

FIRESMART

USER MANUAL

Wireless Fire Alarm Control Panel System

WCP Control Panel, FSMBL Wireless Sounder/Call Point Unit, and Wireless Detectors

PRODUCT CODE: WCP

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About This Document

1. Purpose

This document provides complete, clear and standardised guidance for the installation, configuration, operation and maintenance of the equipment in the FIRESMART fire alarm system. Its purpose is to help users and technicians ensure that the equipment functions correctly, safely and at optimum performance in line with technical requirements.

2. Scope

This document applies to:

- The relevant FIRESMART equipment described in this manual.
- Deployment, operation, maintenance and periodic inspection activities related to that equipment.
- Installers, operators and system administrators working to the manufacturer's technical standards.

This document does NOT apply to equipment outside the FIRESMART system or to control panels of a different architecture.

3. Intended Audience

This document is intended for the following user groups:

- Installation technicians: wiring, configuration and commissioning of equipment.
- System operators: monitoring status, handling alarms and carrying out day-to-day operations.
- System administrators: configuring advanced parameters, managing devices and updating firmware.
- Maintenance personnel: periodic inspection, repair or replacement of parts as required.

Users should have basic knowledge of fire alarm systems and electrical/electronic equipment.

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I. WIRELESS CONTROL PANEL

1. DEVICE INTRODUCTION



Figure 1: WCP3 wireless fire alarm control panel

1.1 Role in the System

The WCP3 wireless fire alarm control panel is the central device of the FIRESMART system, responsible for managing and monitoring all subordinate field devices. The panel collects information and keeps the whole system operating as one, ensuring that fire detection and alarming are carried out accurately and promptly.

1.2 Key Features

The WCP3 is equipped with the following core functions:

- Receives and processes fire alarm signals from sub-devices, and accurately displays the location where the alarm originated so the operator can quickly identify the danger area.
- Tracks the status of sub-devices, including alerts for lost connection, low battery or abnormal operation, supporting inspection and system maintenance work.
- Manages the list of devices in the system, including identification information, configuration and the current status of each device.
- Logs system-wide activity and events to a memory card, for later lookup, analysis and post-operation review.

1.3 Technical Specifications

Table 1-1: Product technical specifications

Item	Specification
Main power supply	100–240 VAC, 50–60 Hz
Switch-mode power supply (SMPS)	Stable 24 VDC output – powers the whole system
Backup power	4 × 18650 lithium cells, 2500 mAh (keeps the system running during a mains outage)
Backup run time	24 hours in normal mode 5 hours in fire alarm mode
Wireless transmission technology	444.4 MHz RF, stable and interference-resistant

Transmission range	150–200 m (open environment) 25–50 m depending on obstructions
Number of manageable addresses	160
Display / control	192×64 LCD screen, status LEDs (Power/Fire/Fault), operating keys
Fire alarm function	Receives and identifies the location of the fire alarm device in the system
Device monitoring function	Reports lost connection, low battery and device faults in the managed list
Fire alarm / fault outputs	1 NO/NC relay: activates external equipment on fire 1 NO/NC relay: activates external equipment on fault 1 × 24 VDC output: activates the sounder system 1 × 12.6–16.8 VDC output when AC power is absent (24 VDC when AC power is present)
Event logging	Stores 20,000 events
Storage	4 GB SD card (logs events in real time)
Other connectivity	USB
Operating temperature / humidity	-10°C to +55°C <90% RH, non-condensing
Enclosure material	1 mm steel, powder-coated
Dimensions	300×240×75 mm

2. OPERATING PRINCIPLE

2.1 Sub-Device Management Mechanism

Every sub-device (detector, module, manual call point, etc.) is identified by its own unique address in the system. Based on this address, the WCP3 can:

- Identify each individual device.
- Monitor the operating status of that device.
- Display the correct location and name of the device when an event occurs.

2.2 Operating Principle

Under normal conditions (no fire or fault event):

- Each sub-device periodically sends a status message to the control panel automatically.
- The message contains basic information such as battery level and sensor status.

The control panel uses these messages to update the system status in real time. If a message reports an incident, the panel confirms it and then classifies the incident to raise the appropriate alarm. If a periodic message is not received within 300 seconds, the panel records that the device has lost connection.

When a Fire Alarm Occurs

When a smoke detector, heat detector, call point, etc. sends an incident message reporting fire to the WCP3 control panel, the panel processes it in the following sequence:

Receiving and confirming the fire alarm message: the control panel receives the message from the device, which includes full status information and the device's address.

As soon as the fire alarm message is confirmed valid, the panel switches to FIRE state and, at the same time, carries out the following alarm functions:

- Displaying the alert on the LCD: the LCD switches to the FIRE alarm screen. It shows the address and the name/location of the device in alarm (if configured). Use ▲/▼ to scroll through the device list.
- Turning on the fire LED: the FIRE LED (red) on the front of the panel lights up to indicate fire status.
- Activating the panel sounder: the sounder inside the control panel sounds to give a local alert.
- Logging the event (LOG): the system records the fire alarm event to the system log, saved as a .txt file, including the time of the event, the address of the device in alarm, and its name/location (if available).
- Activating the wireless fire alarm sounder system.

