FCP1000 v2

Operating Manual
Technical Description
Installation Instruction

MADE IN BRITAIN

Version 2.0.1

teal products

Teal Products Ltd
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Table of Contents

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01. Overview

- Dual Variable Frequency Drives (Inverter) for Duty and Standby Fans
- Dual 3-phase 400Vac outputs for fan connection
- Panel indication of:
    - Panel Live
    - Duty Inverter
    - Standby Inverter
- Control inputs for:
    - X3 Fire mode activation
    - Setback (Pressure transducer) or Boost
    - Environmental
- Volt-free outputs for:
    - Run status
    - Duty inverter fault
    - Standby inverter fault
    - Primary supply fail
    - Fault and fail connections linkable for systems with only one fault input
- Enclosure cooling
- Internal use: Mild steel
- External use: Mild steel with marine paint finish external use
- 24Vdc auxiliary supply (2A shared) – always on
- 24Vdc auxiliary supply (2A shared) – fire condition activated
- Power ratings of 5.5kW, 7.5kW, and 11kW available as standard
    - Power ratings from 0.75kW up to 30kW available built to order
- Door interlock

02. Description

The FCP1000 Control Panel is a robust and reliable solution designed to manage and power mechanical fan units for smoke control in a wide range of buildings. Engineered to activate and regulate fan systems in emergency situations, the FCP1000 ensures efficient smoke extraction, enhancing safety by maintaining clear escape routes.

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03. Technical Specifications

Part Codes

Part Code	Description
FCP1000-S5	FCP1000 Fan Control Panel with 2no. 5.5kW Inverters & Standard Enclosure
FCP1000-S7	FCP1000 Fan Control Panel with 2no. 7.5kW Inverters & Standard Enclosure
FCP1000-S11	FCP1000 Fan Control Panel with 2no. 11kW Inverters & Standard Enclosure
FCP1000-S15	FCP1000 Fan Control Panel with 2no. 15kW Inverters & Standard Enclosure
FCP1000-S22	FCP1000 Fan Control Panel with 2no. 22kW Inverters & Standard Enclosure
FCP1000-S30	FCP1000 Fan Control Panel with 2no. 30kW Inverters & Standard Enclosure
FCP1000-S37	FCP1000 Fan Control Panel with 2no. 37kW Inverters & Standard Enclosure
FCP1000-G5	FCP1000 Fan Control Panel with 2no. 5.5kW Inverters & Mild Steel with Marine Paint Finish
FCP1000-G7	FCP1000 Fan Control Panel with 2no. 7.5kW Inverters & Mild Steel with Marine Paint Finish
FCP1000-G11	FCP1000 Fan Control Panel with 2no. 11kW Inverters & Mild Steel with Marine Paint Finish
FCP1000-G15	FCP1000 Fan Control Panel with 2no. 15kW Inverters & Mild Steel with Marine Paint Finish
FCP1000-G22	FCP1000 Fan Control Panel with 2no. 22kW Inverters & Mild Steel with Marine Paint Finish
FCP1000-G30	FCP1000 Fan Control Panel with 2no. 30kW Inverters & Mild Steel with Marine Paint Finish
FCP1000-G37	FCP1000 Fan Control Panel with 2no. 37kW Inverters & Mild Steel with Marine Paint Finish

Technical Data

Technical Data	FCP1000-S (Standard)	FCP1000-G (External)
Primary Voltage (Input)	400V 3-phase 50Hz	400V 3-phase 50Hz
Note	Primary & secondary supplies from BS EN 60947-6-1 ATS sited in same fire zone as fan panel.	Primary & secondary supplies from BS EN 60947-6-1 ATS sited in same fire zone as fan panel.
Fan Supply Power (Amperage)	FCP1000-S5 = 5.5kW / 12.6A FCP1000-S7 = 7.5kW / 17A FCP1000-S11 = 11kW / 25A FCP1000-S15 = 15kW / 32A FCP1000-S22 = 22kW / 45A FCP1000-S30 = 30kW / 62A FCP1000-S37 = 37kW / 73A	FCP1000-G5 = 5.5kW / 12.6A FCP1000-G7 = 7.5kW / 17A FCP1000-G11 = 11kW / 25A FCP1000-G15 = 15kW / 32A FCP1000-G22 = 22kW / 45A FCP1000-G30 = 30kW / 62A FCP1000-G37 = 37kW / 73Ax
Number of Fan Outputs	2 for both duty and standby fans	2 for both duty and standby fans
Control Inputs For (24V)	X3 Fire, Pressure Transducer or Boost, Comfort	X3 Fire, Pressure Transducer or Boost, Comfort
Control Outputs For (Volt-Free)	Duty Inverter Fault, Standby Inverter Fault, Primary Supply Fail, System Running, Running in Fire	Duty Inverter Fault, Standby Inverter Fault, Primary Supply Fail, System Running, Running in Fire
Enclosure Type	Mild Steel	Mild Steel with Marine Paint Finish
Protection Type	IP55	IP55
Cable Entry	Bottom	Bottom
Postioning	Internal mounting	External mounting

Note: In accordance with Smoke Control Association guidance and BS EN 12101-3, where the VSD (Variable Speed Drive) within the FCP1000 is used to control fan operation during a fire condition, the fan and drive arrangement must be tested and certified as a combined system. The FCP1000 has been tested and certified with the TITAN7 range. If the FCP1000 is to be used with a fan not supplied by Teal, please contact our technical team to confirm compatibility and certification status.

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04. Safety

Follow all safety instructions listed in this manual.

Take great care to ensure that all system components are powered down, tested dead, and that supplies are locked-out and tagged accordingly before making connections.

Connection of mains electricity should only be carried out by competent and qualified personnel.

Connection of fire and fault cables should only be carried out by competent personnel. If any volt free contact is connected to mains electricity, this person should also be qualified.

Only competent personnel trained in smoke ventilation are recommend to configure and commission systems using the FCP100 control panel. If in doubt, our installation team is available to assist.

05. Installation

Overview

The FCP1000 comes in two different enclosure types, mild steel and mild steel with marine paint finish. The latter is more suited to external mounting due to having a more durable finish and extra weathering features which makes it suitable for mounting independently on a roof or attached to our TITAN 7 pre-fab fan set. Mild steel is suitable for mounting in plant rooms and electrical cupboards; however, build-to-order options are available with upgraded fan filters and cowls to allow external mounting.

Depending on the version chosen, each has a slightly different mounting profile and the mounting points are shown below.

Mounting of Panel

Ensure that appropriate fixings are selected for the type of mounting surface, such as steel bolts or concrete screws.

- Installation of the panel in warm locations (e.g. boiler rooms, hot plant rooms) should be avoided. The panel needs to be installed in a well ventilated space with room to fully open the doors.
- The panel must be firmly fixed to a solid surface. The panel can be mounted on any vertical surface such as a wall or fan motor stand.
- The panel must be accessible for maintenance.
- Locating the panel a long distance from the load (fans) will increase cable voltage drops on long cables and may require use of more expensive cables with greater cross-section and even the addition of chokes. In any case, calculations must be undertake to ensure correct cable sizes are selected.
- The panel must be installed in a location that allows safe operation, inspection and maintenance. Adequate working space and emergency egress clearance shall be maintained in front of the panel in accordance with BS 7671 and the Electricity at Work Regulations.
- Locating the panel a long distance from the load (fans) will increase cable voltage drop and may require larger cable sizes and/or the addition of output chokes. Cable calculations must always be undertaken to ensure correct cable sizing. Where the panel is not within sight of, or local to, the associated fan equipment, suitably rated local lockable isolation should be provided adjacent to each fan.

