Gas Safety Products
Merlin GDP2

Installation, operating and maintenance

Table of contents

1   General information

The Merlin GDP2 is a two-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.

Many varieties of detectors are compatible with GDP2, 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 GDP2 can be integrated with a BMS, fire alarm and remote emergency shut-off buttons.

It is recommended that the user reads this guide before using the system. Please do NOT attempt to operate the unit until the contents of this document have been read and are thoroughly understood.

2   Installation

2.1   **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.

2.2   **Mains Supply.** A 230VAC electrical supply should be supplied to the panel. This should be externally fused at 3 Amps using a fused spur and should be connected to the terminals marked "LNE Power"

2.3   **Gas solenoid valve.** The gas solenoid valve should be powered using the terminals on the Merlin GDP2 marked "LNE GAS VALVE".

2.4   **Gas Detector.** The terminals detailed on the circuit board as "Gas Detector Zone 1" & "Gas Detector Zone 2". These connections are "+,-" and "CL" and can be wired to a Merlin gas detector. Natural gas, Carbon monoxide or LPG. Other detector types are available.

2.5   **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 GDP2 using two-core cable.

2.6   **Heat Detector.** The terminal for heat detectors is detailed on the circuit board as "HEAT SENSOR". These connections are linked out as a factory setting. Heat detectors should be volt free and wired to the Merlin GDP2 using two-core cable.

2.7   **Fire Alarm.** The terminal for fire alarms is detailed on the circuit board as "FIRE PANEL". These connections are linked out as a factory setting. Fire alarms should be volt free and wired to the Merlin GDP2 using two-core cable.

2.8   **BMS Connections.** Terminal connections are available on the circuit board for connections to Building Management systems etc. Detailed on the circuit board as "BMS OUT N/O, COM and N/C" these are volt free connections.

2.9   **Sounder Alarm.** The terminal for sounder alarms is detailed on the circuit board as "SOUNDER/STROBE". Sounder alarms should be wired using low voltage cable and wired to the Merlin GDP2 using two-core cable. This terminal has a 24VDC output.

2.10   **Internal Buzzer.** Operates at 90dB measured 30cm from closed panel.

2.11   **Mute.** The button on the front fascia of the panel detailed "MUTE", mutes the internal buzzer.

Note: all low voltage connections should be made using a screened cable.
To avoid electrical interference this should not be in the same conduit as
mains cable as per the low voltage directive.

3   Operation Instructions

3.1   How to turn the system on and off

1. To turn the system on press reset to start the testing sequence.
2. 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   Explanation of LED status

3.2.1   Power LED

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 GDP2 or the fuse may not be intact.

3.2.2   Gas on LED

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 i.e. "EM STOP", 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

3.2.3   EM Stop LED

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

3.2.4   Heat Detector LED

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.

3.2.5   Fire Alarm Panel LED

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.

3.2.6   Zones 1-2 LED

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.

Explanation of LED Status
OK (Green) LED
Green – No gas detected.
Low (Amber) LED
Amber – Low Level Alarm
High (Red) LD
Red – Alarm!

3.2.7   Reset Button

The reset button is located on the front fascia of the GDP2 and is used to turn the system on.

3.2.8   Mute Button

The mute button is located on the front fascia of the GDP2 and is used to mute the sounder inside the board when in alarm.

3.3   Using the 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.

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.

3.4   BMS integration

The Merlin GDP2 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 230V is being sent to the solenoid.

There is a dip-switch located on the inside facia of the Merlin GDP2 labelled 'BMS SEL'. This is factory set in the 'off' position which signals the BMS on gas on/gas off. When switched to the 'on' position, the GDP2 will only signal the BMS on a fault, i.e. gas detected, EM Stop pressed, etc.

3.5   Auto reset

The Merlin GDP2 has a built-in auto reset feature. There is a dip-switch located on the PCB of the Merlin GDP2 labelled "Auto Reset". 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.

3.6   Zones 1-2 dip-switches

There is a set of two dip-switches located on the PCB of the Merlin GDP2 labelled "ZONE 1" & "ZONE 2".This is 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.

GDP2 Wiring Diagram
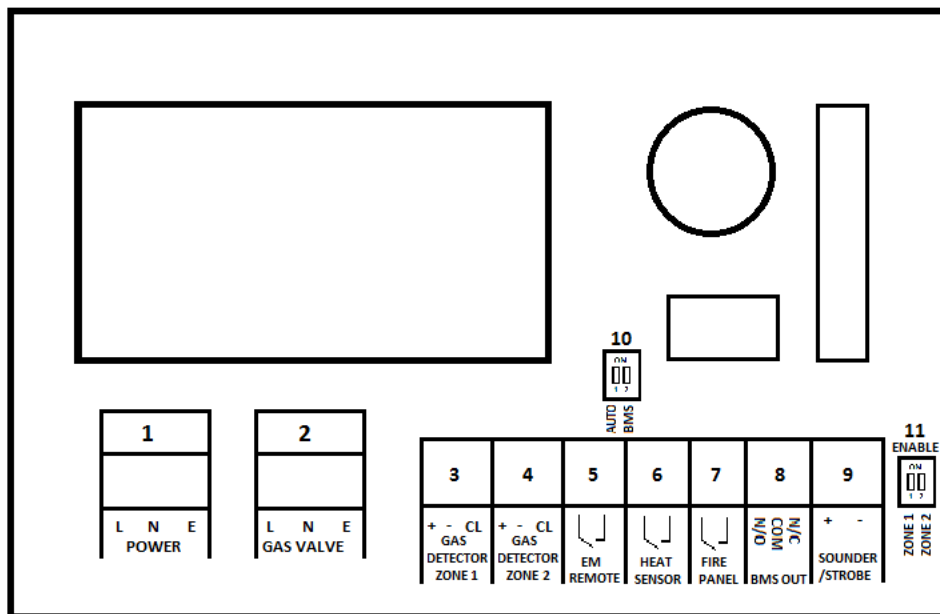
1. Mains Input 230VAC.
2. Gas Solenoid Valve Power Output, 230VAC.
3. Gas Detector, 24VDC power supply (purchased separately).
4. Gas Detector, 24VDC power supply (purchased separately).
5. Remote EM Stop buttons (purchased separately). **VOLT FREE INPUT**
6. Fusible Links (purchased separately). **VOLT FREE INPUT**
7. Fire panel (Supplied by others). **VOLT FREE INPUT**
8. BMS output contacts. Normally Open, Common and Normally Closed..
9. Sounder Alarm, 24VDC power supply (purchased separately).
10. BMS selection & Auto reset
11. Zone 1 & 2 enable/disable dipswitches.

Please note, Mains wires and low voltage wires should not be run in the same conduit as per the **LOW VOLTAGE DIRECTIVE**

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Rev	Date	Author	Description
04	23/08/2016	S&S Northern BT	Merlin GDP2 Product Data Sheet – Fourth issue

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