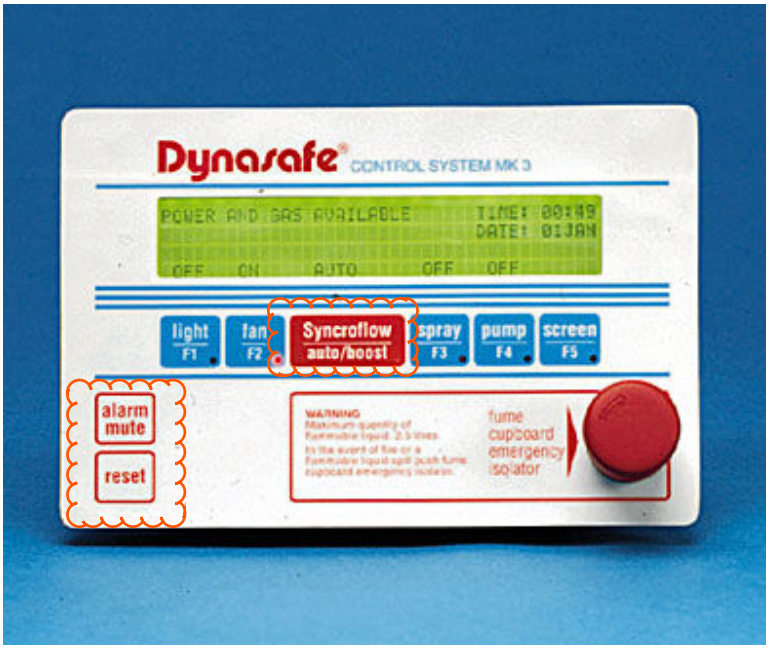
Dynasafe

Control System MK3 for Fume Cupboards



1. DESCRIPTION

The Dynasafe Control System MK3 is an electronic module which features an embedded micro controller with multi-drop data communications.

This new microprocessor control module has a fully programmable system incorporating a clear 40 character x 4 line Liquid Crystal Display (LCD). The display allows alphanumeric messages to be displayed while the unit's intelligent control of the backlit illumination highlights critical safety issues to the operator.

The display shows current status of the gas and power supplies, exhaust fan and fume scrubber pump (if fitted) of the fume cupboard in the form of clearly legible messages on the LCD and also by means of a mimic Light Emitting Diode (LED) located on the graphic front panel.

Special attention has been given to the man-machine interface to the panel. The strategy is to keep the display uncluttered and use visual and audible queues when user response is needed. This design philosophy makes the operation of the device simple while still allowing sophisticated programming and diagnostics for the technically minded. Hence, inexperienced personnel or students are guided by the preplanned legible instructions while the experienced operators can choose any options and program the unit to suit their requirements.

The RS485 serial communication electrical standard was chosen in lieu of RS232 as it allows multiple devices to share a single multi-drop cable, even in electrically noisy environments and over extended distances. The RS485 multi-drop communication channel allows an external data terminal or computer to access the Dynasafe internal microprocessor, thus allowing remote control of the panel and retrieval of the status data of the fume cupboard. This allows the maximisation of the energy saving features, reporting to central data logging devices, access by building management systems, remote emergency shutdown or startup - in fact the versatility of this feature is bounded only by the user's imagination.

When used in conjunction with energy saving Syncroflow Sash System, this communication channel can provide the necessary information to ensure the most efficient use of energy. Outputs are provided allowing the monitoring of this feature on one or any number of fume cupboards.

Dynasafe MK3 System incorporates a remote airflow sensor and communication channel. This sensor monitors the fume cupboard air flow and reports on the screen any variation to the minimum flow rate. The sensor operates on the calorimetric principle and features built-in self diagnostics and error reporting. Trip point and calibration data can be down-loaded

from the sensor and locally stored in its non-volatile memory, thus allowing the device to function as a stand-alone unit or in a continual reporting mode for enhanced safety.

Incorporated is a sequencer, which can allow the cupboard to be programmed to start up or stop several times a day for up to one year in advance. This feature is very desirable for experiments which may need pre-heating, or regular or repeatable experiments such as in a school environment.

An internal battery backup supply is contained within the module. On power failure, the device will automatically switch to an internal power source, thus allowing communications and alarm status to still function. In fact, the panel is fully functional for 30 minutes after the power failure. This feature is required for compliance with AS2243.8. The internal battery is self-maintaining and does not require periodic replacement.

Full diagnostics and setup screens are provided for commissioning and testing of the fume cupboard. On powering up of the cupboard, the panel will perform a diagnostic program. It will report any failures along with a reprogrammable service contact phone number on the LCD display.

If an extraction failure or other emergency sequence, such as an over-temperature should arise, the program of the Dynasafe MK3 can automatically execute its emergency shut down sequence. It will isolate the gas and power, while allowing the exhaust fan to continue operating as required by AS2243.8, thus setting the cabinet into a safe mode. At the same time, the panel will activate an audible alarm with the offending item featured on the LCD. The back light of the display will also flash to enhance the urgency of the message.

An emergency isolation switch is included on the panel. In emergency situations the operator simply presses the switch and thereby isolates the power outlets in the fume cupboard.

This is reported on the screen and the alarms will be activated.

The panel is highly integrated onto a single PCB with touch sensitive keys. The relays, display and audio buzzer are self contained, along with the embedded microcontroller, thus enhancing the overall reliability of the device. The graphic panel is designed with key features which are colour coded for ease of identification in emergency situations.

2. SYSTEM DESCRIPTION

The Dynasafe Mk3 Control System is an intelligent microprocessor-controlled device, and as such the majority of device functions are controlled by the software stored in the unit EEPROM and hosted by the microprocessor. The use of software control allows significant operational flexibility, with scope for tailoring operation to particular user requirement s and to implement future upgrades.

The Dynasafe MK3 Control System incorporates normal functions for operation of fume cupboard light, fan, Syncroflow Auto/Boost (when installed), spray bar (when installed) and fume scrubber pump (when installed).

The system also incorporates pre-purge, post purge, emergency isolation of services and alarms as required to comply with AS2243.8, AS3000 – 1991, AS2430.3 – 1991.

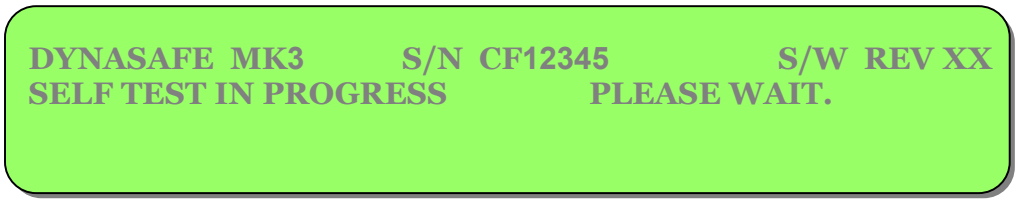
The system has an alarm to indicate power failure to the fume cupboard. This alarm is powered by an on-board battery back-up power supply.

The Dynasafe MK3 Control System also has a RS485 communication channel which will allow the system to communication with other computers or building management systems over long distances and in electronically noisy environments.

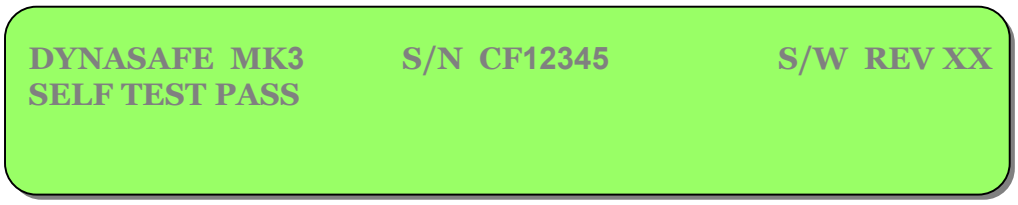
3. SYSTEM OPERATION

3.1 POWER UP

When power is initially applied to the system the Dynasafe MK3 automatically enters into a “self test” function for several seconds before entering the idle state. The following LCD displays will be seen.

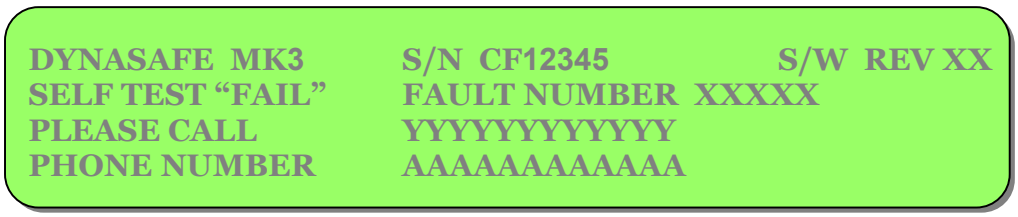


Then



Note: 3 beeps will be heard and the display will change to the idle screen as follows;

If the system does not pass the “self test” the following display will be seen. You should then ring the contact and telephone number shown the display.



