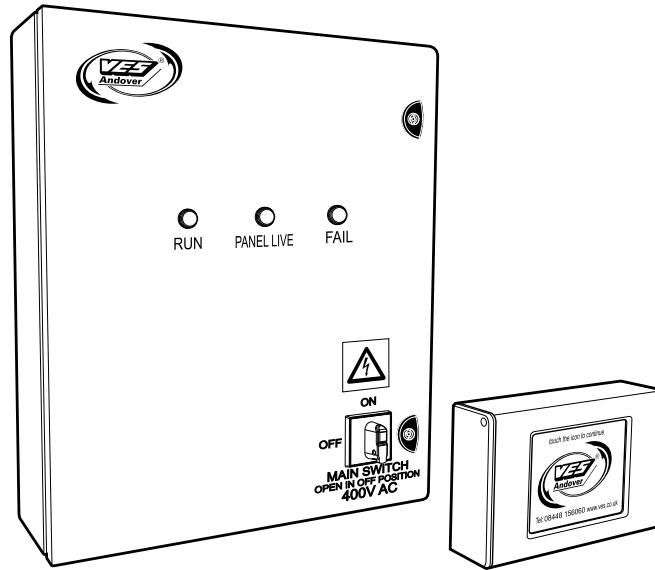




CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual



Important

This manual must be read in full before Installation, Operation and Maintenance of the units supplied. Due to the bespoke nature of this product, some of the information contained within this document may not be relevant to your control panel; for confirmation of specific components and operations please see the accompanying documentation or contact VES for further information

Please ensure that this document is passed to the end user. This manual forms an integral part of the product and should be kept for the working life of the product. Additional copies of this and supporting documents are available by contacting VES or by visiting www.ves.co.uk and following the 'Download O & M's' link.

Warning

The following symbols used within this document refer to potential dangers, advice for safe operation or important points of reference

Indicates hazards associated with electric current and high voltages

Caution

Indicates hazards that require safety advice for personnel or potential unit/property damage

Important

Indicates important information

Contents		page
1	Introduction	2
2	Receipt of Goods & Handling	2
3	Safety	2
4	Installation	2
5	Connection	4
6	Specification	4
7	Sensors	5
8	Basic Setup	6
9	Advanced Setup	9
10	Menu overview	15
11	Fault finding	18
12	Maintenance	19



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Introduction 1

To compliment the array of VES air handling units, the CPS/S control panel range provides an efficient bespoke solution to unit operations. The control panel can be supplied loose for remote applications, or installed and pre-wired to compliment your air handling unit and is suitable for internal use only unless specifically ordered for external weatherproof mounting. Your control panel comprises of the following: Lockable door isolator, Panel live indicator, System run and trip indicators, Duct sensor/s (c/w 10m twisted pair cable), Run-on timer, MCBs and Remote switching (volt free contact), touch-screen remote controller (indoor mounting only).

The EPEL9020 remote controller uses touch screen technology and user-friendly software navigation systems, to give the user efficient and trouble free control over their air conditioning system. The controller provides intelligent, daily timeclock programming and temperature adjustment software to accompany the range of control panels.

Special features include:

- Range of automatic timer control options to suit various applications
- Automatic daylight saving (British Summer Time)
- Control of extract or supply air temperature
- Trickle vent mode for two-speed fan applications
- Intelligent start, for intelligent pre-heat control
- Maintenance and service fault alarms with fault log
- Optional supply air temperature dependant extract control for efficiency and comfort

Receipt of Goods & Handling 2

Immediately upon receipt of goods, check for possible damage in transit. Check to ensure that any ancillary items are included. These will normally be supplied fitted or, in the case of small items, taped or fixed to the unit.

In the event of any damage having occurred or if any item is found to be missing, it is essential to inform VES Andover Ltd. within **7 days** of delivery quoting sales order number and the unit type, as found on the unit nameplate.

After this period, VES would be unable to accept any claim for damaged or missing goods.

Safety 3

The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturer's recommendations, with due regard to the current HEALTH AND SAFETY AT WORK ACT and conforms to all relevant statutory regulations. Where a unit is installed so that a failure of components could result in injury to personnel, precautions should be taken to prevent such an injury.

Warning



Only competent electricians should be allowed to affect any electrical work to our control panels. All electrical connections to any unit must be carried out in accordance with the current edition of the I.E.E. Regulations. No modifications may be made to these units without written authorisation from VES, as this will invalidate the unit warranty.

Installation 4

Control panel

Each control panel is supplied in a steel enclosure with a Light Grey RAL 7035 powdercoat finish and the finished product meets IP54, suitable for plantroom mounting. For panels supplied loose, select a convenient dry position to mount the control panel to allow easy access for wiring and servicing. Ideally 50mm clearance should be left around the enclosure to allow for heat dissipation, the ambient temperature should not exceed 30°C.

Access to the control section is via the hinged access door, ¼-turn catches and the door interlock switch. Care must be taken to ensure that adequate clearance is allowed for the door to fully open and that the area is sufficiently illuminated, so as to allow safe working access.

Ensure that the fitted control panel and remote are kept free from swarf and other contaminants at all times.

Caution



When accessing the unit always use the handles to ensure that access panels are handled and lowered in a controlled manner so as to avoid damage to the unit or injury to personnel. This is particularly important with hinged doors; ensure that any open doors are positioned so as not to close unintentionally.



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Installation 4 continued

Remote

Setup and operation of the control panel can only be made through the EPEL9020 touch-screen remote control, see fig 2 for dimensions. The remote should be mounted on a vertical plane (i.e. a wall) and correctly positioned to ensure that the screen can be both read and accessed without difficulty. For correct orientation, when looking at the front of the screen, the main connector block on the remote should be on the left-hand side, see fig 3.

Caution



Take necessary precautions when handling the PCB; there is a risk of damage to the circuit board if handled incorrectly.

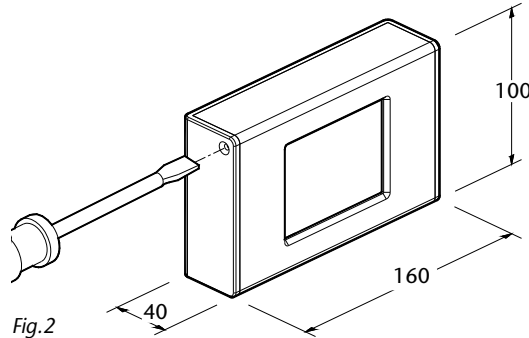


Fig.2
Remote dimensions
(mm) Note: side access
required for assembly

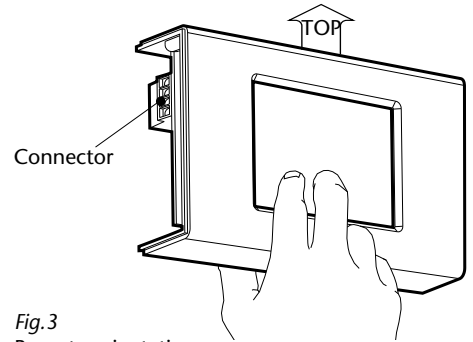


Fig.3
Remote orientation

Do not position the remote in direct sunlight but ensure that the controller is well illuminated. A backlight is provided for assistance and will remain lit in certain modes.

