

CE

# ***Multizone 4-12***

## ***User & Installation Manual***

### **IMPORTANT**

This manual should be left with the panel after installation.



***TEROFIRE PRODUCTS***

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## ***Introduction***

The information provided in this manual covers the Multizone 4, 6, 8, 10 & 12 fire alarm control panels. The Multizone range is designed to meet the requirements of EN54 Parts 2 & 4.

This product should be installed, commissioned and maintained by suitably qualified service personnel with reference to IEE regulations and any statutory requirements.

## ***General Description***

The Multizone 4-12 range of fire alarm control panels are microprocessor controlled and are available with 4, 6, 8, 10 or 12 sense zones (detector zones). The panels in the range have either 2 or 4 alarm zones (bell zones), one man test facility, zone disable facility, class change input, fault output and two sets of volt free changeover contacts which operate on fire.

## ***Installation Procedure***

Before proceeding with the installation, please read the section *Panel Operation*.

**Installation of the panel should be carried out by qualified personnel.**

Using the metal box as a template, mark the position of the fixing holes on the wall. Drill and plug the wall, then screw the panel to the wall. Ensure the panel is free from knockout discs, swarf and other debris.

Do not remove any end of line resistors from the panel until after the following test is performed.

With all end of line resistors fitted inside the panel, connect the panel mains supply to an exclusive 240V AC fused supply. Switch the mains supply on. The internal buzzer will sound. Connect two sealed lead acid batteries to the panel - they should be connected in series providing a 24V DC supply.

With both the mains and battery supplies connected, the panel should be silent and in its normal operating mode (power lamp on, alarms & buzzer silent). **If a fault is indicated, refer to the fault finding section before proceeding.** Disconnect the batteries and switch off the mains supply. Remove the 3k3 end of line resistor from sense zone 1. Terminate sense zone 1 circuit wiring in the panel observing correct polarity and fit the end of line resistor at the extreme end of the circuit. Check that all the

detectors and call points are correctly wired. With sense zone 1 connected and all other end of line resistors fitted inside the panel, connect the mains and battery supplies. **If the panel indicates a fault, refer to the fault finding section before proceeding.** Do not megger cables connected to either the panel or any field devices. If no faults are indicated then power down the panel and follow the same procedure with the additional sense zones and then the alarm zones. Adding the zones one at a time makes fault finding and commissioning much simpler. Make sure that no bare wires come into contact with the panel circuit boards during installation.

### ***Detector Head Removal***

The Multizone 4-12 range supports head removal. The basic principle of head removal is to ensure that all call points will function even if a detector head has been removed. Head removal requires either zener clamp bases or schottky diode bases with the appropriate end of line device to be fitted. When a detector head is removed, the panel will show a fault, but the sense zone circuit will remain intact. Consult the table on page 11 for further information.

## ***Panel Operation***

### ***Enabling the front panel buttons.***

Before being able to access the Silence, Reset, and Test/Disable functions, the key switch in the top left of the panel must be turned to the 'On' position.

### ***Displaying zones in fire***

When the panel detects a fire on a zone, zone 2 for example, the panel will display the following information:

```
FIRE 1st-Zone=02  
Last=02 Total=01
```

This displays the first zone that went into fire, the last zone that went into fire, and the total number of zones in fire. Now if zone 4 and zone 1 were to go into fire also, the display would change to:

```
FIRE 1st-Zone=02  
Last=01 Total=03
```

The Scroll button is always active regardless of the position of the key switch. Pressing the Scroll button will cycle through all the zones currently in fire. In this example, pressing the Scroll button once will display:

```
Zone 01 FIRE  
Last=01 Total=03
```

Pressing the Scroll button again will display the next zone in fire:

```
Zone 02 FIRE  
Last=01 Total=03
```

### ***Resetting the panel after a fire is detected.***

To reset the panel after a fire event, press the Silence button followed by the Reset button.

### ***Silencing/resounding the alarms.***

If a fire is detected, the panel will automatically activate the alarm circuits. To silence the alarms, press the Silence button once. To resound the alarms, press the Silence button again.

***Performing a lamp test.***

If the panel is in its normal condition, pressing the Reset button will cause the panel to perform a lamp test.

***Resetting the panel.***

If any of the panel functions have been activated, pressing the Reset button will return the panel to its normal condition.

***Silencing the internal buzzer.***

If a fault is detected by the panel, the internal buzzer will sound. To silence the buzzer press the Silence button. A CPU fault cannot be silenced.

***Using the one man test function.***

To enter test mode, press the Test/Disable button until the LCD shows Test Menu. Press Silence to enter the test menu.

```
Test Menu
Zone 01    [ ]
```

You will see the the text shown above. The space inside the brackets indicates that zone 1 is not in test mode. To toggle the status of zone 1, press the Silence button. The display will change to the following.

```
Test Menu
Zone 01    [*]
```

Note the asterisk inside the brackets indicating that zone 1 is now in test mode. To place further zones into test mode, press the Menu button until the relevant zone is shown in the display, then press the Silence button to toggle the status of that zone.

