S&S™

NORTHERN

Merlin GDP4

Gas Detection Panel

User Guide

📖 Please read this guide carefully and retain for future use.

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1 General Information

The Merlin GDP4 is a multi-zone gas detection panel which can be used in many applications, e.g. factories, car parks, shopping centres and the most common being a boiler house application.

The GDP4 can be used with up to 12 gas detectors wired in parallel (maximum 3 detectors per zone). Many varieties of detectors are compatible with GDP4, e.g. Natural Gas, Carbon Monoxide, LPG and Oxygen depletion. These detectors can be used in any combination. Also multiple thermal links can be used, when wired in series.

The GDP4 can be integrated with a BMS, fire alarm and remote emergency shut-off buttons.

The information contained within this guide should be referenced for typical installation and operation only. For site specific requirements that may deviate from the information in this guide – contact your supplier.

Panel Mounting

The control panel is designed for surface mounting using 4 mounting screws. Removing the cover on the panel gives access to the circuit board, this should be removed before drilling entry holes into the case.

⚠️
Important Warning Statements

It is recommended that this device be commissioned upon installation and serviced annually.

Do not apply lighter gas or other aerosols to gas detectors – this will cause extreme damage.

Never ignore your device when in alarm.

This device requires a continual supply of electrical power – it will not work without power.

This device should not be used to substitute proper installation, use and/or maintenance of fuel burning appliances including appropriate ventilation and exhaust systems.

Your product should reach you in perfect condition, if you suspect it is damaged, contact your supplier.

Information on waste disposal for consumers of electrical & electronic equipment. (EEE)

When this product has reached the end of its life it must be treated as Waste Electrical & Electronics Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used.

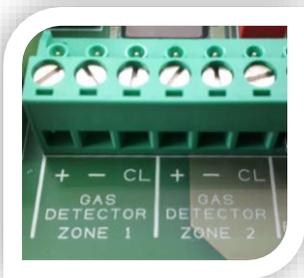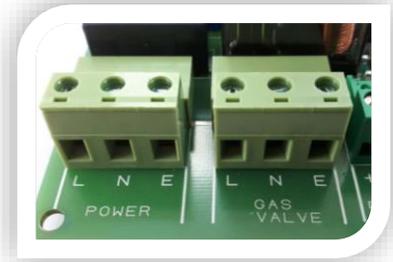Please contact your supplier or local authority for details of recycling schemes in your area.

2   Circuit Board Terminals

2.1   POWER

A 100-240VAC electrical supply should be externally fused at 3 Amps and connected to the terminals marked [POWER L N E].
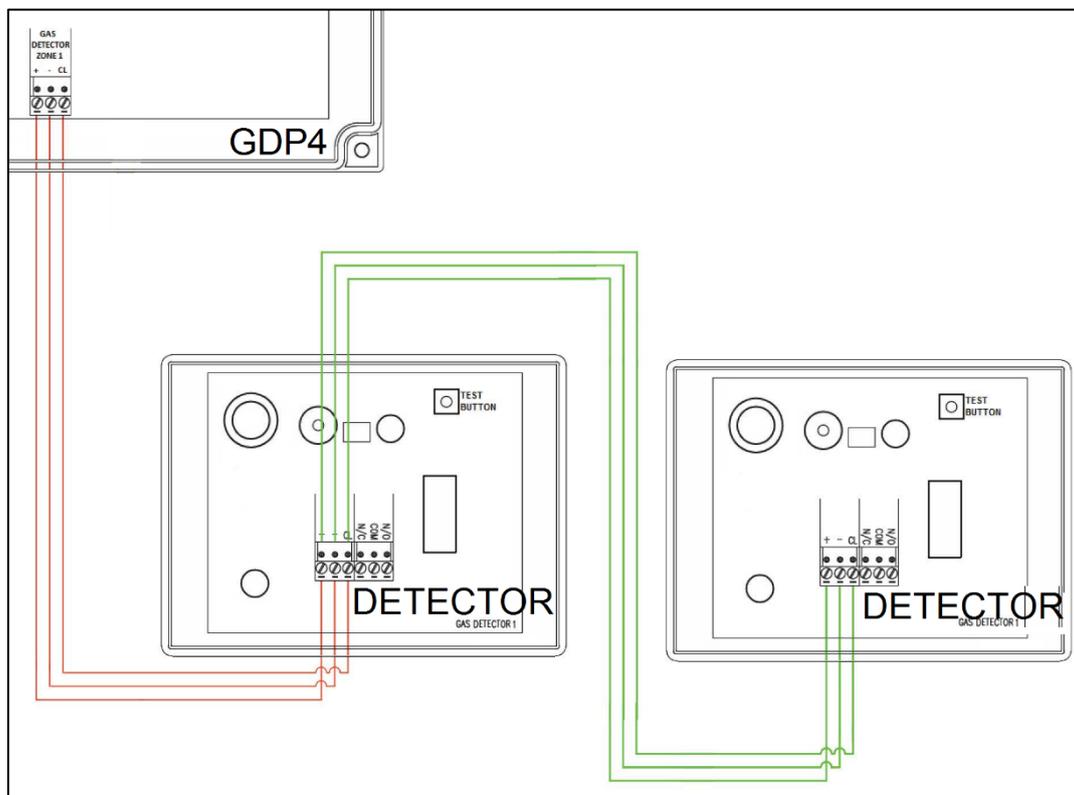
2.2   GAS VALVE

