MERLIN 1500S

Gas & Ventilation Interlock Controller

INSTALLATION & OPERATION MANUAL

Please read these instructions carefully and retain for future use.

These instructions can be downloaded in electronic form on the product website (www.snsnorthern.com) or a printed version can be ordered free of charge via S&S Northern Limited.

S&S™ NORTHERN

Contents

IMPORTANT INFORMATION

Copyrights

Manufacturer's Warranty

The manufacturer warrants to the original consumer purchaser, that this product will be free of defects in material and workmanship for a period of **three (3) years.** The manufacturer's liability hereunder is limited to replacement of the product with repaired product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship. This warranty extends to the original consumer purchaser of the product only. Any implied warranties arising out of this sale, including but not limited to the implied warranties of description, merchantability and intended operational purpose, are limited in duration to the above warranty period. In no event shall the manufacturer be liable for loss of use of this product or for any indirect, special, incidental, or consequential damages, or costs, or expenses incurred by the consumer or any other user of this product, whether due to a breach of contract, negligence, strict liability in tort or otherwise. The manufacturer shall have no liability for any personal injury, property damage or any special, incidental, contingent, or consequential damage of any kind resulting from gas leakage, fire, or explosion. This warranty does not affect your statutory rights. During the above warranty period, your product will be replaced with a comparable product if the defective product is returned together with proof of purchase date. The replacement product will be in warranty for the remainder of the original warranty period or for six months – whichever is the greatest.

Disposing of Electrical & Electronic Equipment (WEEE)

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.

Revisions

Every effort is made to ensure the accuracy of this document; however, **S&S** can assume no responsibility for any errors or omissions in this document or their consequences. **S&S** would greatly appreciate being informed of any errors or omissions that may be found in the content of this document. For information not covered in this document, or if there is a requirement to send comments/corrections, please contact **S&S** using the contact details given below.

Maintenance

Gas Detection equipment must be inspected and serviced regularly by suitably qualified persons. Repair of the apparatus may only be carried out by trained service personnel.

Warning Symbol

⚠ Where this symbol is used, consult manual to understand any potential hazards and how to avoid them.

⚠ **The information contained within this manual should be referenced for typical installation and operation only.**
⚠ **Isolate the equipment from all hazardous live power sources before opening the cover.**
⚠ **Any parts that form part of the connections/installation must have a minimum fire-retardant rating of UL 94 V-1.**
⚠ **For site specific requirements that may deviate from the information in this guide – contact your supplier.**
⚠ **If the equipment is used in a manner not specified, the safety provided by the equipment may be impaired.**
⚠ **This device is designed for indoor operation only.**
⚠ **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.**
⚠ **The device is not intended for use in potentially explosive atmospheres.**
⚠ **Your product should reach you in perfect condition, if you suspect it is damaged, contact your supplier.**

INSTALLATION

General Safety Cautions

Failure to observe the following may cause injury to persons and/or property.

Installation must be carried out by a licenced and insured contractor and installed in areas at risk of gas leaks and higher concentrated areas e.g., near boilers, valves, or areas of critical protection, located in positions determined by those who have knowledge of gas dispersion, the process plant system and equipment involved, and in consultation with both safety and electrical engineering personnel.

EMI and RF Interference Considerations

All electronic devices are susceptible to EMI (Electromagnetic Interference) and RFI (Radio Frequency Interference). Our products are designed to reduce the effects of these interferences. However, there are still circumstances and levels of interference that may cause the equipment to respond to these interferences. Reduce the possibility by avoiding installation locations near high energy equipment.

General Product Information

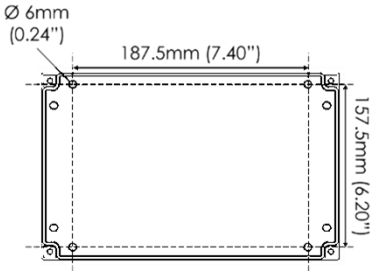
The Merlin 1500S ventilation interlock system is designed for kitchens where all appliances have built in flame failure devices and there is no need for gas pressure proving. The Merlin 1500S acts as an interlock between the ventilation system and the gas solenoid valve. It ensures the gas solenoid cannot be opened unless the ventilation system is proven to be working and working at such a speed that is effective to exhaust the fumes from the appliances.

