# Troubleshooting Guide

## Merlin 2000S Gas Proving & Interlock System

Gas Safety Products

**26/01/2016**

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# 1 General information

The Merlin 2000S is a gas proving and ventilation interlock panel.

The system comprises of a control panel and a gas pressure sensor. The Merlin 2000S can receive connections from remote air pressure differential switches or external current monitors, remote emergency shut-off buttons, gas detectors and a CO2 monitor. It can also be integrated with a BMS and fire alarm.

# 2 Fault LED

## 2.1 No Power LED Illuminated

1. If the system is connected to the mains supply, the Power LED will illuminate. Please ensure there is in fact 230/240V going to the 'Power' terminal.
2. If the system is connected to the mains supply and the power LED, located at the bottom right side of the board, is not illuminated please check to see if the 3A fuse is still intact.
3. Please make sure the ribbon, which connects the front and back PCB's, is securely connected.
4. If none of the above have rectified the fault please contact S&S Northern for further assistance.

## 2.2 Emergency Stop Fault

1. If the front fascia emergency stop has been pressed, please re-press the button to release then reset the panel using the key switch.
2. If you have a remote emergency stop connected to the Merlin 2000S please ensure this has not been activated. If this has please reset the emergency stop then reset the 2000S with the key.
3. If you have multiple remote emergency stops connected to the same control panel, please ensure these have been wired in a loop series to our panel and connected to the 'EM REMOTE' terminal in the Merlin 2000S.
4. If you are not using an additional emergency stop, please ensure the 'EM REMOTE' terminal is linked out. Check that the link is securely connected by ensuring you have continuity.
5. If none of the above have rectified the fault please contact S&S Northern for further assistance.

## 2.3 Fan Fault

1. Ensure the fan(s) are operational.
2. If you are using an air pressure differential switch please ensure this is correctly wired using the normally open contact on the air pressure differential switch so that a closed signal is sent back to the Merlin 2000S when air flow is seen. For further information on the location and installation please contact S&S Northern for further assistance.
3. If you are using a PM2 current monitor, please ensure this has been calibrated as detailed in the manufacturer instructions.
4. If you are using a CS switch, please ensure that the red 'on' LED light is illuminated. If it is not illuminated firstly confirm that the fan is in fact on, if it is, to increase the sensitivity of the switch you may need to increase the number of loops the live wire is taken through the coil.
5. If none of the above have resolved the error please contact S&S Northern for further assistance.

## 2.4 Test Fail

1. Please ensure all gas appliances from the downstream of the gas solenoid valve are isolated then reset the system by turning the key off and back on.
2. If there are no open appliances a gas engineer should investigate if there is a gas leak on the pipework.
3. Please check that the gas has not been isolated before the gas solenoid valve.
4. Please ensure the downstream gas line pressure of the gas solenoid valve is above 12mbar, if it isn't this will have to be increased as the Merlin 2000S has a minimum working pressure of 12mbar.
5. Please check the wiring:
   + = RED
   - = Black
   IN = Yellow or Blue
6. Using the resistor supplied in the box please link between the '+' & 'IN' on the pressure sensor terminal. If the panel completes the 30 second testing period and illuminates 'GAS ON', this shows the panel is working and the issue is transducer or gas related. (Re-check point 1,2 and 3)
7. With the resistor in, please ensure this is securely connected, if this or any of the above points raised does not result in the panel going to 'Gas On' please contact S&S Northern for further assistance.

## 2.5 Pressure Low

1. Please check the gas line pressure, this fault generally means the pressure being detected is below 12mbar which is below the minimum gas working pressure of the Merlin 2000S.
2. Ensure there is gas reaching the gas valve and no upstream quarter turn valves are closed during the panels working condition. Also, you may need to check to see if the gas solenoid valve is lifting.
3. If none of the above have resolved the error please contact S&S Northern for further assistance.

## 2.6 Gas Detected

1. Please ensure there is not an actual gas leak.
2. If you have any gas detectors connected to the panel such as Natural Gas, LPG or Carbon Monoxide please ensure these are wired correctly to the 'Gas Detector' terminal.
3. If you are not using any gas detectors please ensure that the ⌞⌟ terminal has been linked out as factory set and is securely above the metal plate.
4. If none of the above have resolved the error please contact S&S Northern for further assistance.

## 2.7 CO2 High

1. If the CO2 monitor is detecting levels of CO2 higher than the permitted alarm level (generally 4500ppm) for this unit, which in turn is sending a fault signal to isolate the gas supply. To prevent this please try increasing the ventilation or contact S&S for any further back up.
2. If you are not using a CO2 monitor please ensure the 'CO2 Monitor' terminal has been linked out and is securely above the metal plate.
3. Please make sure the wiring is correct between the Merlin 2000S and the CO2 monitor, this will be wired normally closed & common into the alarm or pre-alarm terminals.
4. If none of the above have resolved the error please contact S&S Northern for further assistance.

