GWP Fume Control
Fume Cupboard
Control System FCV5

The FCV5 Fume Cupboard Control system has been specifically designed for the Education & Smaller Laboratory Fume Cupboard market where simplicity is the key factor whilst still maintaining a fully functional & Compliant Fume Cupboard Controller at an economical price

Description

This Electronic Control System consists of two main components, the central CPU relay circuit board and the display panel. The display and the CPU are connected together via cat 5 cable and utilise RS485 communications with each other.

The display provides the operator with indication on the status of the Fume Cupboard via a two line backlit LCD, and colour LED's (red, green & orange). The LCD will display text messages to inform the operator what is currently in operation or what cycle is operating. In the event of an alarm condition the LCD will display exactly what type of alarm is present.

The touchpad on the display has 5 buttons for Fume Cupboard control, Fan On Off, Services, Fan Boost, Light & Alarm Mute. Each button (with the exception of the light) also has a LED for indication that this function is in operation.

The control unit has a 1-minute pre-purge timer that operates when the Fume Cupboard fan is started, services cannot be activated until the timer expires. There is also a 20min (for use on all Industrial application F/Cupboards) or a 5-minute post-purge timer (for use on Secondary School F/Cupboards, also **for use as a set up & commissioning mode**) that operates when the Fume Cupboard fan is to be shutdown, again services cannot be activated during this time period. [As per clause 3.2.5.5 AS/NZS 2243.8]

On detection of an alarm the control will automatically isolate services (Gas & Power to GPO's), and the fan will continue to operate as per AS2243.8 (unless the fault is an airflow fault due to fan failure). An audible alarm will sound which the operator can mute, red LED's will flash and the LCD text will flash to alert the operator whilst also displaying exactly what type of alarm is present.

There are three inputs for monitoring various alarms they are as follows:
- Airflow Fault
- Gas Fault
- Auxiliary Fault – (spare alarm input)

These inputs are software controlled and can be adjusted for specific requirements.

Emergency Stop button when activated will isolate services (GPO's & Gas) but will **not** stop the Fume Cupboard fan as per AS2243.8. To alert the operator that the Emergency Stop has been activated an audible alarm will sound, red alarm LED's will flash and the text reading EMERGENCY STOP ALARM will be displayed on the LCD. Emergency stop button is connected in series with the power to services; the control just monitors the operation of this button. It is done this way for safety reasons so that should there be a problem with the control system the emergency stop button can still isolate the services.

In the event of power failure to the unit an audible and visual alarm (flashing red LED's) will activate to alert the operator. The audible and visual alarm which can be muted, will continue to operate in excess of 20 minutes (as required by AS2243.8)

Operation Guide

To start Fume Cupboard press ON-OFF button – the light will switch on and the pre-purge timer will start to count down from 1 minute, at the end of this time SERVICES READY will be displayed on LCD.

To shutdown Fume Cupboard press ON-OFF button – 20min post-purge timer will start to count down, at the end of the expired time the fan and the light will switch off automatically.

Light

The light can be switched on or off at any time, however the light will switch automatically ON when the Fume Cupboard is started and OFF when post-purge timer is complete (Fume Cupboard shutdown, fan stop).

Services

Are activated by the SERVICES button – when active the LCD will read SERVICES ON and the green LED will illuminate.

The services can only be activated at the end of the 1-minute pre-purge time period, and will automatically switch off when the control enters into post-purge cycle.

Services are automatically deactivated when an alarm is detected or the emergency stop button has been activated.

Services can only be enabled again once the alarm condition has been rectified or the emergency stop button reset.

Services will not reset automatically after an alarm condition has been cleared, services must be reset manually by pressing the SERVICES button (as per AS2243.8).

Fan Boost

The fan boost function is used when a second (higher) speed maybe required, for example in the event of a chemical spill within the cupboard.

This is activated/deactivated by the FAN BOOST button and will indicate to the operator that this is in operation by the green LED (beside the button) and the bottom line on the LCD will display the text FAN BOOST.

Emergency Stop

When this is activated it will isolate power to Fume Cupboard GPO's and gas outlets, an audible alarm will also activate together with text on the LCD and flashing LED's to alert the operator.

Emergency Stop activation is monitored by the control only when services have been enabled, so an Emergency Stop alarm will only sound when services are active. However the Emergency Stop is independent and is connected in series, so should there be a problem with the control the Emergency Stop button will still isolate services.

Reset Emergency Stop function – Release the Emergency Stop button by twisting then press the SERVICES button to clear the alarm.

Alarms

There are in total 5 alarms that can be activated by the control unit they are:
- Airflow Fault (standard) – airflow has decreased below required operating rate and should be investigated immediately.
- Power Failure (standard) – audible alarm will sound and red LED's will flash for a period greater than 20 minutes to alert operator that Fume Cupboard has lost power.
- Emergency Stop (standard) – as described above.
- Gas Fault (optional) – low gas flow has been detected to Fume Cupboard, first check gas isolation points to ensure that this has not been isolated by someone. This is to alert the operator and also to remind them to shutdown the gas tap at the Fume Cupboard, so that when gas flow is restored it doesn't flow straight into the Fume Cupboard creating a possible hazard.
- Aux Fault (optional) – this is a spare alarm that can be programmed to suite a particular requirement, eg: Fire/Thermal detector normally positioned in ductwork.