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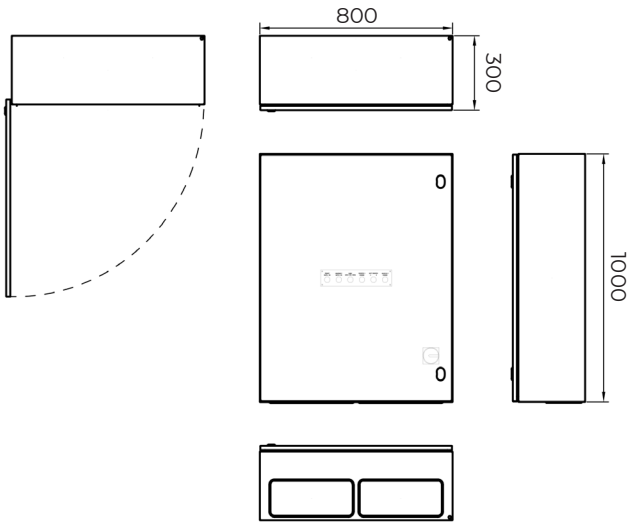
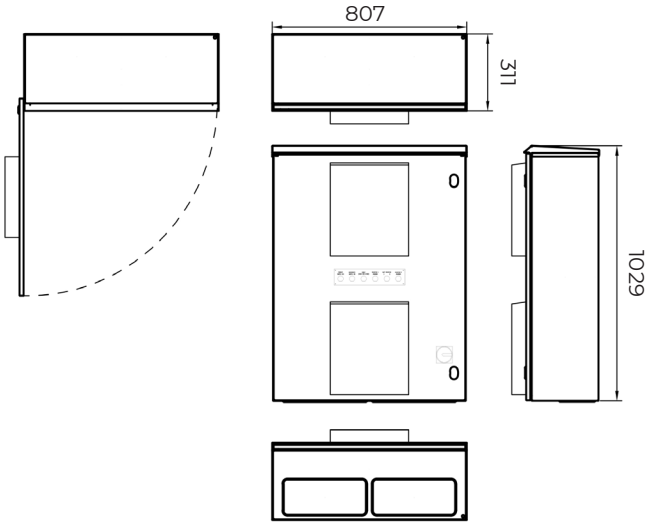
Dimensions

All dimensions in mm.



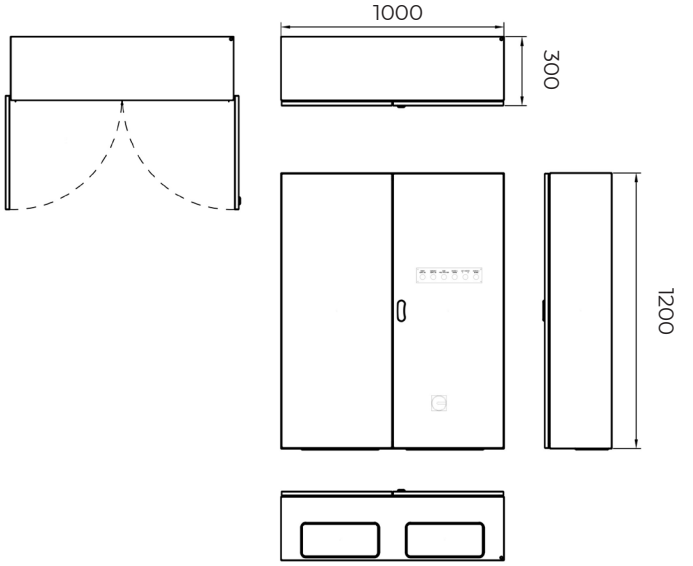
Internal Panels

FCP1000-S5 (5.5kW)
FCP1000-S7 (7.5kW)
FCP1000-S11 (11kW)



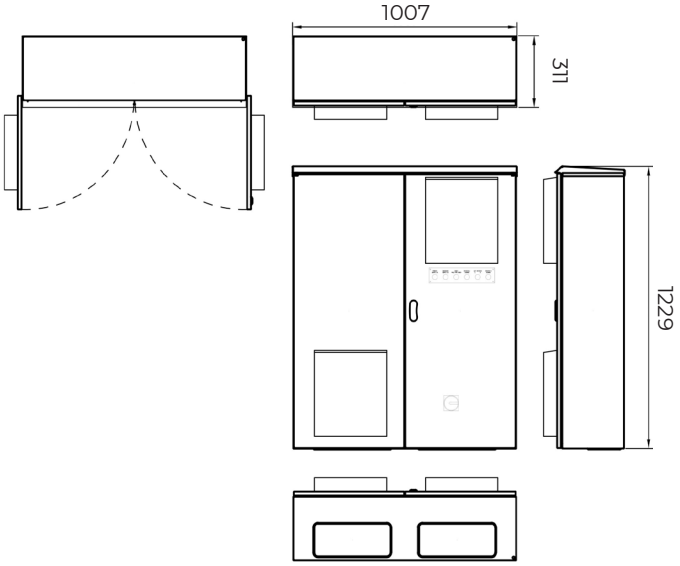
External Panels

FCP1000-S5 (5.5kW)
FCP1000-S7 (7.5kW)
FCP1000-S11 (11kW)



Internal Panels

FCP1000-S15 (15kW)
FCP1000-S22 (22kW)



External Panels

FCP1000-G15 (15kW)
FCP1000-G22 (22kW)

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Dimensions

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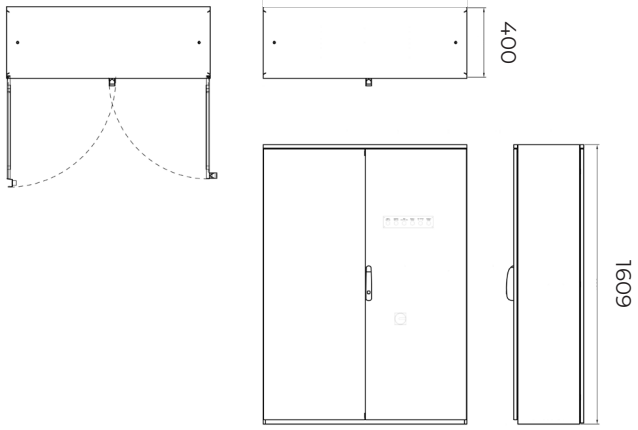
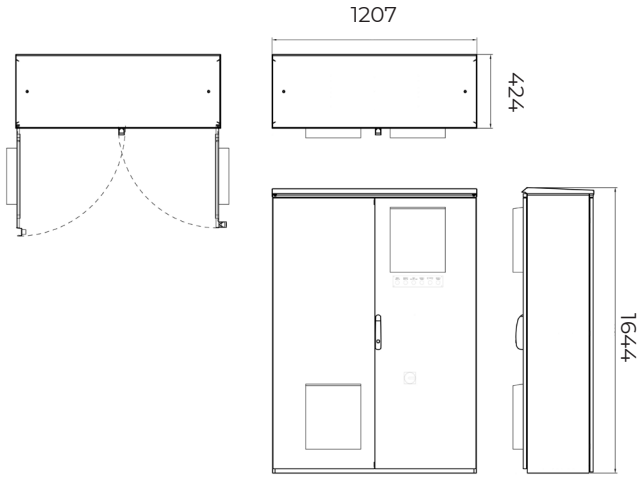


