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Ventam 75 Installation & Commissioning Instructions

1 General

Current Electrical and Gas Regulations must be adhered to at all times and all Interlock Systems must only be installed and/or maintained by competent and approved persons.
Attention is drawn in particular to Regulations relating to isolation and de-isolation of Gas and Electrical Systems. All these instructions should be read before installation. Refer to wiring diagrams provided as required.

2 Principle of operation

The Ventam 75 Interlock System is comprised of:
Ventam 75 Control Panel, fan air flow pressure switch, and gas isolation valve.
The Ventam 75 Interlock Panel provides a means of interlocking to prevent the gas supply from being turned on until the fan(s) are operating correctly.
The Ventam 75 Interlock Panel is usually mounted in the kitchen area.
The fan pressure switch is mounted adjacent to and above the Fan.
The gas Isolation Valve is installed in the **kitchen equipment** gas supply pipe work.
The fan pressure switch is connected to the panel by a two-core cable (12VDC).
The fan pressure switch is connected to the fan duct-work by flexible tubing.
The fan pressure switch senses the airflow and sends a signal to the Control Panel. Only on receipt of a “Fan(s) On” signal and a subsequent panel Reset, can the panel open the Gas Isolation Valve.
The Gas Isolation Valve is connected to the Ventam 75 Control Panel via a 3-core cable (Switched Live, Neutral and Earth)
Should the fan pressure switch subsequently detect that the fan has failed or been turned off, the Gas Isolation Valve will be closed automatically to shut off the gas supply.
The following conditions apply;
A “Fan(s) Off” – Fan pressure switch(s) detect “Fan(s) Off” and the Isolation Valve is closed.
B “Fan(s) On” – Fan pressure switch(s) detect “Fan(s) On” and the Isolation Valve is open ONLY AFTER THE RESET BUTTON IS PRESSED.
The Ventam 75 Interlock Panel has a range of interface terminals that can be utilised for fan sensing, to close the Gas Valve, to interface with fire alarm and BMS systems etc. Site-specific integration to suit the application is the responsibility of the installer (please call for advice).
The Ventam 75 Interlock Panel is supplied fitted with links in various terminals. Do not remove these links until pre-commissioning is completed.
Refer to supplied schematic wiring diagrams in conjunction with these instructions.

3 Ventam 75 Interlock Panel Location

Install the Ventam 75 Interlock Panel adjacent to the emergency exit and at an elevation suitable for the users to reach the panel controls.
The panel must not be located where access to it may be obstructed – e.g. by placing it behind an opening door or where it may be obstructed by mobile trolleys, hanging clothing or similar. It should not be located where the shut-off button could be operated accidentally. Mount the panel on a flat level surface.
The Interlock panel must not be located adjacent to or above sources of heat, vapour or steam, e.g. beside or above a cooking range or cooking or washing appliances.
The panel location must allow 600mm clearance to the front and 150mm clearance on all sides for access and maintenance.

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4 Additional Emergency Stop Buttons

Where there is more than one emergency exit, a normally closed emergency stop button should be located at each exit and wired in series to terminals 11 & 12.

5 Panel power Supply

The panel must be supplied by a 240Vac five Amp single-phase earthed supply, via an un-switched fused spur or similar.

6 Gas Isolation Valve

The 240vac Gas Isolation Valve must be powered from the Ventam 75 Interlock Panel, as per supplied wiring diagrams and in accordance with the manufacturers instructions provided with the Valve and in accordance with Electrical and Gas Regulations. The valve must be located in an accessible location to allow for future servicing. Avoid areas that are liable to get wet.

7 Fan pressure switch Location

The Fan pressure switch must be mounted vertically with pressure switch tube connections at the bottom or side and within one metre of the fan and in an accessible location.

The Fan pressure switch should be located immediately above the fan. Where this is not possible, the Fan pressure switch must be mounted as high as practicable to allow the Fan pressure switch tubing to slope down from the Fan pressure switch to the duct-work connector. Fan pressure switch tubing must slope down continuously from the Fan pressure switch to the duct-work to allow condensate to naturally drain from the pipe work to prevent blockages occurring. Twists, loops and kinks are not permitted in the pressure switch tubing. The pressure switch location must allow 600mm clearance to the front and 150mm below for access and maintenance. DO NOT mount the Fan pressure switch on flexible or vibrating duct-work or transmitted vibrations will cause unreliability.