The remote enclosure comprises of two parts to assist installation; the front cover, housing the display, and the backplate, which includes mounting options and cable entry points. The snap-fit construction is secured with two small side screws; these screws are supplied loose in a bag and will need to be fitted upon completion.

To remove the front cover, take care to gently part the sides of the enclosure. This can be done by hand, and tools are not normally required, see fig 4.

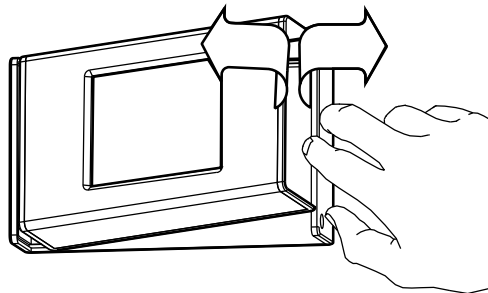


Fig.4
Remote assembly

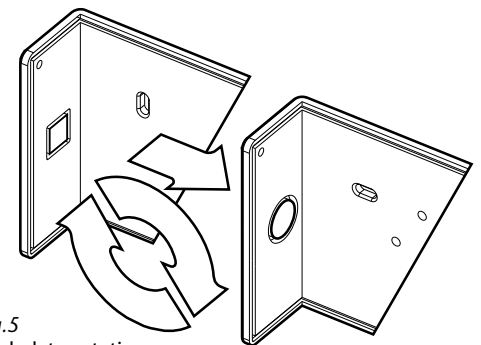


Fig.5
Backplate rotation

A variety of fixing positions have been provided, for surface mounting or for mounting to a standard flush knockout or round conduit box. Side knockouts have also been included to suit Ø20mm round PVC conduit, or 16x16mm mini-trunking. When using the knockout entry, the backplate can be rotated 180° to align the remote to the chosen cable route if required, see fig 5. To remove, ensuring the back plate is properly supported, remove the required knockout by gently tapping out using a small flat-bladed screwdriver.

Use the correct fixings (supplied by others) to secure the backplate to the mounting surface, using packers to level if necessary. The backplate can also be used as a template if required for fixing centres. Feed the supply cable through the chosen entry in the back plate, ensuring that there is sufficient cable for proper connection (gland/strain relief to be supplied by others).



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Connection 5

Warning



Electrical supply must be fully isolated before attempting to affect any work on this unit. All electrical connections to any unit must be carried out in accordance with the current edition of the I.E.E Regulations and only competent Electricians should be allowed to affect any electrical work to our units.

Control Panel

Make the connection to the control panel as per the appropriate wiring diagram supplied, sizing the cable as appropriate. When using mineral insulated cable allow plenty of room for cable entry glands. Fix enclosure to the wall, the gland plate at the bottom of the panel should be removed to allow holes for cable entry to be drilled.

Ensure all swarf is removed from within the control panel before power is applied to the unit. Feed the supply cable into the control panel using the gland plate provided (gland/strain relief supplied by others). Make the connection as per the wiring diagram supplied. As previously stated all control to the unit is done via the remote, however indicator lights have been provided on the panel to show power-on (red), run (green) and fail (amber).

Warning



It is the customer's responsibility to ensure a dedicated, isolated power supply with overload protection, to account for motor start up currents (See max current on fan spec plate)

Remote

Connection to the remote is made via the connector block on the back of the remote PCB. The plug can be separated from the block to assist connection. This will detach by hand and tools are not normally required. As there are no serviceable parts in the remote, once installed there should be no need to disassemble.

Cable type to the remote should be 4-core screened 16/02mm (0.5mm²) or similar, and the cable run should not exceed 50 metres. Cut the wire back at the remote so as to allow enough for a proper connection, strip the cables back and make good for termination. Screened cable should be terminated correctly in the control panel, see the accompanying control panel wiring diagram for further details.

Make the connection to the plug ensuring the terminal screws are tightened appropriately. The plug is handed and will only reconnect in the correct way. Note the relevant connection positions on the PCB, the connection label and the supporting wiring diagram when connecting the remote.

Caution



Take care to ensure that this is wired correctly, as incorrect wiring may cause damage to the control panel and remote

Reconnect the plug to the remote connector block, and refit the front cover to the affixed back plate, ensuring any slack cable is safely stowed inside the enclosure. Snap-fit and secure the assembly with the side screws provided.

Caution



If it is required to relocate the remote after installation, ensure that it is first disconnected from the control panel. There are no hazardous voltages involved, however there is a risk of damage to the circuit board if handled incorrectly. Follow the install procedure as previously discussed.

Specification 6

For your exact control panel specification please see the accompanying documentation.

Remote specification	
Power supply	12V DC
Operating temperature	0~40°C
Operating humidity	0~90% RH (non-condensing)
Enclosure protection	IP30
Battery type	3V Lithium 180mAh Ø20mm
Case material	HIPS
Dimensions	160x100x40mm
Display	Touchscreen LCD, backlit
Clock	24 hr
Display time adjustment	1 minute steps
Switched time adjustment	15 minute steps
Programme selection	ON/OFF/AUTO(TVENT)
Operating periods per day	up to 2
Cable type	4 Core Screened 16/02mm (0.5mm ²) cable
Cable length	Not to exceed 50 metres



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Sensors 7

The control panel is supplied as standard with at least one duct sensor; this may be changed for a room sensor if required, additional sensors may also be supplied depending on setup. The sensor is pre-wired with 10 metres of twisted pair cable but left loose within the control panel section for placement during installation. This cable may be extended up to a maximum of 50 metres using twisted-pair cable, or cut back as required. Appropriate strain relief should be used and it may be necessary to disconnect the sensor connection in order to pass the sensor through the appropriate gland; ensure that all connections are remade correctly referring to the diagram as supplied for further information.

Sensor positioning

The sensors supplied are standard N.T.C non-linear thermistors, nominally 4.7k ohms at 25°C (measured out of circuit). Supply sensors should be positioned within the supply duct, ideally 4 metres from the outlet of the unit or, in the case of room sensors, in the appropriate location. Extract sensors should be placed in or before the extract AHU.