The fans can be monitored through air pressure switches or by means of an additional current monitor. To operate the Merlin 1500S the fans should be turned to the 'on' position, once the panel receives a signal to indicate the fans are operating the key on the panel can be turned to the 'on' position and this will open the gas solenoid valve. If the fans should fail, the 'fan fail' LED on the panel will illuminate and the gas solenoid will close. The Merlin 1500S can work in conjunction with carbon dioxide, natural gas, carbon monoxide and LPG sensors.

Access & Mounting

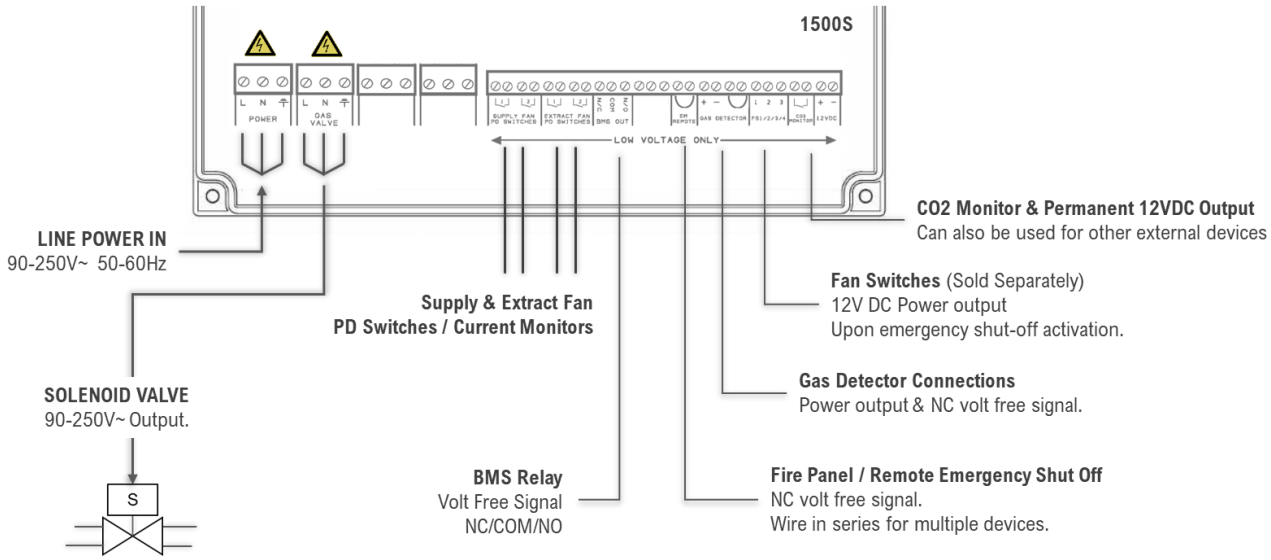
Unpack all the parts! Designed for surface mounting and must be installed by a licensed, insured contractor or competent person.

Carefully remove the front cover from the unit by unscrewing the four bolts located at each corner. To do this – use the socket wrench provided. Mark the four screw holes located on the back of the enclosure to the wall and ensure the wall surface is flat to prevent base distortion.
After executing the mounting and the connections – replace the front cover and insert the security caps over the four bolts.



⚠ **Access to the interior, when carrying out any work, must be conducted by a competent person.**
⚠ **Before carrying out any work ensure local regulations and site procedures are followed.**
⚠ **We recommend all Merlin gas detection equipment and systems are commissioned by a competent/trained engineer to ensure correct installation and operation. Contact S&S Northern for more information.**

Electrical Connections



POWER

The Merlin 1500S requires an ac single phase power supply rating of 90-250V~ connected to [Power In] terminal using a 3A fuse spur. 50-60Hz.

GAS VALVE

90-250V AC electrical power is supplied from the [GAS VALVE] connected to a solenoid valve which can shut the gas supply on alarm status. Refer to your valve manual for more information.

SUPPLY / EXTRACT FAN PRESSURE DIFFERENTIAL SWITCHES / CURRENT MONITORS

These terminals are used to receive an input signal from external air pressure switches or external current monitors. These terminals have factory fitted links installed.

If connecting only one fan - leave factory fitted links in those terminals not in use.

BMS

Connections are available on the board for Building Management Systems.

[NO Normally Open] [COM Common] [NC Normally Closed]. These are volt free connections.