Internal Panels

FCP1000-S30 (30kW)
FCP1000-S37 (37kW)



External Panels

FCP1000-G30 (30kW)
FCP1000-G37 (37kW)

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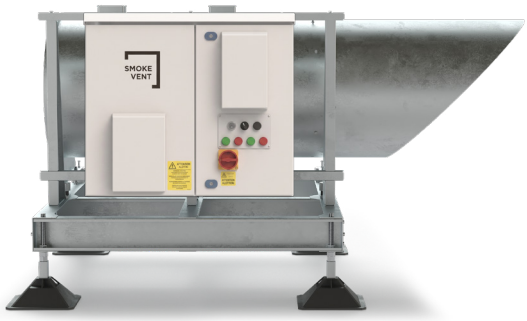
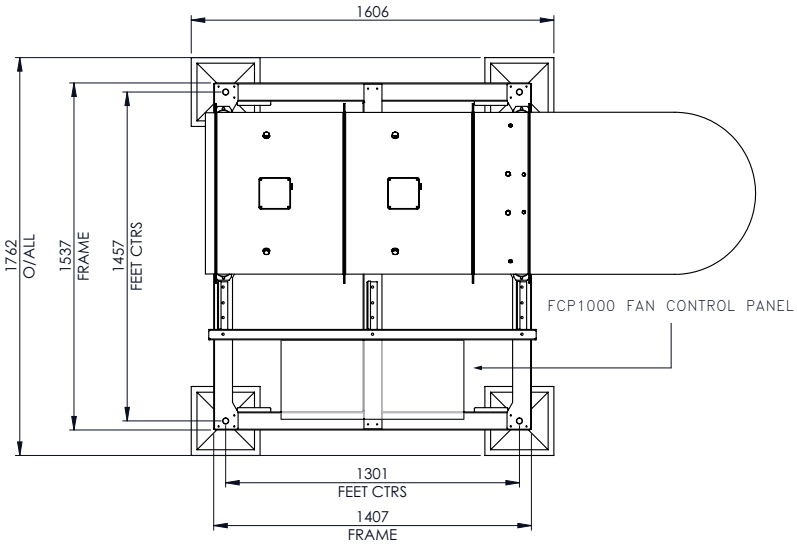
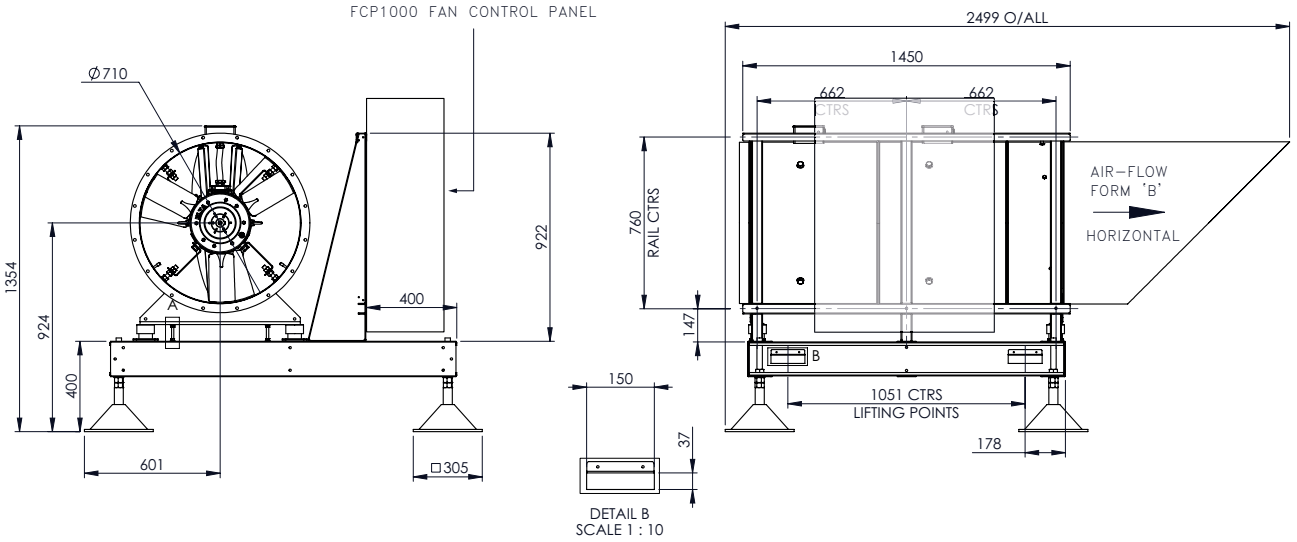
TITAN 7

The TITAN 7 dual fan set can be supplied with a pre-fitted FCP1000 control unit, further simplifying and accelerating on-site commissioning.

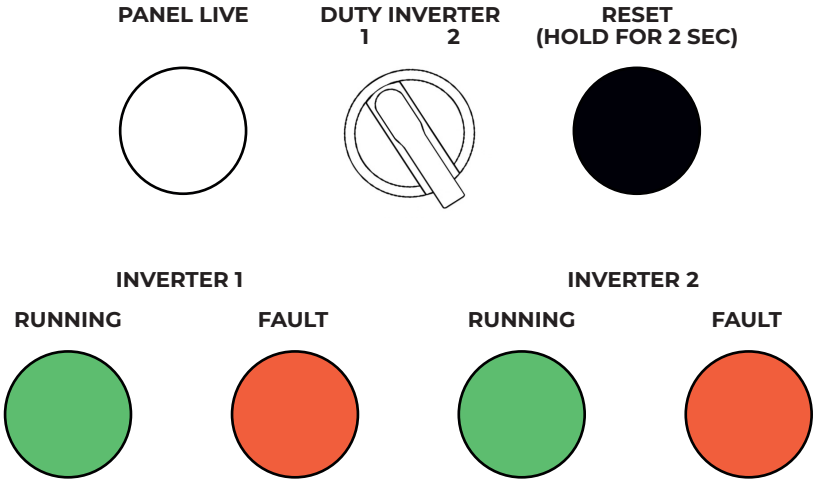






Please note: These size only apply to our standard range.