When a zone in test mode detects a fire event, the alarms will ring for a few seconds before resetting. If the panel is left in test mode and no events occur for approximately 10 minutes, the panel will automatically exit test mode and resume normal operation. To exit test mode manually and return the panel to normal operation, press the Reset button.

If a fire is detected on a zone not in test, then the panel will enter the fire condition and exit test mode.

**Using the disable function.**

The panel allows the user to selectively disable the sense zones and the alarm zones. The selection process is very similar to that used in the test function. To enter disable mode, press the Test/Disable button until the LCD shows `Disable Menu`. Press Silence to enter the disable menu.

```
Disable Menu
Zone 01    [ ]
```

You will see the the text shown above. The space inside the brackets indicates that zone 1 is not disabled. To toggle the status of zone 1, press the Silence button. The display will change to the following.

```
Disable Menu
Zone 01    [*]
```

Note the asterisk inside the brackets indicating that zone 1 is now disabled. To disable further zones, press the Test/Disable button until the relevant zone is shown in the display (`Zone 1, Zone 2, ... , Alarms`), then press the Silence button to toggle the status of that zone.

Once the required zones have been selected, press the Reset button. If any zones were disabled, the disable LED will remain lit, and the alarms disabled LED will be lit if the alarm zones were disabled. All incoming signals from disabled sense zones will be ignored. **If the alarm zones are disabled, then the alarms will not be activated even if the panel detects a fire event on an active sense zone.**

**Selecting a zone as non-latching.**

In some situations, such as interlinking fire alarm panels, it is necessary to set a sense zone as non-latching. When a fire event is detected on a non-latching zone, the panel will go into fire as usual but will automatically reset as soon as the device signalling fire is reset.

To enter the non-latching selection mode, press the Test/Disable button until the LCD shows `Non-Latch Menu`. Press Silence to enter the non-latching menu.

```
Non-Latch Menu
Zone 01    [ ]
```

You will see the the text shown above. The space inside the brackets indicates that zone 1 is set as latching. To toggle the status of zone 1, press the Silence button. The display will change to the following.

```
Non-Latch Menu  
Zone 01    [*]
```

Note asterisk inside the brackets indicating that zone 1 is now set as non-latching. To select further zones, press the Test/Disable button until the relevant zone is shown in the display, then press the Silence button to toggle the status of that zone. Once the required zones have been selected, press the Reset button.

## ***Fault Finding***

If a fault is detected on the panel, the Fault LED will be lit and the internal buzzer will be sounding. To silence the buzzer, press the Silence button. Specific information about the fault can be obtained from the panel fault menu.

### ***Displaying fault information on the LCD.***

To enter the fault menu, press the Test/Disable button until the LCD shows Fault Info. Press Silence to enter the fault info menu. If sense zone 1 is not in fault, the following information will be displayed:

```
Fault Info
Zone 01    [-]
```

If a fault was present on sense zone 1, the '-' would be replaced by 'X' as below.

```
Fault Info
Zone 01    [X]
```

Pressing the Test/Disable button will scroll through the sense zones followed by the other possible fault sources - earth, 28V Aux, PSU and alarms.

### ***Front panel buttons bleeping, but not working.***

To activate the front panel buttons, turn the keyswitch in the top left of the panel to the ON position.

### ***Sense zone fault, fault LED lit.***

Faults monitored are:

- Open circuit on the sense zone wiring.
- Short circuit on the sense zone wiring.
- Detector head removal.

Check all detectors and call points on the sense zone indicated. Check wiring is as in example diagrams and ensure the end of line monitor is a 3k3 resistor or an active end of line device.



***Alarm zone fault, alarm fault LED lit, fault LED lit.***

Faults monitored are:

- Open circuit on the alarm zone wiring.
- Short circuit on the alarm zone wiring.
- Blown alarm fuse(s)

Check alarm zone wiring is as in example diagrams and ensure that the 10k end of line resistor is fitted. Check alarm zone fuses.

***PSU fault, fault LED lit.***

Faults monitored are:

- Battery supply not present.
- Batteries faulty or not fully charged.
- Blown battery fuse.
- Mains supply not present.
- Blown mains fuse.

Check relevant fuses. Ensure batteries are connected correctly and battery leads are secure.

***Earth fault, fault LED lit.***

The panel has detected an earth fault. The only earth connection to the panel terminals should be to the mains input terminal block. Check that no other earth connections are present.

***28V Aux fault, fault LED lit.***

Faults monitored are:

- Blown 28V Aux fuse

Check the 28V Aux fuse.