Together with the FIRE state, the control panel activates the FIRE output relay to control peripheral equipment according to its configuration. However, the moment the relay is triggered depends on the relay delay-time setting:

- If the delay time = 00 s → the relay activates immediately.
- If a delay time has been set → the relay activates once that delay (00–99 seconds) has elapsed.

When a Fault Occurs

After detecting a fault, the panel carries out the following actions:

- It receives a fault message from a sub-device, or detects an internal fault itself (AC/DC/overheating, etc.).
- It performs a status-confirmation step to ensure the data is valid before raising the alarm.

Once confirmed, the system switches to FAULT state:

- Displaying the fault on the LCD: use ▲/▼ to scroll through the list of faults.
- Alerting via the LED cluster:
- FAULT LED (yellow): lit when there is a fault.
- AC LED (green/yellow): green when 220 VAC mains is normal; yellow when AC power is lost and the system switches to the backup supply.
- DC LED (green/yellow): green when the 24 V DC supply is normal; yellow when DC power is lost or the backup power supply has a fault.
- Audible fault alert: depends on the "Fault bell" setting mode.
- Activating the control relay: activates the FAULT output relay according to its configuration, immediately.
- Logging the event (LOG).

Faults are classified as follows:

1) Sub-device faults

These are faults arising from a sub-device (detector/monitoring device) in the system.

a) Lost connection

Occurs when a sub-device does not send its periodic message to the control panel within the specified time.

Common causes:

- The device has run out of battery / lost power.
- The installation location is obstructed, attenuating the signal.
- The device is faulty, or there is a communication error.

b) Low battery

Occurs when a sub-device's battery level falls below the permitted threshold. The battery should be replaced / the device's power source checked, to avoid a loss of connection or a reduced ability to raise an alarm.

c) Unidentified

A fault that has occurred but which the system cannot classify precisely into the standard fault groups (lost connection / low battery). This is usually related to an abnormal state of the sensor or the detector assembly, such as:

- A dirty smoke chamber.
- Degraded sensor characteristics.
- An internal fault in the device.

Recommendation: inspect and clean the device, check the hardware, or replace the device if the fault recurs.

2) Control-panel faults

These are faults related to the power supply and operating condition of the WCP3 control panel.

- Loss of AC power.
- Loss of DC power.
- Backup power supply overheating.

3. INSTALLATION GUIDE

Step 1: Install peripheral devices (if used)

If the system uses auxiliary alarm devices, install them as follows:

- Connect the fire alarm bell, beacon or other peripheral alarm devices through the OUT port of the control panel.
- Connect early-warning devices, fault devices or peripheral equipment that require a contact input to the NO/NC Fire and NO/NC Fault terminals.
- Make sure the polarity and contact type are wired correctly, and that all connectors are tightened firmly to prevent a loose connection causing signal loss.

Note: This step can be skipped if the system does not use additional peripheral devices.

Step 2: Power the control panel and check the power status

Applying AC power: connect 220 VAC power to the 220 VAC → 24 VDC power-conversion unit.

Checking the power LEDs: after applying power, check the LED cluster to confirm the power status:

AC LED: green when 220 VAC power is present. Yellow: AC power lost, panel switches to backup power.

DC LED: green when a stable 24 V DC supply is present. Yellow: DC power lost or the DC power supply has a fault.

Note: The backup battery is already installed inside the panel; the user does not need to fit the battery.

⚠ Caution: Only work on the power wiring with dry hands; never touch an exposed part of the circuit while 220 VAC power is applied.

Step 3: Configure the basic system information

- Set the sync code (mandatory): the sync code ensures that only sub-devices belonging to the correct system can connect to the WCP3 panel. This step is mandatory before adding sub-devices.
- Set the display name of the control panel (recommended): the display name is shown on the main screen to identify the panel/system area. (Requires an external keyboard to enter.)
- Set the relay activation delay time (recommended, depending on the project).
- Set the system time (RTC).
- Add sub-devices to the system. Set a display name for each device (recommended).

4. OPERATION

The front panel of the WCP3 control panel is designed to help the operator monitor the system's status intuitively and carry out control operations conveniently and quickly. The LCD screen is the main display interface, providing all operating information for the control panel. The screen content changes according to the system's operating status.

The design consists of the following main components:

- 1 LCD information display.
- 7 control keys supporting menu operation.
- 6 LED indicator clusters showing system status.

In addition to the built-in keypad on the front, the WCP3 control panel supports connecting an external keyboard for more convenient control and configuration (particularly useful during system configuration, data entry or system-checking operations).

When an external keyboard is connected, its keys correspond to the front-panel function keys as shown in the table below.

Table 4-1: Key mapping (panel face ↔ external keyboard)

WCP3 Front-Panel Key	Function	Corresponding Keyboard Key
UP (▲)	Move up / increase value	↑ (Up Arrow)

DOWN (▼)	Move down / decrease value	↓ (Down Arrow)
LEFT (◀)	Move left / previous item	← (Left Arrow)
RIGHT (▶)	Move right / next item	→ (Right Arrow)
MENU	Confirm / enter menu / select item	Enter
EXIT	Exit / go back / cancel	Esc

Notes:

- The RESTART button is a dedicated function button on the device itself and has no corresponding key on the external keyboard.
- To restart the system, the operator must use the RESTART button directly on the front of the control panel, following the technical instructions.