06. Status Indication



LED Name	Function when illuminated
PANEL LIVE (WHITE)	400V primary supply available
DUTY INVERTER 1 & 2	Duty inverter change over switch
RESET	Resets inverter faults and allows inverter changeover
INVERTER RUNNING (GREEN)	Duty Inverter running / Standby Inverter in standby
INVERTER FAULT (RED)	Standby Inverter running / Duty Inverter is off

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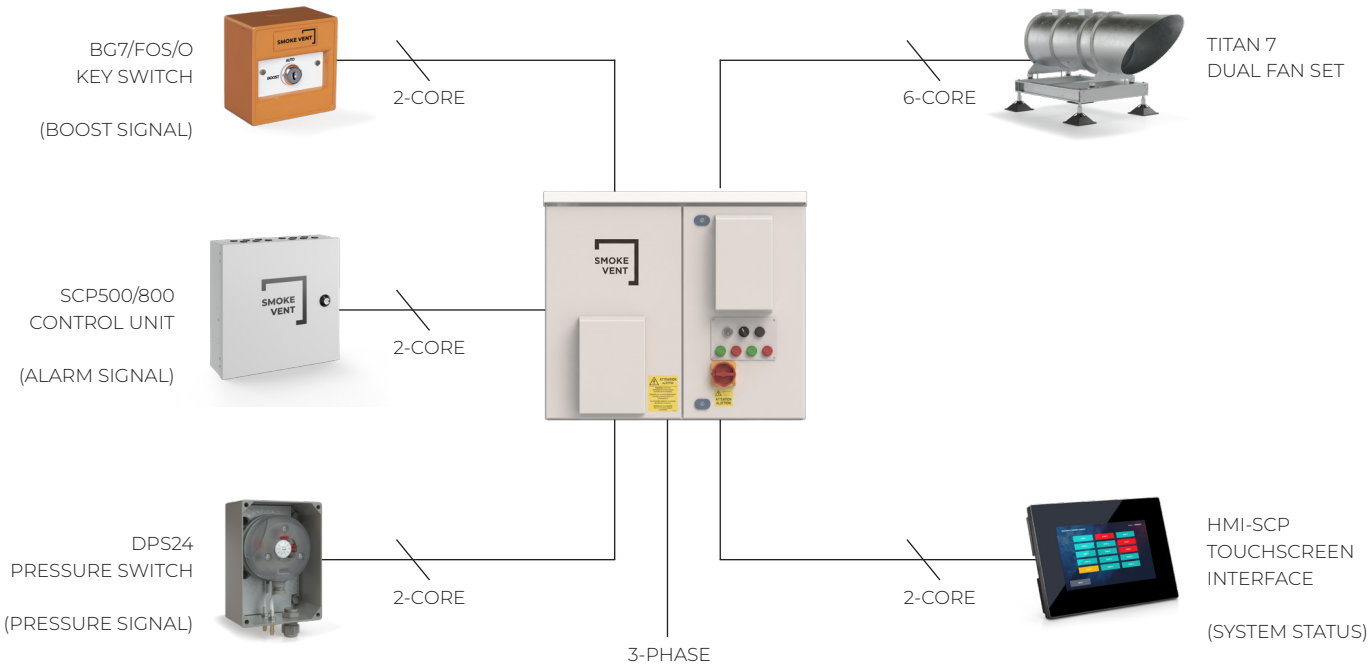
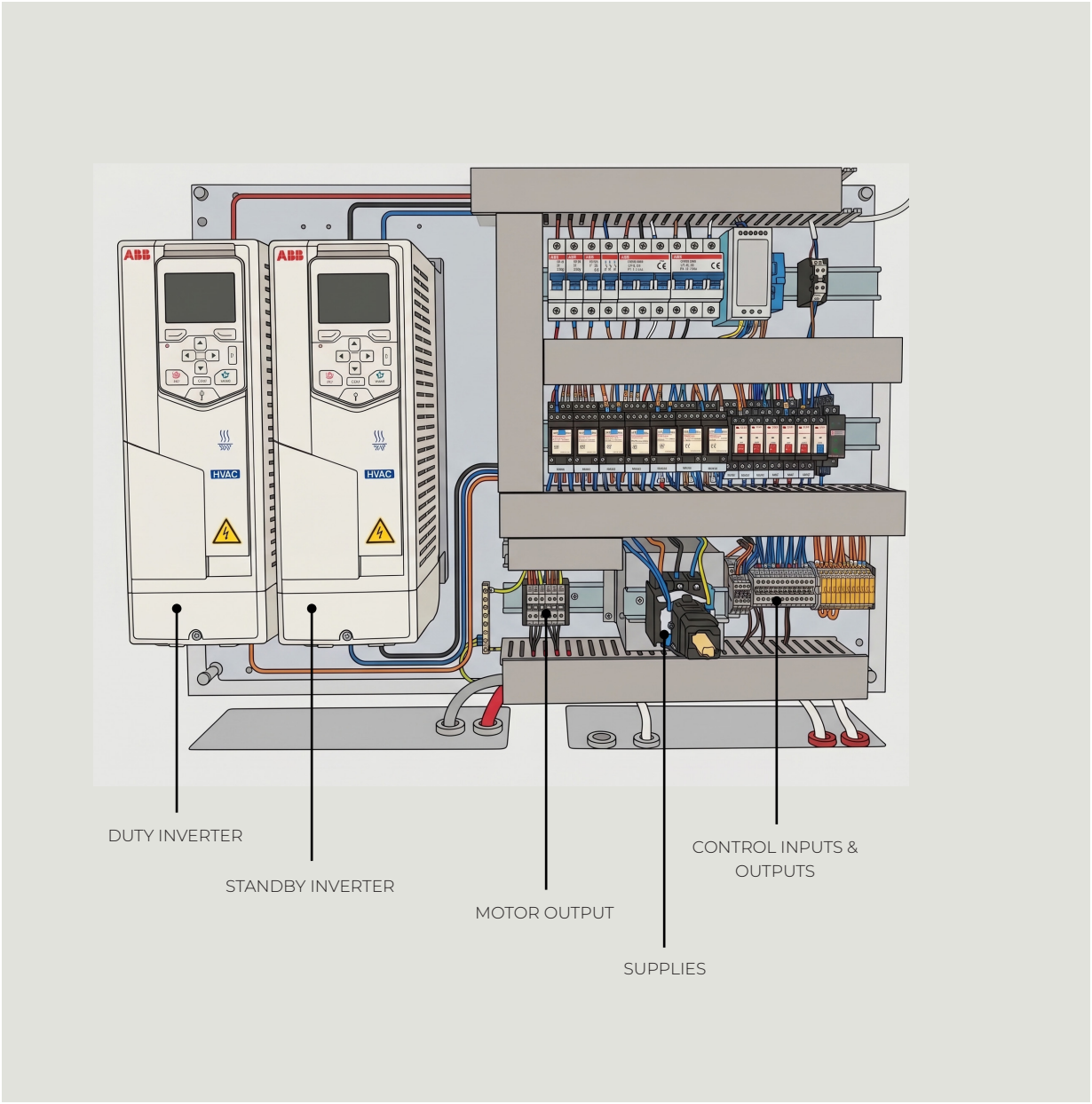
07. Connections



Overview



Some panel arrangements may vary depending on the panel size and type.