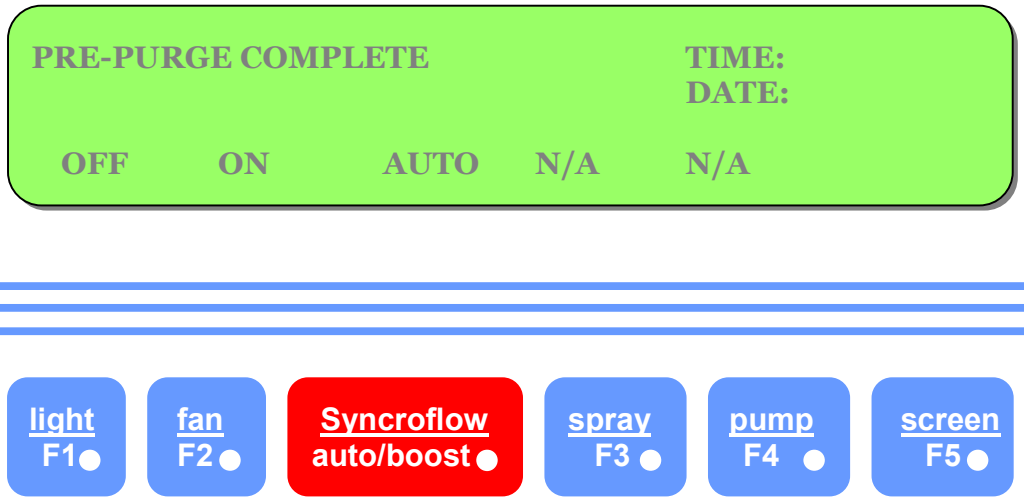
3.2 LIGHT

The light operation is independent of the rest of the system and can be switched on and off as required. The LCD will show the words “ON” or “OFF” above the “Light Button” to indicate the light status.

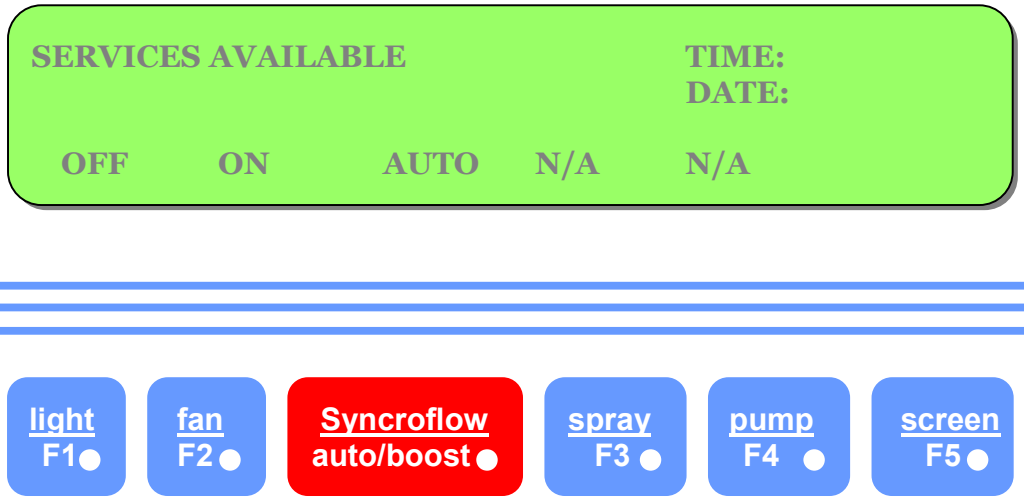
3.3 FAN

The fan activation is by the “Fan” button which also activates programmed automatic pre-purge on start up and post purge on shut down. The following LCD displays will be seen.

Then 60 seconds later.



Note: 3 beeps will be heard, then

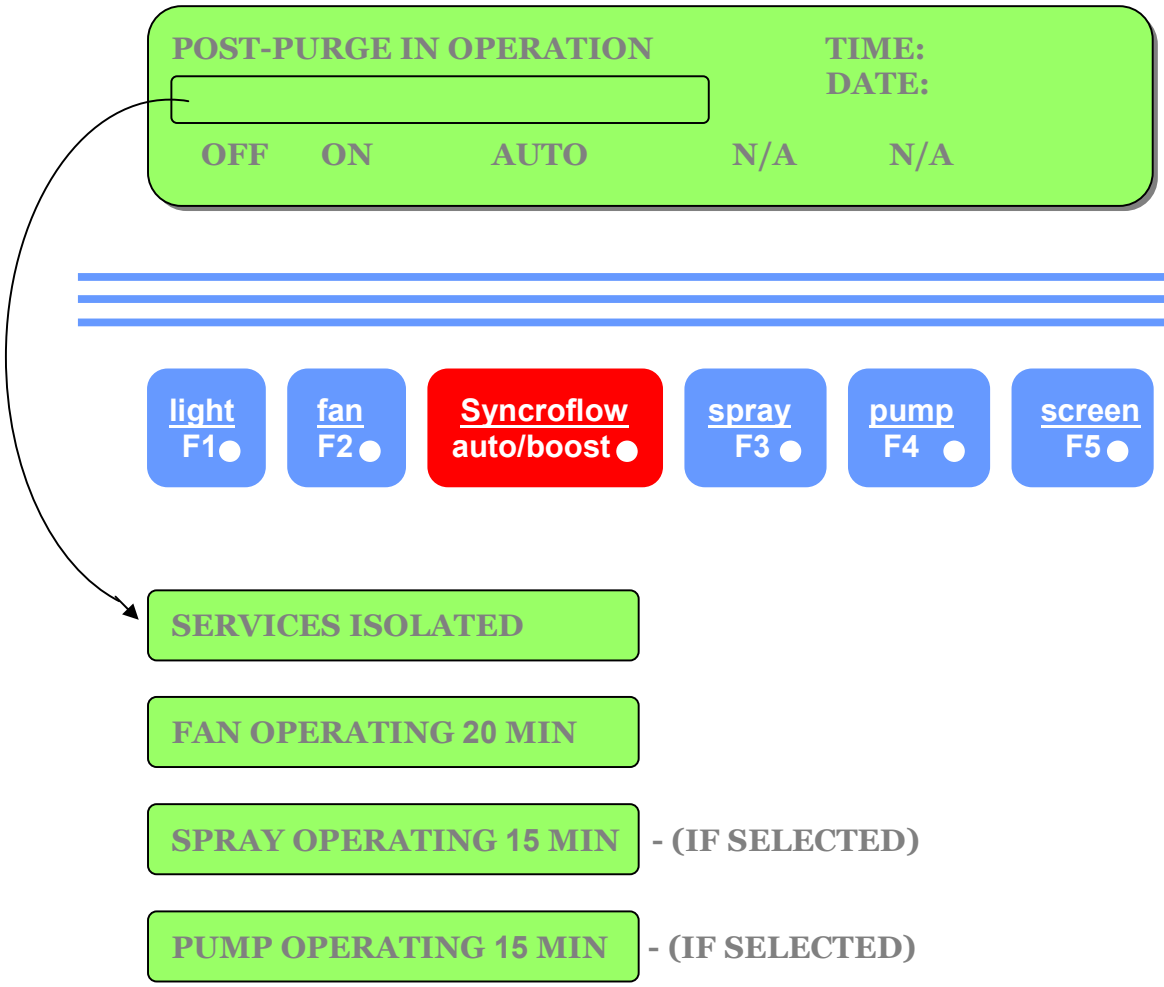


This is the normal operating mode for the fume cupboard.

To switch the fume cupboard off, the fan button is pressed and the following LCD displays will be seen.

If the fan was de-activated by mistake, press “NO” (Screen button) and the system will continue in normal operating mode.

If you wish to switch the fume cupboard off, press “YES” (fan button) and the following LCD display will be seen.



The above sequences will alternate on the second row of the LCD.

Note: Spray and pump sequences will only be seen if spray bars and fume scrubber are installed and default settings are programmed for their use.

On completion of post purge, the system will beep 3 times and revert to theidle screen. The light also reverts to the “OFF” status.

3.4 SYNCROFLOW (AUTO/BOOST)

If Syncroflow is installed, the activation of this button will select the air boost facility and a second touch of this button will revert back to auto mode.

To program the system for use when Syncroflow is fitted, see Section 6.10.

The present status of the auto/boost facility is continually shown on the bottom line of the LCD, above the Syncroflow (Auto/Boost) button.

3.5 SPRAY

If a spray bar is installed in the fume cupboard, the activation of this button will start the spray bar operation. A second touch of this button will switch the spray bar off.

To program the system for use when a spray bar is fitted, see Section 6.10.

The status of the spray bar is shown on the bottom line of the LCD above the spray button.

3.6 PUMP

If a fume scrubber is installed on the fume cupboard, the activation of this button will start the pump operating. A second touch of this button will switch the pump off.

To program the system for use when a pump is fitted, see Section 6.10.

The status of the pump is shown on the bottom line of the LCD above the pump button.

3.7 SCREEN

The screen button is for use during programming of the Dynasafe system and not used for normal operation of the fume cupboard.

3.8 ALARM MUTE

This button is used to silence the alarm when sounding.

Refer to Section 6.4 for different alarms provided by Dynasafe MK3.

3.9 ALARM RESET

This button is used to reset the control system and alarm after rectification of the fault.

3.10 EMERGENCY ISOLATOR

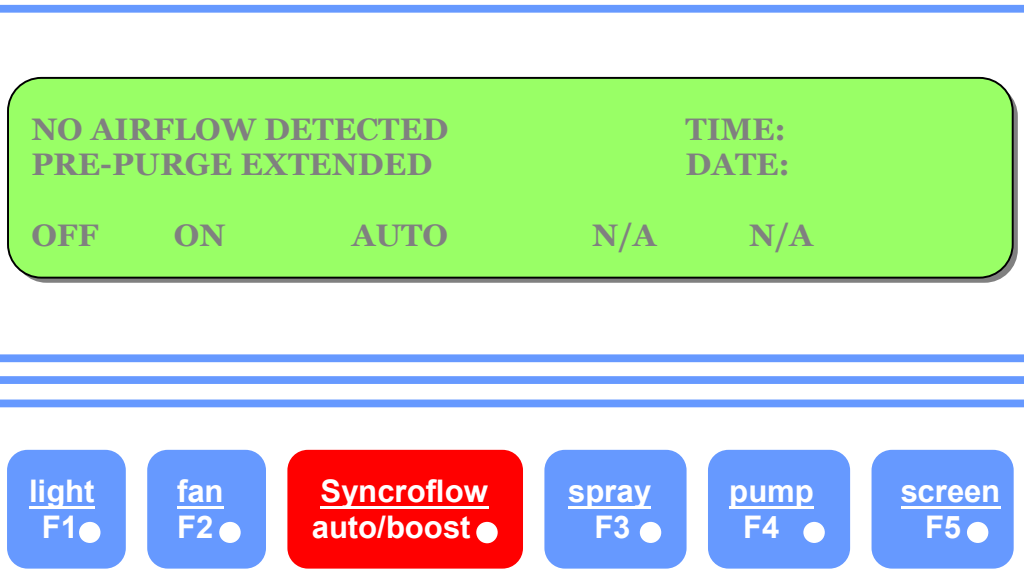
The emergency isolator is a means by which the operator can manually isolate the services being used inside the fume cupboard. The operation simply presses the mushroom headed button. The button can be reset by twisting the button head clock wise. The following LCD display will be seen while the emergency isolator is depressed.