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

EM REMOTE

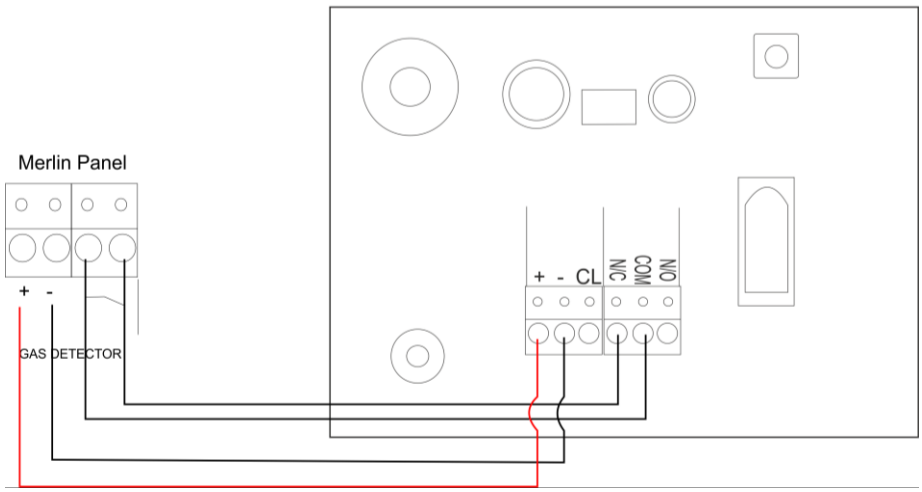
Connections for remote emergency shut-off buttons or integrated with a fire alarm to close the gas supply automatically in the event of a fire. This is linked out as a factory setting.

Remote emergency shut-off buttons are volt free and wired to the terminal using a plenum security cable, white, 18/2 (18AWG 2 conductor), stranded, CMP or similar

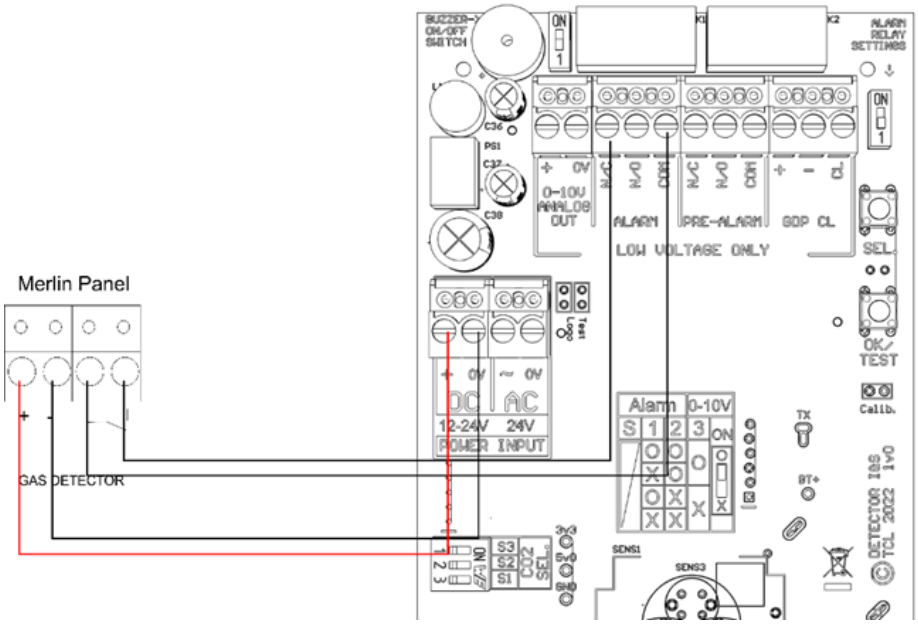
GAS DETECTOR

Refer to your gas detector manual for further information!

