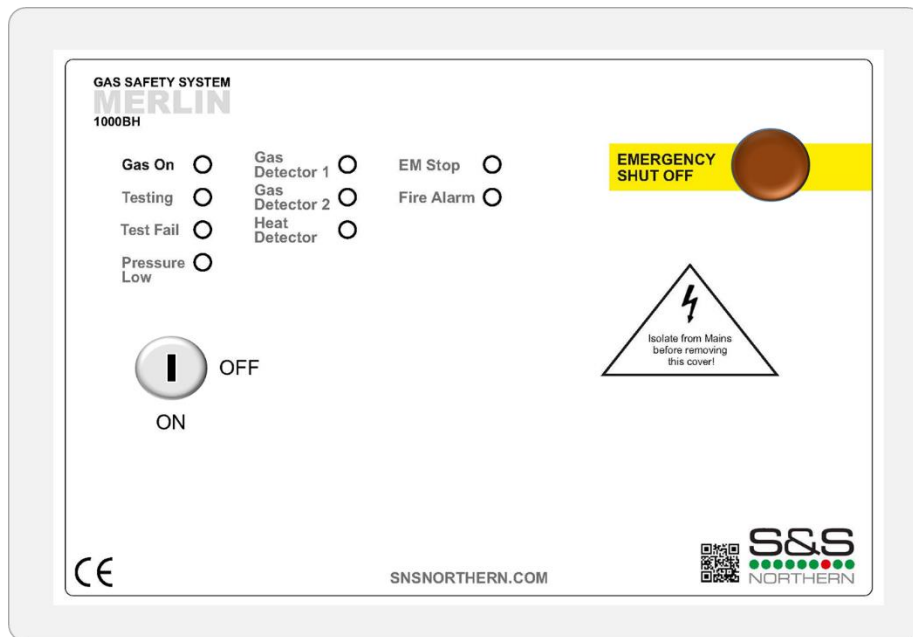


Gas Safety Products

Merlin **1000BH** Gas Proving/Gas Detection System



Installation, Operation and Maintenance



Read these instructions carefully before operating or servicing

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1 GENERAL INFORMATION

The Merlin 1000BH is a gas pressure proving & gas detection panel for use in various applications.

The system comprises a control panel and a gas pressure sensor.

The Merlin 1000BH can receive connections from remote emergency shut-off buttons, two gas detectors, fire panel and heat detector. It also can be integrated with a BMS.

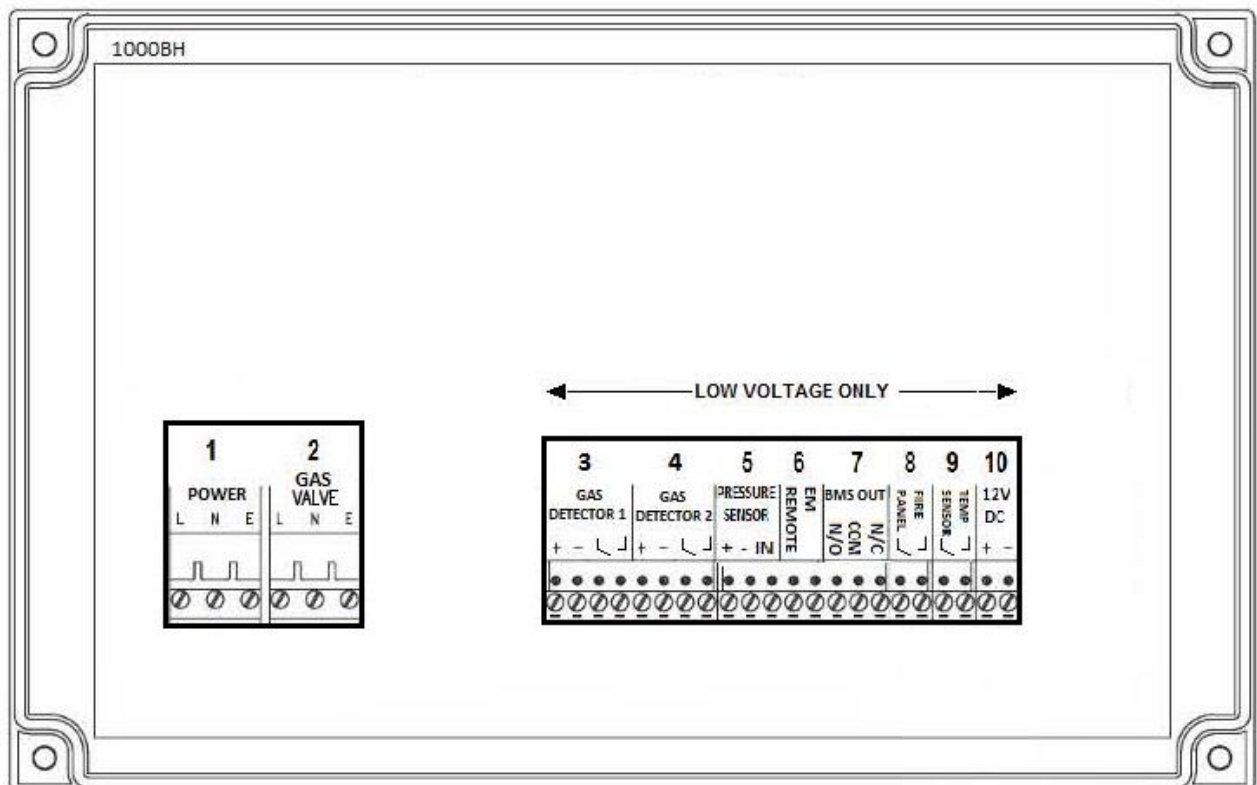
It is recommended that the user reads this guide before using the system. Please do NOT attempt to operate the unit until the contents of this document have been read and are thoroughly understood.