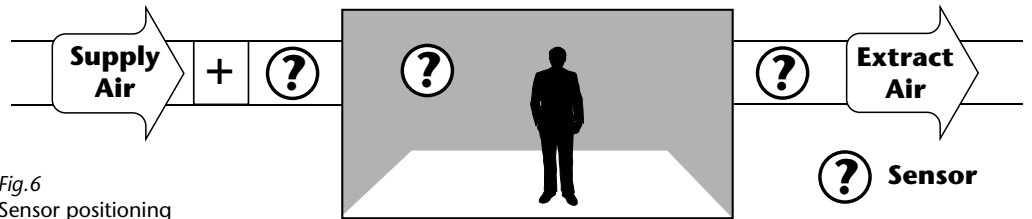


Fig.6
Sensor positioning

Duct or room?

If the supply is for "make up" air, with background heating in the area being served, then a duct sensor should be used. The sensor must be mounted in the supply duct away from direct radiated heat. The control panel will then maintain a constant duct air temperature, by modulating either the heating steps or the voltage feed to the heating valve. If the supply is for total area heating then a room sensor should be used. In some installations a duct sensor mounted in the extract/recirculation air duct may also be used. If both supply and extract sensors are supplied it is possible to set supply temperature limits, see **Control Mode** on page 14 in the **Advanced Setup** section.

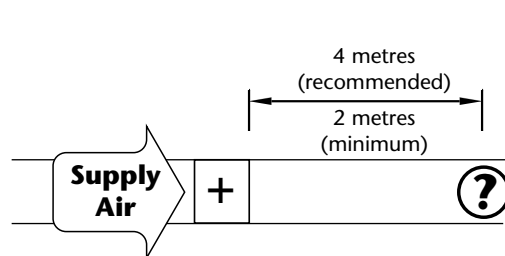


Fig.7
Duct Sensor Positioning

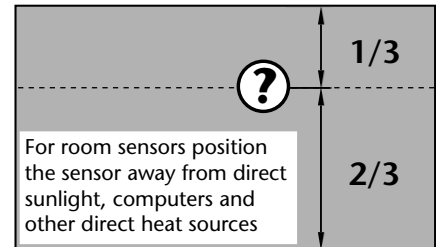


Fig.8
Room Sensor Positioning

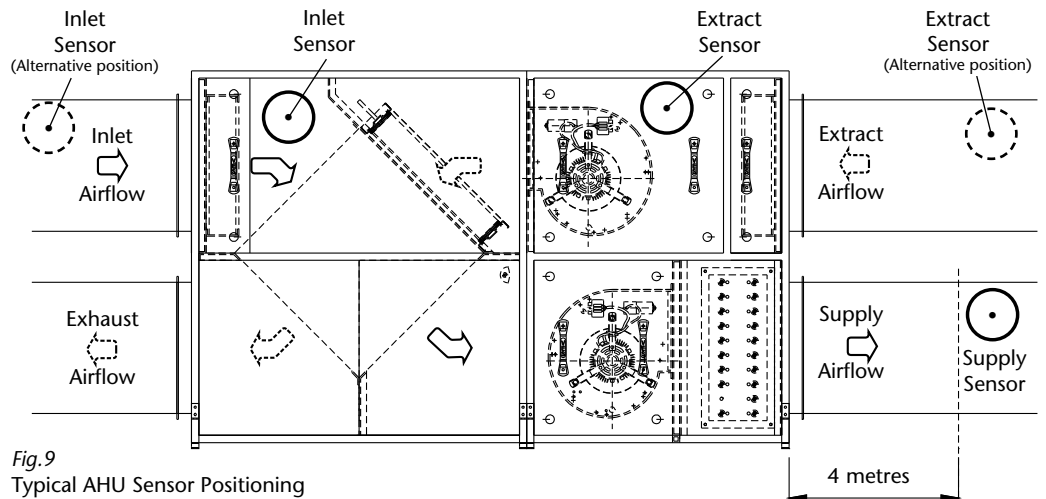


Fig.9
Typical AHU Sensor Positioning



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Basic Setup 8

Basic features & operations

The remote utilises touch-screen technology and a user-friendly menu system to allow adjustment and monitoring of temperature, time clock and other functions.

The remote will only be operational after power has been supplied to the control panel, and the isolator has been switched to **ON**. When the controller is first powered up, the VES splash screen is displayed, inviting the user to touch the screen. The remote will display this screen during periods of normal inactivity.

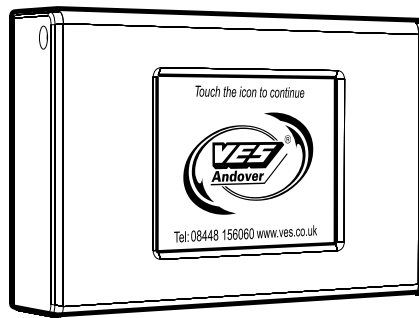


Fig. 10
 Splash screen

The screen is touch sensitive and for normal operation can be initiated by using either a fingertip, or a stylus or blunt non-marking implement (i.e. not a ballpoint pen). Do not apply unnecessary force to the screen; it is fragile and excessive force may lead to damage.

The user will be required to navigate through a few simple control screens. During normal operation the user should be no more than a few screens away from the main menu screen. The **Advanced Setup** section covers system specific fine-tuning, and this should only be undertaken by a competent commissioning engineer. Incorrect adjustment could adversely affect the accuracy and performance of the system; this part of the menu system is pin number protected to avoid unintentional user adjustment.

The screens feature various buttons to allow user input. The screen shots below give a guide as to the various features and functions.