4.1 System Configuration

On the main screen, press ENTER on the external PC keyboard (if connected) or press ENTER on the front of the control panel. The system will display a screen prompting for the 6-digit system password.

The operator can enter the password in two ways:

- Type it directly on the PC keyboard (type the 6 digits), then press ENTER to confirm.
- Enter it using the panel's key cluster:
- Use ▲/▼ to change the digit value at the currently selected position (0–9).
- Use ◀/▶ to move to the next digit position.

Press ENTER to confirm login, or press ESC to cancel and return to the main screen.

The system's default password is: 123456.

Note: For security, the device does not support a "forgot password" function. If the password is forgotten, the device must be sent to the manufacturer/technical unit to have the system reset according to procedure.

The LCD screen is the main display interface, providing all operating information for the control panel. The screen content changes according to the system's operating status.

After logging in with the correct password, the control panel displays the Settings Menu screen. The menu consists of 4 main items:

- Control panel settings
- Device settings
- Time settings
- Password settings

Control operations within the menu

- Press ▲ / ▼ (up/down arrows) to move the selection within the menu list.

- Press ENTER to select and open the currently highlighted item.
- Press ESC to exit the current menu or return to the previous screen.

Auto Exit

- To ensure safety and prevent an accidental operation, the system has an auto-exit mechanism:
- If there is no action for 1 minute, the system automatically exits to the main screen (this applies to all setting screens, regardless of which menu is open).
- To re-enter the Settings section, the operator must log in again with the system password.

Control Panel Settings

In the Settings Menu, select "Control panel settings" and press ENTER to open it. It contains 4 functions:

- Sync code settings
- Display name settings
- Delay time settings
- View panel information

The operator uses ▲/▼ to move the selection, ENTER to open an item, and ESC to exit.

- Sync code settings

This item sets the sync code between the WCP3 control panel and the sub-devices in the system, ensuring that sub-devices only connect and send messages to the correct, corresponding control panel.

When the Sync Code Settings function is opened, the screen displays 3 input fields, each a pair of digits. Each pair ranges from 010 to 999.

The operator can enter it in 2 ways:

- Type it directly on the external PC keyboard (type the corresponding numbers).
- Control it using the panel's keys:
- ▲/▼: increase/decrease the value.
- ◀/▶: move between fields/digit pairs.

After entering it fully:

- Press ENTER to save the sync code.
- Press ESC to exit without saving the change.

Note: The sync code must be set correctly according to the deployed system configuration, to avoid a sub-device being unable to connect, or being paired with the wrong system.

- Display name settings

The Display Name Settings function sets the name/title shown on the main screen of the WCP3 control panel (helping the operator identify the system or the name of the building/project).

Requirement: this function requires the use of an external PC keyboard to enter the text.

Input method: English/Vietnamese

During entry:

- Press the CTRL key on the keyboard to switch between English and Vietnamese input mode.
- Press ENTER to save the display name.
- Press ESC to exit without saving the change.

Note: *Once saved, the display name is updated and shown on the main screen of the control panel.*

- Delay time settings

The Delay Time Settings function sets the waiting period from when the control panel receives a FIRE alarm signal to when the panel issues the command to close/open the output relay (controlling peripheral equipment). Setting range: 00–99 seconds.

After a fire alarm, the system will:

- Activate FIRE status (screen display, FIRE LED lit, panel sounder/bell operating).
- Start counting down the delay time. Once the configured delay has elapsed → the output relay is activated.

* Purpose and application of the "relay delay time"

1) Verifying the fire — limiting incorrect action from a false alarm

In many buildings, a detector can be triggered by: kitchen smoke, steam, or dust from construction/maintenance work.

If the relay controlling peripheral equipment activates immediately, it can cause: fire doors closing, roller shutters coming down, smoke-extraction fans or the pressurisation system starting, power being cut to an area, or an external bell/loud alarm activating.

→ Setting a 5–30 second delay gives the operator time to quickly observe or verify before the system controls the external equipment.

2) Avoiding incorrectly triggering high-power equipment

Some relay-controlled loads include: smoke-extraction fan contactors, roller-shutter/fire-door motors, external bells/beacons, and damper/gas shut-off systems (if fitted).

These loads typically have a high inrush current and directly affect the building's operation.

→ Relay delay helps avoid a sudden shock to the system and reduces unnecessary activation.

3) Allowing "manual handling" before the system takes automatic control

In real-world fire-safety operation, handling an event sometimes requires: cordoning off the area before closing doors, turning down/muting the bell to allow internal communication, or checking the location of the alarming detector (to avoid handling it incorrectly).

→ The delay time lets the operator actively choose the appropriate action.

* Setting the delay time:

On the Delay Time Settings screen, the operator sets a time in the range 00–99 seconds:

- Use ▲/▼ to increase/decrease the value, or type it directly on the keyboard.
- Press ENTER to save.
- Press ESC to exit.

Suggested practical settings (for reference):

- 00 s: the relay activates immediately on a fire alarm.
- 05–15 s: suitable for a system that needs quick verification.
- 20–60 s: suitable for a large building or one with several areas prone to false alarms.