8 Fan pressure switch Installation

Consider the best location for mounting the AND for connecting the tubes from the Fan pressure switch to the ductwork both upstream and downstream of the fan (where possible).

- Mount the Fan pressure switch following above guide-lines.
- The Fan pressure switch is linked to the fan ductwork by flexible tubing. The pipes are cut to length to suit the application and connect at the Fan pressure switch end to the push-fit connectors on the bottom of the Fan pressure switch. At the ductwork end, the pipes are connected onto the push-fit ductwork connectors. The duct connectors are held in place with self-tapper screws.
- Use a digital pressure meter to check the pressure and rotate the duct connector whilst measuring the pressure while the fan is running to achieve the best results. Usually, the arrow direction on the duct connector should oppose the airflow direction.
- Fit the ductwork connector **as close as possible** on the inlet side of the fan. Fit the ductwork connector at the top or upper side of the ductwork – not in the bottom of the ductwork. Arrows on the connector can assist in identifying fixing position. Often, the best pressure is obtained when the arrow on the duct connector is opposing the airflow, but check with the pressure meter before finally fixing in position.
- If necessary, use a small amount of sealant to form a seal between the duct connector and the duct. DO NOT block the pipe work connector with sealant.
- Connect the "-" connection on Fan pressure switch to the fan INLET ductwork.
- DO NOT connect the "+" connection on the Fan pressure switch unless the extract fan outlet ductwork is in excess of 10m long. If the "+" connection is used, connect not less than one metre from the outlet side of the fan or unreliable operation may be encountered.
- Fan pressure switch tubing work must be protected and secured to prevent damage.

Note that the Fan pressure switch and tubing must be replaced at 24-month intervals and that blocked or dirty filters will adversely affect ventilation system safety, airflow and fan pressure switch operation. When the ductwork is cleaned, the pressure switch tubing must be disconnected first and then re-connected to prevent damage to pressure switces.

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9 Installation sequence

Isolate and make safe all Gas and Electrical services including Fan power supply and make known to others that works are commencing.
Install the Interlock Panel, the Gas Isolation Valve and the Fan pressure switch (s).
Install electrical supply to the Control Panel via un-switched fused spur.
Install 1.5 mm² two-core flex between the fan pressure switch (s) and the Control Panel. Install 1.5 mm² three-core flex to the Gas Isolation Valve from the Control Panel.

Extract Fan Fan pressure switch cable

Terminate two cores of the Extract Fan pressure switch cable to terminals Common and Normally Open terminals at the Fan pressure switch.

Supply Fan Fan pressure switch cable (ONLY Where supply air is also interlocked)

Terminate two cores of the Supply Air Fan pressure switch cable to terminals Common and Normally Open terminals at the Fan pressure switch.

Gas Isolation Valve cable

Ensure gas supply is turned off. Terminate the Live, Neutral and Earth at the isolation valve.

Additional Emergency Stop Buttons

Connect additional emergency stop buttons in series to terminals 11 and 12.

10.0 Pre Commissioning

Re-set the Emergency Stop on the Control Panel (and any remote stop buttons) by turning the button in the direction of the arrows on the button. Ensure it is safe to start fan(s).
Check that all connections are secure - use the correct tool and do not over-tighten.
Ensure that the following factory installed terminal links are fitted (if not fit them now) - Link between terminals 1 and 2, Link between terminals 3 and 4, Link between terminals 11 and 12. (do not install link in 11 and 12 if additional e-stops are installed.)

10.1 Confirm that gas supply is isolated, and that the E-Stops are re-set. Turn on power to panel.

- Panel should indicate “Power On” and “Fan(s) On”- Terminal 20 (Valve supply terminal) should be at 0vc.

10.2 **Remove link from terminal one.**

- Panel should indicate “Fan(s) Off”- Terminal 20 (Valve supply terminal) should be at zero Volts. Replace link in terminal one.