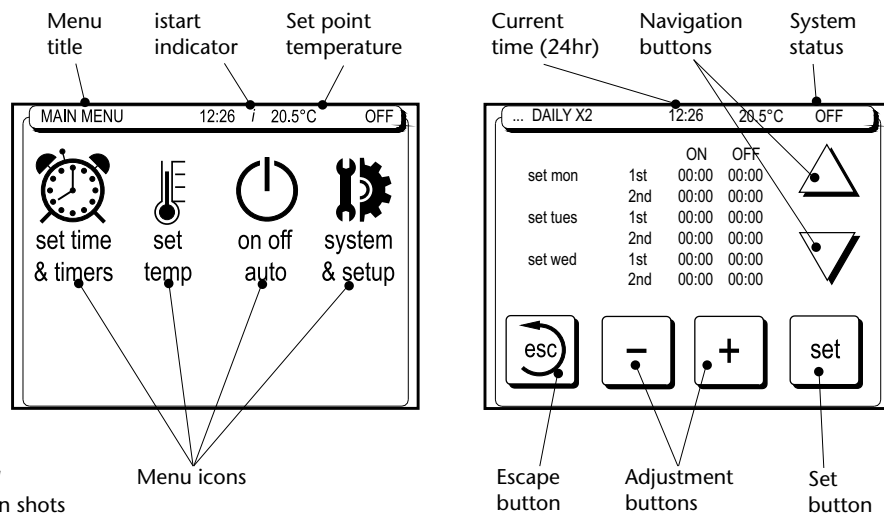


Fig. 11
 Screen shots

- Menu icons**
- Navigation buttons**
- Adjustment buttons**
- Set button**
- Esc button**

- Allows the user to move directly to a particular menu function
- Allows the user to move the cursor to a selectable field
- Allows the user to change a variable field
- Confirms a change to an adjustment
- Allows the user to exit the screen without further change



CPS/S Control Panels





Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Basic Setup 8 continued

Basic features & operations







To allow full automation there are a few basic parameters that need to be entered into the remote. These are:

-  Current time and date
-  System on/off time
-  Temperature set point
-  System status (ON/OFF/AUTO etc.)

Current time & date

This allows adjustment to the system time and date. Setting the correct date will select the appropriate day so no further adjustment is required. To disable daylight saving (British Summer Time) adjustment see **Advanced Setup**. The remote features a battery backup; unless the power supply is interrupted for a long period of time, no further adjustment should be required. Time clock accuracy: ± 1 minute/month









To set time and date:

-  Select 'set time & timers' icon on the main screen
-  Select 'set time & date' icon
-  Use the up/down buttons to move the highlighted field
-  Use the +/- buttons to adjust
-  When adjustment is complete press 'set'
-  (Use the 'esc' button to exit menu)

System on/off time

The remote can offer one or two programmed operating periods per day; daily, week/weekend or weekly (block entry) settings, operational when the system is set to 'AUTO' mode. Included also is an option to clear all stored timer settings. To assist with programming, the time-setting increment is fifteen minutes. To omit days or individual entries, leave this as 00:00 for this operating period.

To set system on/off time:

-  Select 'set time & timers' icon on the main screen
-  Select 'set timers' icon
-  Use the up/down buttons to scroll to the desired timer setting (daily, weekly, etc.)
-  Press 'set' to accept
-  Use the up/down buttons to move the highlighted field
-  Use the +/- buttons to adjust the on and off times
-  When all adjustments are complete press 'set'
-  (Use the 'esc' button to exit menu)

Important

When adjusting on/off times ensure that the end time follows the start time; an end time earlier than a start time will effectively disable that operating period. Similarly, the software will not recognise midnight (00:00) as an off time, or times spanning past midnight into the next day



CPS/S Control Panels

Touchscreen & associated sub-assemblies


Installation, Operation & Maintenance Manual


Basic Setup 8 continued


Temperature set point


This is the measured (sensor) target temperature for the system and not the room or supply air temperature. An ideal setting for this may be several °C higher than the required room temperature (lower for a cooling system). During commissioning of the unit it may be necessary to adjust this setting to optimize the system.

To set temperature set point:

 Select 'set temp' icon on the main screen

 Use the +/- buttons to adjust

 When adjustment is complete press 'set'

 (Use the 'esc' button to exit menu)

System status

Via the remote, this allows the system to be turned to ON, OFF or AUTO (or TVENT when enabled, see the **Advanced Setup** section).

Setting to ON will run the system, regardless of any pre-programmed times.

Setting to OFF will disable the system; the unit will not respond to temperature or timer control during this setting.

Warning





Please note: the OFF function will only disable the system and does not provide any means of isolation, to either the remote or control panel.


Take the necessary precautions to ensure safety at all times.


Setting to AUTO will allow the system to be timer/temperature controlled (see system on/off time).

To set:

 Select 'on off auto' icon on the main screen*

 Use the up/down buttons to scroll to the desired status setting

 Press 'set' to accept

 (Use the 'esc' button to exit menu)

* Commissioning level users can access this function from the setup menu directly

Service Alert & Alarm log

The remote features the facility to set a service call reminder. If so programmed after a set time period has elapsed the service alert screen will be displayed in place of the VES splash screen. For setup details see the **Advanced Setup** section.

Should the system develop a fault, the remote will record the type of fault, when the fault occurred and eventually when it was corrected. This information is displayed in the alarm log. In the event of a fault, an alarm warning screen will be displayed in place of the VES splash screen. Touching the screen will automatically take the user to the log where the information displayed can be relayed to the appropriate service personnel. This warning screen will continue to be displayed until the problem has been rectified and the alarm log has been reset; the reset function is only available to maintenance or commissioning level users. For further details see the **Advanced Setup** section.



Fig. 12
Service alert screen detail



Fig. 13
Alarm screen detail



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Advanced Setup 9

Caution



The following setup should only be undertaken by a competent commissioning engineer. Incorrect adjustment will adversely affect the accuracy and performance of the system. ADJUST WITH CARE.

System menu access

During basic operation the user will not normally be required to alter any further settings, however, during maintenance and commissioning of the system it is possible to access other functions via the remote. This part of the system menu is pin number protected to avoid unintentional user adjustment. Entry to a restricted menu or an incorrect PIN number entry will display a 'no entry' screen, inviting the user to re-enter their user level/PIN number or exit without additional adjustment. There is no lockout feature associated with this PIN entry but a period of inactivity will reset the user level and this will need to be re-entered. It is the responsibility of the end user to determine licence of usage.

There are three levels of user entry: operator, maintenance and commissioning.

Operator level allows access to all the basic functions and the facility to view the alarm log, with no further adjustment. **No PIN number is required.**

Maintenance level again allows access to the basic menu with the addition of being able to reset both the alarm log and the service call alert. **PIN number required.**

Commissioning level allows access to the entire system menu. **PIN number required.**

Select user level

To select user level:



Select the 'system & setup' icon on the main screen



Use the up/down buttons to scroll to the required user entry-level setting



Press 'set' to accept



In the PIN entry screen, use the up/down buttons to select the appropriate PIN number



Press 'set' to accept.

Maintenance

From the system menu, maintenance level users can:

- View alarm log
- Reset alarm log
- Reset service call alert

Important



The PIN number for maintenance level users is 51

Alarm menu

The alarm log displays four different types of fault. These are:

- Supp Supply fan fault
- Ext Extract fan fault
- Serv A common system fault
- Gen A common service (general) fault (requires a 230V input, from a filter pressure switch etc.)