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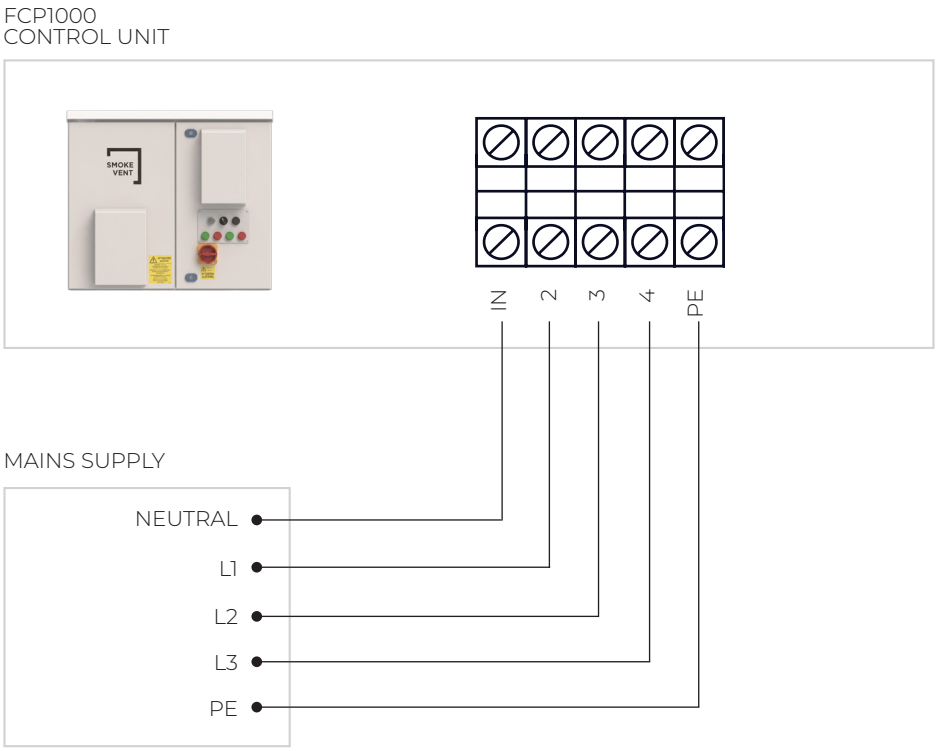
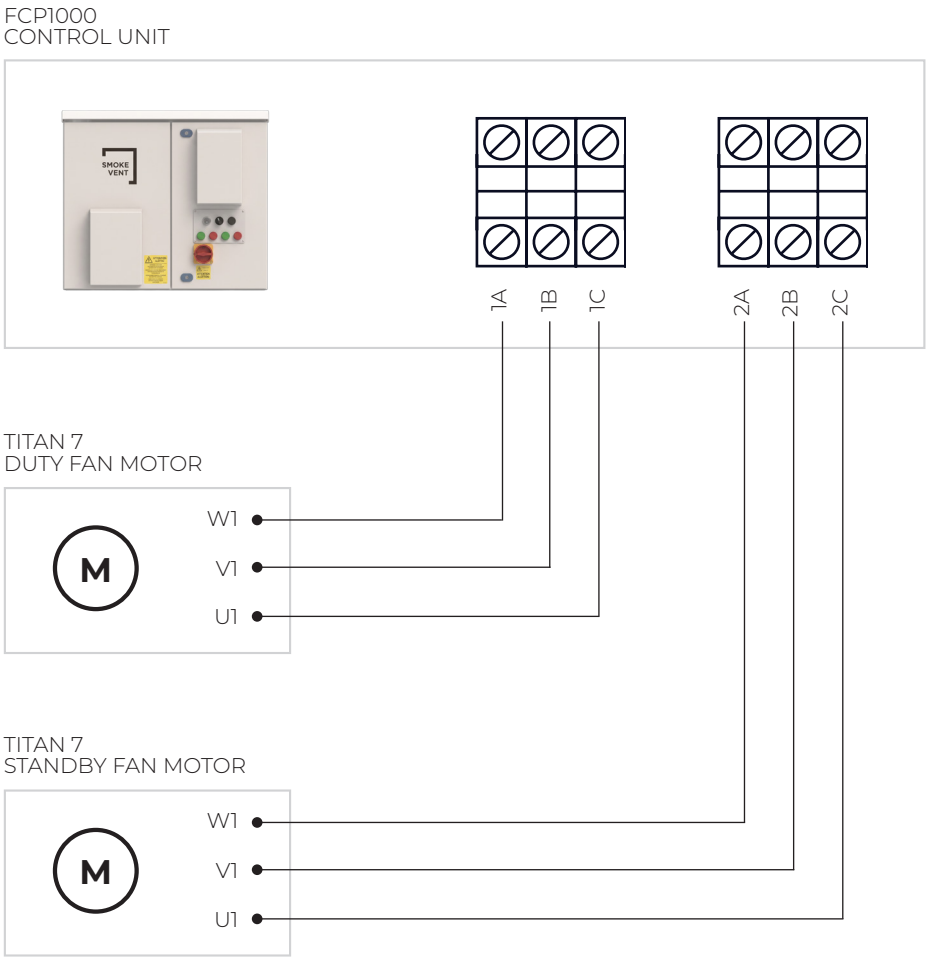
Supplies


FCP1000
CONTROL UNIT
SMOKE VENT
IN
2
3
4
PE
MAINS SUPPLY
NEUTRAL
L1
L2
L3
PE

Motor Output



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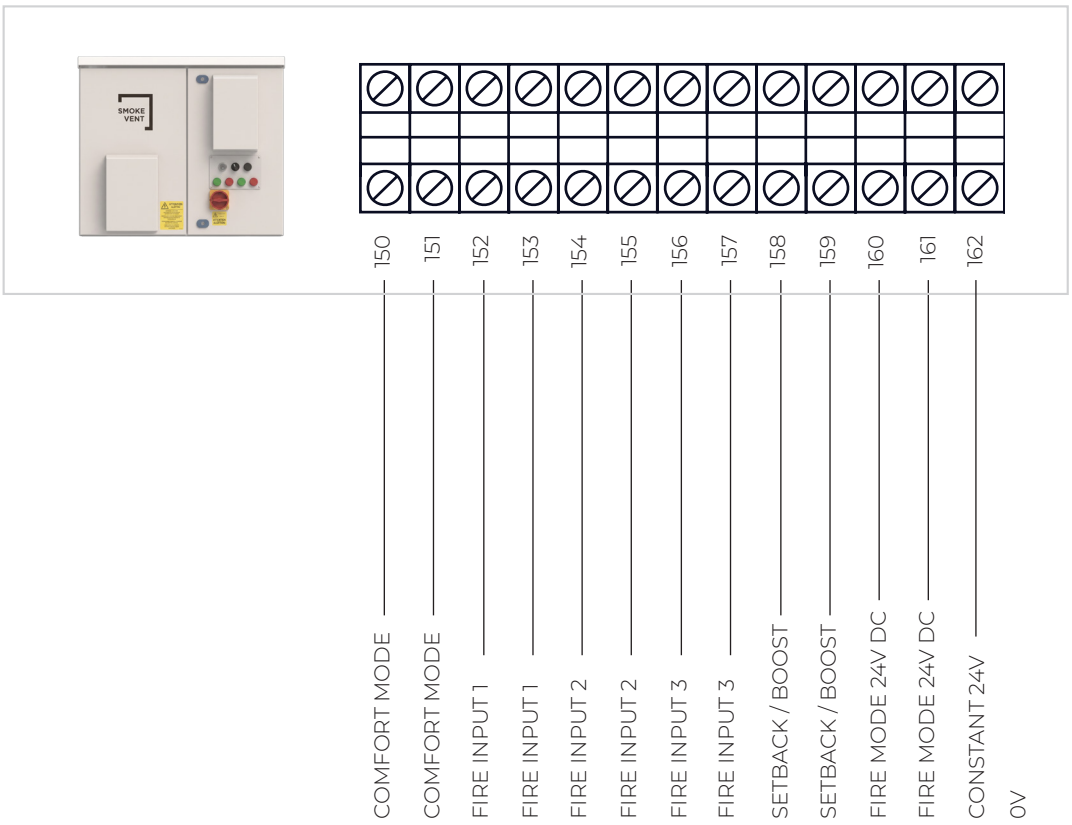
Control Inputs

