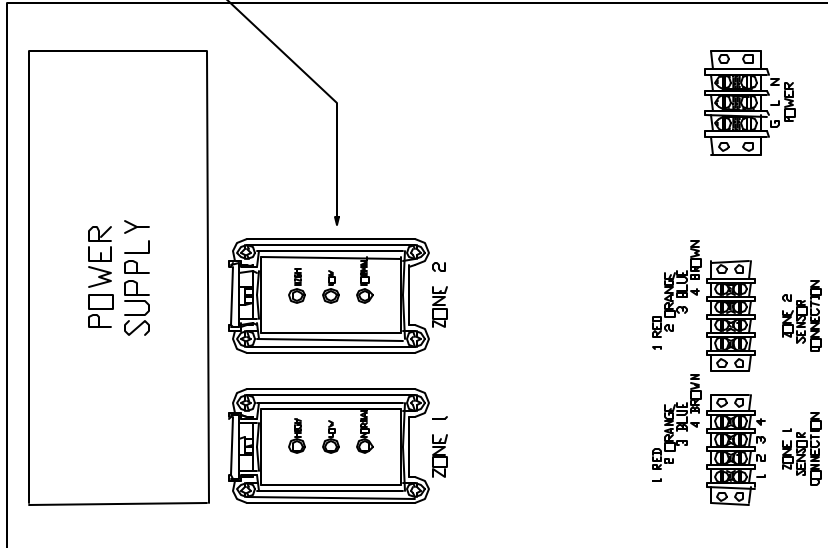
Description	Part Number
Replacement Sensor	E90035
Replacement Sensor Module (Toxic) (Includes sensor)	E90052
Replacement Alarm Modules	No Longer Available – Repair Only
Calibration Kit – Adapter and Case	E90020
Gas Canisters	
50 PPM Co	03219-050
100 PPM CO	03219-100

RELAY CONNECTIONS

DESC.	TERM No.
HI ALARM	1
NC	3
COM	2
LD ALARM	9
NC	11
COM	10



ALARM MODULE
BASE CONNECTOR DETAIL



ZONE	NO. OF SENSORS
1	2
2	1

ALARM SETTINGS

LOW: 35 ppm
HI: 100 ppm

REV	DATE	DESCRIPTION	CHK'D	APPD
REVISIONS				
		ENMET CANADA LTD.	PROJECT:	
DRG STATUS	BY	DATE	TITLE	
DRAWN	C.P.	19 08 91	BACK PANEL	
CHECKED			ISA 66RL-3	
APPROVED				
SCALE	REF. DWG	DWG. NO.	SHT	REV.
N.T.S.		91000400	1	0

1 "ON" LIGHT

2 MODE ADJUST

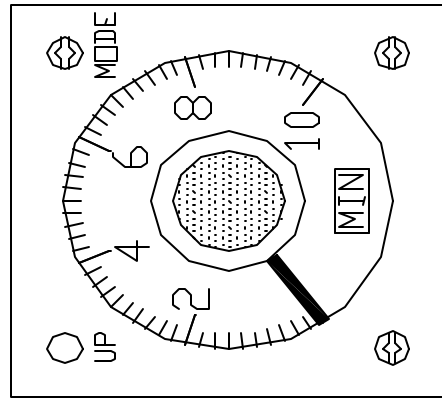
D = DELAY "OFF"
A = DELAY "ON"

3 RANGE ADJUST I>0 - 10
II>0 - 5.0
III>0 - 1.0
IV>0 - 0.5

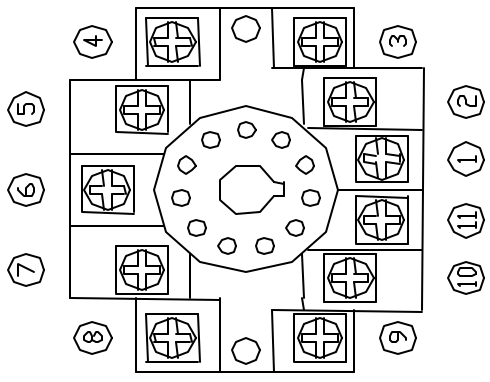
4 SCALE ADJUST
SECONDS - MINUTES - HOURS

SOURCE - 115 VAC
WIRING CONTACTS-5 AMP 250 VAC
1 COMMON 8 N.C.
3 N.D. 9 N.O.
4 N.C. 11 COMMON

RELAY TOP



RELAY
BASE



REV	DATE	DESCRIPTION	CHK'D	APP'D
REVISIONS				
		ENMET CANADA LTD.	PROJECT: HUSKY	
DATE	STATUS	BY	CHK'D	TITLE
	DESIGN	C.P.	P. LB	88 91
	DRAWN			
	CHECKED			
	APPROVED			
SCALE	REF. DIMS	DWG NO		REV.
N.T.S.		91000401		1 0