The gas solenoid valve should be powered using the terminals on the Merlin GDP4 marked [GAS VALVE LNE].

2.3   GAS DETECTOR ZONE 1, 2, 3 & 4

These connections are [+,-] and [CL] and can be wired to a Merlin gas detector. Natural gas, Carbon monoxide or LPG.

See below diagram for multiple zone wiring. For more information, refer to your detector manual.

2.4   EM REMOTE (Remote emergency shut off buttons)

The terminal for remote emergency shut-off buttons is detailed on the circuit board as [EM REMOTE].

These connections are linked out as a factory setting.
Remote emergency shut-off buttons should be volt free and wired to the Merlin GDP4 using two-core cable.
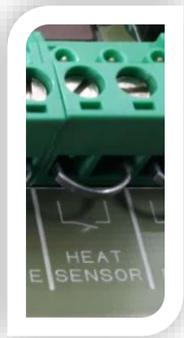
2.5   HEAT SENSOR

The terminal for heat detectors is detailed as [HEAT SENSOR].

These connections are linked out as a factory setting.
Heat detectors should be volt free and wired to the Merlin GDP4 using two-core cable.

2.6   FIRE PANEL

The terminal for fire alarms is detailed as [FIRE PANEL].

These connections are linked out as a factory setting.
Fire alarms should be volt free and wired to the Merlin GDP4 using two-core cable.

2.7   BMS OUT

Terminal connections are available on the circuit board for connections to Building Management Systems etc.

Marked on the circuit board as [BMS OUT - N/O - COM - N/C] these are volt free connections.

2.8   SOUNDER/STROBE

The terminal for audible/visual alarms is detailed on the circuit board as [SOUNDER/STROBE].

Sounder alarms should be wired using low voltage cable and wired to the Merlin GDP4 using two-core cable.

This terminal has a 24VDC output.

3   Operation Instructions

3.1   System ON and OFF

To turn the system on press reset to start the testing sequence.

The system will close the solenoid valve when an emergency stop has been pressed, gas has been detected or any alarm signal has been triggered.

3.2   Mute Button

The mute button is located on the front fascia of the GDP4 and is used to mute the sounder inside the board when in alarm.

The internal buzzer operates at approximately 90db measured 30cm from a closed panel.

The mute button is used to mute the sounder inside the board when in alarm.

3.3   Reset Button

The reset button is located on the front fascia of the GDP4 and is used to turn the system on and to reset the system following alarm.

3.4   Emergency Shut Off

The emergency shut off button is located on the front of the panel.

There is also a facility for remote shut off buttons to be wired in series on the circuit board.

The emergency shut off button(s) will cut off the gas supply when activated.

To reinstate the system, the emergency shut off button(s) will need to be reset and the panel restarted.

3.5   BMS Integration

The Merlin GDP4 can be integrated with a BMS to make or break a circuit on gas on/gas off, (valve open or valve closed). This will tell the BMS whether or not electrical power is being sent to the solenoid.

There is a dip-switch located on the inside facia of the Merlin GDP4 labelled [BMS]. This is factory set in the 'off' position which signals the BMS on gas on/gas off.

When switched to the 'on' position, the GDP4 will only signal the BMS on a fault, i.e. gas detected, EM Stop pressed, etc.

3.6 Auto Reset

The Merlin GDP4 has a built-in auto reset feature. There is a dip-switch located on the PCB of the Merlin GDP4 labelled [Auto]. This is factory set in the 'off' position. When the power is restored after the power cut, the panel has to be restarted manually.