4. ALARM SYSTEMS

There are general alarm protection facilities available in the Dynasafe MK3 which are listed below:-

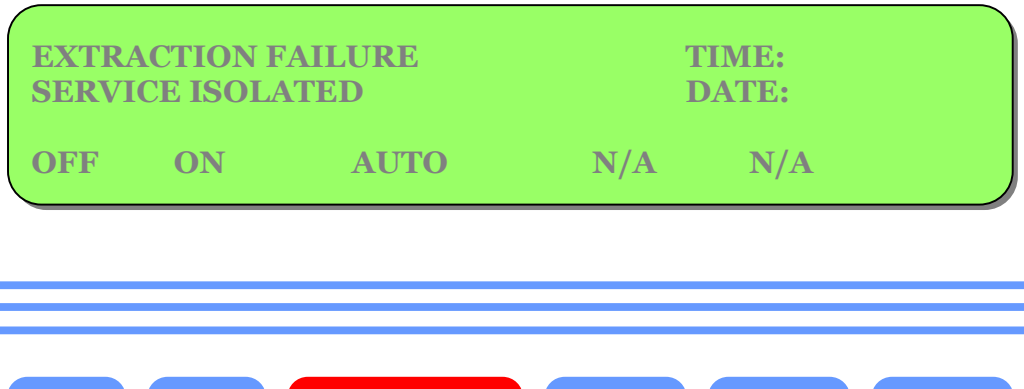
1. No airflow detected at completion of pre-purge.
2. Loss of airflow during operation.
3. Over temperature alarm (when installed).
4. Remote emergency isolator (when installed).
5. Main power failure.

4.1 NO AIRFLOW DETECTED AT COMPLETION OF PRE-PURGE



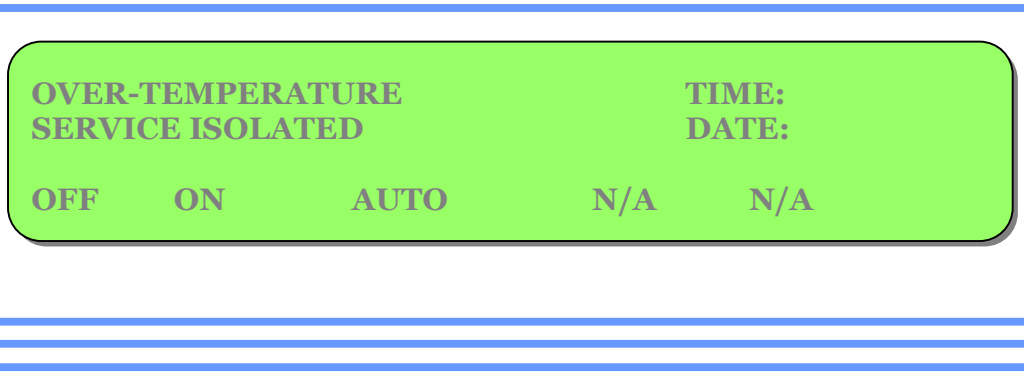
4.2 LOSS OF AIRFLOW DURING OPERATION

If extraction fails during operation, the following screen will be seen. Services will be isolated, the alarm sounds and the LED flashes.



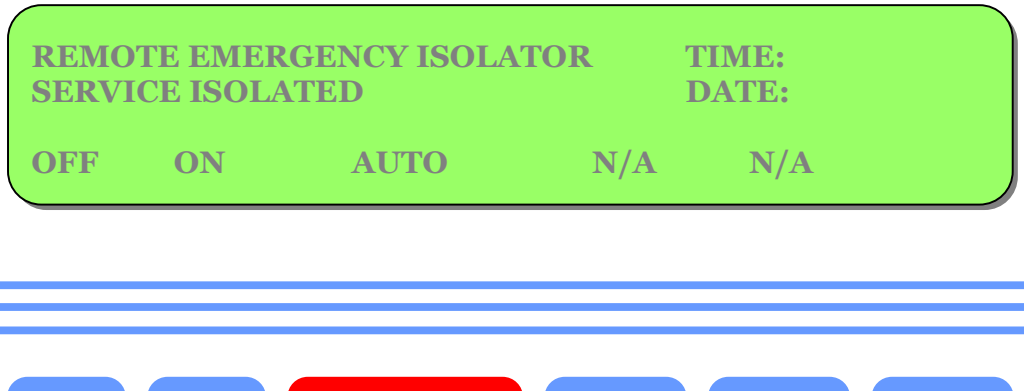
4.3 OVER TEMPERATURE ALARM (WHEN INSTALLED)

If an over temperature sensor is installed and an over temperature condition occurs the following LCD will be seen.



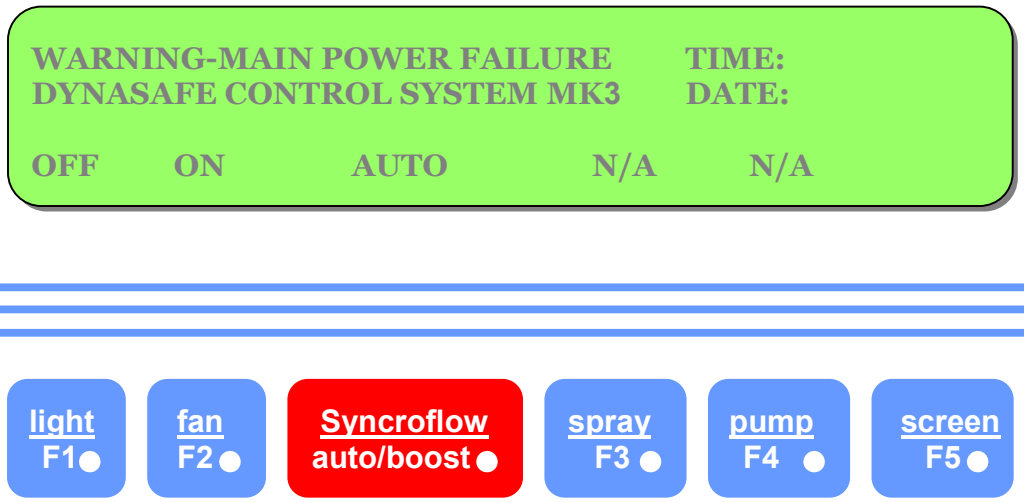
4.4 REMOTE EMERGENCY ISOLATOR

If a remote emergency isolator is installed (e.g. adjacent to Laboratory exit) and is activated, the following LCD screen will be seen.



4.5 MAIN POWER FAILURE

if a mains power failure or fume cupboard circuit power failure occurs, the following LCD screen will be seen.

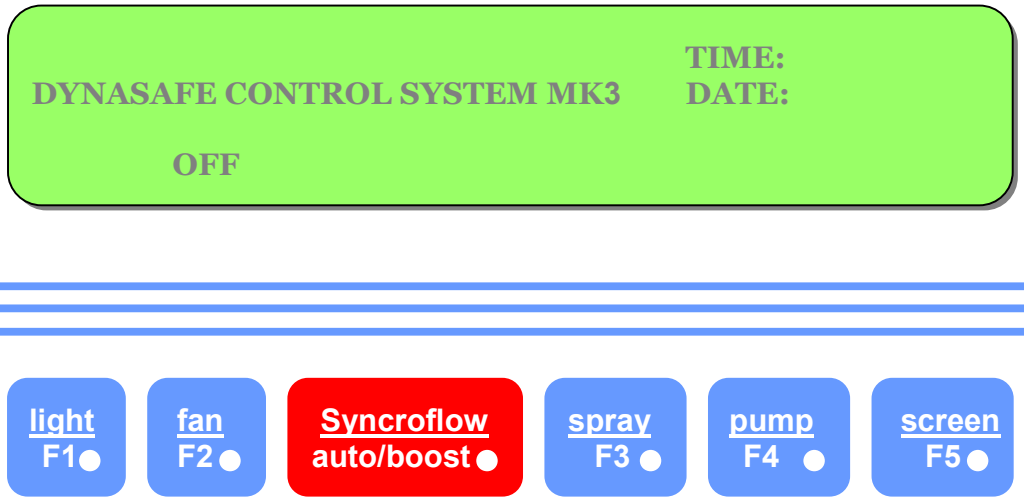


5. HOW TO SET THE TIME

The time is set by entering into the programmable memory of the Dynasafe MK3. The time is set in the following sequence and the following LCD screen will be seen.

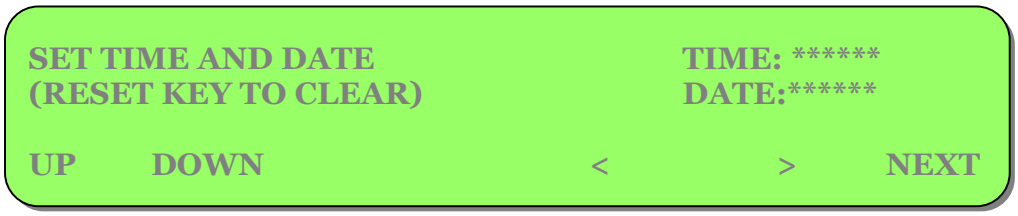
5.1 ENTRY TO THE MEMORY

The memory can only be entered from the idle state indicated by following screen.

