MSHEV System Interface

EV-HMI7B-MS

HMI Basic User Manual

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1. Notices

This manual contains notices you have to observe to ensure occupant and personal safety, as well as to prevent damage to equipment and property.
Important notices relating to safety and the prevention of hazards are highlighted throughout the documentation by a caution safety symbol with a heading identifying the degree of risk. Read notices and instructions carefully, failure to take proper precautions may result in death or severe personal injury and equipment or property damage.

DANGER:
A notice with instructions or information to reduce the potential risk of death or severe personal injury and reduce potential risks in a life safety scenario.

CAUTION:
A notice with instructions or information to reduce the potential risk of irreversible equipment and/or property damage.

IMPORTANT NOTICE:
A notice with instructions or information to address issues not relating to damage or injury.

The product/system described in this documentation may be operated by competent personnel in the operation of smoke extract systems in accordance with the relevant documentation and guidance.
The installation and maintenance for these products shall only be by personnel competent in the operation and knowledge of electrical equipment, in particular its warning notices and safety instructions.
Competent personnel are those who, based on their training and experience, are qualified and capable of identifying risks and avoiding potential hazards when working with these systems.
Systems that are deemed complex and fall outside the standardized design model require the services of a suitably qualified and competent fire engineer. Commissioning of such systems will need to be undertaken by an approved or qualified person.

All life safety systems with fire engineered solutions are subject to approval with the local authority with jurisdiction.

2. User Interface

The HMI is the user interface to the M-SHEV system and provides system information and functions including:

- Alarms, faults, and events.
- System configuration and monitoring.
- Diagnostics and maintenance features.

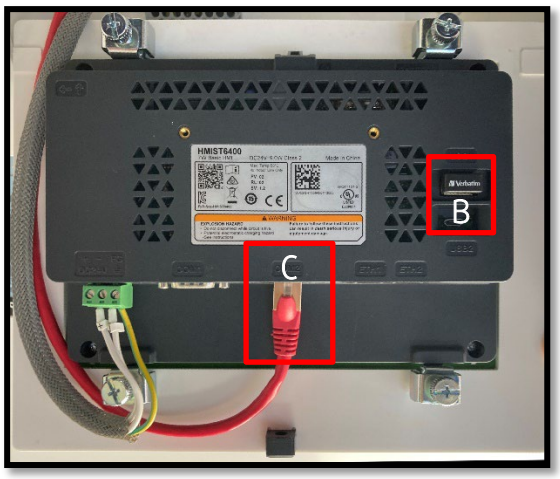
The HMI should be located at the firefighter's entrance or command location to provide alarm status for firefighters and easy operation and access for maintenance activities.

The HMI is a colour touch screen is in landscape format. The touch screen is a resistive type and operating the screen can be done by finger touch or by a stylus or pointer.

DANGER:
Risk of electrocution. Observe electrical safety procedures and check power supply has been isolated or disconnected safely before removing panel covers.

HMI User interface

HMI Rear



A. Touch Display – Colour display showing graphical status and touch function buttons.
B. USB Memory Module - Stores event logs and backup files.
C. COM Port – Communication connection to interface panels.

2.1. User Input

Command buttons on the touch screen are normally displayed as an icon with a label. When prompted to enter a value, text or password a keypad will automatically pop up. If applicable, input ranges or limits are indicated a 'Min' and 'Max' values. Enter the desired value and touch the 'ENTER' key to save or 'ESC' to cancel and return to screen.

CAUTION:
Do not use hard pointed objects to operate the screen which may cause damage to the screen

2.2. Passwords

System configuration are password protected to prevent tampering and unauthorised access. There are 2 different password levels. A login window will automatically pop up for access or action a command that requires a higher level than the current user login.
On an unsuccessful login entry "Invalid username or password" will pop up and will be recorded in the event log.

User Levels

User	Password	Logout Time	Permissions
SMOKE	smoke	10 minutes	Access to service and system configuration settings
SCS	*******	10 minutes	Authorised engineer's access.