2 INSTALLATION & CONNECTION

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. The PCB should be removed before drilling entry holes into the case.

2.2 1000BH CIRCUIT BOARD TERMINALS



2.3 POWER [1]

A 240VAC Single Phase electrical supply should be supplied to the panel.

This should be externally fused at 3 Amps using a fused or circuit breaker.

2.4 GAS VALVE [2]

This outlet provides a 240VAC 3 amp signal to the solenoid valve. Please consult the solenoid valve installation instructions for further information.

2.5 GAS DETECTOR [3 & 4]

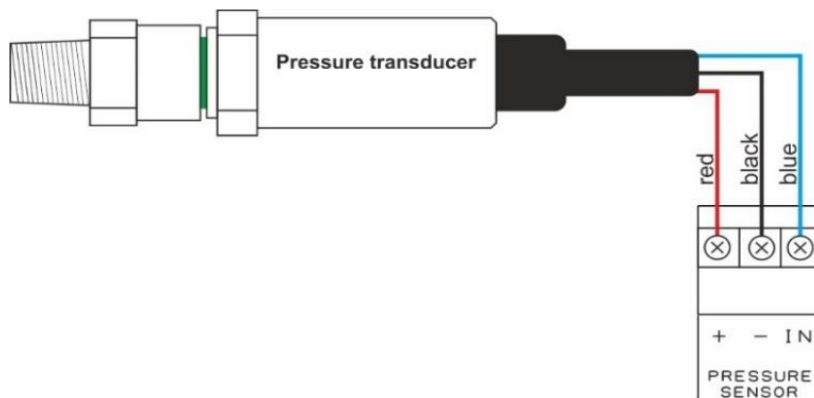
These connections are [+ - -] these can be wired to a Merlin Natural Gas, Carbon Monoxide or LPG detector. (For more information – refer to the Merlin Detector Datasheet)

If no detector is being used leave the link in between the [- -].

2.6 PRESSURE SENSOR [5]

The terminals marked [PRESSURE SENSOR] [+ - IN] are wired to the gas pressure transducer which is screwed into the downstream port on the gas solenoid valve (see transducer datasheet for more information.).

Operating Pressure = 12mbar min – 100mbar max



2.7 EM REMOTE [6]

These connections are linked out as a factory setting.

Remote emergency shut-off buttons should be volt free and wired to the Merlin panel using a two-core cable.

2.8 BMS OUT [7]

Terminal connections are available on the circuit board for connections to Building Management systems. [NC – Normally Closed] [COM - Common] [NO – Normally Open]. These are volt free dry contact connections.