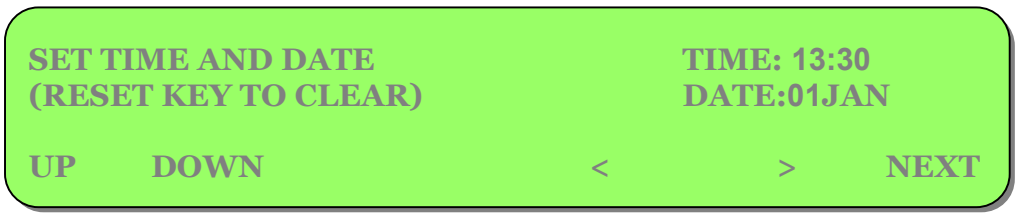


Note: If the system is in operation, the idle state can be obtained quickly by pressing the "Reset", "Alarm Mute" and "Screen" buttons, and holding them for approximately 4-5 seconds. The screen will momentarily display the words "Technicians Escape Activated" prior to reverting to the idle state, indicated above.

To gain entry press and hold the "Reset" button and then press the "Screen" button. The following screen will be seen.



The clock is 24 hours and the time should be set accordingly. The flashing character can be set by pressing the “UP” (light button) or “DOWN” (fan button). To move the cursor to the next character, press “<” (spray button) or “>” (pump button). The cursor can be moved progressively allowing time, date and month to be set. The following LCD screen shows the time set at 1:30 p.m. 1st January 20__.



To exit the time set memory, two methods can be used.

1. Press “NEXT” (screen button). This will allow entry to the “PASSWORD” section of the memory. Refer to Section 6.6 for further instructions.

2. Press and hold “RESET” button and press “SCREEN” button. The system will then revert back to automatic “Self Test” function.

6. HOW TO INSERT THE PASSWORD

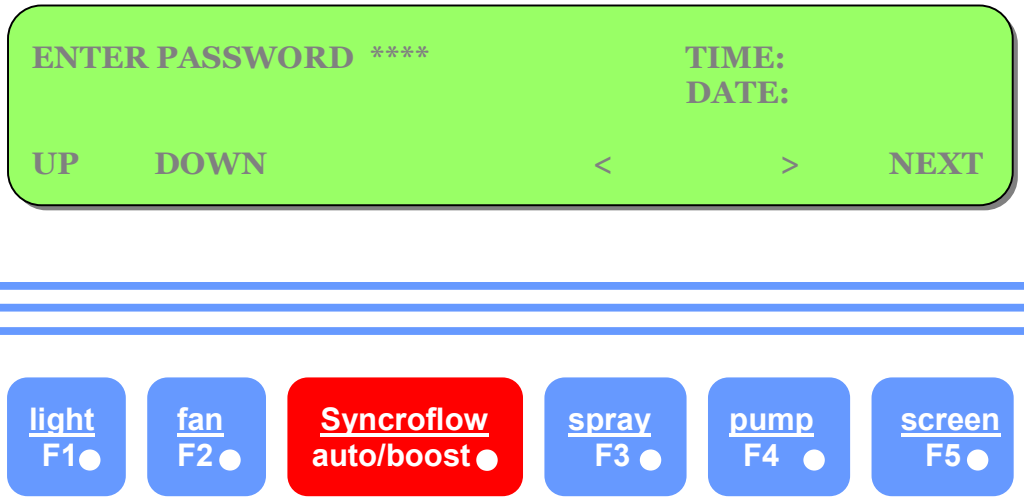
The Dynasafe System is equipped with a security code which will only allow access to important memory functions by designated staff. This security code is in the form of a “PASSWORD”.

6.1 ENTRY TO THE MEMORY

To enter the memory follow Section 6.5 which gains entry to the time set function.

Then press “NEXT” (screen button).

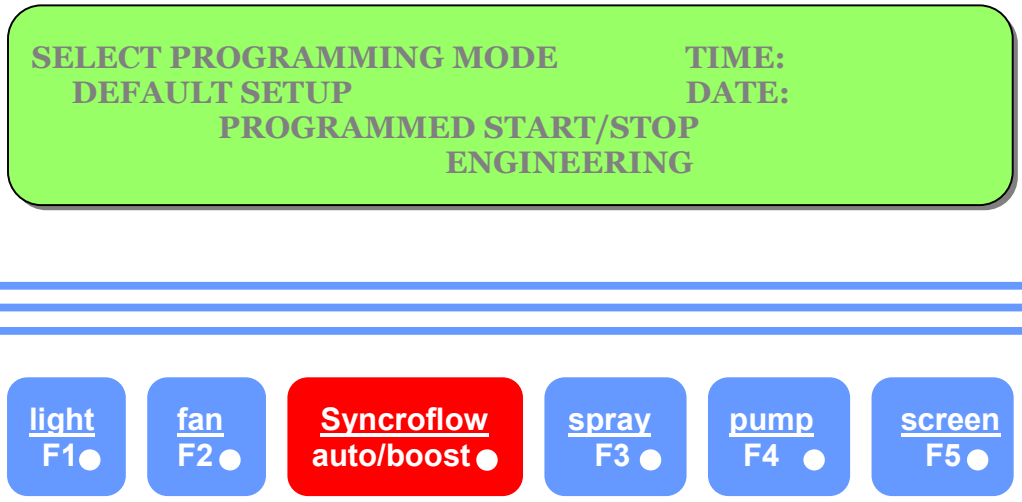
The following LCD screen will be seen.



The “MASTER PASSWORD” is 5105. Enter the password by pressing the “UP” (light button) or “DOWN” (fan button). The cursor can be moved to the next character by pressing the “<” (spray button) or “>” (pump button).

Note: Only the character being inserted is being displayed.

When the password is entered, press “NEXT” (screen button). The following LCD screen will be observed, which allows access to “Select Programming Mode”.



If the LCD displays “PASSWORD VALID”, re-enter the password.

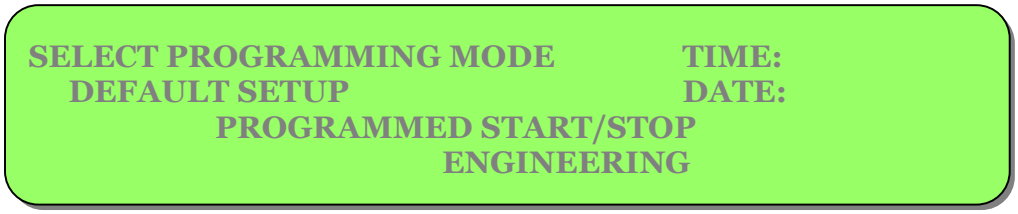
Once the password is correctly entered the above screen is observed which allows access to “Select Programming Mode”.

7. HOW TO PROGRAM DEFAULT SETUP

Program default setup is a memory which allows normal operation functions such as Syncroflow, spray bar, fume scrubber pump, etc. to be selected and stored in the memory. These functions may be required for some fume cupboards and not others.

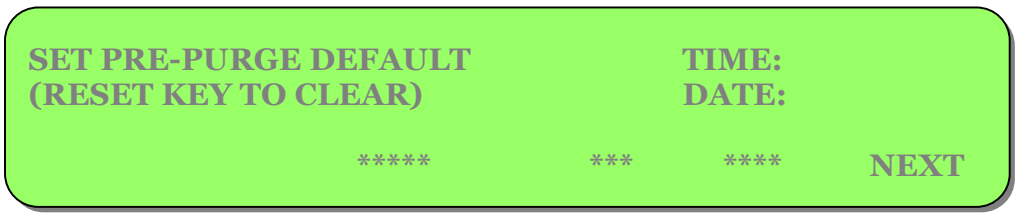
7.1 ENTRY TO THE MEMORY

To enter the memory, follow Sections 7.5 and 7.6. until the “Select Programming Mode” is obtained. The following screen will be observed at the end of Section 7.6.



7.2 PRE-PURGE DEFAULT SETUP

Once entry to “Select Programming Mode” is gained, access to default setup is by pressing the “Light” button. The following screen will be seen.



The functions required during pre-purge can now be set.

Syncroflow Sash System - If the fume cupboard is fitted with Syncroflow, press the "Syncroflow" button until "AUTO" appears on the bottom row of LCD above the "Syncroflow" button.

If the fume cupboard is not fitted with Syncroflow, press the "Syncroflow" button until "N/A" appears on the bottom row of the LCD above the Syncroflow button.

The Syncroflow can also be set to operate in boost during pre-purge if desired. This is, however, uncommon.

Spray Bar - If the fume cupboard is fitted with a spray bar, the operation of the sprays during pre-purge can be selected as "OFF", "ON" or "N/A" and appear on the bottom row of the LCD above the "Spray" button.

Note: If "OFF" or "ON" is selected, the operation of the spray bar will be manual during normal operation.

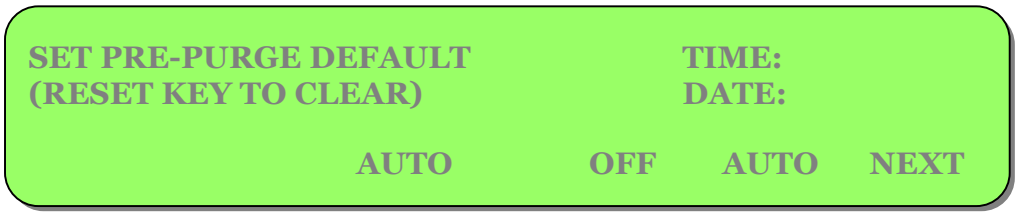
If "N/A" is selected, the spray bar facility is disabled.