FCP1000
CONTROL UNIT



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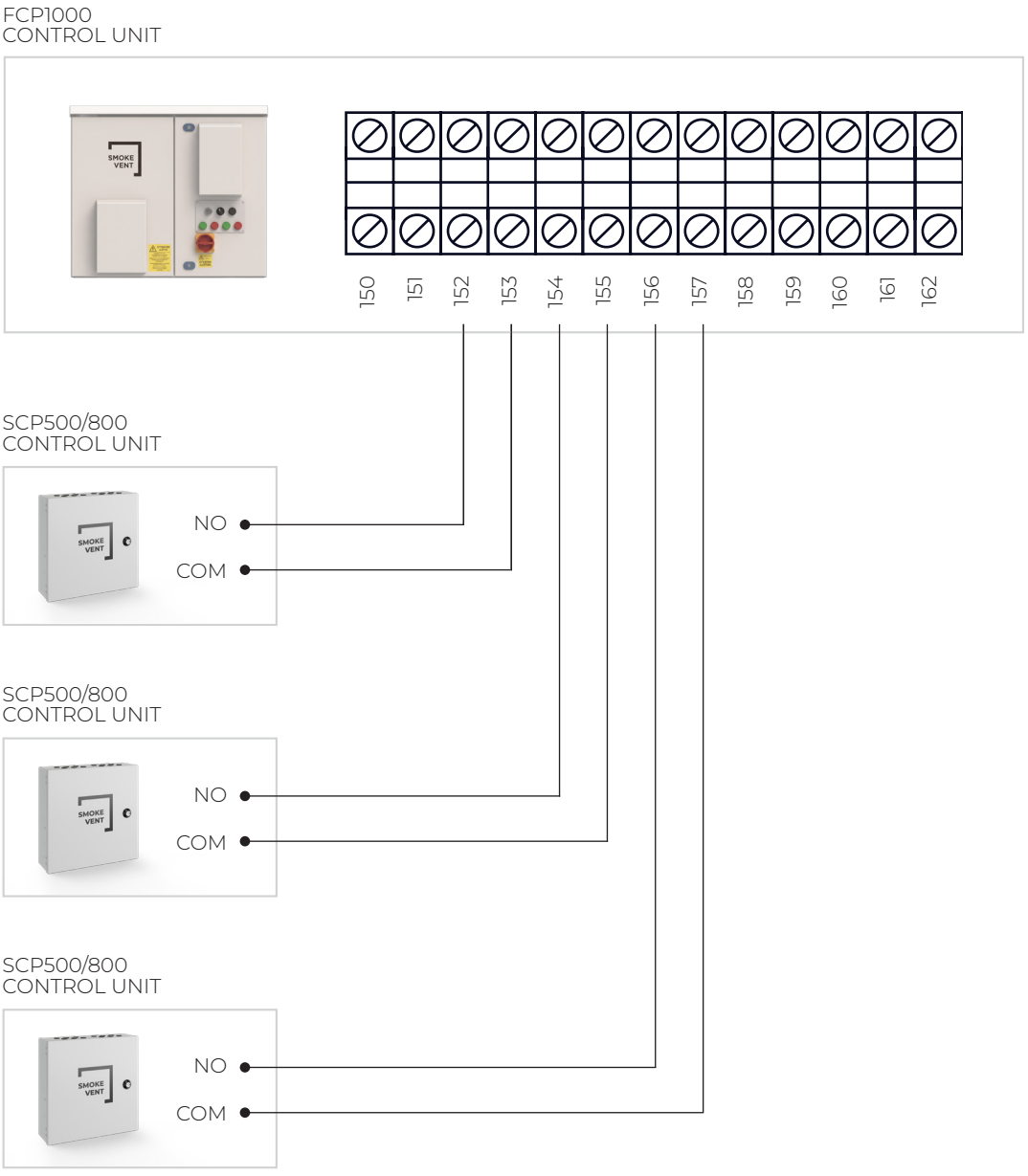
Fire Mode



Please be aware

Only one fire input can be triggered at any one time, multiple fire inputs must not be used.

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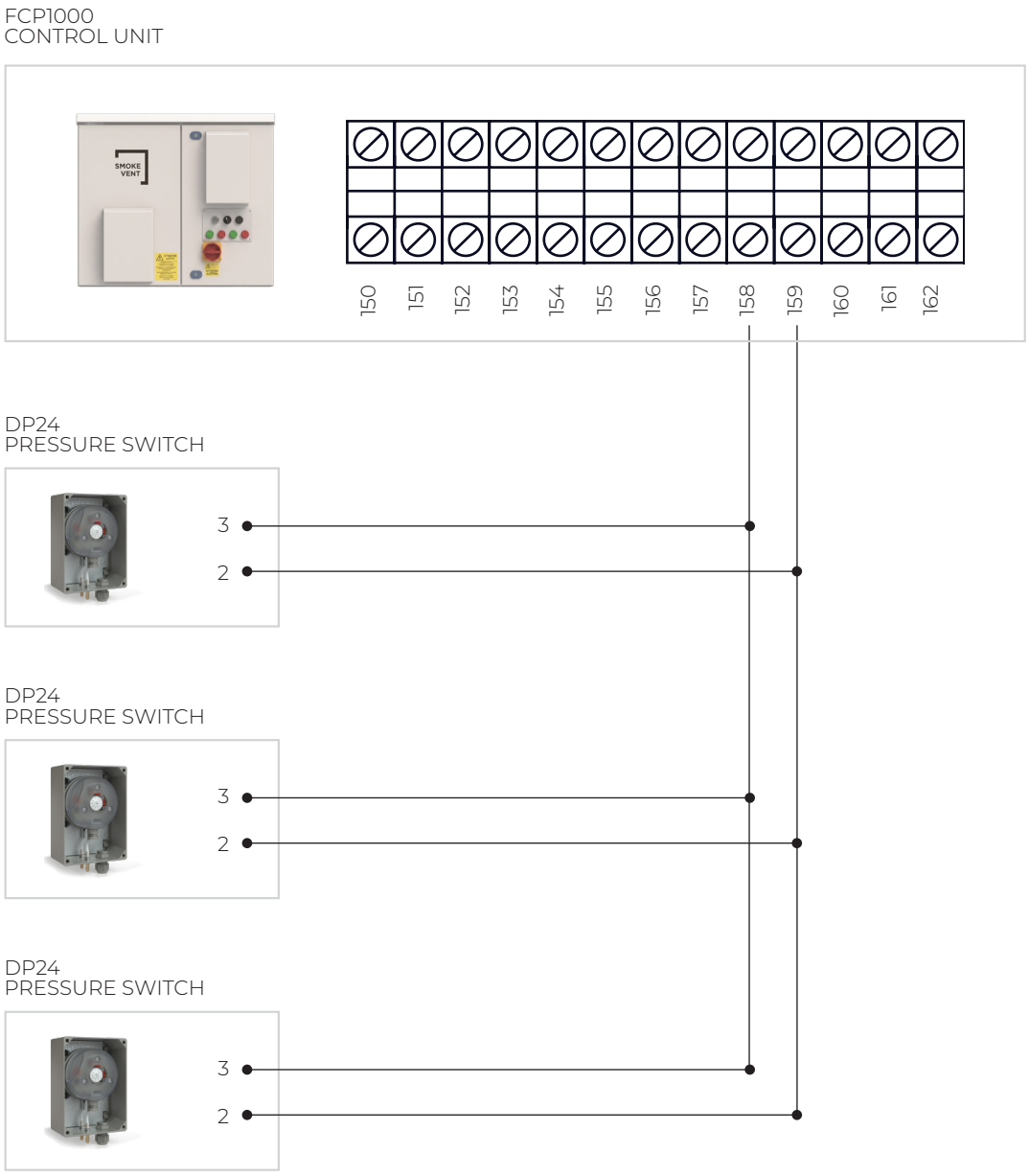
Setback & Boost

Please note that configuration of setback or boost must be done at the time of order. We currently do not support on-site adaptation by end users.