The alarm log records up to 19 separate events, along with the time the fault occurred and when it was corrected. The log can be cleared at anytime; a 20th event will overwrite the first event as a rolling log.

In the event of a fault, a warning screen will be displayed in place of the VES splash screen. Touching the screen will automatically take the user to the alarm log. This warning screen will continue to be displayed until the problem has been rectified and the alarm log has been reset. Depending upon the type of fault, the unit may still be operational and normal access is permitted to the functions of the menu system.









CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Advanced Setup 9 View alarm log









continued
To view the alarm log:

-  Select the 'system & setup' icon on the main screen and select the user level**
-  Select alarm menu icon
-  Scroll to 'view alarm log'...
-  ... and press 'set'
-  (Scroll to view multiple events)
-  (Use the 'esc' button to exit menu)

** all levels allow access to view the alarm log

Reset alarm log

To reset the alarm log:









-  Select the 'system & setup' icon on the main screen
-  Scroll to select the maintenance level...
-  ... and press 'set'
-  Enter the appropriate PIN number
-  Select the 'alarm menu' icon
-  Scroll to 'reset alarm log'
-  Press 'YES?' to clear the log
-  (Use the 'esc' button to exit menu)

Service alert

When the service call alert has been enabled (optional under the commissioning menu) after a pre-determined period of time a service alert screen will be displayed in place of the VES splash screen. This is intended to be used as a reminder to service the unit at regular intervals (change filters, cleaning, maintenance etc). This reminder will continue to be displayed during periods of inactivity until the service alert is reset; normal access is permitted to the functions of the menu system during this time. To change the settings for the service alert see the relevant section under Commissioning.

Reset service alert

To reset the service alert:

-  Select the 'system & setup' icon on the main screen
-  Scroll to select the maintenance level...
-  ... and press 'set'
-  Enter the appropriate PIN number
-  Select the 'alarm menu' icon
-  Scroll to 'reset service call alert'
-  Press 'YES?' to clear the log
-  (Use the 'esc' button to exit menu)



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Advanced Setup 9 continued

Commissioning

To access the alarm log and to reset the both alarm and service alert see the maintenance section. In addition to the same privileges as maintenance level users, commissioning level users can:







- Enable/Disable fan speed settings
- Enable/Disable Trickle vent mode
- Enable/Disable auto daylight saving (BST)
- Enable/Disable intelligent start
- Determine heating mode
- Determine control mode
- Enable/Disable the service alert alarm

To access the commissioning features (if enabled/specified in your control panel), enter the system menu and PIN as below.

Important  **The PIN number for commissioning level users is 52**

Setup menu

To enter the setup menu:

-  Select the 'system & setup' icon on the main screen
-  Scroll to select the commissioning level...
-  ... and press 'set'
-  Enter the appropriate PIN number
-  Select the 'setup menu' icon
-  Use the 'esc' button to exit menu

The setup menu appears as below.

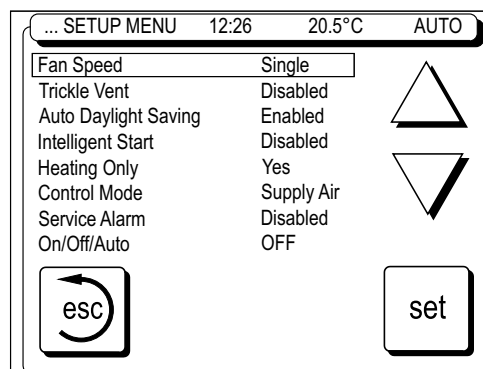




Fig. 14
Setup menu
showing default
settings

To access the different options:

-  Scroll until the required option is highlighted
-  Press 'set'



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Advanced Setup 9 continued






Fan speed

The Fan speed function is used to initiate the fan speed relay on the control panel main PCB. The default setting is 'single speed'.

Important

Many Standard AHUs are supplied with single speed fans as standard. Please refer to the appropriate supporting documentation to determine if this feature is relevant before enabling

To enable fan speed:








-  In the setup menu, scroll to highlighted 'fan speed'
-  Press 'set'
-  Press the appropriate button; current setting is shown as the button without shadow
-  Press 'set' to accept
-  Use the 'esc' button to exit menu

Trickle vent

The Trickle vent function is designed to allow fresh air circulation through the building during the systems 'off' time. When used in conjunction with a two-speed fan, the slower fan speed will be operational during this time. Enabling trickle vent gives a further option to adjust the operating temperature band. This input range is between ± 1 and $\pm 20^{\circ}\text{C}$.

Example: Trickle vent is enabled and the operating temperature band is set at $\pm 10^{\circ}\text{C}$. A setpoint of 20°C is chosen. During the 'trickle vent' off period, when the fan is running at the second, slower speed, heating or cooling that might normally be called for is disabled within this band, becoming operational at $<10^{\circ}\text{C}$ and $>30^{\circ}\text{C}$. This will help prevent the extremes of temperature in the building, and require less heating to bring to temperature during the on period. This feature is disabled by default.

To enable trickle vent:

-  In the setup menu, scroll to highlighted 'trickle vent'
-  Press 'set'
-  Press the appropriate button; current setting is shown as the button without shadow
-  Press 'set' to accept
-  Use the +/- buttons to adjust the operating temperature band
-  When adjustment is complete press 'set'
-  Use the 'esc' button to exit menu

When enabled, a 'TVENT' option is visible under the system status menu which will need to be selected before this function becomes operational. See page 7 for details of status selection.

system  OFF AUTO TVENT

Fig.15
Screen detail showing TVENT option

Important

This feature must be used in conjunction with a multi-speed fan/motor to operate correctly. Many standard AHUs are supplied with single speed fans as standard. Using the trickle vent function with a single speed fan will bring about continuous fan operation, even in the normally off/auto time period. Please refer to the appropriate supporting documentation to determine if this feature is relevant before enabling.



CPS/S Control Panels

Touchscreen & associated sub-assemblies






Installation, Operation & Maintenance Manual

Advanced Setup 9 continued

Daylight saving

The Auto Daylight Saving function allows the engineer to activate the British Summer Time (BST) option. When selected this option will automatically adjust the time forward an hour, from GMT to BST in the spring, and back an hour in the autumn. The default setting is enabled; when disabled manual adjustment is then required.

To adjust auto daylight saving:

-  In the setup menu, scroll to highlighted 'auto daylight saving'
-  Press 'set'
-  Press the appropriate button; current setting is shown as the button without shadow
-  Press 'set' to accept
-  Use the 'esc' button to exit






Intelligent start

The Intelligent Start function allows the software to control the system 'on' time to reach the setpoint temperature by a chosen time.