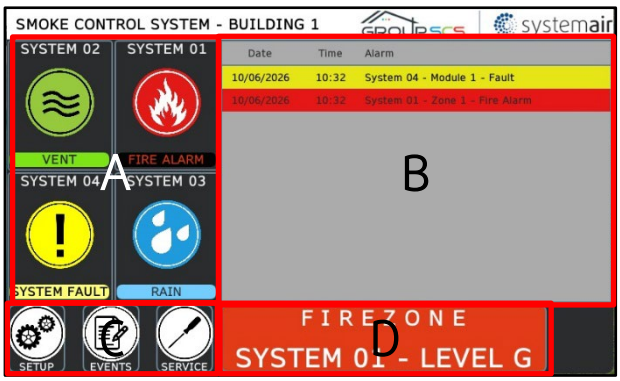
The user will automatically logout after a period of inactivity.

3. Operation

3.1. OVERVIEW Screen

The OVERVIEW screen displays an overview of the system status and alarms.

The alarm view displays active critical alarm and fault conditions with a time stamp when the event occurred. Alarms are highlighted red and fault conditions are highlighted yellow.
A history of alarms and events can be accessed via the EVENTS button (see EVENTS screen for more information).



A. System Status Indicators for each system
B. Alarm Panel showing any active alarm or fault.
C. Navigation Buttons.
D. Fire Alarm Status Indicator

3.1.1. System Indicators

Indicators show the general status of each active system:

Each system has a button indicating the current shaft system state with an icon:

- System healthy and in standby
- Daily ventilation mode
- Fire alarm condition active
- Weather condition detected
- System fault active or configuration error
- Service Due

3.2. EV-HE077 Override Switches

Optional switches connected to the M-SHEV SI-100 modules via an SP100 module provide local override control and maintenance operation of the smoke ventilator with visual and audible indication. It has a secured hinged door with a common key lock to prevent tampering and a frangible break-glass element for emergency use.

Red Button:
OPEN - Override open command and firefighting boost button.
Black Button:
CLOSE (RESET) - Override close command and reset button.

Override Switch Indication:

Colour	Status	Description
Red	Alarm	Emergency alarm condition active
Green	Healthy	Interface panel power supply healthy
Yellow	Fault	Fault condition present

A buzzer pulses when the system is in alarm, or a fault condition is present.

3.2.1. Manual activation

Whilst the system is in standby or normal mode, emergency smoke clearance can be initiated by pressing the red **OPEN** button.

3.2.2. Override Close

When in alarm press the black **CLOSE** button momentary between 1 to 3 seconds for an override close command.

3.2.3. Override Open

When in alarm press the **OPEN** button momentary between 1 to 3 seconds for an override open command.
All other zone shaft vents need to be closed before an override open command is accepted.

3.2.4. Reset

Press and hold the **CLOSE** button for more than 5 seconds to perform a system reset.

4. Servicing & Maintenance

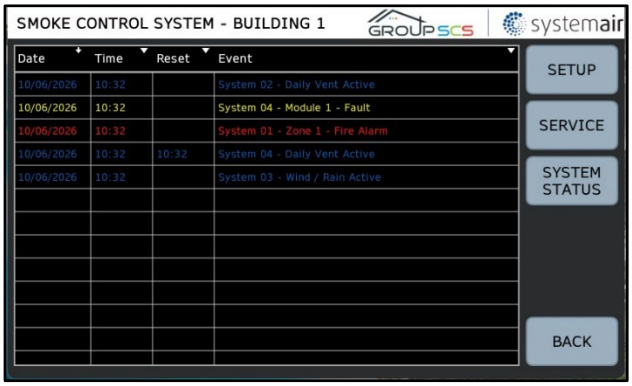
4.1. EVENTS Screen

The EVENTS screen provides a history of events and alarms are logged with coloured text to identify its class.

RED	Emergency alarm event
YELLOW	Fault condition
BLUE	Daily ventilation event
WHITE	System event or error message

The last entry is always at the top of the view by default. Use the scroll buttons located at the bottom of the window to scroll through the entries.

The date & time is when the event occurred, the Reset time is when the event was reset or returned to a healthy state. The time is displayed in a 24-hour format.



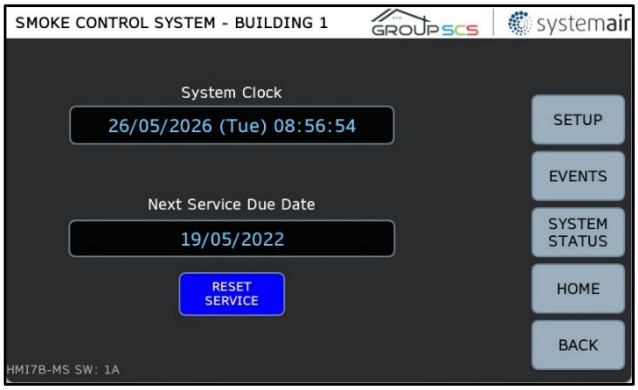
The events can be filtered or sorted by touching the column header. A pop-up window will provide filtering options for the selected column.