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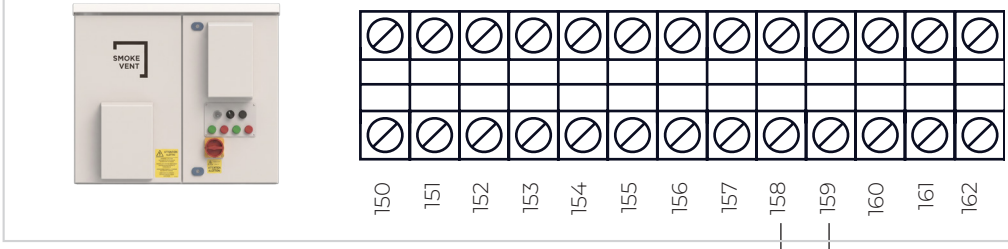
FCP1000
CONTROL UNIT



BG7/FOS/O
KEY SWITCH

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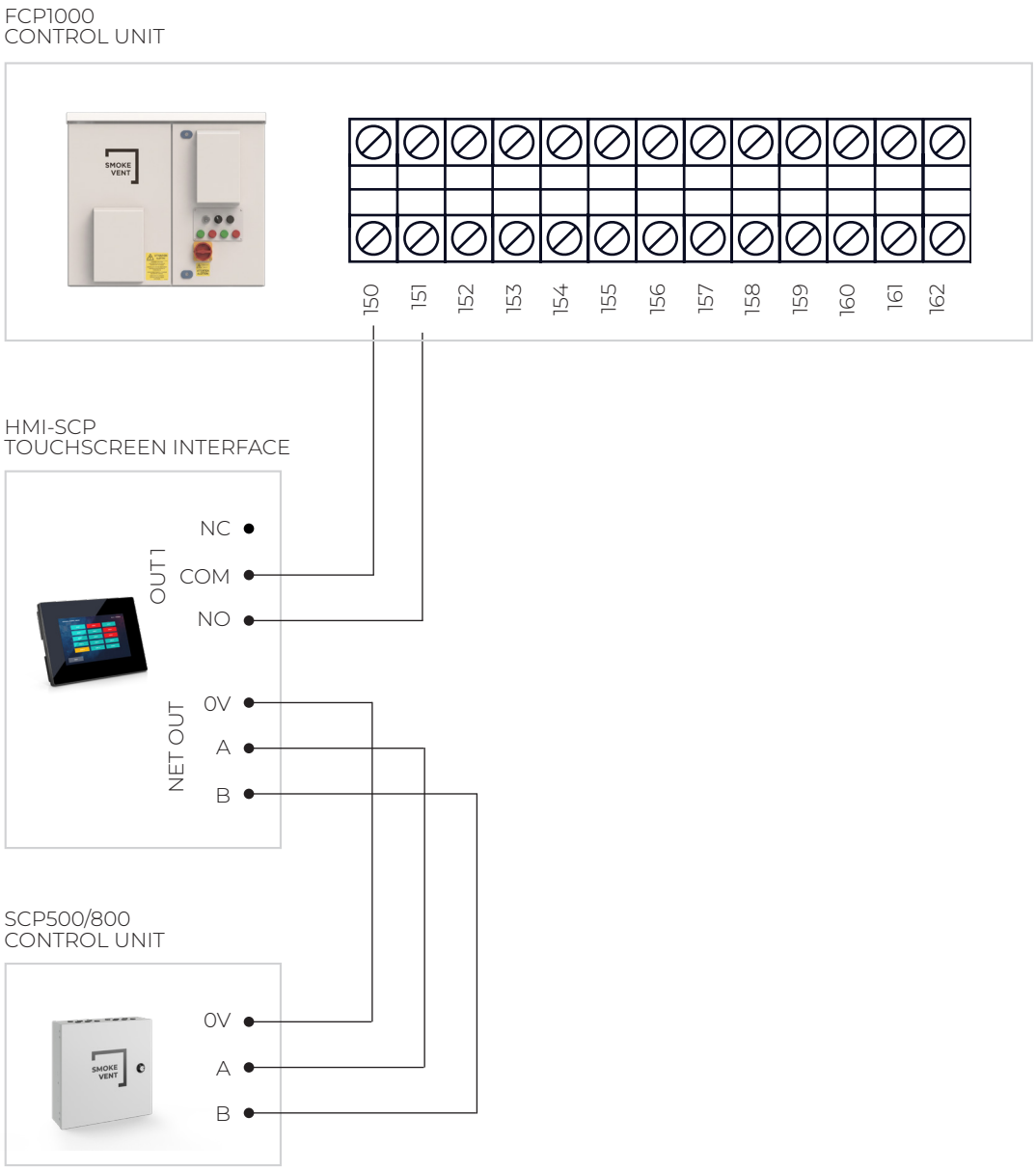
Environmental

The environmental input can be connected to a volt free contact such as a thermostat for temperature based activation or directly to a control panel for automatic or manual control. This function is overridden by the fire signal.



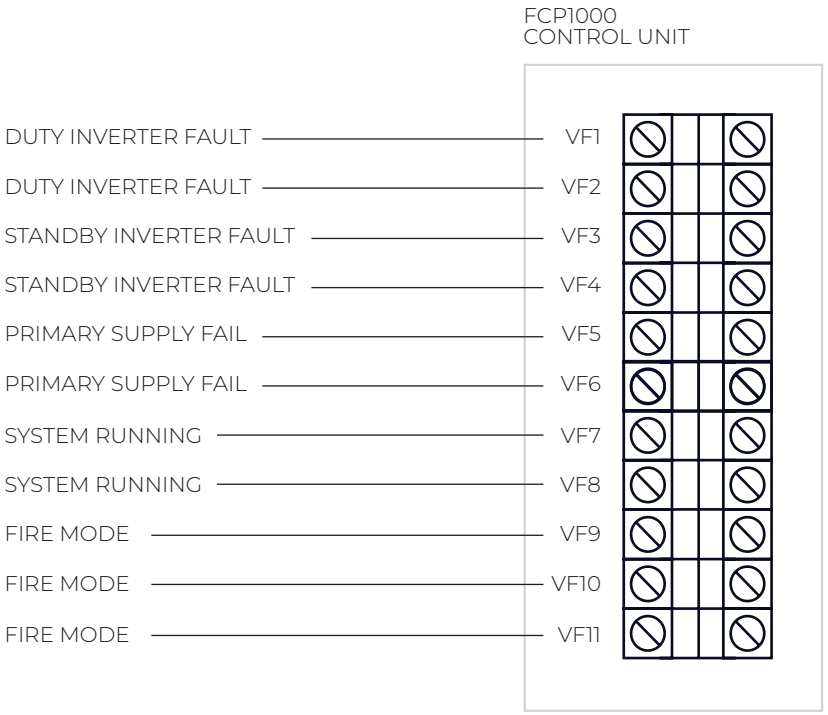
08. Automatic Switching & Redundancy

When the FCP1000 is used as part of a smoke ventilation life safety system, power shall be supplied via an Automatic Transfer Switch (ATS). The ATS shall be connected upstream of the FCP1000, with the primary and secondary supplies connected to the ATS, which shall provide automatic source selection to the panel.