10.3 **Check Terminal 20 is at 0Vac** and “Fan(s) On” LED is on.

- Press Gas Reset Button – Terminal 20 should be at 240Vac, “Gas on” LED should be on.
- Press Emergency Stop on front of panel - Terminal 20 should be at Zero Volts.
- RESET Emergency Stop on front of panel - Terminal 20 should be at Zero Volts.
- Press Gas Reset Button – Terminal 20 should be at 240Vac, “Gas on” LED should be on.
- Remove link between terminals 1 and 2 - Terminal 20 should be at Zero Volts.
- Replace link in terminals 1 and 2 - Terminal 20 should still be at Zero Volts.
- Press Gas Reset Button – Terminal 20 should be at 240Vac, “Gas on” LED should be on.
- Isolate power to panel and connect site cabling for valve and Fan pressure switch(s)as per supplied wiring diagrams. Double check all panel terminations.

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11.0 System Commissioning

When all site cabling is installed, power up the panel and commence the following test procedure;

THE GAS VALVE WILL OPEN WHEN TESTING. FIRST CHECK THAT THE GAS IS ISOLATED.

- Turn on fan(s) and increase speed to speed required to indicate “Fan(s) On”. If this is not possible, reduce the setting of Fan pressure switch and/or re-position Fan pressure switch.
- Press Gas Reset Button – Gas valve should close and “Gas on” LED should be on.
- Switch off Fan(s) one at a time - Panel should indicate “Fan(s) off” - Gas valve should close, “Gas OFF” LED should be on.
- Turn on fan(s) and increase speed to level required to indicate “Fan(s) On”.
- Press Gas Reset Button - Gas valve should open and “Gas on” LED should be on.
- Depress emergency stop button on the front of panel - Gas valve should close.
- Re-set emergency stop button and press Gas Reset Button – Gas valve should open and “Gas on” LED should be on.
- Carry out above step for each additional emergency stop button fitted.

11.1 Fan pressure switch Adjustments

- Fan pressure switches can be adjusted to trip the valve at the required air flow rate. As a guide, the fans should trip the valve if the fans are reduced to below 50% of full speed, but the ventilation system specifications for minimum flow rates must be followed.
- Typically, if the speed controller minimum is to be set at 50% of max fan speed, then the Fan pressure switch should be set to turn off the gas at 45%.
- Allow a tolerance for the ventilation system to settle down and for the filters to become partially blocked etc. If the speed controller is fitted with a minimum speed adjustment pot (on the rear of the speed controller board), use this to set the minimum speed that the fan will run and this will prevent user problems.
- A typical installation requires that the fresh air supply flow is at 85% of the extraction air flow, and this can be allowed for in fan pressure switch adjustments to control minimum.

12.0 System demonstration

Instruct site staff in system operation.
Instruct staff to clean filters regularly.
Instruct site staff NOT to decrease fan(s) speed or gas valve will NOT OPERATE!!!!

- **Ask the user to switch on the fans, increase the fan speed etc to ensure the user is familiar with system operation.**
- **Ensure that the user understands system operation and why it is a British Standard, HSE and a Gas Regulation safety requirement.**
- **Ensure that the user knows how many fans are interlocked and how many Emergency Stop buttons are on the system.**