IMPORTANT NOTICE:

Event date & time are referenced to the system time set. Please check the system time is correct for accurate logging.

4.2. SERVICE Screen

The SERVICE screen provides access to diagnostic features. Settings are password protected and requires login.



4.2.1. System Clock

The current system time and date is displayed and can be adjusted by touching the system clock field (See Clock Adjustments for further details). A keypad will automatically pop up to edit the date and time.

4.2.2. Service Reminder

A service reminder timer can be reset on completion of a service or routine maintenance inspection. The timer is automatically set for 12 months from the current system date, or a date can be set manually by touching the Next Service Due Date field. When the date at midnight expires the system will indicate a 'SERVICE DUE' warning condition.

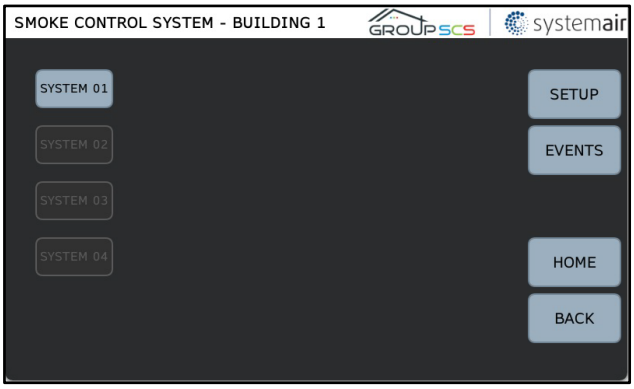
IMPORTANT NOTICE:
Ensure the system time is set correctly before completing a service.
It is important for the date and time to be correct for logs and servicing activities.

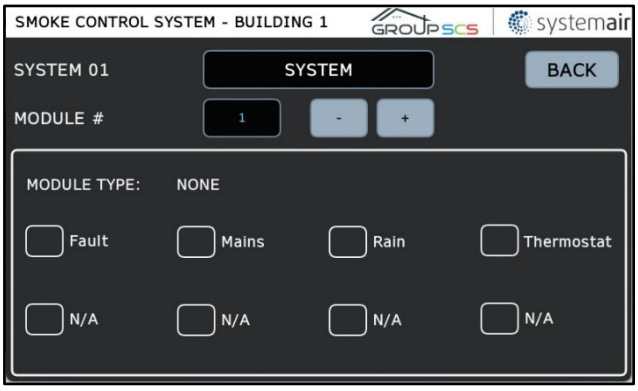
4.3. Diagnostics

The HMI has a diagnostics feature providing status information of each interface panel and event logs to assist maintenance and fault finding. Refer to the M-SHEV instruction manual for further information.

4.3.1. SYSTEM STATUS Screen

Diagnostics for all active M-SHEV systems can be viewed using the SYSTEM STATUS screen which is accessed via the SERVICE screen. Only detected M-SHEV modules and active M-SHEV systems will be navigable. Select the M-SHEV system you wish to view the status of. To cycle through the detected M-SHEV modules on each available system by pressing the (+), button to increase the selected module or (-) button to decrease the selected module number.





The information of each M-SHEV module displayed via the HMI is described below:

IMPORTANT NOTICE:
'N/A' is displayed if the status indicator is internally reserved or not used by the selected M-SHEV module.

4.3.2. ZI-100 Module

The ZI-100 module is the central controller and interface to the M-SHEV system which performs the following tasks:

- Control and monitoring of configured M-SHEV bus modules.
- Wind and Rain (WTS) sensor input.
- Thermostat input.
- Mains Failure monitoring.

The following status information is displayed via the HMI for each configured ZI-100 module:

Fault	Displays the current module fault status.
Mains	Displays the current Mains Failure status.
Rain	Displays the current Wind/Rain sensor status.
Thermostat	Displays the current Thermostat sensor status.

4.3.3. SI-100 Module

The SI-100 Sensor Input module provides sensor inputs to the M-SHEV system for the following triggering components:

- Emergency button.
- Override button.
- Smoke detector.
- On-site fire alarm system.