* Quick actions while in Fire Alarm / Fault status

While the system is displaying a Fire Alarm (FIRE) or Fault (FAULT) status, the operator can carry out the following quick actions:

- Press ENTER: allows the relay to be turned on/off immediately (activating or de-activating the relay instantly, without waiting for the delay to elapse).

→ Used when a peripheral device needs to be actioned quickly to handle a real situation.

- Press ESC: silences the sounder/bell on the control panel (silence buzzer).

→ Used to reduce the alarm sound at the panel while continuing to monitor the FIRE/FAULT status on the screen.

Note: *Silencing the panel sounder with ESC does not clear the fire alarm/fault status. The system keeps recording and fully displaying the alert until the situation has been dealt with according to the operating procedure.*

Device Settings

The sub-device settings section has 2 items:

- Add a new device
- Device list

Use ▲/▼ to select, then press Enter to open the setting, ESC to exit.

- Add a new device

This function is used to add/register a sub-device to the control panel under a management address. The system supports up to 160 device addresses, numbered from 001 to 160.

Steps:

1. On the Add Sub-Device screen, use the ▲/▼ keys to choose the address to set (001–160).
2. Press ENTER to put the control panel into device-add mode at the chosen address.
3. On the sub-device:
 - Power the device (fit the battery or apply power as designed).
 - Press and hold the SET button on the sub-device to start the pairing/setup process.
 - The system will then automatically complete the rest. This takes about 5 seconds.

Once configuration succeeds, the sub-device is registered in the system at the chosen address.

Exiting add-device mode: press ESC to exit add-device mode and return to the previous menu.

Notes:

- While adding a device, make sure the sub-device is close to the control panel or within suitable signal conditions (depending on the system's communication technology).
- Each address should only be assigned to 1 device, for easier management and to avoid confusion during operation.
- Device list

The Device List item is used to display and manage all sub-devices that have been added to the system. Here, the operator can view the list by address and rename the display name of each device for easier monitoring, operation and fault handling.

Main functions:

- Display the complete list of sub-devices configured in the system.
- Allow renaming the display name of each device as needed (for example, "Warehouse A", "Floor 2 – Room 203", "Corridor 1", etc.).
- Allow deleting a configured device.

Requirement: this function requires the use of an external PC keyboard.

Operating steps:

- On the Device List screen:
- Use ▲/▼ to select the device to rename.
- Use ◀/▶ to change page in the device list: each press moves to the next or previous page.
- Use Page Up / Page Down to jump 10 devices at a time in the list, for quick searching when the system has many devices.

2. Press ENTER to enter display-name edit mode.

3. Enter the device name on the keyboard using one of 2 modes: English/Vietnamese.

4. Press CTRL to switch between English and Vietnamese input mode.

5. Press ENTER to save the display name.

6. Press ESC to exit or cancel the action (depending on the screen state).

Note: Renaming only affects the content displayed on the control panel for operational management; it does not change the device's system address.

Time Settings

The Time Settings function sets the real-time clock (RTC) of the WCP3 control panel. This time is used for:

- Display on the main screen,
- Recording the time in the event log (LOG),
- Tracing back when a fire alarm/fault occurs.

From the Settings Menu, choose Time Settings and press ENTER to open the time-setting screen. The screen will show the following fields:

- Set hour
- Set minute
- Set day
- Set month
- Set year

The operator adjusts these using the following keys:

- ▲ / ▼ (UP / DOWN): move to the next or previous field.
- ◀ / ▶ (LEFT / RIGHT): increase / decrease the value of the selected field.
- ENTER: save (confirm) the time just set.
- ESC: exit the time-settings screen (without saving changes).

In addition to the keys on the panel, the operator can use the external keyboard with the corresponding function keys (arrows, ENTER, ESC) and type numbers directly for a more convenient operation.

Important notes

- The time should be set correctly to ensure that fire-alarm/fault event records carry an accurate time.
- If, after setting the time, ESC is pressed to exit before pressing ENTER, the changed value may not be saved.

Password Settings

The Password Settings function changes the system login password of the WCP3 control panel, to improve security and restrict unauthorised access to the settings area. The system password consists of 6 digits, with a default of 123456.

From the Settings Menu, choose Password Settings and press ENTER. The screen will display in the form:

Password: [0] 0 0 0 0 0

Where the character inside the [] brackets is the position currently selected for editing.

The operator can enter the password in 2 ways:

a) Type it directly on the external PC keyboard (recommended)

- Type the 6 digits of the new password in sequence (0–9).
- Double-check the password just entered.
- Press ENTER to save.

b) Enter it using the keys on the control panel

- Use ▲/▼ to increase/decrease the value of the digit at the selected position (0–9).
- Use ◀/▶ to move to the next digit, or back to the previous one.
- After entering all 6 digits, press ENTER to save.

Press ESC: exit the Password Settings screen (without saving changes).

Important security notes

- The default password should be changed as soon as installation/deployment of the system is complete.
- The password should be managed by the person responsible for operating the system.
- The system does not support a "Forgot password" function. If the password is forgotten, contact the technical unit/manufacture to have it handled according to procedure.

4.2 Screen Status

When the system is operating stably, with no fire or fault: the screen shows real time and the configured display name. It shows the total number of sub-devices currently connected in the FIRESMART system.

This is the default interface, letting the operator quickly monitor the whole system without any key presses.