The ATS shall conform to BS EN 60947-6-1 and utilise switch technology achieving PC classification, rather than contactor or circuit-breaker-based arrangements, in accordance with BS 8519. The ATS should be located within the same fire compartment/fire zone as the FCP1000. The suitability of any bypass arrangement shall be determined as part of the system fire strategy and risk assessment.

On loss of the duty inverter the panel will automatically switch to the standby inverter, there will be a monetary loss in drive from the motor. Pressing reset on the front of the panel will reinitiate the duty inverter if available.

Below is a list of monitorable faults, all outputs provide a normally closed going open signal:



Where the control indicating equipment has less inputs than shown above, one or more of these outputs can be linked together with a jumper cable.

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09. Commissioning

Competency

This equipment is designed for professional installation by qualified, trained electricians or skilled and trained staff with knowledge of electrical equipment installation.

Testing

Full commissioning of a new system requires the availability of three phase and neutral electrical supply.

If activation is via a fire alarm controlled relay, ensure the fire alarm is normally open when the system is healthy.

Where a 'Cause and Effect' (functional specification) is available, this will document a complete list of the required functions which must all be verified in turn. If this specification detail is not available, the commissioning engineer must ensure that each input is tested. This may require triggering of smoke detectors and simulating of fire alarm inputs.

Parameters

During system commissioning the motor parameters must be set. Motor parameters can be found on the motor fan plate - see below example. Motor parameters can be set by programming the required inverter using the below menu:

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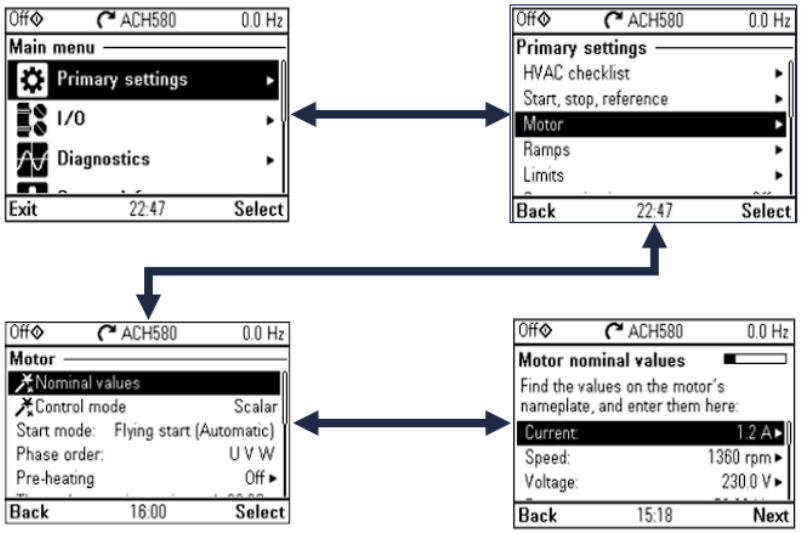
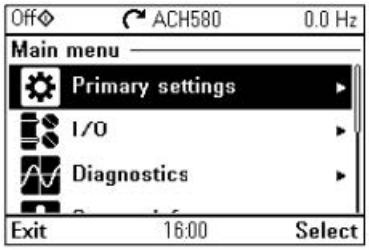
ELTA A MEMBER OF ELTA GROUP

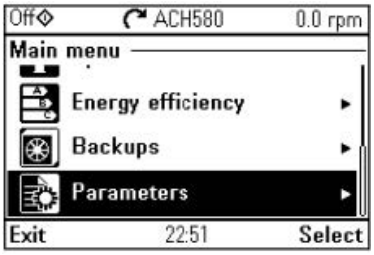
PRODUCT TYPE		DRAWING/PART NUMBER
RS-LCS031J4-A6/14		RK03180-1781-6745
FAN SERIAL NUMBER		DATE OF MANUFACTURE
K205800		05/06/24
ELTA FANS SALES ORDER NUMBER		
SO0088939		
MOTOR POWER (kW)	SUPPLY (V/Ph/Hz	FULL LOAD CURRENT (A)
0.66 AOM	400V-3PH-50HZ	1.42
SPEED (r/min)	IP RATING	FAN MASS (kg)
1440	55	25 EACH
OVERALL EFFICIENCY %		MEASUREMENT CATEGORY
F300	30	120
RESPONSE DELAY	MOTOR INSULATION	MOTOR TEMPERATURE RISE
APPLICATION EMERGENCY USE ONLY		

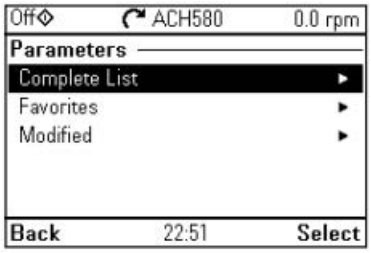


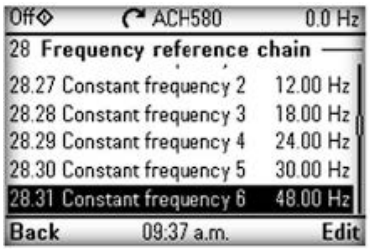
Fan Speed

Fan speed can be set up by accessing the below menu on the required inverter, for Duty/Standby inverter setups, both inverters should be set up.









Example parameters. These may change during the panel build process dependent on required configuration.

Inverter Parameters:

28.26 Constant Frequency 1 - Comfort Speed

28.27 Constant Frequency 2 - Fire Speed 1

28.29 Constant Frequency 4 - Fire Speed 2

28.31 Constant Frequency 6 - Fire Speed 3

70.06 Override Frequency - Pressure Switch

Only 1 speed input to be activate at once.

Defaul parameters can be restored via the backup menu.

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10. Maintenance

In line with the SCA's advice & best practice document "Guidance On Maintenance Of Smoke Control Equipment", it is recommended to run the Duty & Standby fans for a total of 20 minutes each month, this can be done in a single stage or accumulated over a month and recorded within the system logbook.

To enable the testing of both the Duty & Standby inverters and fans, a switch has been supplied on the front of the panel, this switch allows either the duty or standby inverter to be selected and driven under activation.

It is recommended that on completion of testing the switch is returned to the default position of duty inverter, this is not essential however is best practice.

The FCP1000 fan control panel is a life safety product and should only be operated and maintained by competent and correctly trained personnel.

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sales@tealproducts.co.uk
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17. Support

Technical Support

Tel 01242 622959
Email technical@tealproducts.co.uk

HOW TO
Video Guides

Product Training

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MADE IN BRITAIN

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