The software records the daily average time for the system to reach setpoint temperature based on a rolling seven day average. By the seventh day, the start time is offset by this average and the system will start earlier, the purpose being to achieve the setpoint temperature by the programmed start time. This feature is disabled by default. For best results this function should be used with extract control, see **Control Mode**.

If the time clock is set for twice-daily operation, intelligent start will only affect the first time setting. As a control measure, intelligent start is limited to a maximum offset time of two hours.






To enable intelligent start:

-  In the setup menu, scroll to highlighted 'Intelligent Start'
-  Press 'set'
-  Press the appropriate button; current setting is shown as the button without shadow
-  Press 'set' to accept
-  Use the 'esc' button to exit menu

Heating only

The Heating Only function allows a system switch to determine whether the environmental control is based around heating only, or heating and cooling. This feature is set to heating only by default.

To adjust Heating Only:

-  In the setup menu, scroll to highlighted 'Heating Only'
-  Press 'set'
-  Press the appropriate button; current setting is shown as the button without shadow
-  Press 'set' to accept
-  Use the 'esc' button to exit menu

Important

This feature allows the commissioning of controls specific to system requirements. The incorrect adjustment of this feature will adversely effect the efficiency of the system.



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Advanced Setup 9 continued

Control mode

The Control Mode function allows a choice of control method to be selected. The choices are:

- Supply air
- Extract air
- Supply air with limit (may only be used if additional sensor is supplied)

When sensors are placed in both the supply and the extract air ducts, the user can choose which airflow to use to regulate the system temperature. This feature is set to 'supply air' by default.

Example: extract air control will use the extract sensor temperature reading versus the setpoint to control the heat, regardless of the supply air temperature.

Supply air with limits allows the system to control on extract air, but withdraws heating/cooling proportionally as the supply air drops outside a pre-selected temperature band about the set point, ± 1 to $\pm 20^{\circ}\text{C}$.

Example: Supply air limit is set with a temperature band of $\pm 5^{\circ}\text{C}$. A temperature set point of 20°C is chosen and extract air at 17°C calls for heating.

The heater battery switches on all stages of heating in an attempt to reach the set point. The supply air entering the room reaches 26°C . The supply air sensor registers that the temperature has exceeded the supply air limit boundary by 1°C . The heater backs off proportionally until a Supply air temperature within the $\pm^{\circ}\text{C}$ boundary is met. This stops extremes of temperature entering the room, allowing the room to reach the required temperature quickly without compromising comfort.

To set Control Mode:



In the setup menu, scroll to highlighted 'Control Mode'



Press 'set'



Press the appropriate button; current setting is shown as the button without shadow



Press 'set' to accept



Use the 'esc' button to exit

Service alert

The service alert function allows an alert screen to be displayed when a required time limit is reached. This can be set from one to twelve months. As previously discussed, it can be cancelled through the alarm menu, by Maintenance or Commissioning level users. This is not affected by periods of inactivity, or if the power supply is interrupted (battery life excepted). This feature is disabled by default.

To set Service Alert:



In the setup menu, scroll to highlighted 'Control Mode'



Press 'set'



Press the appropriate button; current setting is shown as the button without shadow