Fire Alarm Status

When one or more sub-devices detect a fire:

- The screen switches to Fire Alarm mode (FIRE).
- It shows a prominent notice: FIRE – FIRE ALARM.
- It shows the number of devices currently in alarm.
- It shows the address, name or location of the device(s) that triggered the alarm.

The user can use the navigation keys (UP/DOWN) to view details of each device in alarm if several devices have triggered at once.

Purpose: to help the operator quickly and accurately identify the danger location for prompt handling.

Fault Status

When the system detects a fault, the LCD displays a fault notice with an instruction: "Fault — press DOWN (↓)"

This interface is used to give a quick notice that the system currently has a fault and requires the operator to take action to view the details.

The screen displays:

Notice: FAULT – DEVICE FAULT

- The address of the device with the fault
- The type of fault: lost connection / low battery

The technician can use the navigation keys to view the detailed fault list.

The operator uses ▲ / ▼ to scroll through the whole list of faulty devices if the list is long. If the system has several different types of fault at once:

Press ► (RIGHT arrow) to move to the next fault type.

Press ◀ (LEFT arrow) to go back to the previous fault type.

- Settings status

When the user presses the MENU/OK key, the screen shows a list of setting items such as: system configuration, device management, sync code, signal check, log export, time settings, etc. When any item is selected, the screen shows the detailed parameters for the user to adjust.

The LEFT/RIGHT navigation keys switch items, UP/DOWN change parameters, and MENU/OK confirms.

- Power-saving mode

The LCD backlight stays on for 60 seconds after the last action.

If there is no action, the system automatically turns off the backlight to save the backup battery.

To turn the backlight back on, press any key: UP, DOWN, LEFT, RIGHT, MENU/OK, EXIT.

II. FSMBL WIRELESS SOUNDER/BEACON/CALL POINT UNIT

1. DEVICE INTRODUCTION

1.1 Role in the System

FSMBL is an advanced intermediate module in the FIRESMART system, acting as a smart bridge between the WCP control panel and field devices located far away. FSMBL can be thought of as an upgraded repeater module, both extending the RF coverage area and performing field control tasks.

1.2 Key Features

The FSMBL device is equipped with the following core functions:

- Extending and stabilising RF communication: receives messages from devices located outside the WCP panel's direct coverage, then relays them accurately and promptly back to the control panel.
- Two-way control commands: receives commands, configuration or handling procedures from the WCP and redistributes them to the correct corresponding sub-device in its managed area.
- Activating a field alert (bell/beacon) through the OUT port when switching to fire-alarm state on command from the WCP.
- Providing an on-site activation point: it has a contact input for connecting a fire-alarm call point.

1.3 Technical Specifications

Item	Specification / Description
RF communication technology	444.4 MHz RF, compatible with the FIRESMART system
Main power supply	100–240 VAC, 50–60 Hz
Backup power	3 × pre-fitted 18650 batteries, 2000 mAh
Backup run time	24 hours in normal mode 5 hours in fire alarm mode
Alarm output	OUT 24 VDC-1 A (bell/beacon pre-wired) 1 NO/NC contact
Call-point input	1 × BUTTON contact input
RF transmission range	150–200 m (open environment) 25–50 m depending on obstructions
Local alert function	24 VDC bell/beacon activated by the call point or by

	command from the WCP
Alarm sound level	Refer to datasheet
Operating temperature / humidity	-10°C to +55°C 10–90% RH, non-condensing
Dimensions	260×165×57 mm
Enclosure material	1 mm steel, powder-coated

2. OPERATING PRINCIPLE

Under normal conditions:

FSMBL maintains two-way RF communication with the WCP control panel.

The device acts as a relay for messages from devices that are far away or obstructed, ensuring data (status, events, alarms) is transmitted to the WCP reliably and continuously.

In this state, FSMBL does not trigger an alarm; it only performs the coverage-extension and communication-relay function.

2.1 When a Fire Alarm Occurs

- The user activates the emergency call point.
- The system immediately activates the fire alarm sounder integrated on the unit.
- The output relay closes to switch on peripheral alarm devices (bell, beacon, separate sounder, etc.).
- At the same time, FSMBL sends an emergency event message to the WCP control panel for logging and handling according to the configured scenario.
- It also acts on any command from the control panel.

In addition to activation by the emergency call point, the unit can also receive a fire-alarm-mode message from the control panel:

- The bell/beacon integrated on the FSMBL unit is activated.
- The control relay is used to switch on field alarm devices as required.

This mechanism lets the WCP activate a local alarm at each area through FSMBL, without needing direct action from a person on site.

2.2 When a Fault Occurs

FSMBL continuously monitors the status of its power supply. When it detects the battery voltage falling below the permitted threshold, or the AC supply being lost:

- The device switches to fault mode.
- It sends a fault alert message to the WCP.
- The fault status is maintained until the fault is resolved.

3. INSTALLATION GUIDE

Step 1: Install peripheral devices (if used)

If the system uses auxiliary alarm devices, install them as follows:

- Connect the fire alarm bell, beacon or other peripheral alarm devices through the OUT port of the combined unit.
- Connect early-warning devices or peripheral equipment requiring a contact input to the NO/NC Fire terminals.
- Make sure the polarity and contact type are wired correctly, and that all connectors are tightened firmly to prevent a loose connection causing signal loss.