The following status information is displayed via the HMI for each configured SI-100 module:

Fault	Displays the current module fault status.
Override	Displays the current Fire Alarm Override input status.
SD	Displays the current Smoke Detector input status.
FAS	Displays the current Fire Alarm Switch input status.
Disabled	Displays the current Ventilation Disabled input status.
Alarm	Displays the current module Fire Alarm status.

4.3.4. MR-120 Module

The MR-120 Motor Relay module provides control for damper and vent motors.
The following status information is displayed via the HMI for each configured MR-120 module:

Fault	Displays the current module fault status.
Overridden	Displays the current Alarm Override status.
Open	Displays the current Open Command status.
Close	Displays the current Close Command status.
Alarm	Displays the current module Fire Alarm Active status.

4.3.5. BI-100 Module

The MI-100 Message Interface Module provides 4 SPDT relay contacts for external monitoring.
The following status information is displayed via the HMI for each configured MI-100 module:

Fault	Displays the current module fault status.
Relay 1	Displays the current status for Relay 1.
Relay 2	Displays the current status for Relay 2.
Relay 3	Displays the current status for Relay 3.
Relay 4	Displays the current status for Relay 4.

4.3.6. BI-100 Module

The BI-100 Bus Interface module provides up to 32 virtual ventilation buttons for external control using the Modbus RTU communications protocol along with 2 physical digital inputs.
The following status information is displayed via the HMI for each configured BI-100 module:

Fault	Displays the current module fault status.
Input 1	Displays the current Digital Input 1 status.
Input 2	Displays the current Digital Input 2 status.

5. System Setup

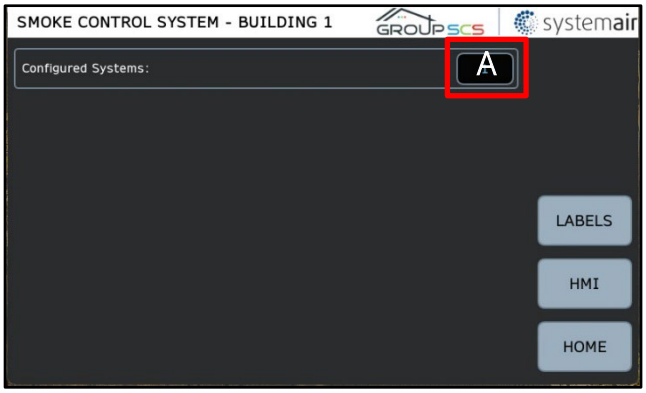
Quick system setup procedure. Refer to the following sections for each activity.

Step	Navigation actions	Setup procedure
1	CONFIG	Select the M-SHEV systems connected
2	LABELS	Edit the system, zone and building name labels
3	SERVICE	Set system clock

5.1. SETUP Screen

The HMI supports up to 4 M-SHEV systems which is configures within the SETUP screen. Each M-SHEV system is internally predefined for each system, zones or functions and each M-SHEV system can be configured with up to 16 modules. M-SHEV modules 2 to 16 determine the fire zones and are automatically detected and read by the HMI. On each M-SHEV system, module 1 is always allocated to a ZI-100 module by default, which acts as a master interface. Refer to the M-SHEV instruction manual for further information.

Enter the number of M-SHEV systems configured.



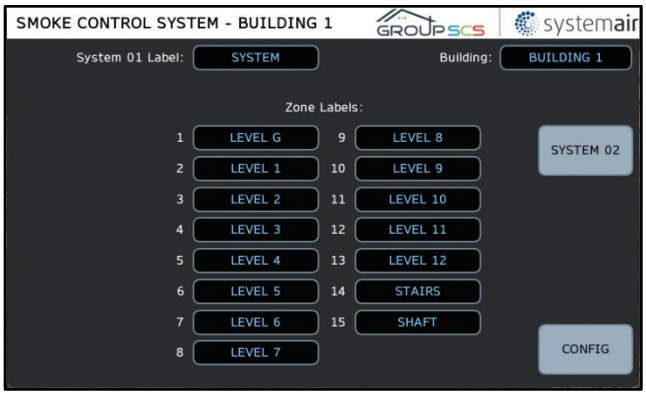
A. Configured Systems.

IMPORTANT NOTICE:
Changing the 'Configured Systems' parameter will automatically restart the HMI.

