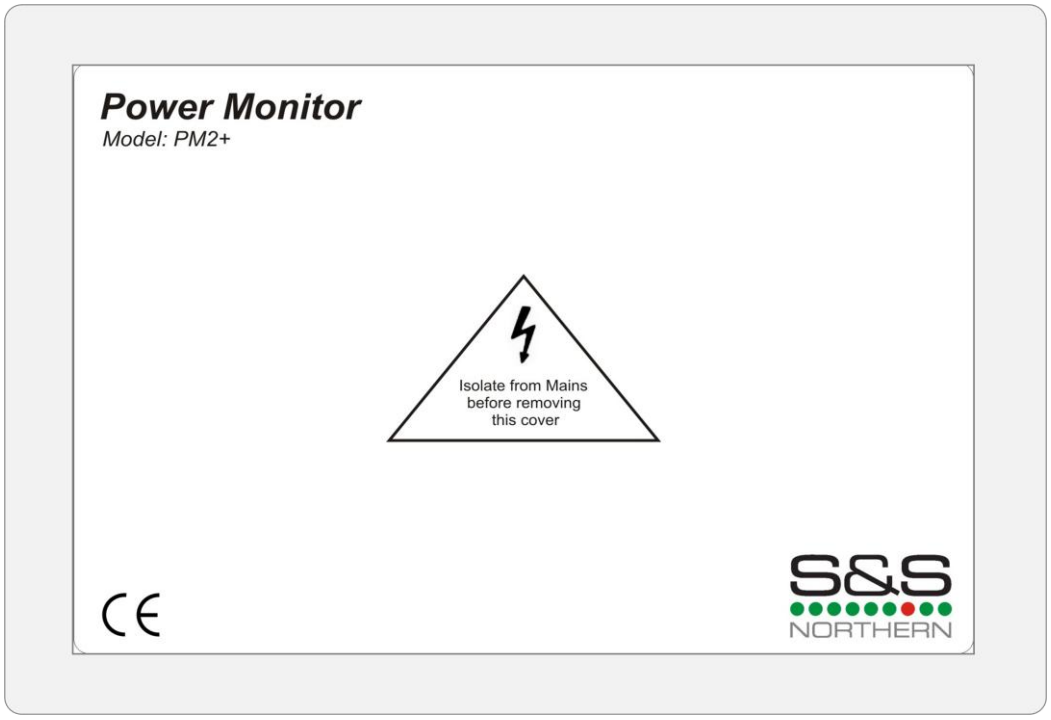
Gas Safety Products

Merlin PM2+ Dual Current Monitor



S&S™ NORTHERN

Installation & Operation and Maintenance

Read these instructions carefully before operating or servicing

CONTENTS

*** The unit should be installed by a competent person only ***

*** The unit should be stored in cool, dry conditions ***

*** If the unit is found to be damaged – Contact us ***

*** This unit is designed for indoor use only ***

1 General Information

The Merlin PM2+ Current Monitor is a duel fan current monitor and is to be used in conjunction with the Merlin systems: the unit can be used as an alternative to an air pressure differential switch.

The PM2+ is designed for use with fans up to 18A running current (min 0.15A / 35W).

The PM2+ current monitor checks for a current running between the fan speed controller and the fan and sends a signal to the Merlin gas interlock system dependant on whether or not the fan is in operation.

Visit our website, snsnorthern.com for more information.

2 Installation

Panel Mounting

The control panel is designed for surface mounting using four mounting screws. Removing the cover on the panel gives access to the circuit board.

Power Supply

A 12v DC electrical supply should be supplied to the PM2+ using the '12VDC' terminal inside the Merlin Gas Interlock System and connected to the terminal marked **[+ - 12/24 VDC Power]**.

Current Monitor

Located at the bottom of the circuit board there are two separate terminals for fan current monitoring and these are marked **[FAN1 LIVE IN/OUT]** and **[FAN2 LIVE IN/OUT]**.

The live feed from the fan speed controller should be taken through these contacts – each will monitor its own independent fan. From a fan controller, the live feed should be taken to the **[IN]** terminal and **[OUT]** should be wired to the fan motor.