Note: *This step can be skipped if the system does not use additional peripheral devices.*

Step 2: Power the control panel and check the power status

Applying AC power: connect 220 VAC power to the point marked "220 VAC" on the circuit board.

Checking the power LEDs: after applying power, check the LED cluster to confirm the power status:

AC LED: green when 220 VAC power is present. Yellow: AC power lost, panel switches to backup power.

DC LED: green when a stable DC supply is present. Yellow: DC power lost or the DC power supply has a fault.

Note: *The backup battery is already installed inside the unit; the user does not need to fit the battery.*

 **Caution:** Only work on the power wiring with dry hands; never touch an exposed part of the circuit while 220 VAC power is applied.

Step 3: Set the sync code for the combined unit

Once power has been applied, set the sync code on the combined unit to synchronise it with the other devices. The sync code ensures that only devices belonging to the same FIRESMART system can connect and exchange data with the WCP control panel:

- Put the WCP control panel into add-new-device mode.
- Power the combined unit, then, while its LED is flashing, press and hold the SET button on the combined-unit board until the LED stops flashing.
- The control panel will then automatically complete the rest of the setup. When the LED on the combined unit flashes again, setup has succeeded. Then set the display name of the combined unit on the control panel.

Synchronising the code is mandatory for the system to operate accurately and securely.

4. OPERATION

4.1 Operation on a Fire Alarm

a. When the user activates the emergency call point

When the user presses the emergency call point on the FSMBL unit:

- The fire alarm sounder integrated on the unit is activated immediately.
- The output relay closes, supplying a control signal to peripheral alarm devices.
- FSMBL automatically sends an emergency fire alarm message to the WCP control panel.

The WCP control panel receives the event, displays the fire alarm status and processes it according to the configured scenario (logging, activating related devices, sending alerts, etc.).

Once the incident has been resolved, the combined unit must be restarted to reset its operating status:

- Step 1: Release the call point back to standby: insert the key into the call point and turn it clockwise.
- Step 2: Press the restart button on the control panel and on the combined unit.

b. When a fire alarm command is received from the control panel

When the WCP issues a command to switch to fire alarm mode:

- FSMBL receives the control message and activates its integrated bell/beacon.
- The relay is controlled to switch on field alarm devices as required.
- In this case, FSMBL acts as a local alarm device, allowing an alarm to be raised in an area without needing direct action from a person on site.

Once the incident has been resolved, press the restart button on the control panel to reset the operating status of the system.

4.2 Operation on a Fault

FSMBL continuously monitors the status of its power supply (AC power and the backup battery). When one of the following conditions occurs:

- The battery voltage falls below the permitted threshold.
- AC power is lost.

The device will:

- Switch to fault mode.
- Send a battery/power fault alert message to the WCP control panel.
- Maintain the fault status until: the battery is replaced, or the power supply is stably restored.

The operator needs to check and correct the power supply according to the notice on the control panel to bring FSMBL back to normal operating status.

III. WIRELESS SMOKE / HEAT DETECTORS

1. WSD WIRELESS SMOKE DETECTOR



Figure 2: WSD wireless smoke detector

The wireless smoke detector is a sensing device in the FIRESMART wireless fire detection and alarm system. It detects smoke in the installation area and transmits alarm information back to the WCP control panel (or to an intermediate module if the device is far away, which then relays it on to the WCP) for processing and system-wide alerting. The device is suitable for most areas, with the exception of places such as kitchens or areas with dust or steam.

1.1 Role in the System

- Early detection of a fire event through its smoke sensor.
- Transmits a fire alarm or fault message back to the control panel.
- Sends a periodic status message so the system can monitor its operating condition.
- Acts as the end-of-line device, directly monitoring the protected area.

1.2 Technical Specifications

Item	Specification
Main function	Detects smoke, sends fire alarms and system status
Sensor	Optical smoke sensor
Wireless communication	444.4 MHz RF (compatible with the FIRESMART system)
Message types transmitted	Status / Fault / Fire
Managed by	WCP control panel
Power supply	3 V battery
Battery life	At least 3 years
Low-battery alert	At the device and at the control panel
Self-monitoring	Battery, sensor, RF connection

Transmission range	25–50 m (indoors), 100–150 m (open environment)
Built-in sounder	≥ 85 dB at 1 m ≥ 75 dB at 3 m
Operating mode	Fully automatic, 24/7
Operating temperature	-10°C to +55°C
Operating humidity	≤ 95% RH, non-condensing
Mounting type	Ceiling-mounted
Enclosure material	Flame-retardant ABS plastic
Colour	White

1.3 Operating Principle

The optical smoke detector operates on the principle of light scattering as smoke enters the sensing chamber. This type of detector is very effective for smouldering, heavily smoke-producing fires.

An optical smoke detector typically consists of the following main components:

- A light-emitting LED (usually infrared – IR).
- A light-receiving sensor (photodiode or phototransistor).
- A smoke chamber, designed to block ambient light.
- A signal-processing circuit.

The emitting LED and the receiving sensor are offset at an angle to each other, not facing directly.

