GE Interlogix

KM260 Series

Carbon Monoxide Detection System

Installation and User Guide

Version 2.1 / April 2004

Kilsen and Aritech are GE Interlogix brands.

http://www.geindustrial.com/ge-interlogix/emea

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1 INTRODUCTION

1.1 General description

The GE Interlogix carbon monoxide (CO) detection system is the ideal solution for detection of dangerous levels of CO gas in car parks and other enclosed spaces where levels of CO gas must be monitored and controlled effectively.

The detection system is based on the analysis of polyatomic gas molecules in the air and uses a rapid-acting (under ten seconds) SnO2 doped semiconductor housed in the head of the detector. CO levels are sent to and displayed in the control panel and ventilation and alarm relays triggered automatically when user-defined CO levels are detected.

System features:

- Easy to use modular design that provides flexible CO protection for 1 to 5 zones.
- Detection response of less than 10 seconds (using GE Interlogix KM170 CO detectors).
- Use of up to 15 detectors per zone.
- Coverage from 300m^2 (single zone) up to 22,500m^2 (five zones) using a single cabinet.
- Two relay outputs (ventilation, alarm) triggered by user-defined CO levels.
- Advanced system testing and self-testing functions to ensure reliable detection at all times.

The CO detection system is available in the following versions:

Model	Zones	Cabinet size	Extra zones installable
KM260/1	1	275 mm x 335 mm x 130 mm	1
KM260/3	3	470 mm x 335 mm x 130 mm	2

1.2 System components

- 1 x cabinet, available in two sizes:

  275 mm x 335 mm x 130 mm (for 1 or 2 zone modules).

  470 mm x 335 mm x 130 mm (for 3 to 5 zone modules).

- 1 x voltage transformer.
- 1 x mains source connecting header.
- KM170 CO detectors (sold seperately).

2 INSTALLATION GUIDE

2.1 Fixing the cabinet to the wall

Fix the cabinet to the wall at an approximate height of 1.5 metres from the floor, in a place with easy access. The zone module LED display should be at eye-level.

The cabinet must be installed in a clean, dry place free from vibrations with a temperature between 0 and 60º C. The relative humidity must not exceed 95%. There should be no condensation. The place of installation should be protected by the CO detection system. Risk of mechanical damage must be avoided.

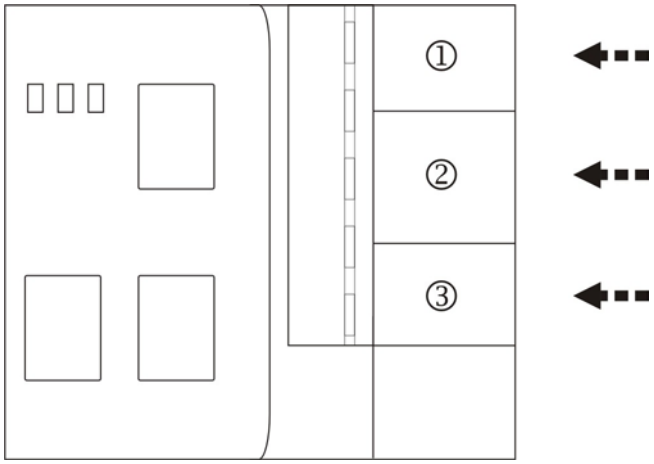
Create the cable holes you require in the metal cabinet before fixing it to the wall. Do not perforate the panel in places other than those indicated. Avoid dropping shavings or pieces of removed casing inside the cabinet. PG11-type cable adapters may be used.

2.2 Connections

There is a three-terminal connector shared by all the zone modules for connecting the mains 230 VAC and earth cables. The mains fuse is incorporated into the connector (see Figure 3: Mains connection).