***Fault LED and CPU fault LED lit.***

Processor fault detected. If no other problems are found then reset the processor. Inside the panel are two push buttons marked CPU RESET and WATCHDOG RESET. Press CPU RESET followed by WATCHDOG RESET.

***Panel does not indicate fire when a call point or detector is triggered.***

Either a faulty call point/detector or wiring not as shown in diagrams.

Check the firing resistance of the device is  $510 \pm 200$  ohms and ensure that the correct end of line device is fitted.

**Head removal not working.**

Check compatible base is being used and is wired correctly. Either a zener clamp base with a 3k3 end of line resistor, or a schottky diode base with an active end of line device must be used.

**Fuse ratings.**

Mains fuse (F7) ..... 1A A/S  
Alarm fuses (F1-F4) ..... 250mA A/S  
Battery fuse (F6) ..... 2A A/S  
28V AUX fuse (F5) ..... 125mA A/S

**Fault output.**

The auxiliary fault output, marked AF on the PCB, is an open collector output that is normally pulled low. When the panel detects a fault, the AF output is switched into its high impedance state. Refer to the wiring diagram on page 16 for example connection details.

**Other faults.**

For any other faults, perform a CPU reset. Inside the panel are two push buttons marked CPU RESET and WATCHDOG RESET. Press CPU RESET followed by WATCHDOG RESET. This will restart the processor, but all configuration information (disable, non-latching) will have to be re-entered.

**Detector Base and Call Point Wiring Information**

| Part Number               | Terofire STB-4SDR  | Hochiki YBK-R/5ZD | Hochiki YBN-R/4 | Apollo S60 Diode Base | Apollo S60 Common Base | KAC Call Point        | Fulleon Call Point    | Resettable Call Point |
|---------------------------|--------------------|-------------------|-----------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|
| Positive In               | 4                  | L1                | 2               | L1 IN                 | L1 IN                  | 1                     | 470 Ohms              | + IN                  |
| Positive Out              | 4                  | L2                | 1               | L1 OUT                | L1 OUT                 | 1                     | 470 Ohms              | + OUT                 |
| Negative In               | 1                  | C5                | 5               | L2                    | L2                     | 2                     | COMMON                | - IN                  |
| Negative Out              | 6                  | C6                | 6               | L2                    | L2                     | 2                     | COMMON                | - OUT                 |
| Remote Indicator Positive | 4                  | L1                | N/A             | L1 IN                 | L1 IN                  | N/A                   | N/A                   | N/A                   |
| Remote Indicator Negative | 5                  | S3                | N/A             | -R                    | -R                     | N/A                   | N/A                   | N/A                   |
| End of Line Device        | Active End of Line | 3k3 Resistor      | 3k3 Resistor    | Active End of Line    | 3k3 Resistor           | To Suit Detector Base | To Suit Detector Base | To Suit Detector Base |
| Head Removal Supported    | Yes                | Yes               | No              | Yes                   | No                     |                       |                       |                       |

**Panel Specifications**

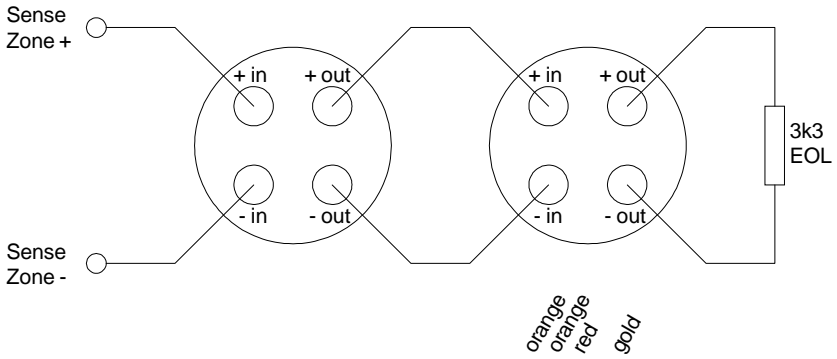
|  | Multizone 4       | Multizone 6       |
|--|-------------------|-------------------|
| Mains Voltage (V AC)                       | 240               | 240               |
| System Voltage (V DC)                      | 28.4              | 28.4              |
| Quiescent Current (mA)                     | 120               | 120               |
| Quiescent Current, Unsilenced Fault (mA)   | 130               | 130               |
| Minimum Battery Size 2 x 12V Required (Ah) | 7                 | 7                 |
| Detector Voltage (V DC)                    | 20                | 20                |
| Number of Sense Zones                      | 4                 | 6                 |
| Maximum Number of Detectors per Zone       | 20                | 20                |
| Firing Resistance (Ohms)                   | 510 ± 200         | 510 ± 200         |
| Sense Zone End of Line (Ohms)              | 3k3               | 3k3               |
| Alarm Voltage (V DC)                       | 28.4              | 28.4              |
| Number of Alarm Zones                      | 2                 | 2                 |
| Maximum Alarm Current per Zone (mA)        | 250               | 250               |
| Maximum Number of Sounders per Zone        | 10                | 10                |
| Alarm Zone End of Line (Ohms)              | 10k               | 10k               |
| Maximum Auxiliary Supply Current (mA)      | 125               | 125               |
| Panel Weight Including Batteries (kg)      | 7.5               | 7.5               |
| Panel Dimensions (mm)                      | 330 x 300 x<br>80 | 330 x 300 x<br>80 |