- Normal status

Under normal operating conditions, the smoke detector sends a periodic status message to update its operating condition and battery level. If the control panel does not receive a message within the configured time, it will report a loss of connection.

- Alarm status

When the detector confirms it has detected smoke: it switches to alarm status and sends a signal/message reporting fire back to the control panel or an intermediate device. The control panel analyses the device's address, displays its location and raises the alarm. At the same time, the detector also lights up red and sounds an alarm.

- Fault status

Faults such as low battery or a sensor fault are packaged into a fault message. This fault message is transmitted through the same channel as a fire alarm, for display and logging. When the detector has a low battery, it emits a "tick" sound once every 40 seconds.

A lost-connection fault occurs when the control panel does not receive a periodic message within 300 seconds.

- Operation

- The device operates fully automatically and requires no day-to-day action.
- When smoke or a fault is present, the system automatically processes it and raises the alarm.
- The operator only needs to monitor the information shown on the control panel.

Note: *The detector should be inspected and cleaned once every 6 months to keep it working correctly.*

1.4 Installation Guide

Step 1: Preparation before installation

Before installation, make sure of the following:

- The WCP control panel has been powered and is operating stably.
- The correct installation area for the detector has been identified according to the system design.
- All required materials are ready: detector base, screws, wall plugs, and the correct type of 3 V battery.

Step 2: Set the sync code for the detector

On the WCP control panel, configure the sync code for the detector and set its display information at the same time.

- Step 1: put the control panel into add-new-device mode.
- Step 2: fit the battery into the detector; while its LED is flashing, press the SET button on the back of the detector until the LED stops flashing. The control panel will then automatically set the sync code for the detector.
- Step 3: once configuration succeeds, the LED turns off. Then set the display name of the detector on the control panel.

Synchronising the code is mandatory so the detector can communicate accurately within the system and avoid interference with neighbouring systems.

Step 3: Mount the detector on the ceiling.

a. Fitting the base

- Place the detector base at the identified location on the ceiling.
- Mark and drill the mounting-screw holes according to the base.
- Use wall plugs to fix the detector base firmly to the ceiling.

b. Fitting the detector to its base

- Fit the battery into the detector and stow it neatly in the battery compartment.
- Align the body of the detector correctly with the base.
- Turn the detector clockwise until it locks firmly onto the base.
- Recheck that it is secure, making sure the detector is not loose.

Step 4: Post-installation check

After completing installation, check on the WCP3 control panel:

- The detector has appeared in the device list.
- The status shown is normal, with no fault reported.

- Carry out a test according to the system procedure to confirm the detector is transmitting its signal correctly.

2. WHD WIRELESS HEAT DETECTOR

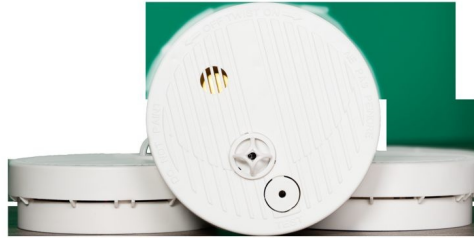


Figure 3: WHD wireless heat detector

The wireless heat detector is a sensing device in the FIRESMART system that detects fire through the ambient temperature. It is particularly suitable for areas not appropriate for a smoke detector, such as kitchens, or areas with dust or steam.

2.1 Role in the System

- Detects a fire risk through a rise in temperature.
- Transmits a fire alarm or fault message back to the control panel.
- Sends a periodic status message so the system can monitor its operating condition.
- Acts as the end-of-line device, directly monitoring the protected area.

2.2 Technical Specifications

Item	Specification
Main function	Detects fire through ambient temperature, sends fire alarms and system status
Activation threshold	Class A1 per TCVN 7568
Wireless communication	444.4 MHz RF (compatible with the FIRESMART system)
Message types transmitted	Status / Fault / Fire
Managed by	WCP control panel
Power supply	3 V battery
Battery life	At least 3 years
Low-battery alert	At the device and at the control panel
Self-monitoring	Battery, sensor, RF connection
Transmission range	25–50 m (indoors), 100–150 m (open environment)

Built-in sounder	≥ 90 dB at 1 m ≥ 75 dB at 3 m
Operating mode	Fully automatic, 24/7
Operating temperature	-10°C to 50°C
Operating humidity	$\leq 95\%$ RH, non-condensing
Mounting type	Ceiling-mounted
Enclosure material	Flame-retardant ABS plastic
Colour	White

2.3 Operating Principle

The heat detector is a fire-detection device based on the change in ambient temperature, and does not rely on smoke or flame. When the temperature reaches or exceeds the defined threshold, the detector sends a fire alarm signal to the control panel.

- Normal status

Under normal operating conditions, the ambient temperature around the detector stays within the permitted limit, approximately $\leq 50^{\circ}\text{C}$. The heat detector sends a periodic status message to update its operating condition and battery level. If the control panel does not receive a message within the specified time, it will report a loss of connection.

- Alarm status

The detector is set to a defined temperature threshold (A1 per TCVN 7568). When the ambient temperature reaches or exceeds this threshold:

- The detector sends a fire alarm signal to the control panel.
- The alarm status is maintained until the system is reset.

When confirmed: the detector switches to alarm status and sends a signal/message reporting fire back to the control panel or an intermediate device. The control panel analyses the device's address, displays its location and raises the alarm. At the same time, the detector also lights up red and sounds an alarm.