Press 'set' to accept



Use the 'esc' button to exit menu



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Menu Overview 10

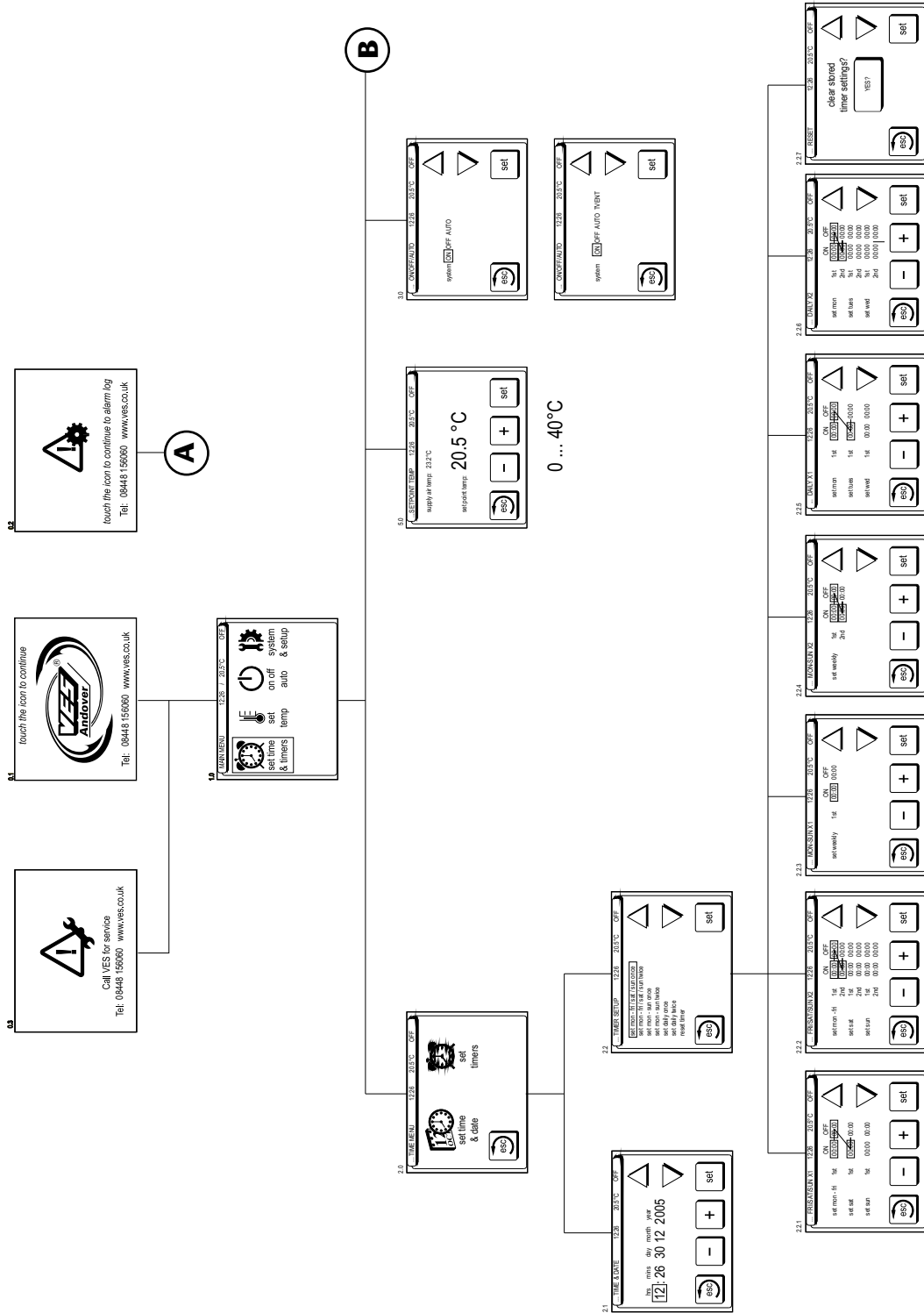


Fig. 16
 Menu overview 1 of 3



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Menu Overview 10 continued

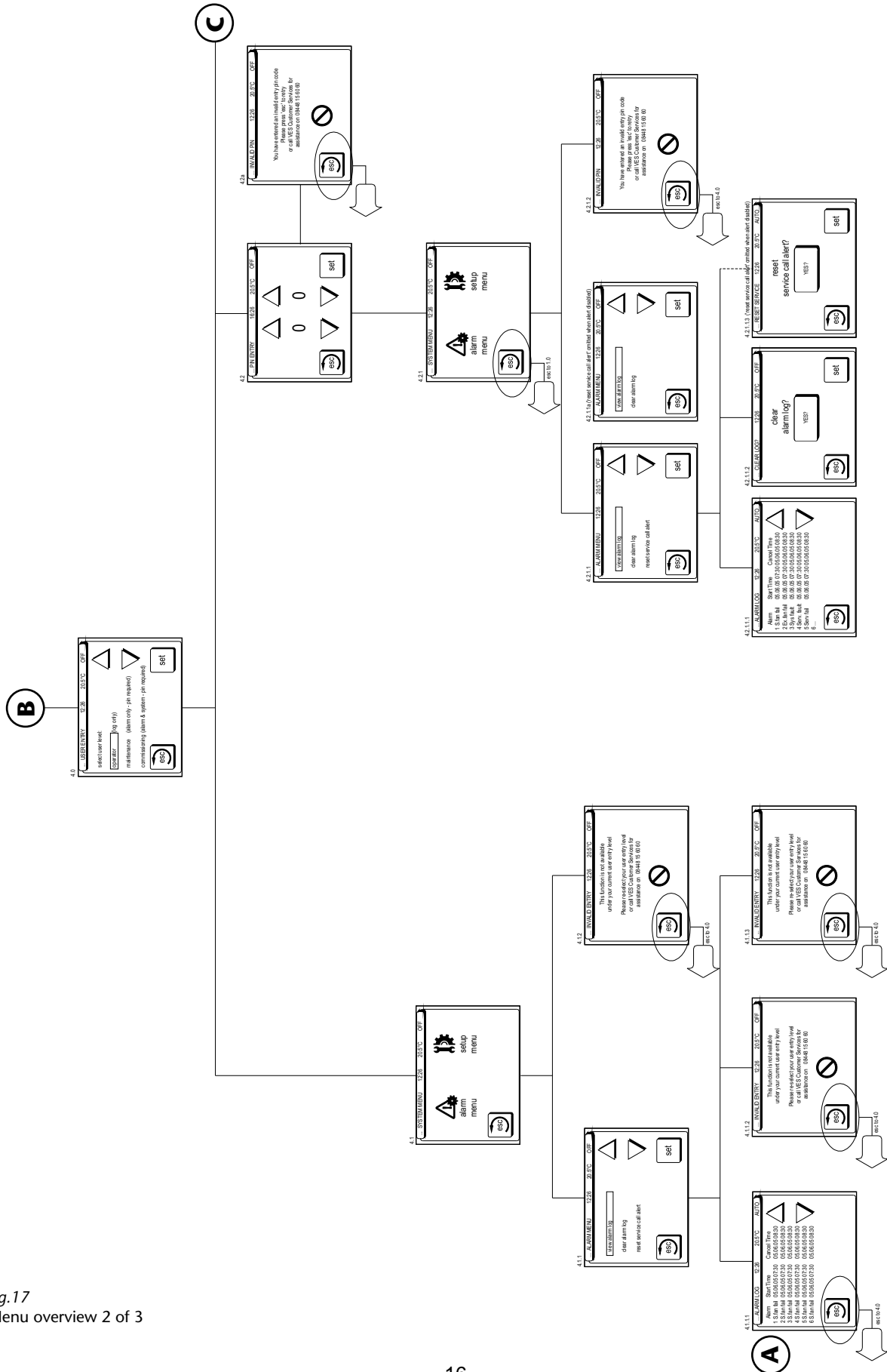


Fig.17
 Menu overview 2 of 3



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Menu Overview 10 continued

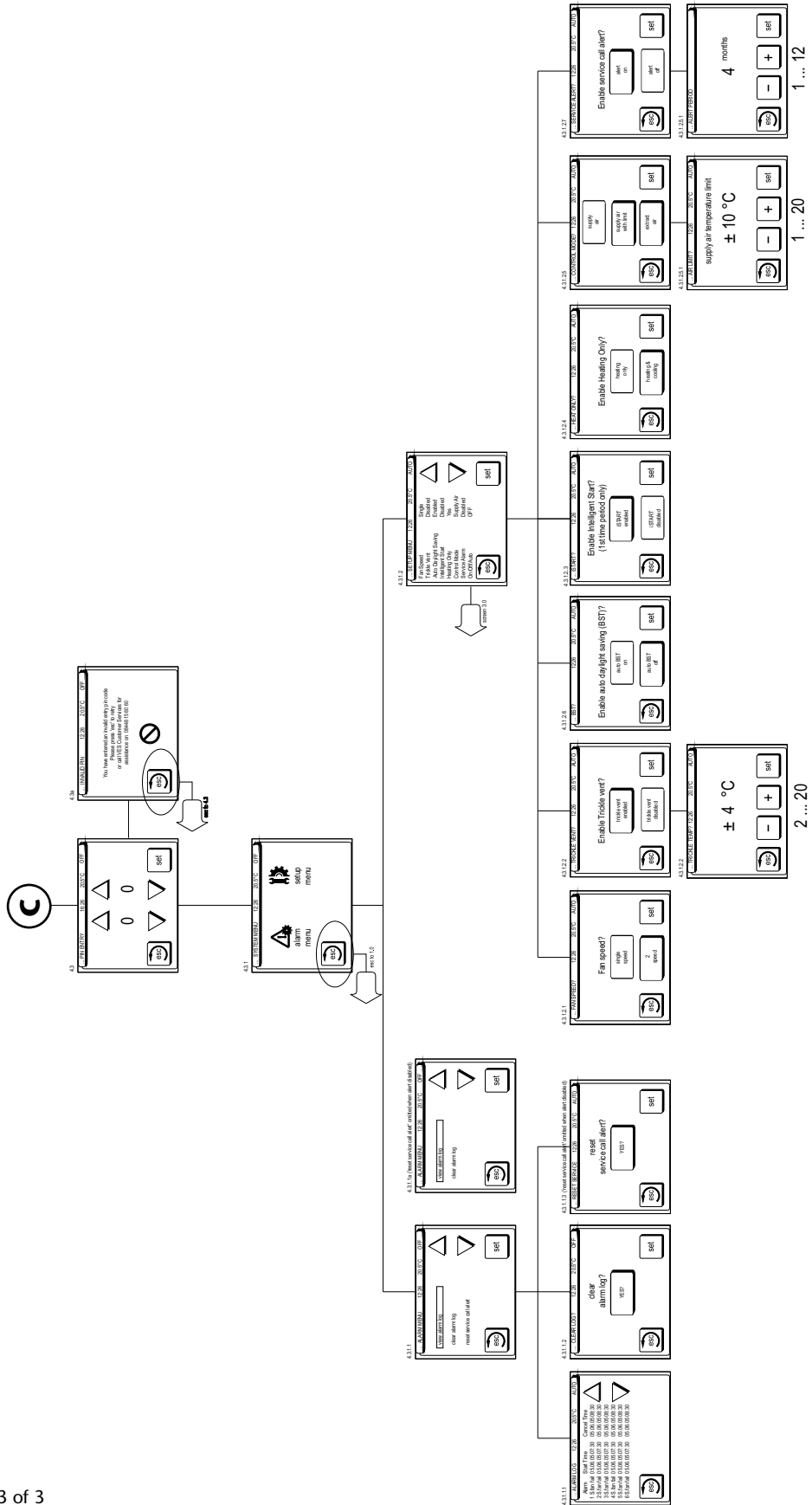


Fig.18
 Menu overview 3 of 3



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Fault Finding & Warnings 11

Problem	Cause	Action/Cure
Unit not functioning	No Supply	Check distribution board and local isolator
	Door Open	Close door and switch isolator on
	Control MCB tripped	Investigate Cause & Reset MCB
	Remote set to Off or AUTO	Reset as required
Fan not running	Not switched on	System on
	MCB tripped	Investigate Cause & Reset MCB
	Fan motor failed	Replace motor/investigate cause
	Loose connection	Check all wiring
	Local isolator off	Switch on
	Remote set to Off or AUTO, or time settings incorrect	Reset as required
Heater not functioning	Thermal cut-out tripped	Check reason for failure then reset
	Airflow pressure switch not activated	Check switch position setting, wiring and airflow
	Heater MCB tripped	Identify cause and reset MCB
	Loose connection	Check all wiring
	Remote set to Off or AUTO	Reset as required
	Remote temperature set point below supply sensor temperature	Reset as required
Low heat output	Temperature set too low	Increase temperature setting
	Incorrect sensor position	Reposition sensor using fig. 6 as reference
	Too much air	Commission air volume
	Incorrect heating rating	Check design calculations
	Some heater MCBs tripped	Identify cause and reset
Heater thermal cut-out trips	Low/No airflow	Check filters/ductwork/grilles
	Filters blocked	Change filters
	Speed control set too low	Commission air volume
	Ductwork obstructed	Clear obstruction
	Door isolator turned off before fan stops	It is unnecessary to turn door isolator off except for servicing/thermal overload reset
	Faulty thermal cut-out	Remove, test and replace
Fan remains on when system status is OFF	No fault	Fan will run for approximately 120 seconds to dissipate all residual heat
Fan stop immediately when system status is OFF	No Fault	Run on timer only operates if heater has been selected

Warnings

Don't allow the air volume across the heater to fall too low **

Don't short out the heater thermal cut-out or airflow switch if fitted

Don't get swarf in the panel or remote

** If the minimum air volume is not known, the following calculation may be used to obtain an approximate volume. If in doubt, ask.

$$m^3/sec = \frac{kW}{49.2}$$



CPS/S Control Panels

Touchscreen & associated sub-assemblies

Installation, Operation & Maintenance Manual

Maintenance 12

Important

Before attempting to carry out any work on our units, all accompanying documentation including warning labels on the unit must be referenced.