Fume Scrubber Pump - If the fume cupboard is fitted with a fume scrubber, the operation of the pump during pre-purge can be selected as "AUTO", "OFF", "ON" or "N/A" and appear on the bottom of the row of the LCD above the "Pump" button.

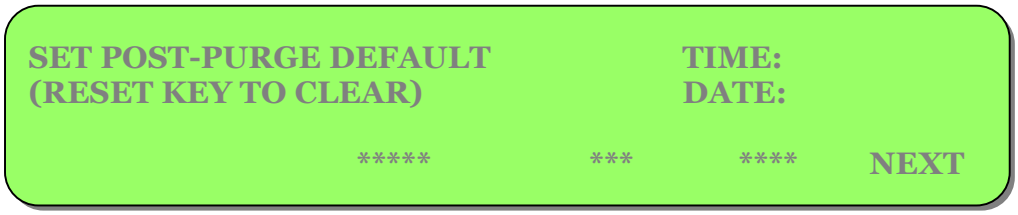
Note: If "AUTO" is selected, the pump will operate whenever the fan is energized (used for perchloric acid). If "OFF" or "ON" is selected, the pump will operate manually and can be started and stopped during normal operation by pressing the "PUMP" button. If "N/A" is selected, the pump facility will be disabled.

Example:

The following LCD screen indicated the pre-purge default setup for a fume cupboard with a syncroflow sash system, a spray bar and a fume scrubber all for use with perchloric acid.



Once the pre-purge default setup is complete, press the “NEXT” (Screen Button). The following screen will be observed.



7.3 POST-PURGE DEFAULT SETUP

The functions required during post-purge can now be set.

Syncroflow Sash System - If the fume cupboard is fitted with Syncroflow, press the "Syncroflow" button until "AUTO" appears on the bottom row of LCD above the "Syncroflow" button.

If the fume cupboard is not fitted with Syncroflow, press the "Syncroflow" button until "N/A" appears on the bottom row of the LCD above the Syncroflow button.

The Syncroflow can also be set to operate in boost during post-purge if desired. This is, however, uncommon.

Spray Bar - If the fume cupboard is fitted with a spray bar, the operation of the sprays during post-purge can be selected as "OFF", "ON" or "N/A" and appear on the bottom row of the LCD above the "Spray" button.

Note: If "OFF" is selected, the spray bar will not operate during post-purge..

If "ON" is selected, the spray will operate for 15 minutes during post purge.

If "N/A' is selected, the spray bar is disabled.

Fume Scrubber Pump - If the fume cupboard is fitted with a fume scrubber, the operation of the pump during post-purge can be selected as "OFF", "ON" or "N/A" and appear on the bottom of the row of the LCD above the "Pump" button.

Note: If "OFF" is selected, the pump will not operate during post-purge.

If "N/A" is selected, the pump is disabled.

In the post-purge function, the exhaust fan will operate for 20 minutes before automatically shutting down.

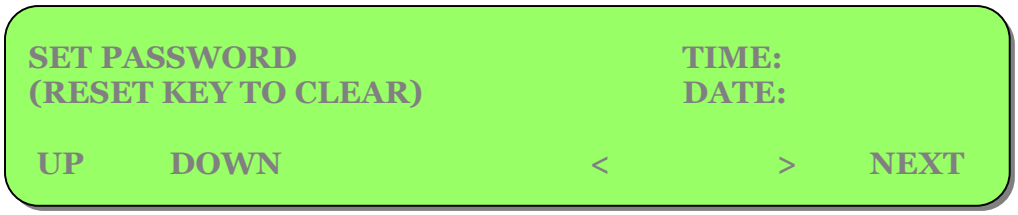
Once the post-purge default setup is complete, press "NEXT" (Screen button). The following screen will be observed.

7.4 SET SERVICE CONTACT

The service contact is factory set with Dynaflow Pty Ltd being the contact. This setting can be altered if referred to another contact.

To alter the factory setting, use the “UP” (light button) and “DOWN” (fan button), to alter the letters or numeral to the desired setting. Use the “<” (spray button) and “>” (pump button to move the cursor to the next character.

Once the desired setting is achieved, press the “Next” (screen button). The following LCD screen will be observed.

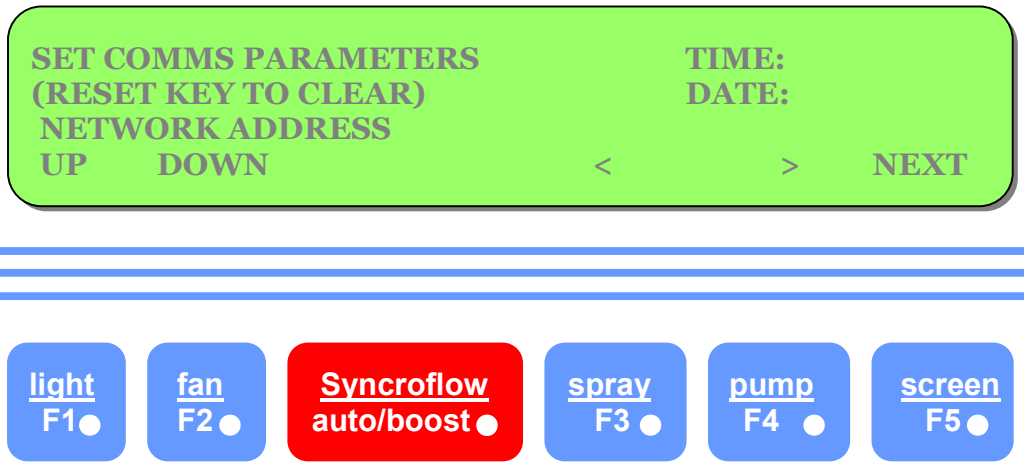


7.5 SET PASSWORD

A password can be inserted in this memory which may be more convenient than 5105. Use the “UP” (light button) or “DOWN” (fan button) and “<” (spray button) or “>” (pump button) to enter the desired password.

Remember, the master password is always 5105.

Once the desired setting is achieved, press the “NEXT” (screen button). The following screen will be observed.

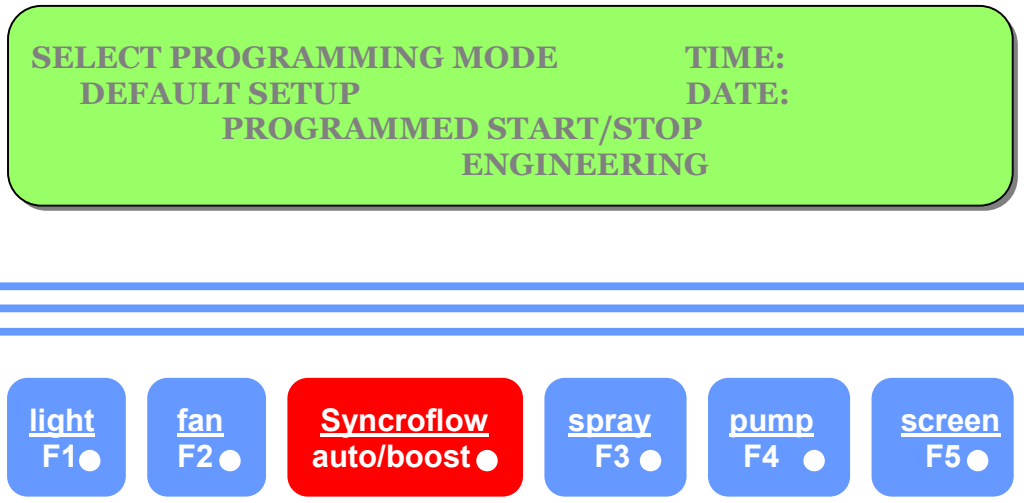


7.6 SET COMMUNICATION PARAMETERS

The Dynasafe MK3 software is designed to incorporate specialized communication via its RS485 multi-drop communication channel. The specific requirement of this communication is user defined and the software designed is finalized once the user's requirements are known.

To exit from this mode, press and hold "Reset" and press "Screen". The system will revert back to "Select Programming Mode".

The following LCD screen will be observed.



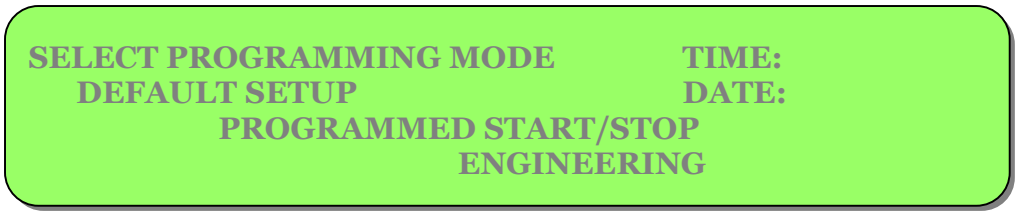
8. HOW TO PROGRAM PRESET START/STOP TIMES

This facility allows the operator to program the fume cupboard to start and stop at preset times.

The system can be programmed to start and stop twice per day on a 7 day program and can be repeated for any number of weeks.

8.1 ENTRY TO THE MEMORY

To enter the memory, follow Sections 6.5 and 6.6 until the “Select Programming Mode” is obtained. The following screen will be observed.



To gain entry into the programmed start/stop, press the “Fan” button. The following screen will be observed.

8.2 EXAMPLE PROGRAM SETTING

Programming being entered on Friday.

The operator wishes the fume cupboard to operate between 6:00 a.m. to 11:35 a.m., Monday, 2:00 p.m., Monday to 1:35 a.m. Wednesday and 6:00 a.m. to 2:00 p.m. Wednesday.

The fume cupboard is to operate all day Tuesday.