On installation, this can be switched to the 'on' position if required. This will instruct the system to restart automatically when power is restored following a power cut.

3.7   Zones 1-2-3-4 Dip-Switches

There is a set dip-switches located on the PCB of the Merlin GDP4 labelled [ENABLE}; [ZONE 1] [ZONE 2] [ZONE 3] & [ZONE 4].

These are factory set in the 'off' position.

For each of the gas detector zones you are using please ensure that the relevant zone has being enabled. The zones you are not using should be left disabled.

4   Panel LED status

When the system is connected to the mains supply, the Power LED will illuminate.
When no power is present, this LED will not light up.
RED = OK
OFF = No power to GDP4 or the fuse may not be intact.

Gas on
On start up the Gas on LED will flash for one minute to check for gas being detected. If there is no gas detected or any other faults the gas valve will open and the green 'Gas On' LED will illuminate. If the test is unsuccessful the relevant zone LED light will illuminate to indicate a fault.
GREEN = Gas On
OFF = Gas Off

EM Stop
If an emergency shut off button (either remote or on the panel) is pressed, the LED will illuminate AMBER and the gas will be turned off.
The EM Stop button must be re-set before restarting the system.
OFF = OK
AMBER = EM Stop button pressed

Heat Detector
Under normal working conditions this LED is off. If the fusible link melts at 72 Degrees Celsius or higher, the LED will show AMBER and the Gas valve will turn off.

Fire Alarm Panel
If the fire alarm panel has been activated, the LED will illuminate Amber and the gas will be turned off. The Fire alarm panel must be re-set before restarting the system.
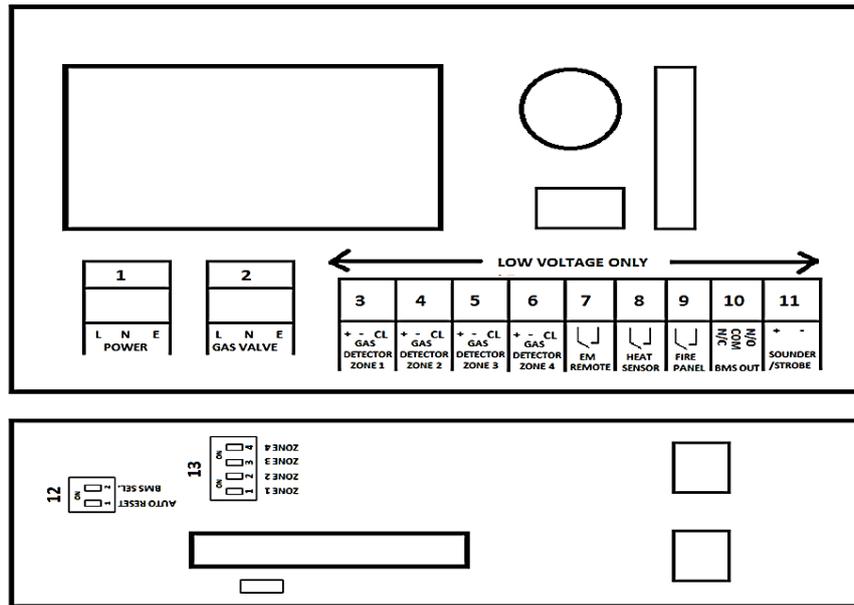Off = OK
AMBER = Fire alarm activated.

Zones 1-2-3-4
Under normal working conditions this LED is GREEN.
If the external Merlin detector connected detects the low level alarm this will show AMBER.
If the external Merlin detector connected detects the high level alarm this will show RED and the gas solenoid valve will close.

5   GDP4 Wiring Spec

1:	**POWER**: Mains Input 100-240VAC.	
2:	**GAS VALVE**: Gas Solenoid Valve Power Output, 100-240VAC.	
3/4/5/6:	**GAS DETECTOR ZONE 1-2-3-4**: 24VDC power supply (purchased separately).	
7:	**EM REMOTE:** Remote emergency stop buttons (purchased separately). VOLT FREE INPUT	
8:	**HEAT SENSOR**: Fusible Links (purchased separately). VOLT FREE INPUT	
9:	**FIRE PANEL** (Supplied by others). VOLT FREE INPUT	
10:	**BMS OUT**: output contacts. Normally Open, Common and Normally Closed.	
11:	**SOUNDER/STROBE**: Alarm, 24VDC power supply (purchased separately).	
12:	**BMS Selection & Auto Reset** Switches	
13:	**Zone Enable/ disable** Switches	