### 2.8 Additional common faults

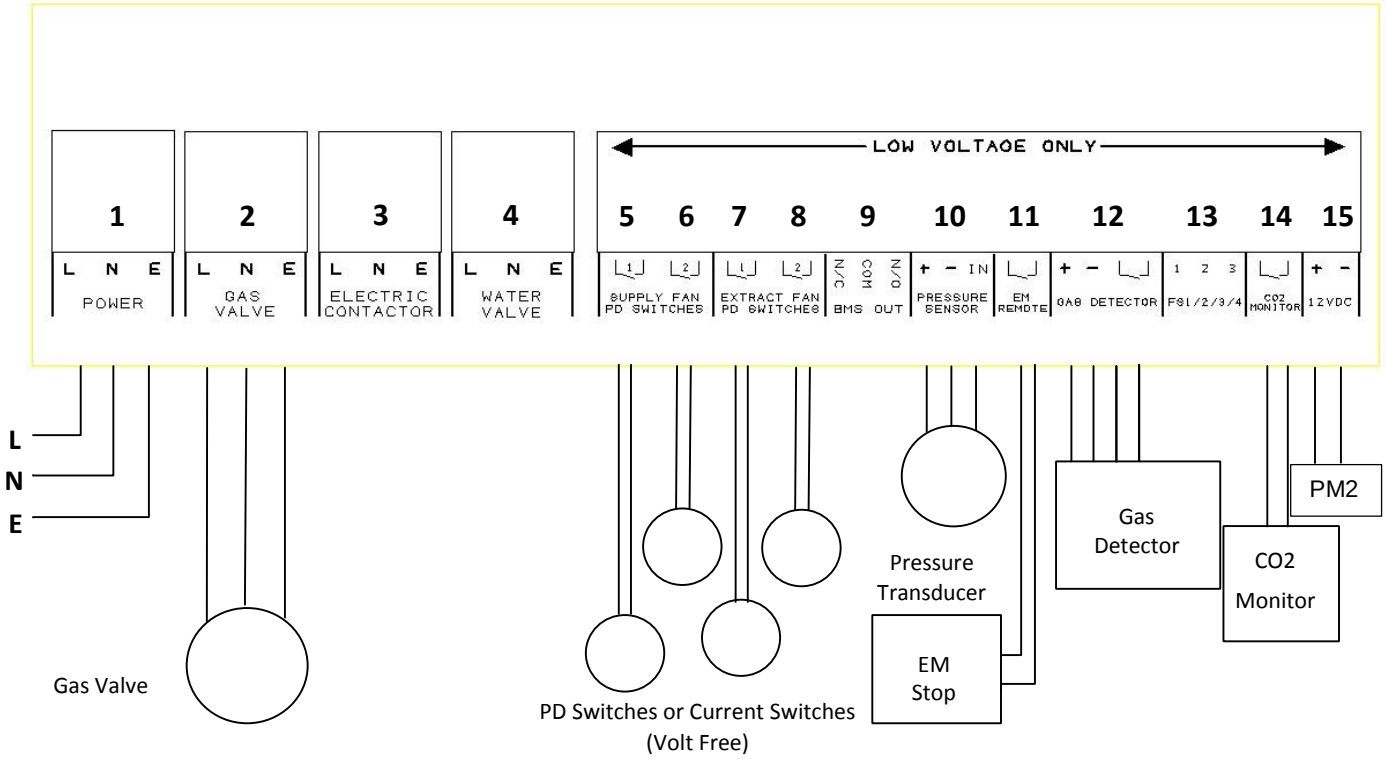
**1** Gas is on without the fans running - The fan PD terminal links have been left in? The links should be removed for the fans we are monitoring. By having the link still in the panel will never detect a fan fault regardless of it being calibrated or not.

# 3 Operation Instructions

## 3.1 How to turn the system on and off

1. Turn off all open gas appliances.
2. Turn the Fans On.
3. Turn the key switch to on position.
4. To turn the system off, turn the key switch to off position.

# 2000S Wiring Diagram




1. Mains Input 230VAC.
2. Gas Solenoid Valve Power Output, 230VAC.
3. This terminal is disabled on this system.
4. This terminal is disabled on this system.
5. Supply Fan 1 pressure differential switch or current switch. **VOLT FREE INPUT**
6. Supply Fan 2 pressure differential switch or current switch. **VOLT FREE INPUT**
7. Extract Fan 1 pressure differential switch or current switch. **VOLT FREE INPUT**
8. Extract Fan 2 pressure differential switch or current switch. **VOLT FREE INPUT**
9. BMS output contacts. Normally Closed, Common and Normally Open.
10. Gas pressure transducer, Red + positive, Black – negative and Yellow or Blue IN.
11. Remote EM Stop buttons and Fire Alarm input wired in series (purchased separately). **VOLT FREE INPUT**
12. Methane, CO or LPG Detector, power supply and **volt free input** (purchased separately).
13. Fan Switch output (purchased separately). For wiring instruction see Fan Switch user manual.
14. CO2 Monitor (purchased separately). **VOLT FREE INPUT**
15. Permanent 12VDC output (Normally used to power a PM2 Current Monitor).

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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