Start Time No. 1	-	6:00 a.m.	Monday
Stop Time No. 1	-	11:35 a.m.	Monday
Start Time No. 2	-	2:00 p.m.	Monday
Stop Time No. 2	-	1:35 a.m.	Wednesday
Start Time No. 1	-	6:00 a.m.	Wednesday
Stop Time No. 1	-	2:00 p.m.	Wednesday

Set Current Day

It will be noted that the flashing cursor will be adjacent to the words “Today is ODD”. This needs to be set to current day. Enter Friday by Pressing “UP” (light button) and “DOWN” (Fan button).

Set the Day the Sequence is to Start

Press “Screen” button and the “Set for Monday” will be observed on the top line of LCD.

Enter Start and Stop Time No. 1

The flashing cursor will be observed adjacent to “Start * * : * *” on second line of LCD.

Press “UP” (light button), “DOWN” (fan button), “<” (spray button), and “>” (pump button) to set 06.00 hours.

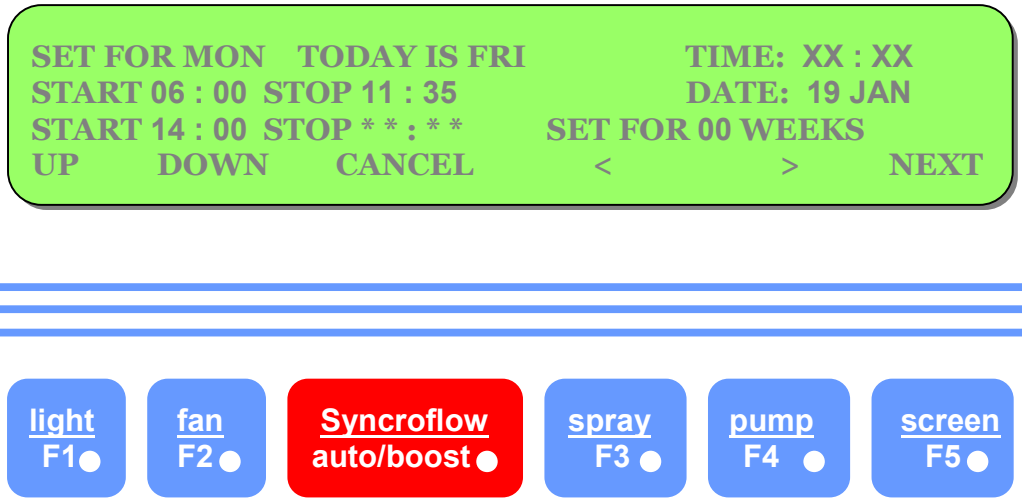
The cursor will automatically progress to allow the "Stop * * : * *" to be set in the same manner. Enter "11.35".

Enter Start and Stop Time No. 2

The cursor will automatically progress to Start No. 2 and Stop No. 2. Enter 14.00 for Start No. 2 and * * : * * for Stop No. 2 by pressing "Cancel" (Syncroflow button).

Note: This is because Stop No. 2 is in fact on Tuesday.

The Monday LCD screen will be as follows:



Set Second Day Sequence

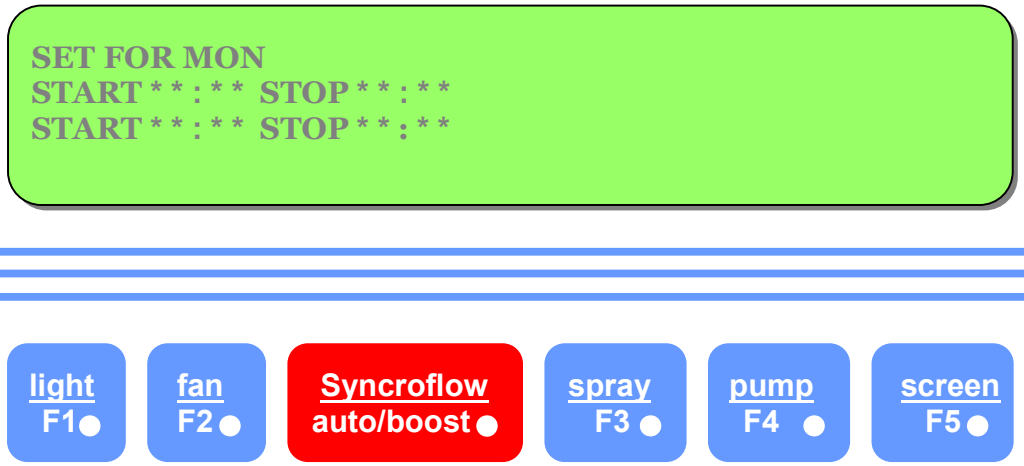
Press "Screen" button and the "Set for Tuesday" will be observed on the top line of LCD. Clear any previous settings by pressing "Cancel" (Syncroflow button).

Then press "Screen" again to "Set for Wednesday".

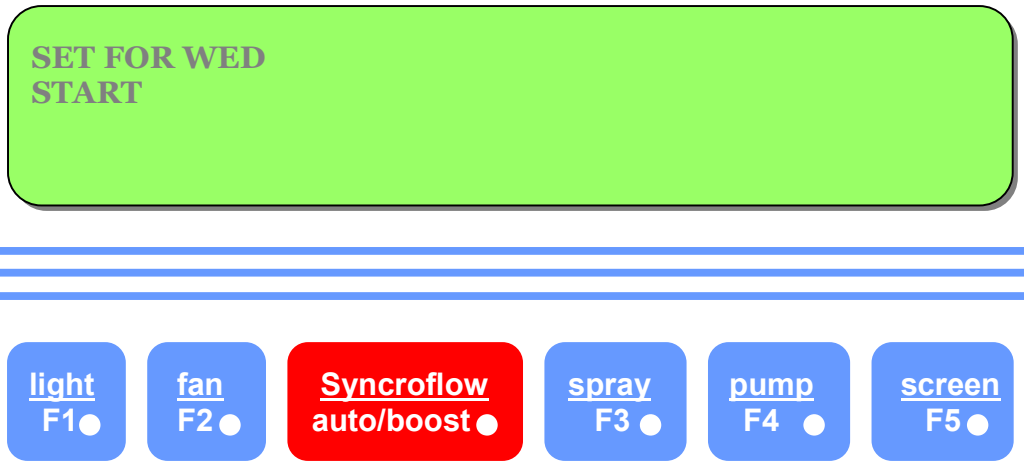
Then set 06.00 a.m. for Start No. 1 and 14.00 for Stop No. 1

Note: Press "Screen", ">" and "Cancel" buttons to progressively clear any previous settings not required on every day and time setting.

The Tuesday LCD screen will be as follows;



The Wednesday LCD screen will be as follows:



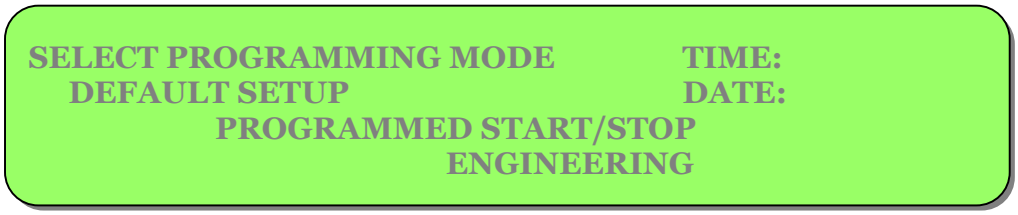
Set the Number of Weeks Sequence is Required

Use “>” (pump button) to select flashing cursor position to “Set for WW Weeks”.

Press “UP” and “DOWN” buttons to set to 01 (1 week for this example).

Note: If “00” weeks is set and present Start/Stop settings are retained indefinitely and can be again used by simply resetting the number of weeks required.

To exist from the memory, press and hold “Reset” and press “Screen”. The following screen will be observed:



Press and hold “Reset” and press “Screen”.

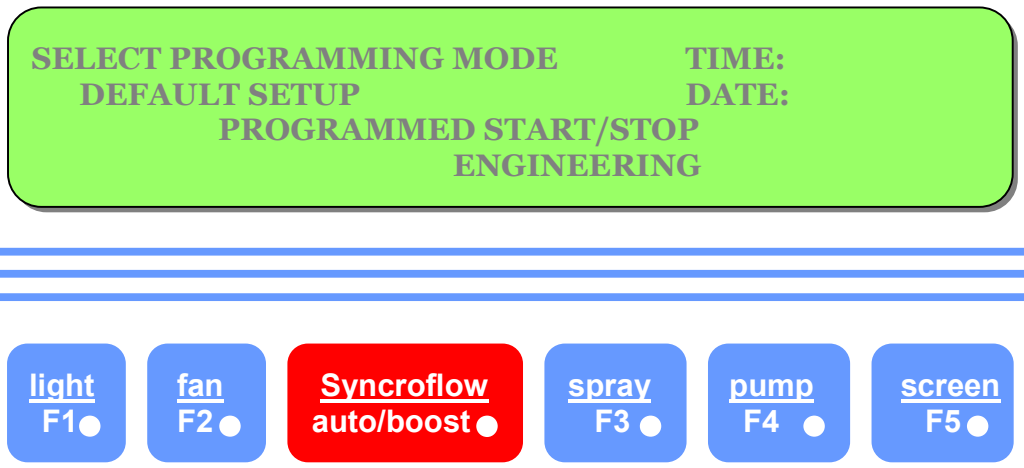
9. HOW TO ACCESS ENGINEERING, DIAGNOSTIC SCREENS AND ADJUST PRESSURE SENSOR

The engineering and diagnostic facilities of the Dynasafe MK3 are intended primarily for a technician who is commissioning the fume cupboard and to allow the operation of the system to be checked by bypassing the normal operation sequences.