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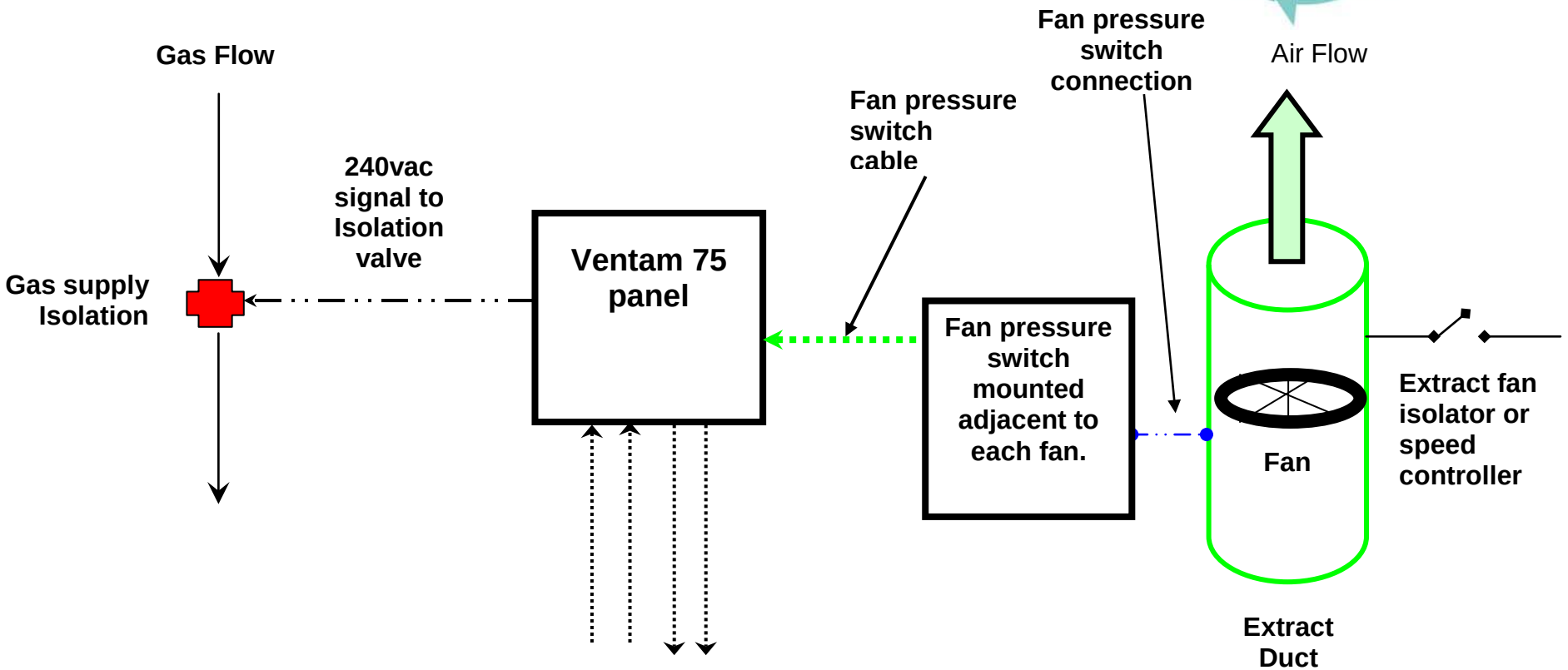
Gas Safety Valve Interlock System
Control Schematic



Interfaces with;