Merlin panels 1500S and 2000S are sent from the factory with links in the terminal connections marked **[SUPPLY FAN PD SWITCHES & EXTRACT FAN PD SWITCHES]** & **[FAN1 PD SW & FAN2 PD SW]**. These terminals are LOW VOLTAGE only.

If both supply fans and extract fans are being monitored – both links should be removed and a LOW VOLTAGE connection should be supplied to the terminals marked **[FAN1 PDS OUT & FAN2 PDS OUT]** on the Merlin PM2+ panel.

If only one fan is being monitored the relevant link should be taken out of the terminal connection.

2. Installation Cont…

NOTE: *LOW VOLTAGE CONNECTIONS SHOULD BE MADE USING A SCREENED CABLE TO AVOID ELECTRICAL INTERFERENCE.*

There is a high and low setting for each of the fans on the circuit board – this allows the user to set a minimum and maximum running current for the fans to operate on.

If the current goes above the or below these parameters the PM2+ will switch relay for NC (normally closed) to NO (normally open) for relevant [FAN# PDS OUT] and on the main Merlin panel the relevant supply/ extract fans LED will begin to flash for ~10 seconds before the Fan Fault alarm will be illuminated and the gas solenoid valve connected will be isolated.

Current monitor Set-Up – FAN1 Example

1. Turn FAN 1 Dip Switch to **ON –** Display will show FAN current value.

F1**!** 10.0A F2 OFF

! - Indicates FAN has not been calibrated

2. Set FAN1 to minimum operating current. Press and hold the **FAN 1 LOW** button

F1 LOW SAVED

3. Set FAN1 to maximum operating current. Press and hold the **FAN 1 HIGH** button

F1 HIGH SAVED

*** Repeat steps for FAN 2**

Interlocking with ONE FAN ONLY

Leave Dip Switch set to [1] (off) position to prevent nuisance tripping.

If the measured current falls or rises 10% outside the set parameters – the LCD display will show a [LOW] or [HIGH] message next to the relevant fan and the gas solenoid valve connected will be isolated.

F1 LOW! F2 10.5A

To erase the set parameters – press and hold the relevant RESET button until a [!] sign appears.

2. Installation Cont…

Extra Feature

The PM2+ has a factory set 10% dropout threshold for LOW and HIGH current values for both fans.

To change a MINIMUM threshold dropout between 10 – 40% - follow the steps below:

1. Switch FAN1 and FAN2 dip switches to OFF

   F1 OFF
   F2 OFF

2. Press and Hold FAN1 and FAN2 LOW buttons together

   OFFSET L
   F1 10%

3. You can select the different dropout thresholds by pressing the **FAN1 LOW** button to set the parameters – after 5 seconds the new dropout threshold will be displayed as SAVED

   SAVED:
   F1 ##%

4. Once FAN1 parameters have been saved – FAN2 parameters can be adjusted

   OFFSET L
   F2 10%

5. Repeat step 3 for FAN2

   SAVED:
   F2 ##%

*To change a MAXIMUM threshold dropout between 10 – 40% - follow the steps below:

1. Switch FAN1 and FAN2 dip switches to OFF
2. Press and Hold FAN1 and FAN2 HIGH buttons together
3. You can select the different dropout thresholds by pressing the **FAN1 HIGH** button to set the parameters – after 5 seconds the new dropout threshold will be displayed as SAVED
4. Once FAN1 parameters have been saved – FAN2 parameters can be adjusted
5. Repeat step 3 for FAN2