This is a relay that changes state in alarm or when gas is on/off and can be used in conjunction with the 12VDC output and other external relays that affect other devices and controls such as purge fans, audible alarms etc.

2.9 FIRE PANEL [8]

These connections are linked out as a factory setting.

Fire alarms should be volt free and wired to the Merlin 1000BH using a two-core cable.

2.10 TEMP SENSOR [9]

These connections are linked out as a factory setting.

Heat detectors should be volt free and wired to the Merlin 1000BH using a two-core cable.

2.11 12VDC [10]

This is a permanent 12v DC output when there is power at the panel and can be used to create a relay switch with the BMS relay output.

Please contact your supplier for further information.

2.12 INTERNAL BUZZER

Operates at 65dB measured 30cm from closed panel.

3 OPERATION

3.1 SYSTEM ON & OFF

- 1 Turn the key switch to ON position.
- 2 Turn the key switch to OFF position.

3.2 LED STATUS

● POWER

When the system is connected to the mains supply, the Red LED of the S&S Logo located in the bottom right corner of the panel will illuminate.

When no power is present, this LED will not light up.

RED = OK

OFF = No power to 1000BH, a loose ribbon connection or the fuse may not be intact.

● GAS ON

When the key switch is turned on, the Merlin 1000BH will check the installation for gas leaks. If gas proving is successful, the gas valve will open and the green 'Gas On' LED will illuminate.

GREEN = Gas On

OFF = Gas Off

● TESTING

This LED will illuminate GREEN for approximately 30 seconds when the panel is checking the integrity of the gas installation upon start up. GREEN = proving the gas line, do NOT operate any appliances

● TEST FAIL

Under normal working conditions this LED is off. When the panel detects a gas leak on start-up, the LED will illuminate AMBER. Gas valve will remain closed.

OFF = OK

AMBER = gas proving failed

● PRESSURE LOW

Under normal working conditions the LED is off. The LED will illuminate AMBER when pressure of the gas supply drops below 12mBar for 10 secs. The gas valve will close.

OFF = OK

AMBER = gas supply pressure low.

● GAS DETECTOR 1 & 2

Under normal working conditions this LED is off. If the external Merlin detector connected detects gas this will show RED and the Gas valve will turn off.

OFF = OK

RED = Gas detected.

● HEAT DETECTOR

Under normal working conditions this LED is off. If the temperature of the boilers reaches 72 Degrees Celsius or higher (Heat detector required), the LED will show AMBER and the Gas valve will turn off.

OFF = OK

AMBER = High temperature detected (72 Degrees Celsius or higher)

● 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.

● FIRE ALARM

If a fire alarm panel has been triggered, 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 panel triggered.

3.3 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 INTERGRATION

The Merlin 1000BH 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 power is being sent to the solenoid.

There is a dip-switch located on the inside facia of the Merlin 1000BH 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 1000BH will only signal the BMS on a fault, i.e. gas detected, EM Stop pressed, etc.

3.5 GAS FILL & PROVE TIME

Gas fill and prove times are adjustable. There are two dip-switches located on the inside facia of the Merlin 1000BH labelled [FILL TIME] and [PROVE TIME].

They are factory set in the OFF position.

Fill and prove time can be changed by switching the relevant dip switch as follows:

[FILL TIME] Switch:

Off – 5 seconds

On – 10 seconds

[PROVE TIME] Switch:

Off – 30 seconds

On – 50 seconds

Once selected - please remove power from the fuse spur for 10 seconds.