- **Building Management System**
- **Fire Alarm etc**

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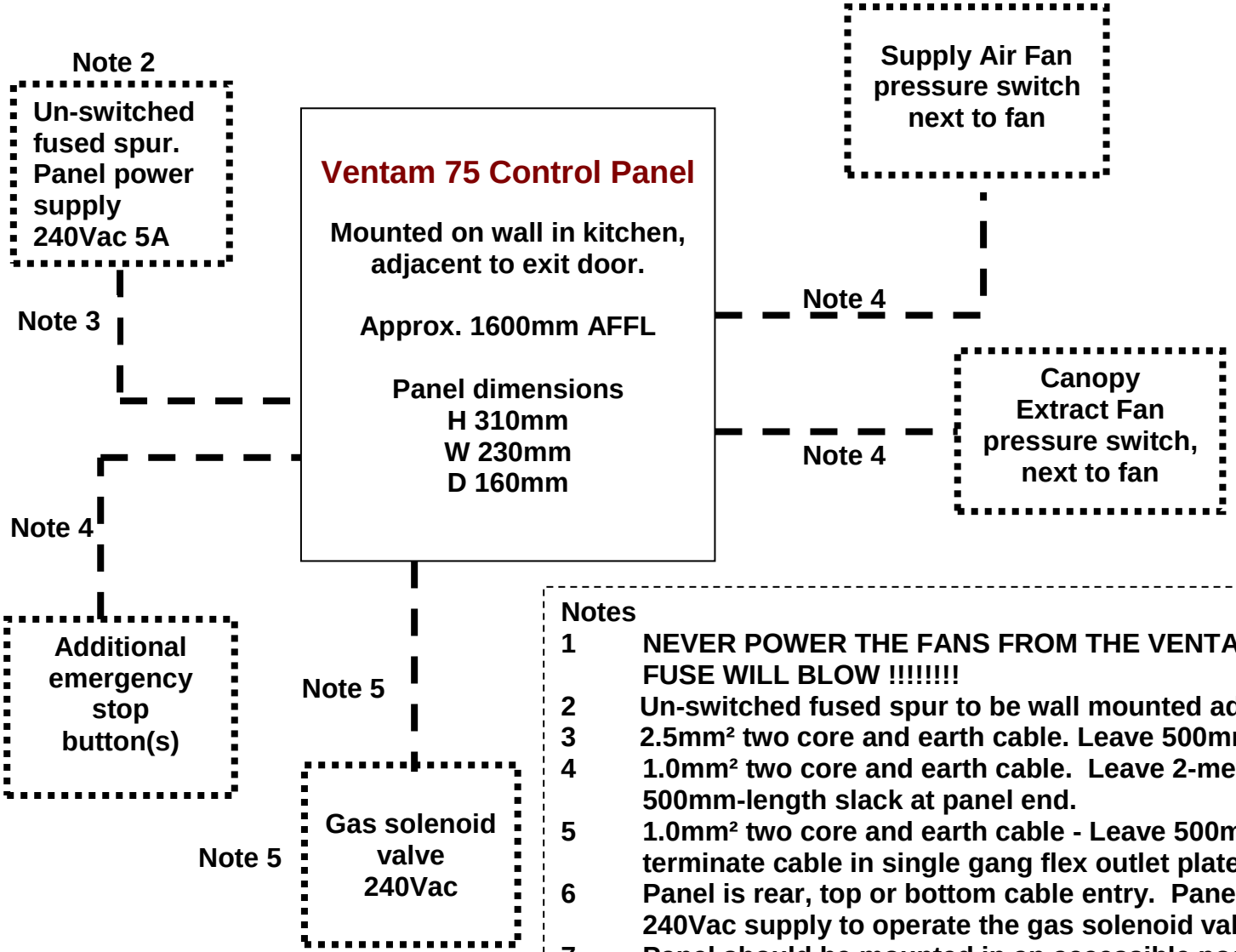
Ventam 75 Diagram for electrical first fix



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Notes

1. NEVER POWER THE FANS FROM THE VENTAM 75 PANEL OR THE PANEL FUSE WILL BLOW !!!!!!!!
2. Un-switched fused spur to be wall mounted adjacent to panel location.
3. 2.5mm² two core and earth cable. Leave 500mm-length slack at panel.
4. 1.0mm² two core and earth cable. Leave 2-metre length slack at fan end and 500mm-length slack at panel end.
5. 1.0mm² two core and earth cable - Leave 500mm-length slack at panel and terminate cable in single gang flex outlet plate adj. to the gas isolation valve.
6. Panel is rear, top or bottom cable entry. Panel supplies a fused switched 240Vac supply to operate the gas solenoid valve.
7. Panel should be mounted in an accessible position, approx 1.6m off the ground and adjacent to the emergency exit.