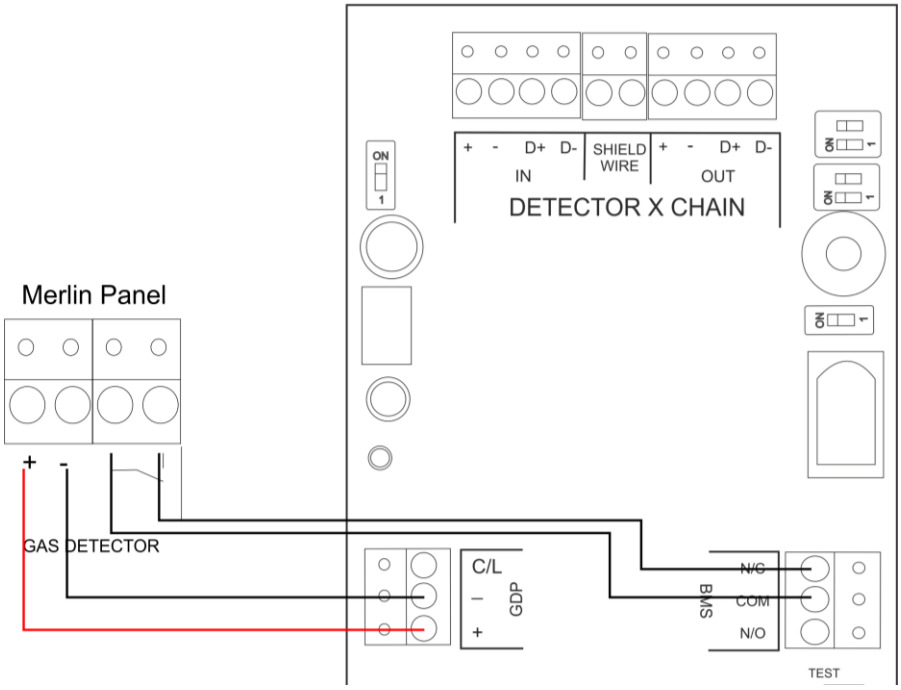
Connecting a Merlin Gas Detector



Connecting a Merlin Gas Detector i or Detector i-S



Connecting a Merlin Gas Detector X

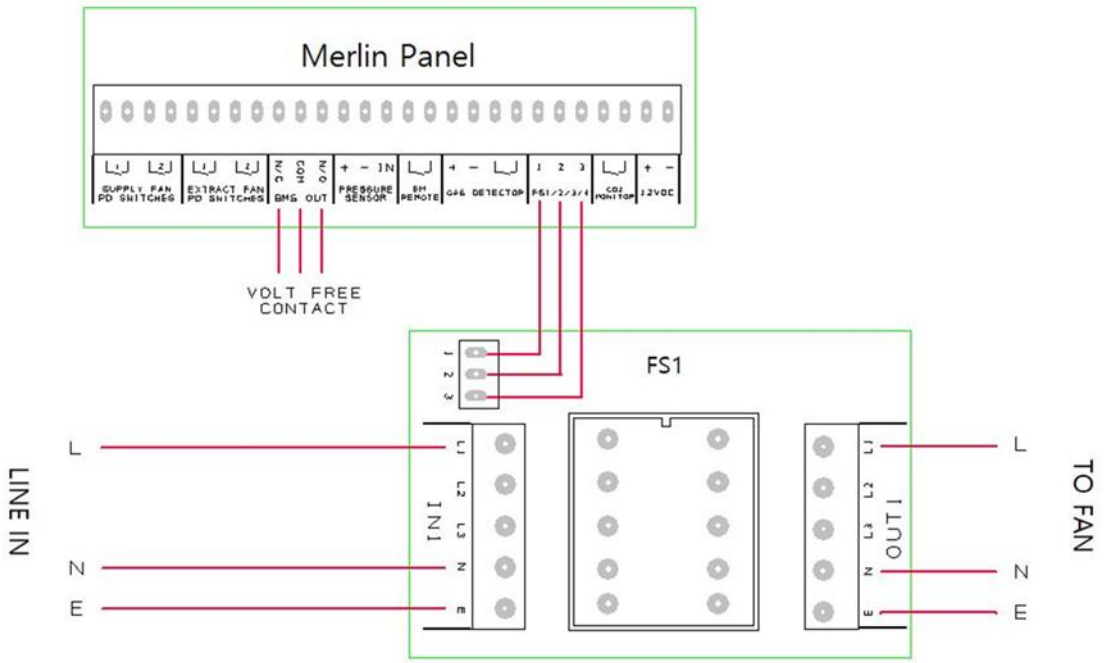


PRESSURE SENSOR

Not used on this model.

FAN SWITCHES (FS 1 / 2 / 3)

These terminals can be connected to a fan switch (supplied separately) which provide power to fans when the emergency shut-off button is pressed. Example of a Merlin FS1 given.