- Fault status

Faults such as low battery or a sensor fault are packaged into a fault message. This fault message is transmitted through the same channel as a fire alarm, for display and logging. When the detector has a low battery, it emits a "tick" sound once every 40 seconds.

A lost-connection fault occurs when the control panel does not receive a periodic message within 300 seconds.

- Operation
- The device operates fully automatically and requires no day-to-day action.
- When smoke or a fault is present, the system automatically processes it and raises the alarm.

- The operator only needs to monitor the information shown on the control panel.

2.4 Installation Guide

Step 1: Preparation before installation

Before installation, make sure of the following:

- The WCP control panel has been powered and is operating stably.
- The correct installation area for the detector has been identified according to the system design.
- All required materials are ready: detector base, screws, wall plugs, and the correct type of 3 V battery.

Step 2: Set the sync code for the detector

On the WCP control panel, configure the sync code for the detector and set its display information at the same time.

- Step 1: put the control panel into add-new-device mode.
- Step 2: fit the battery into the detector; while its LED is flashing, press the SET button on the back of the detector until the LED stops flashing. The control panel will then automatically set the sync code for the detector.
- Step 3: once configuration succeeds, the LED turns off. Then set the display name of the detector on the control panel.

Set the sync code for the detector so that: the detector's code matches the code of the WCP control panel and the system.

Synchronising the code is mandatory so the detector can communicate accurately within the system and avoid interference with neighbouring systems.

Step 3: Mount the detector on the ceiling.

a. Fitting the base

- Place the detector base at the identified location on the ceiling.
- Mark and drill the mounting-screw holes according to the base.
- Use wall plugs to fix the detector base firmly to the ceiling.

b. Fitting the detector to its base

- Fit the battery into the detector and stow it neatly in the battery compartment.
- Align the body of the detector correctly with the base.
- Turn the detector clockwise until it locks firmly onto the base.
- Recheck that it is secure, making sure the detector is not loose.

Step 4: Post-installation check

After completing installation, check on the WCP3 control panel:

- The detector has appeared in the device list.
- The status shown is normal, with no fault reported.
- Carry out a test according to the system procedure to confirm the detector is transmitting its signal correctly.

3. DETECTOR CLEANING GUIDE

3.1 Purpose

- Remove dust, insects and grease/oil residue from inside the detector.
- Prevent false fire alarms (particularly with optical smoke detectors).
- Maintain the sensitivity and reliability of the fire alarm system.
- Detect early signs of ageing or device damage.

3.2 Recommended Cleaning Cycle

- Normal environment (office, home): every 6 months.
- Dusty, humid, greasy environment (workshop, kitchen, warehouse): every 3 months.
- After renovation or construction work: clean immediately.

Tools required:

- A handheld vacuum cleaner or low-pressure air blower.
- A soft brush / small paintbrush.
- A dry, clean, lint-free cloth.
- A ladder or a dedicated detector-removal pole.

3.3 Smoke Detector Cleaning Procedure

- Removing the detector:
- Turn the detector counter-clockwise to release it from its base.
- Handle it gently, avoiding dropping it or knocking it hard.
- Cleaning the outside
- Disconnect the detector's battery power before cleaning.
- Use a dry cloth or soft brush to wipe the detector housing clean.
- Clean the smoke-intake slots around the body of the detector.
- Cleaning the smoke chamber (important)
- Use a vacuum cleaner or gently blow compressed air into the smoke chamber.
- Vacuum/blow from several directions; avoid blowing directly with excessive force.
- Do not use: water, chemical solvents, alcohol or strong cleaning agents.

 **Caution:** Do not touch the emitting LED or the light-receiving sensor inside the smoke chamber with your hand or any hard object.

- Post-cleaning check: observe for
- Any remaining dust.
- Signs of insects, mould/damp, or oxidation.
- If the smoke chamber is heavily discoloured or a component is damaged → replace the detector.
- Reinstall and check operation
- Reinstall the detector in the correct position, turning it just tight enough.
- Carry out a functional test of the detector.
- Make sure the detector returns to normal status.

3.4 Heat Detector Cleaning Procedure

- Removing the detector: same as for the smoke detector.

- Cleaning the surface: disconnect the detector's battery power before cleaning; wipe the detector housing clean with a cloth.
- Use a soft brush or compressed air to clean dust off the circuit board surface.
- Reinstall and check operation
- Reinstall the detector in the correct position, turning it just tight enough.
- Carry out a functional test of the detector.
- Make sure the detector returns to normal status.

 **Caution:** Do not test a heat detector with a naked flame, a lighter or a gas torch, as this can shift its heat-activation threshold.

Contact & Support

For technical support, warranty service, spare parts or system design assistance, please contact FIRESMART:

- Phone / Hotline: 0983.016.201
- Website: firesmart.vn
- Office: 3rd Floor, HH2 Bac Ha Building, Nhan Chinh Ward, Thanh Xuan, Hanoi, Vietnam
- Factory: CN3 Road, Tu Liem Small and Medium Industrial Cluster, Hanoi, Vietnam

The Vietnamese-language original of this manual, together with full installation photographs and app configuration screenshots, is available on request or for download at firesmart.vn.