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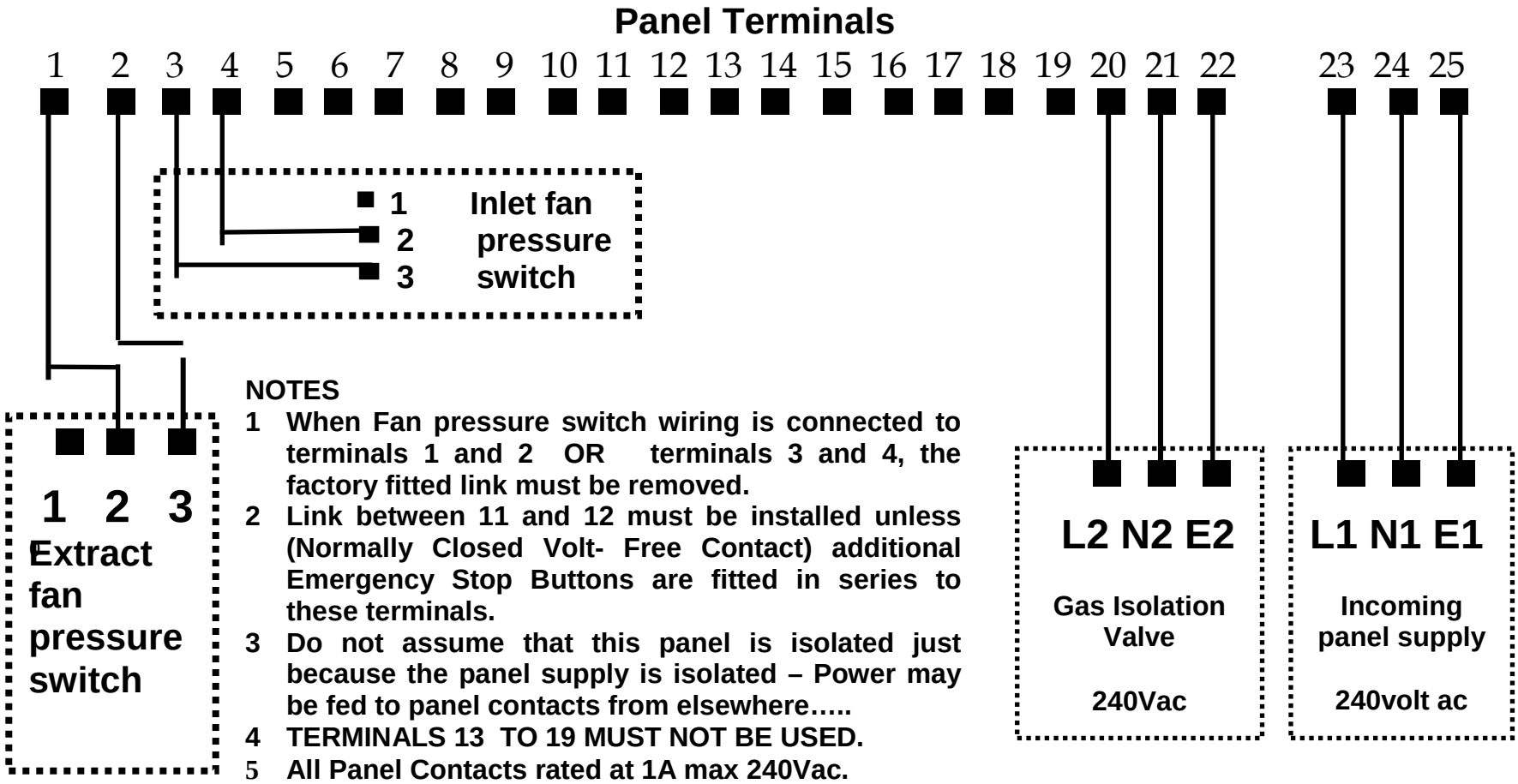
Ventam 75 Interlock Panel wiring schematic No. 1



NOTES

1. When Fan pressure switch wiring is connected to terminals 1 and 2 OR terminals 3 and 4, the factory fitted link must be removed.
2. Link between 11 and 12 must be installed unless (Normally Closed Volt- Free Contact) additional Emergency Stop Buttons are fitted in series to these terminals.
3. Do not assume that this panel is isolated just because the panel supply is isolated – Power may be fed to panel contacts from elsewhere…..
4. TERMINALS 13 TO 19 MUST NOT BE USED.
5. All Panel Contacts rated at 1A max 240Vac.