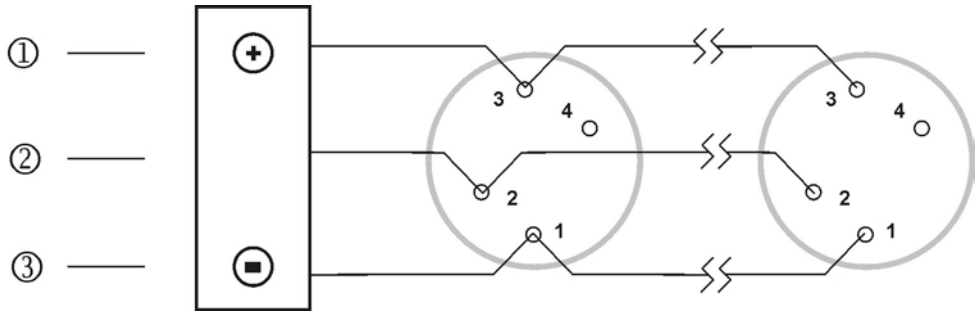
In addition each zone module has a nine-terminal connector:

Figure 1: Zone module connector



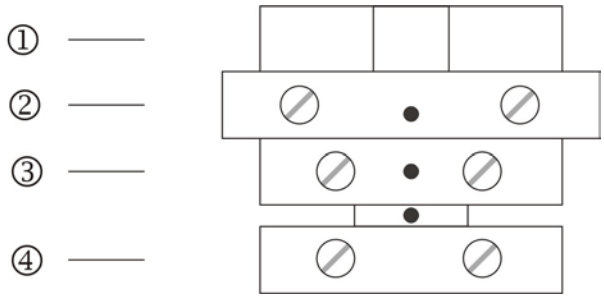
1. Three zone line terminals: positive, negative and data. See Figure 2: Line connection.
2. Three terminals for the ventilation output relay (EXTR. 1): common (C), normally open (NO), normally closed (NC)..
3. Three terminals for the alarm output relay: common (C), normally open (NO), normally closed (NC).

Figure 2: Line connection



1. Positive line; **2.** Data; **3.** Negative line.

Figure 3: Mains connection



1. Fuse (pre-installed); **2.** Live AC (fused); **3.** Earth; **4.** Neutral AC.

2.3 System startup

Once all connections have been completed and zone detectors installed the zone module may be switched on and a system test performed. To do this:

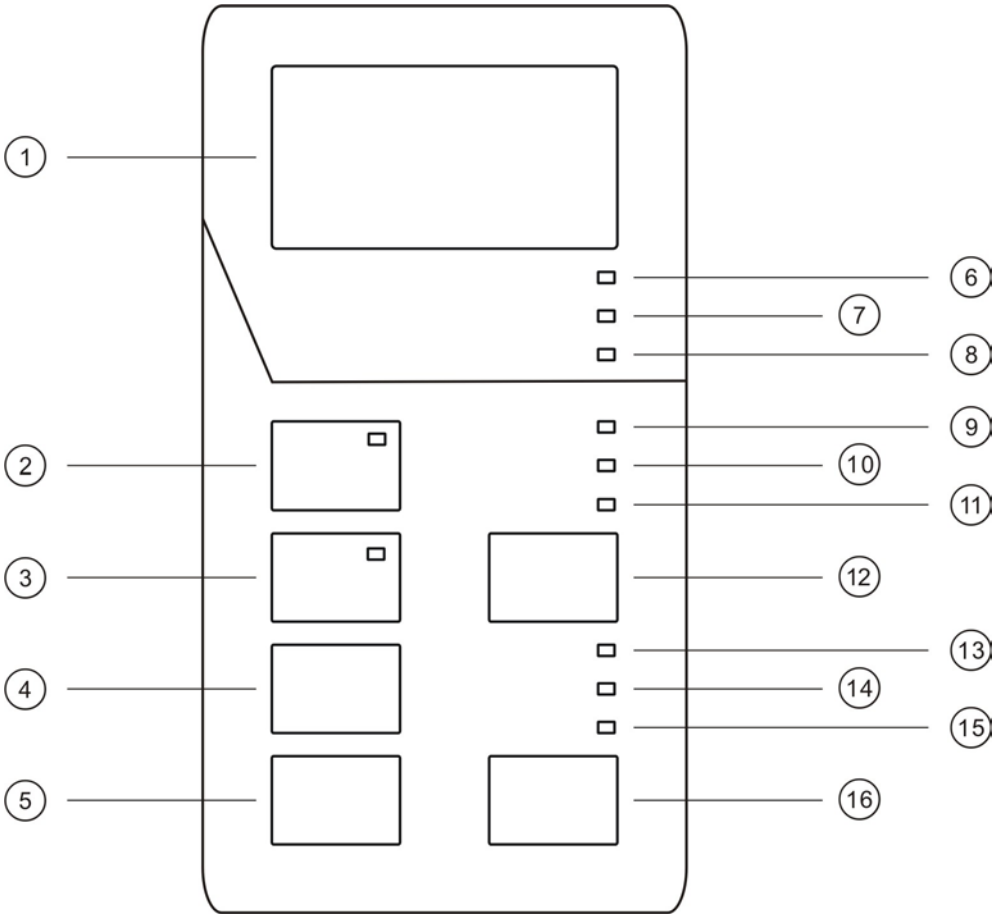
1. **Press the on-off key**. When the zone module is first switched ON the LED display indicates On until an initial CO reading is provided by the zone module detectors. During this initial period the power on-off key LED indicator will flash green. It will remain lit once the initial CO reading is confirmed.
2. **Press the Test key.** This will verify the proper working of the LED display, the zone module LED indicators and the acoustic buzzer. The number of detectors installed in the zone will also be assessed. Any fault discovered will be indicated.