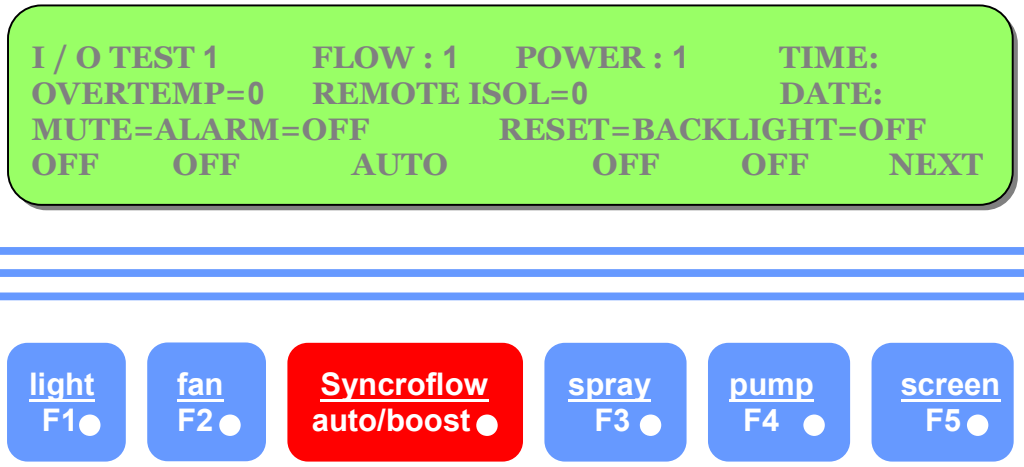
The Dynaflow pressure sensor is also adjusted in this Section. Other auxiliary devices which may be installed are also advised in this Section.

9.1 Entry to the Memory

To enter the memory, follow Sections 6.5 and 6.6 until the “Select Programming Mode” is obtained. The following screen will be observed.



To gain entry into the engineering screen, press the “Syncroflow” button. The following screen will be observed.



9.2 Operation Checking (Screen No.1)

In the above engineering screen operation of the following items can be verified.

Input and Output States of Microprocessor is indicated by “I/O Test 1”

For Dynaflow Pty Ltd staff use only.

Airflow Sensor is indicated by “Flow”

When the numerical adjacent to the word “Flow” on the top row of the LCD is “1”, airflow is established. When the numeral is “0”, no airflow is available. The operation of the airflow sensor is checked by altering the set point to “1” and “0”.

Main Power is indicated by "Power"

When the numeral adjacent to the word "Power" on the top row of the LCD is "1", mains power is available. When numeral is "0", no mains power is available.

Temperature Sensor (if installed) is indicated by "Overtemp"

When the numeral adjacent to the word "Overtemp" on the second row of LCD is "1", over temperature condition is present. When the numeral is "0", normal temperature condition is present.

Remote Start Facility (if installed) is indicated by "Remote"

When the numeral adjacent to the word "Remote" on the second row of LCD is "1", the remote start signal is present. When the numeral is "0", the signal is not present.

Emergency Isolator is indicated by "ISOL"

When the numeral adjacent to the word "ISOL" on the second row of LCD is "1", the emergency isolator is activated. When the numeral is "0", the isolator is released.

Alarm Test is indicated by "Mute=Alarm"

To test the alarm operation, press the "Mute" button. The alarm will sound and the word adjacent to "Mute=Alarm" will change to "On". Press the "Mute" button again and the alarm will stop.

LCD Backlight Test is indicated by "Reset=Backlight"

To test the back light, press the "Reset" button. The LCD backlight will go off. Press the "Reset" button again and the backlight will return.

Light Test

Press the "Light" button "On" and "Off" to test the light button.

Fan Test

Press the “Fan” button “On” and “Off” to test the fan operation.

Boost Test (when Syncroflow is installed)

Press “Syncroflow” button to test the Auto and Boost facility operation.

Spray Bar Test (when Spray bar is installed)

Press “Spray” button “On” and “Off” to test the spray bar operation.

Fume Scrubber Pump (when fume scrubber is installed)

Press “Pump” button “On” and “Off” to test pump operation.

9.3 Operation Checking (Screen No.2)

To continue from 6.9.2, press “Next”. The following LCD screen will be observed.

In the above engineering screen operation of the following items can be verified.

Input and Output states of Microprocessor is indicated by "I/O Test 2"

For Dynaflow Pty Ltd staff use only.

Remote Emergency Stop is indicated by "Emerg Stop"

When the numeral adjacent to "Emerg Stop" on the top row of the LCD is "1", the remote emergency stop signal is present. When the numeral is "0", the signal is not present.

EEPROM Error is indicated by "EPERR : 0000"

For Dynaflow Pty Ltd staff use only.

Auxiliary Input no. 1 & 2 indicated by "Aux1 and Aux2"

Auxiliary Input No. 1 and 2 are undefined and are left available for future definition.

Power & Gas Test is indicated by "P/Gas"

Press "Light" button "On" and "Off" to test whether power and gas relay is being energized.

Auxiliary Output is indicated by "Aux"

Press "Fan" button to test whether auxiliary output signal is being energized.

Start MIMIC Output is indicated by "Start MIMIC"

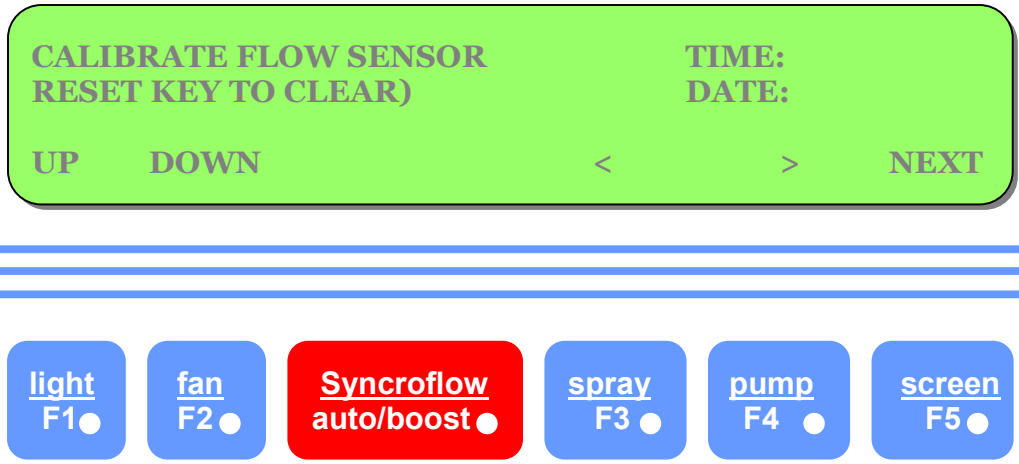
Press Syncroflow button to test whether Start MIMIC signal is being energized.

Spare Outputs

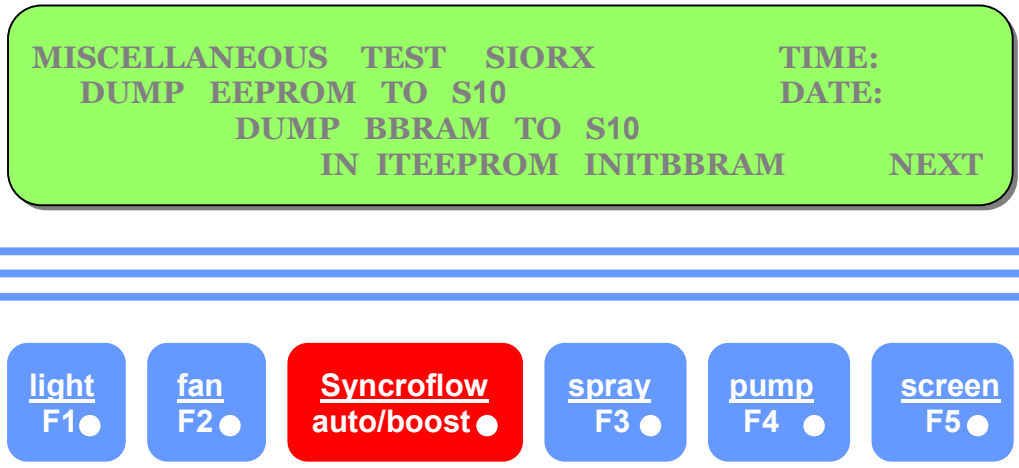
There are two spare output provisions which are undefined and are left available for future definition.

9.4 Calibrate Flow Sensor

To continue from 6.9.3 press “Next”. The following LCD screen will be observed.



9.5 Miscellaneous Test SIORX

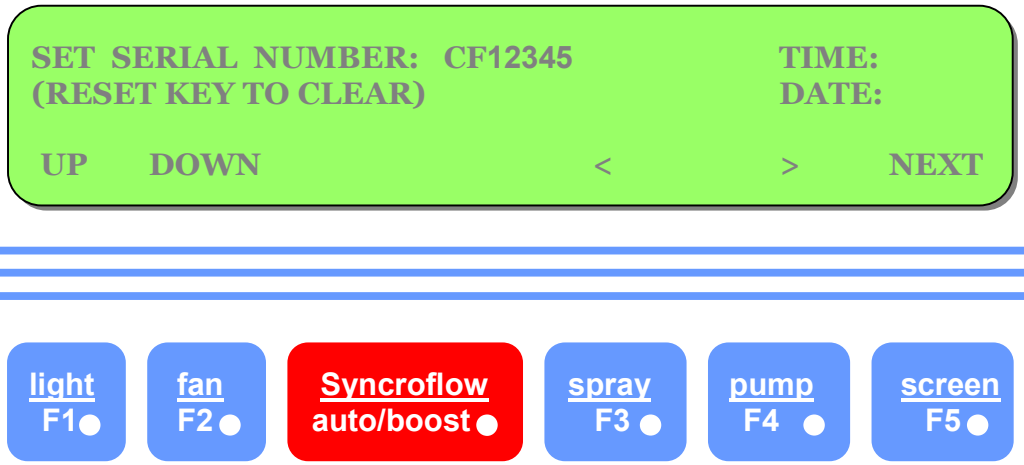


This facility is for Dynaflow Pty Ltd use only. To exit, press "Next" (screen button). The following screen will be observed.