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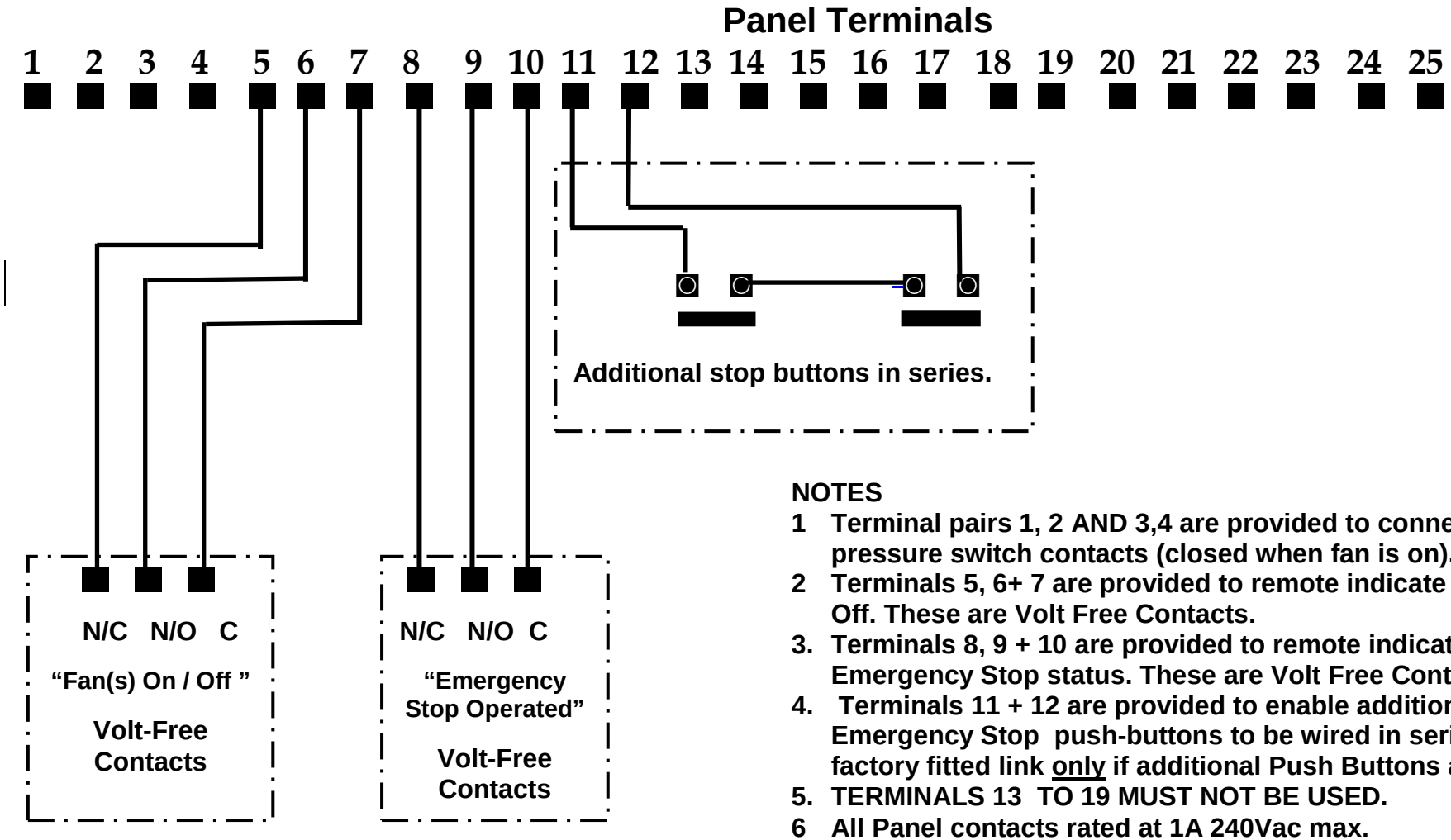
Ventam 75 Interlock Panel wiring schematic No. 2
Supplementary Connections



NOTES

1. **Terminal pairs 1, 2 AND 3,4 are provided to connect air fan pressure switch contacts (closed when fan is on).**
2. **Terminals 5, 6+ 7 are provided to remote indicate fan(s) On / Off. These are Volt Free Contacts.**
3. **Terminals 8, 9 + 10 are provided to remote indicate Emergency Stop status. These are Volt Free Contacts.**
4. **Terminals 11 + 12 are provided to enable additional Emergency Stop push-buttons to be wired in series. Remove factory fitted link only if additional Push Buttons are used.**
5. **TERMINALS 13 TO 19 MUST NOT BE USED.**
6. **All Panel contacts rated at 1A 240Vac max.**

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