3 USER GUIDE

Each zone in the CO detection system is controlled and configured by an independent zone module.

Zone CO levels are passed to the zone module from the detectors and the highest CO level detected is displayed on the LED display as Parts Per Million (PPM) of the sampled air.

3.1 Zone module keypad



1. LED display
2. Power on-off key / LED
3. Mute key / LED
4. Test key
5. * (star) key
6. Alarm LED
7. Ventilation LED
8. Fault LED
9. 150 PPM LED
10. 100 PPM LED
11. 50 PPM LED
12. Level key
13. Automatic mode LED
14. Manual mode LED
15. Stopped LED
16. Mode key

3.2 Zone module keys

Power on-off Key

The on-off key switches the zone module ON and OFF.

When the zone module is OFF it is indicated in the unit LED display and in the power on-off key LED indicator.

Mute key

The mute key silences the internal buzzer and disables the alarm output relay. When the mute key is active the key LED indicator is red.

Test key

Used to verify the proper working of the LED display, the zone module LED indicators and the acoustic buzzer.

*** (star) key**

The * key has two functions:

1. Alarm level indication and selection

   If the zone is quiescent pressing the * key will display the pre-defined CO alarm level flashing in the unit LED display. This level may be changed using the Level, Mode and Mute keys:

   - Mute = increments of 5
   - Mode = increments of 10
   - Level = increments of 100

2. Fault code indication

   If the zone is in fault condition, (indicated by the fault warning indicator and the intermittent buzzer), pressing the * key displays the code of the fault detected.

   The fault codes are:

   500 Scanning fault.

   501 Detector fault (filament breakage).

   502 Low line voltage level.

   503 Detector missing.

   504 Excessive power consumption.

Exit alarm or fault indication by pressing the * key. Indication will exit automatically if no key is pressed for 15 seconds.

Level key

Used to set the CO concentration level that will trigger the ventilation relay output.

Mode key

Used to select the different operating modes for ventilation:

- Stopped.
- Manual.
- Automatic.

Stopped mode disables the ventilation system.

Manual mode manually activates the ventilation relay output.

Automatic mode triggers the ventilation output when one of the detectors in the zone reaches the pre-defined alarm level. Ventilation is preceded by a short user-defined waiting period in which the ventilation LED indicator flashes. This LED indicator is constant during ventilation. Ventilation continues for a short period after CO levels have decreased.

3.3 Operating states

The CO detection system operates in the following states:

- Quiescent.
- Alarm.
- Ventilation.
- Fault.

An alarm, ventilation or fault state is indicated by the red, green or yellow LED indicators on the zone module keypad (see section 3.1 Zone module keypad).

Quiescent: This is the normal operating state where no event is indicated. The module displays the highest CO concentration level in the zone covered by the module in the display LED.

Alarm: There is an alarm. When the alarm level is reached, and after a set period for verification, the module activates the red alarm LED indicator, the alarm output relay and the acoustic signal..

Ventilation: Ventilation is active. The green ventilation LED indicator is lit.