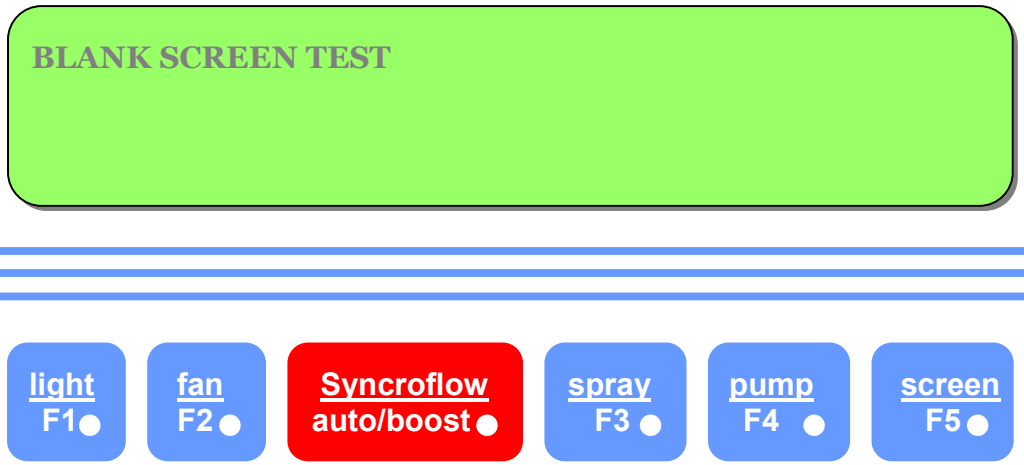
9.6 Set Serial Number

The serial number is factory set and should not be altered.

Press "Next" (screen button) to continue. The following screen will be observed.



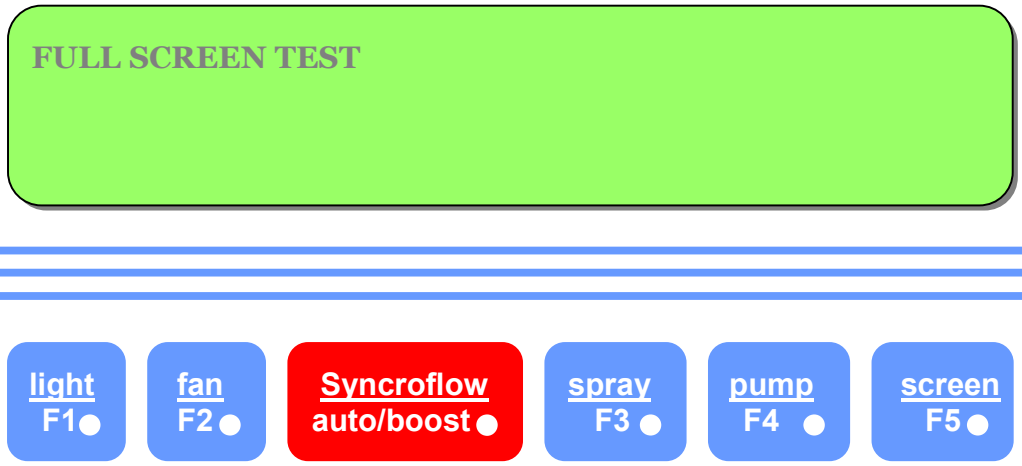
9.7 Blank Screen Test



This facility is available to check that LCD characters are operating correctly and clearly.

The above screen will be observed momentarily before reverting to all blank characters. Press “Next” (screen button) to continue.

The following screen will be observed.



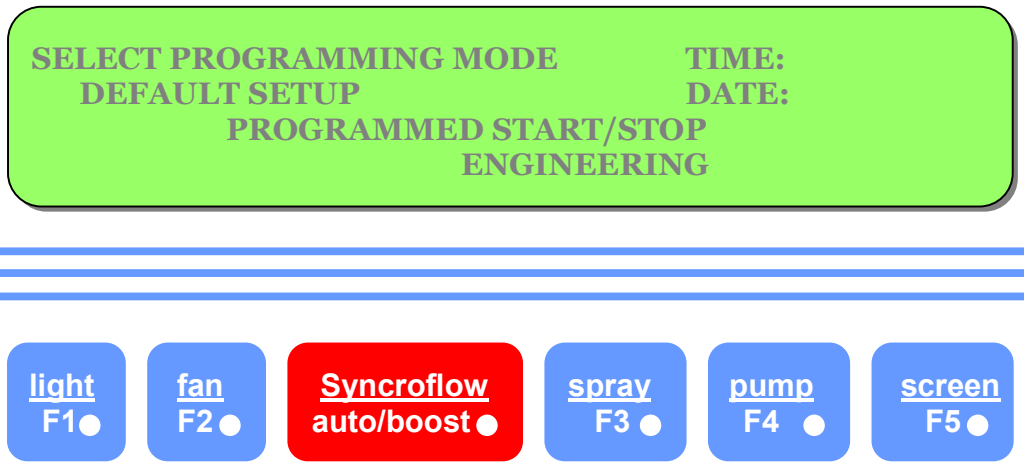
This facility is available to check that LCD characters are operating correctly and clearly.

The above screen will be observed momentarily before reverting to full characters. Press “Next” (screen button) to continue.

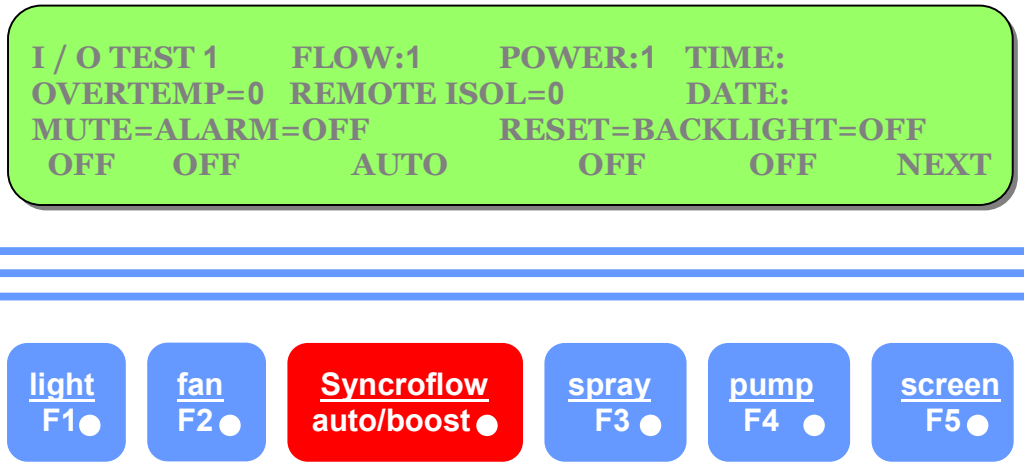
To exit from operation checking, press and hold “Reset” and press “Screen” button. The system will revert to “Select Programming Mode”

10. HOW TO SET PRESSURE SENSOR

The pressure sensor is adjusted by first entering the engineering and diagnostic screens. Follow Sections 6.5 and 6.6 to gain access to the following screens.



Press “Syncroflow” button to access the following screen.



From this screen, the fan can be started and stopped at the technician’s discretion.

1. Switch the fan “On”, adjust the airflow to the requirements by adjusting the Syncroflow drive RPM as per Syncroflow setting up procedure, or by adjusting the VCD if Syncroflow is not installed.

2. Install the pressure sensing tube into the exhaust ductwork in a position which obtains at least 60 Pa suction.

3. Switch the fan “Off” and adjust the pressure sensor to the point where the numeral adjacent to the word “Flow” on the LCD screen is just “0”

4. Switch the fan “On” and the numeral adjacent to the word “Flow” should change to “1”.

   The pressure sensor is not adjusted.

5. Press and hold “Reset” and press “Screen”. The “Select Programming Mode” will be observed. Again press and hold “Reset” and press “Screen” which will revert the system to self test and then the idle state.

   The System can now be operated.

11. HOW TO ELIMINATE ERROR “3” OR “5” ON P3 PANEL

TO ELIMINATE ERROR “3” OR “5” ON P3 PANEL YOU MUST FIRST GET INTO THE ENGINEERING SECTION OF THE P3 PANEL.

STEP 1. Press and hold the reset button (bottom left hand side of panel) and then press the screen button (far right hand side of panel) SET TIME AND DATE WILL APPEAR.

STEP 2. Press “NEXT” (screen button) ENTER PASSWORD WILL APPEAR.

STEP 3. The password is 5105. To enter the password press “UP” (light button) until 5 appears on the first flashing asterisk, then press the pump button which has the character > above it then the next asterisk will flash enter the number as before until the password is entered. When the full password is entered press “NEXT” (screen button) SELECT PROGRAMMING MODE WILL APPEAR.

STEP 4. Press “ENGINEERING” (Syncroflow button) I/O TEST 1 WILL APPEAR (TOP LEFT HAND CORNER OF DISPLAY) press “NEXT”, I/O TEST 2 WILL APPEAR press “NEXT”, CALIBRATE FLOW SENSOR WILL APPEAR press “NEXT”, BRIGHTNESS WILL APPEAR, press “NEXT” MISCELLANEOUS TEST SIORX WILL APPEAR.

STEP 5. Press the “SYNCROFLOW” button, INITIALISING EPROM will appear. This will appear for a few seconds and then revert back to the original setting.

This will eliminate ERROR 3 OR 5.

STEP 6. Press the reset and screen buttons as before this will get you into the engineering section, press the reset and screen buttons again SELF TEST IN PROGRESS WILL APPEAR. This appears for a few seconds. The fume cupboard is then ready to turn on.

12. SERVICE CONTACTS

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