

### Cautions



**ELECTRICAL HAZARD:** Disconnect power from equipment prior to making any internal adjustments. Service should only be performed by qualified personnel.

**FRAGILE:** Inspect the equipment prior to installation. Do not install the equipment if damage is apparent. Do not attempt to disassemble this equipment. If damaged, return to the supplier.

**ELECTROSTATIC HAZARD:** This is sensitive electronic equipment. Apply safe ant-static practices when handling this equipment.

**CIRCUIT LIMITATIONS:** The maximum number of detectors connected to a single detection zone is limited by the control and indicating equipment, and may be limited by local regulations.

### Introduction

402 non-addressable gas alarms are suitable for connection to 2-wire and 4-wire non-addressable fire detection control and indicating equipment. 402 detectors can also connect to 2-wire and 4-wire addressable fire detection control and indicating equipment that can accept non-addressable detectors<sup>1</sup>.

These instructions provide trained installation personnel with details to install and commission 402 gas alarms for optimum performance.

### Preparation

Before commencing installation, ensure all equipment (base and detector) and tools to mount and connect the equipment are available, such as drills, mounting screws, cables and ladders. 402 gas alarms can be installed with the following bases and accessories.

Description	Part number	Datasheet
8-terminal/99 mm low profile base	CN1041	31-0038
Detector monitor module	620-001	31-0027

### Installation

#### Base

The base can be mounted directly onto an electrical junction box such as an octagonal (75 mm, 90 mm or 100 mm), a round (75 mm), or a square (100 mm) box without using any type of mechanical adapter.

1. Feed the conductors through the middle of the base for termination to the base contacts.
2. Mount the base on the junction box or directly onto a flat surface.
3. Mount the base to the surface using fixing screws that are suitable to securely fix the base to the surface.

#### Wiring

Base terminals accept (0.4 ~ 2.5) mm<sup>2</sup> conductors.

1. Strip the conductor insulation to expose 5 mm of the conductor.
2. Connect the conductors to the base terminals.
  - a. See Fig. 1 for detectors using 2-wire bases.
  - b. See Fig. 2 for detectors using 4-wire bases.

**WARNING:** Take care to ensure the insulation does not get clamped by the terminal contact.

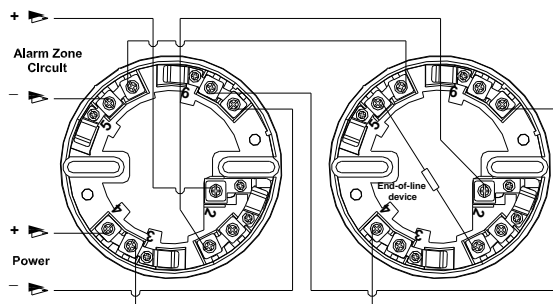


Fig. 1: 2-wire base wiring connections

Note: the polarity of the zone circuit wiring may be reversed.

**WARNING:** Do not short-circuit terminals 2 and 5.

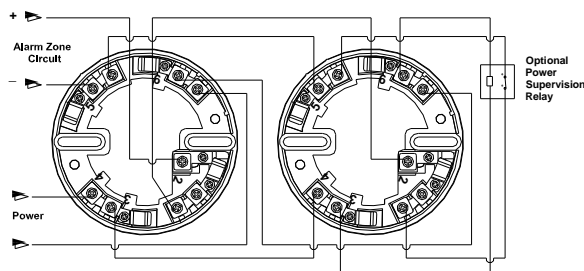


Fig. 2: 4-wire base wiring connections

**WARNING:** Do not short-circuit terminals 2 and 5.

3. After all the bases are installed and wired, fit the end-of-line resistor.

Note: The value of the end-of-line resistor depends on the control and indicating equipment to which the detectors are installed.

4. Check the wiring for continuity, short circuits and earth faults.

#### Output Relay (where fitted)

The output relay is factory-adjusted with normally-open contacts that close on alarm. The relay can be configured for normally-closed operation as follows.

1. Unscrew the two screws on the underside of the body of the detector and carefully lift the cover from the body.
2. Remove the jumper header located adjacent to the relay, and reinsert it in the N/C position (see Fig. 3).
3. Replace the front cover and screws.

#### Relay

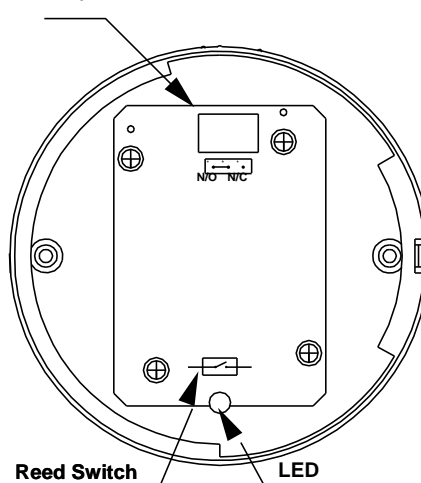


Fig. 3: Adjusting the output relay

<sup>1</sup> May be used with the 620-001 detector monitor module.



## Detector

**WARNING:** Do not install the detector head until the area is thoroughly cleaned of construction debris, dust, etc.

1. Align the detector alignment mark with the short alignment mark in the base, as shown in Fig. 4.
2. Mate the detector head onto the base and rotate it clockwise to secure it. The long alignment marks should be aligned.

View the complete range of products at [www.numens.net](http://www.numens.net)

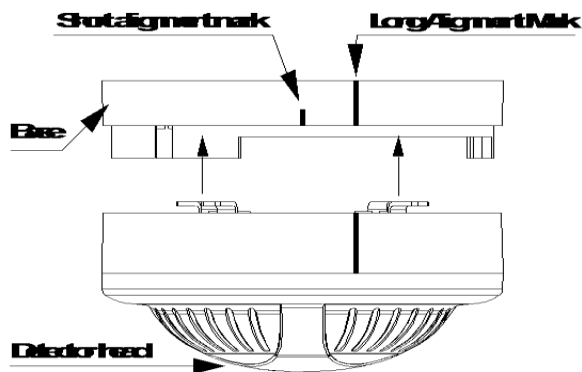


Fig. 4: Fitting the detector to the base

## Commissioning

### Equipment

**WARNING:** Test gases can kill. Use only a purpose-designed test gas source, pipe and hood for testing. Be sure to comply with safe handling and use requirements. Ensure there are no naked flames within the test area.

### Gas Detector

1. Ensure all the alarm signal services, releasing devices and extinguisher systems are disabled during the commissioning period.
2. Connect power to the detector for approximately 10 min
3. At the end of the start-up time, check that the green LED flashes every 5 s. If the LED fails to flash, it indicates the detector is not operating. Check the wiring for the correct voltage and earth leakage. Replace the detector if necessary.
4. Initiate a simulated alarm condition by placing a magnet on the cover of the detector, between the LED and the sounder grill.
5. Remove the magnet when the alarm condition is released.
6. Observe that the LED is on steady and the sounder is operating.
7. Reset the alarm at the control and indicating equipment.
8. Listen for the sounder to silence and the LED returns to flashing.

### Output Relay (where fitted)

1. Follow Gas Detector procedure steps 1 ~ 5.
2. Monitor the output relay for activation.
3. Reset the detector at the control and indicating equipment.
4. Monitor the output relay for reset to its quiescent setting.

### Final Conditions

Ensure all the alarm signal services, releasing devices and extinguisher systems disabled for the commissioning are returned to their previous condition.

## References

Document	Description
31-0014	402 non-addressable propane gas alarm datasheet
31-0015	402 non-addressable natural gas alarm datasheet