Fault: There is a fault. Once a fault is detected the module will activate an intermittent acoustic signal and the yellow fault LED indicator: The fault code is displayed by pressing the ***** key. There is a user-defined delay before any fault is indicated by the system. Once a fault has been fixed press the Power on-off key to reset the system.

3.4 Configuration

To enter Configuration Mode press the * key and the Test key at the same time.

There are 17 numbered options that may be configured. On entering Configuration Mode option 1 (Ventilation level 1) is displayed.

- Use the Level, Mode and Mute keys to modify numeric values.
- Use the Mute key to modify on / off values.

The * key confirms the entry and displays the next option.

To exit Configuration Mode use the * key to cycle through all options – Configuration Mode will exit after the final option. Configuration Mode will exit automatically if no key is pressed for 15 seconds.

Configuration options and their default values can be seen in Table 1: Configuration options and default values.

Table 1: Configuration options and default values

Option	Description	Default value
1	Ventilation level 1	50
2	Ventilation level 2	100
3	Ventilation level 3	150
4	Relay alarm activated with alarm	ON
5	Relay alarm activated with fault	OFF
6	Relay alarm activated with ventilation	OFF
7	Relay alarm deactivated with mute	ON
8	Missing detector detection	OFF
9	Number of alarms detected *	0
10	Number of ventilations performed *	0
11	Delay time for Mode key (in seconds)	20
12	Confirmation delay to activate ventilation (in seconds)	60
13	Confirmation delay to deactivate ventilation (in seconds)	120
14	Idle time to exit * mode (in seconds)	15
15	Confirmation time to alarm activation (in seconds)	20
16	Confirmation time to fault activation (in seconds)	120
17	Number of detectors in loop	Calculated automatically during test procedure after system setup.

* Use the Mute key to reset alarm and ventilation values.

4 MAINTENANCE AND SAFETY

4.1 System maintenance

Do not tamper with zone module circuit board or electronics. In the event of a fault only qualified personel should attempt fault repair.

The built in system and self-testing functions ensure that your CO detection system is always in perfect working order. For increased safety we recommend:

- Regular inspection and calibration of the system. The frequency of such inspections will be decided by environmental factors such as relative humidity, excessive dirt or dust and concentration of any other contaminating gases.
- A log book of all faults reported by the system (or the result of an inspection) should be kept and the resolution date recorded. The log book should be referred to regularly to ensure all faults have been repaired.
- The useful lifespan of GE Interlogix CO detectors is 4 years. Detectors and / or sensing elements must be serviced or replaced within this time frame.

4.2 Carbon monoxide safety levels

Maximum recommended CO levels and exposure guidelines vary from country to country. Your detection system should be calibrated to comply with local safety levels and regulations.

The following table of CO levels and health effects is provided as a guide only.

	2 minutes	5 minutes	15 minutes	40 minutes	120 minutes
200 PPM					Headache
400 PPM				Headache	Dizziness
800 PPM			Headache	Dizziness	Unconsciousness
1600 PPM		Headache	Dizziness	Unconsciousness	Death
3200 PPM	Headache	Dizziness	Unconsciousness	Death	
6400 PPM	Dizziness	Unconsciousness	Death		
12800 PPM	Unconsciousness	Death			

5 TECHNICAL SPECIFICATIONS

Cabinet size (1 or 2 zones)	275 mm x 335 mm x 130 mm
Cabinet size (3 to 5 zones)	470 mm x 335 mm x 130 mm
Mains power supply	230 VAC ±10% / 95W
Maximum consumption	100 mA per zone module
Mains fuse	500 mA 5x20 mm
Zone module input voltage	9-23 VAC
Number of relays	3 (C, NO, NC)
Maximum line length	350 m
Maximum number of detectors per zone	15
Measurement range	0 to 300 PPM
Programmable alarm level	0 to 295 PPM
Selectable ventilation relay levels	50, 100, 150 PPM
LED Display	3 digits
Ventilation level indication	LED indicator
Ventilation modes	automatic, manual, stopped
Ventilation mode indication	LED indicator
Alarm indication	acoustic and LED indicator
Fault warning indication	acoustic and LED indicator
Operating temperature	0 to 60ºC
Storage temperature	-10 to 70ºC
Maximum humidity	95%

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