CO2 MONITOR

This terminal can be used to connect a Merlin CO2 monitor to shut off the system in the event of a high concentration of CO2. An external power supply is required.

Refer to your CO2 monitor manual for further information.

12VDC

This is a permanent 12v DC output when there is power at the panel. Normally used to power a PM2 current monitor. (Supplied separately)

BMS SEL Dipswitch

The panel 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 electrical power is being sent to the solenoid.

SWITCH	BMS SIGNAL SELECTION
OFF	Gas on or off only. Default.
ON	Error condition i.e. gas detected, emergency stop pressed.

EM SEL Dipswitch (Fan Switch Integration)

A fan switch (Merlin FS1 or FS2 - sold separately) provides the facility to turn on fan(s) when the 1500S panel is switched on and removes power to fan(s) when the switched off.

SWITCH	EM SELECTION
OFF	Instructs the system to shut down fan(s) and gas supply upon activation of emergency shut off button(s). (Default)
ON	Instructs the system to leave the fans on and shut off the gas supply only upon activation of emergency shut off button(s).

This option is not available if a Fan Switch is not installed.

OPERATION

Initial Power Up

When the system is connected to the mains power supply, the Power LED will illuminate RED.
Turn any fans connected on.
Turn the key switch on.

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

Emergency Stop

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 installed (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 resetting, and the panel restarted.

LED Indications

- **GAS ON**

When the key switch is turned on, the Merlin 1500S will open the gas valve and the green 'Gas On' LED will illuminate.

ON = Gas Supply On / OFF = Gas Supply Off

- **SUPPLY FANS**

This LED will illuminate GREEN under normal conditions. If a supply fan fault is detected, the LED will flash and after 20s, the controller will go into a fan fault condition.

ON = OK / FLASHING = One of the supply fans is not running.

- **EXTRACT FANS**

This LED will illuminate GREEN under normal conditions. If a supply fan fault is detected, the LED will flash and after 20s, the controller will go into a fan fault condition.

ON = OK / FLASHING = One of the supply fans is not running.

- **FAN FAULT**

Under normal working conditions this LED is off.

If a fan fault is present for more than 20 seconds, the LED will illuminate RED.

OFF = OK / ON = the gas supply has been shut off due to a ventilation fault.

- **GAS DETECTED**

Under normal working condition 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 / ON = Gas detected.**

- **CO2 HIGH**

Under normal working conditions this LED is off. If the concentration of Carbon Dioxide (CO2) in the air is at alarm level (CO2 Monitors sold separately), the LED will show illuminate, and the Gas valve will turn off.

OFF = OK / ON = the concentration of CO2 is at alarm level.

MAINTAINENCE

Cleaning

Keep your system in good working order - follow these basic principles.

- Remove any dust/debris from the outer enclosures regularly using a slightly damp cloth.
- Never use detergents or solvents to clean your gs detection devices.
- Never spray air fresheners, hair spray, paint or other aerosols near the devices.
- Never paint devices. Paint will seal vents and interfere with the safety equipment.

SPECIFICATION

GENERAL	
Model:	1500S
Size: (H x W x D)	7.08 x 10.03 x 3” (180 x 255 x 77 mm)
Housing Material:	ABS Polylac - PA765. UL 94 V-1
Mounting:	Indoor use - Wall Mounting
USER INTERFACE	
Visual Indicators:	LED
Audible Alarm:	>70dB @ 3.28ft (1m). Quiet conditions.
Language:	English
POWER SUPPLY	
Power Rating:	12W max.
Voltage Rating:	90-250V~ AC
Internal Fuse:	T3.15A L250V
EQUIPMENT	
Overvoltage Category:	II
Pollution Degree:	2
Equipment Class:	3
ENVIRONMENTAL	
Ingress Protection:	Not Formally Evaluated
Operating:	-10 ~ 50°C / 14 ~ 122°F 30 ~ 80% RH (non-condensing)
Storage:	-25 ~ 50°C / -13~122F° up to 95% RH (non-condensing)
Altitude Rating:	2000m
COMPLIANCE	
1500S	CE / UKCA

Installation Details

Please pass this manual to the system owner / user.

Date of Installation:	
Installation Location:	
Organisation:	
Stamp/Signature of the installer:	

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