**See next page for Maximum Fan Running Currents vs Threshold Value.*

2. Installation Cont…

Fan Current HIGH Thresholds

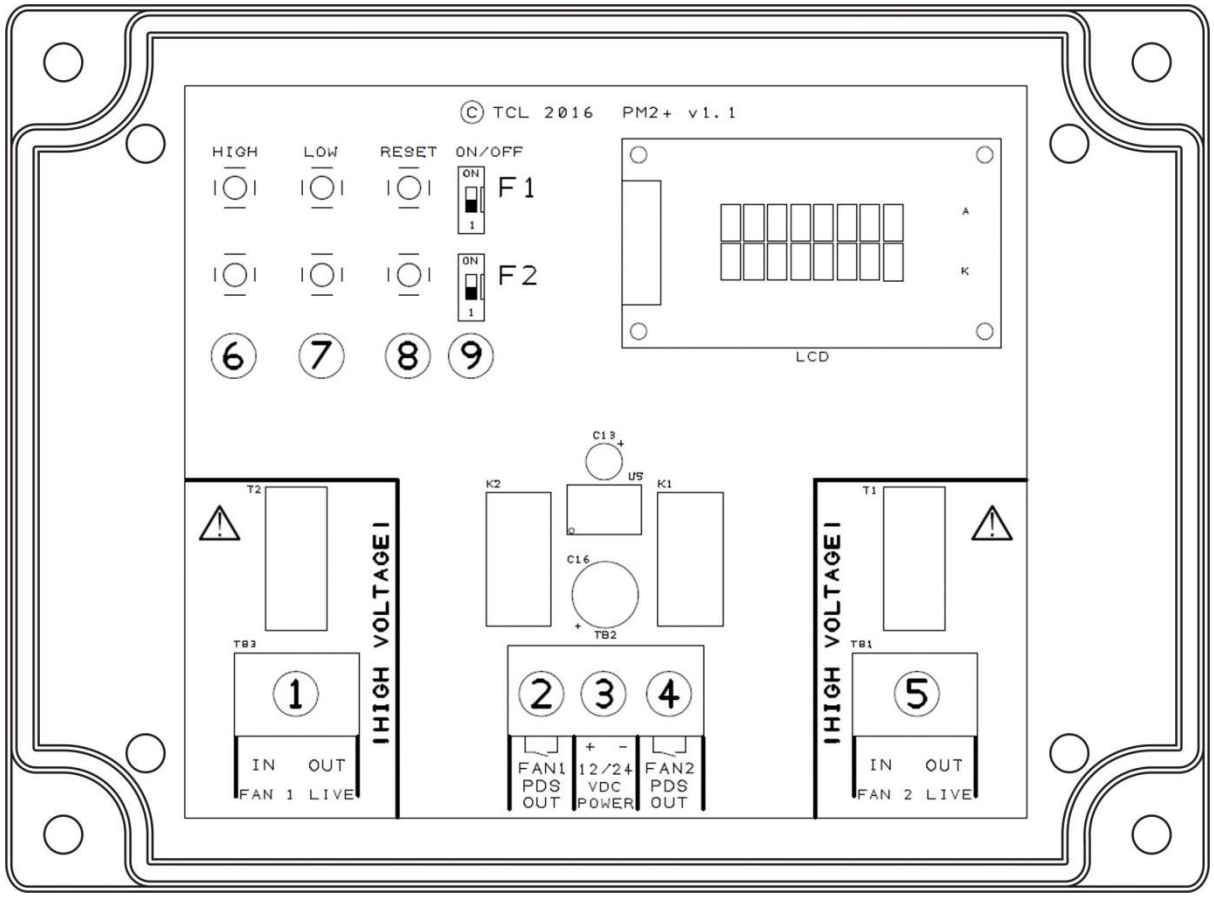
Threshold Value		Max Fan Running Current (up to)
10%	-	18A
20%	-	16.5A
30%	-	15A
40%	-	14A

3 Technical Specification

Model:	-	PM2+
Power Supply:	-	12-24 vDC
Current Consumption:	-	140mA @ 12vDC Max
Power Consumption:	-	~1.7W
Operating Temp Range:	-	10-40°C
Dimensions (mm):	-	W 190 x H 140 x D77
Net Weight (KG):	-	0.58
Certification:	-	CE / RoHS

Wiring Diagram

PM2+ Circuit Board



1. FAN 1 IN / OUT **MAX 18AMPS**
2. FAN 1 NO/NC **VOLT FREE OUTPUT** to Merlin panel PD SWITCH terminal.
3. POWER IN 12-24 VDC
4. FAN 2 NO/NC **VOLT FREE OUTPUT** to Merlin panel PD SWITCH terminal.
5. FAN 2 IN / OUT **MAX 18AMPS**
6. Fan Current Monitor High Button
7. Fan Current Monitor Low Button
8. Fan Current Monitor Reset Button
9. Fan Current Monitor On/Off switches.

Please note, Mains wires and low voltage wires should not be 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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