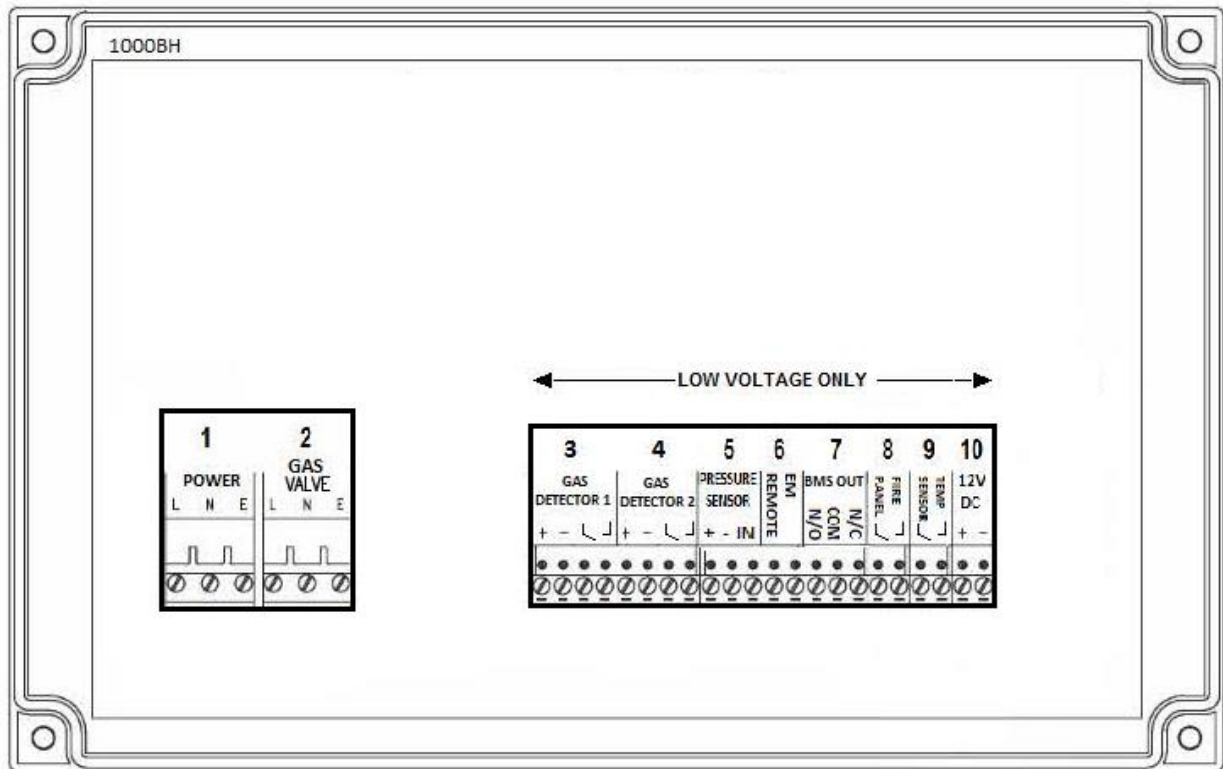
3.6 AUTO RESET

The Merlin 1000BH has a built-in auto reset feature. There is a dip-switch located on the inside facia of the Merlin 1000S labelled [Auto Reset].

This is factory set in the 'OFF' position, this means, if you experience a power cut, the panel has to be restarted manually.

This can be switched to the 'ON' position and will instruct the system to restart automatically when power is restored following a power cut or similar situation.

1000BH WIRING



- 1) [POWER] Mains Input **240VAC Single Phase**.
- 2) [GAS VALVE] Gas Solenoid Valve Power Output, **240VAC, Max 3A**.
- 3) [GAS DETECTOR 1] Methane, CO or LPG Detector, 12V power supply **VOLT FREE** (Purchased separately).
- 4) [GAS DETECTOR 2] Methane, CO or LPG Detector, 12V power supply **VOLT FREE** (Purchased separately).
- 5) [PRESSURE SENSOR] Gas pressure transducer, power supply and returned signal (supplied).
- 6) [EM REMOTE] Remote EM Stop buttons and Fire Alarm input wired in series **VOLT FREE** (Purchased separately).
- 7) [BMS OUT] Building Management System output contacts.
Normally Closed, Common and Normally Open. **Max.1A @ 240VAC**.
- 8) [FIRE PANEL] Fire panel (Supplied by others). **VOLT FREE INPUT**
- 9) [TEMP SENSOR] Fusible Links (purchased separately). **VOLT FREE INPUT**
- 10) [12VDC] Permanent 12VDC output when there is power at the panel.

Panel Net Weight: 1153g

Panel Dimensions: (W) 255 x (L) 178 x (D) 61mm

PLEASE NOTE:

MAINS AND LOW WIRING SHOULD NOT RUN IN THE SAME CONDUIT AS PER THE LOW VOLTAGE DIRECTIVE

**INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT**

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.

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