Warning

Before attempting to carry out any maintenance work, investigative or repair work on our units, the unit **MUST BE COMPLETELY ISOLATED** from its electrical supply.

Ensure a minimum of two minutes after electrical disconnection before removing access panels. This will allow any moving parts to come to a rest.

When used in conjunction with an Inverter for speed control, **a minimum of Five minutes** should be given to allow for the capacitors to discharge before starting work.

Caution

Ensure that the AHU has been allowed to completely cool before attempting any work to the unit

In general, this series of units require very little maintenance. In the unlikely event of component failure, spares are available from stock at VES Andover Ltd.

Caution

When accessing the unit always use the handles to ensure the access panels are handled / lowered in a controlled manner so as to avoid damage to the unit or injury to personnel. This is particularly important with hinged doors in both top and bottom access units; ensure that when open, the doors are so positioned as not to close unintentionally.

The remote and control panel should not require any maintenance for trouble free operation.

The remote enclosure should be integrated into the cleaning routine of the room it occupies. Any standard glass cleaner can be used to clean the touchscreen, but products containing ammonia should be avoided. Always spray the glass cleaner onto a cloth or towel and then clean the touchscreen. Glass cleaner sprayed directly onto the screen could leak inside the unit and cause damage.

If the remote is to be relocated, disconnect all connecting wires from the control panel before removing the enclosure cover.

Caution

It is critical after any maintenance work has been conducted that all components removed/replaced be refitted correctly by a competent engineer

Spares & Repairs

When enquiring after or ordering spares contact VES Spares Department, quoting the sales order (SO) number and unit type as found on the unit nameplate.

Tel: 08448 15 60 60 • Fax: 02380 261204

Disposal

COSHH Assessment for disposal of PS51 remote board

The only part affected is the 3V LITHIUM 180mAh 20mm DIAMETER coin cell battery, which is found on the main PS51 PCB. This must be disposed of in a controlled way.

Recycling

All enclosure plastic parts are made from HIPS and are recyclable. The Printed Circuit Board may be sent to any PCB recovery contractor to recover some of the components for any metal such as gold and silver.

WEEE Directive

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with normal household waste. Do not burn.



PLEASE ENSURE THAT THIS DOCUMENT IS PASSED ON TO THE END USER

We reserve the right to alter the specification without notice ©VES Andover Ltd. 2008.

No part of this publication may be photocopied or otherwise reproduced without the prior permission in writing of VES Andover Ltd.