IMPORTANT NOTICE:
Each active M-SHEV system is automatically detected when the HMI.

5.2. LABELS Screen

The LABELS screen allows for personalised labelling for each configured M-SHEV system which can be changed to identify the correct fire zone location, building or each active M-SHEV system name.
Each label can have up to 12 characters.



6. Troubleshooting

The alarm and event logs provide descriptions of the system faults. All critical faults are displayed on the home screen alarm list and the fault and alarm indicators will blink.

6.1. Faults and Alarms

System and module faults are repeated to the HMI with the location identified by the system number.

Active Alarms
System (n) - Communication Error
System (n) – Module 1 - Mains Failure
System (n) – Module 1 - General Fault
System (n) – Module 1 - Communications Bus Fault
System (n) – Module (n) - Fault
System (n) – Module (n) - Fire Alarm
System (n) – Module (n) - Override Alarm

IMPORTANT NOTICE:
Fire and Override alarms will only be displayed for each module configured as an SI-100 module on each system.

Fault	*Possible Cause & Actions*
Communication Error	The M-SHEV system failed to respond or is disconnected. Check data cabling and module connections. Check M-SHEV ZI-100 module is healthy. Check the address is connected and configured.
Fault	The M-SHEV module has developed an internal fault, check the module status indicators and replace if necessary.
Override Alarm	Override switch input is in a fault or alarm condition. Check override switch input end of line resistors are fitted correctly and not disconnected. Check override switch input cabling for disconnection or short circuit damage.
Fire Alarm	Fire alarm or smoke detector inputs are in a fault or alarm condition. Check smoke detectors or fire alarm interfaces are reset. Check B2 and B3 input end of line resistors are fitted correctly and not disconnected. Check B2 and B3 input cabling for disconnection or short circuit damage.
Mains Failure	The M-SHEV ZI-100 power supply failure detected. Check panel power supply is healthy. Check LI-048 charging module status indicators.
General Fault	Check M-SHEV configuration. Verify all connected modules are not in fault.
Communications Bus Fault	The M-SHEV ZI-100 module has detected a commination failure between other configured M-SHEV modules.

6.2. M-SHEV Module Status Indicators

6.2.1. LI-048 Status Indicators

Three onboard coloured LED's indicate the status of the LI-048 module.

Green LED	Red LED	Flashing	Condition
OFF	Flashing	1x	Emergency Power Operation – Mains failure
OFF	Flashing	2x	Emergency Power Operation – Outage monitor 1
OFF	Flashing	3x	Emergency Power Operation – Outage monitor 2
OFF	Flashing	4x	Emergency Power Operation – Primary voltage less than 18V DC
ON	OFF	N/A	Mains Operation – Battery charging/trickle charging
Blinking	OFF	N/A	Mains Operation – No battery or battery faulty
Blinking	OFF	N/A	Mains Operation – Battery deep discharge
ON	ON	N/A	Mains Operation – Charging unit failure
ON	ON	N/A	Mains Operation – Overload High Output
ON	ON	N/A	Mains Operation – Overload Mains OK
ON	Blinking	N/A	Mains Operation – External failure High input
ON	Blinking	N/A	Mains Operation – Mains OK

6.2.2. ZI-100 Status Indicators

Three onboard coloured LED's indicate the status of the ZI-100 module.

LED (*Colour*)	Condition
White	WTS input active
Amber	Module fault
Green	Module healthy

6.2.3. SI-100 Status Indicators

Three onboard coloured LED's indicate the status of the SI-100 module.

LED (*Colour*)	Condition
Red	Override input triggered
Red	Smoke detector input triggered
Red	Emergency switch input triggered
Amber	Module fault
Green	Module healthy

6.2.4. MR-120 Status Indicators

Three onboard coloured LED's indicate the status of the MR-120 module.

LED (*Colour*)	Condition
White	Open command active
White	Close command active
Amber	Module fault
Green	Module healthy

6.2.5. MI-100 Status Indicators

Three onboard coloured LED's indicate the status of the MI-100 module.

LED (*Colour*)	Condition
White	Relay 1 active
White	Relay 2 active
White	Relay 3 active
White	Relay 4 active
Amber	Module fault
Green	Module healthy

6.2.6. BI-100 Status Indicators

Three onboard coloured LED's indicate the status of the BI-100 module.

LED (*Colour*)	Condition
Green	Bus active
Amber	Module fault
Green	Module healthy