| Multizone 8       | Multizone 10      | Multizone 12      |
|-------------------|-------------------|-------------------|
| 240               | 240               | 240               |
| 28.4              | 28.4              | 28.4              |
| 120               | 120               | 120               |
| 130               | 130               | 130               |
| 7                 | 7                 | 7                 |
| 20                | 20                | 20                |
| 8                 | 10                | 12                |
| 20                | 20                | 20                |
| 510 ± 200         | 510 ± 200         | 510 ± 200         |
| 3k3               | 3k3               | 3k3               |
| 28.4              | 28.4              | 28.4              |
| 2                 | 4                 | 4                 |
| 250               | 250               | 250               |
| 10                | 10                | 10                |
| 10k               | 10k               | 10k               |
| 125               | 125               | 125               |
| 7.5               | 7.5               | 7.5               |
| 330 x 300 x<br>80 | 330 x 300 x<br>80 | 330 x 300 x<br>80 |

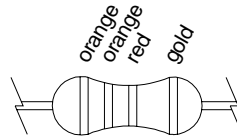
### Sense Zone Wiring Diagrams

Find the detector bases you will be using in the table on page 11 and check to see which end of line device is required - either a 3k3 resistor or an active end of line unit. The 3k3 resistor should be used if a zone is comprised entirely of call points.

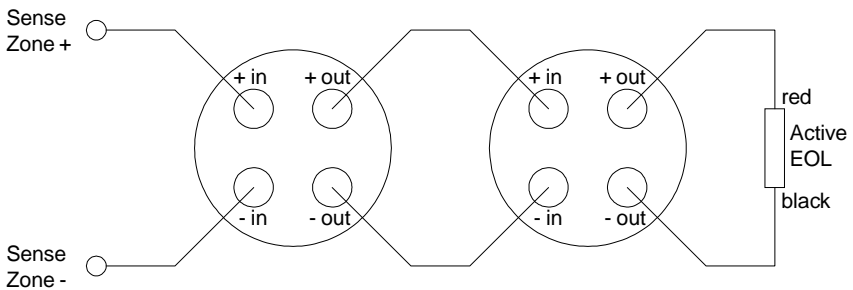
#### Sense zone with a 3k3 end of line resistor.



The colour bars on a 3k3 resistor are



#### Sense zone with an active end of line.

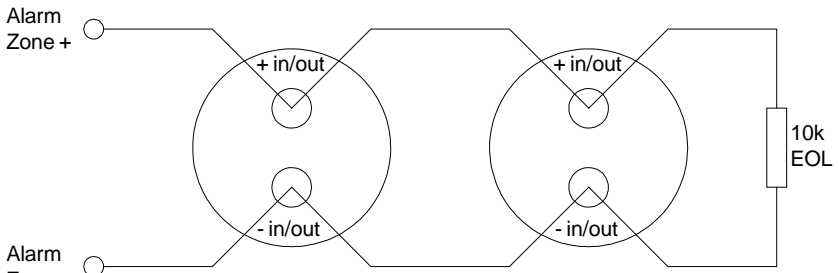


The panel is supplied with 3k3 end of line resistors as standard. Active end of line units are available separately.

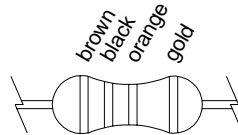
Remote indicator connection details are shown in the table on page 11.

### Alarm Zone Wiring Diagram

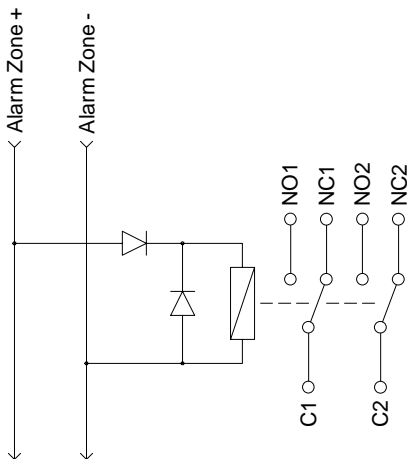
The alarm zones are wired as in the diagram below. A 10k end of line resistor must be fitted at the end of the circuit. Motorised fire bells may be used, but solenoid bells MUST NOT be connected to the panel.



The colour bars on a 10k resistor are



### Attaching a relay to an alarm zone.



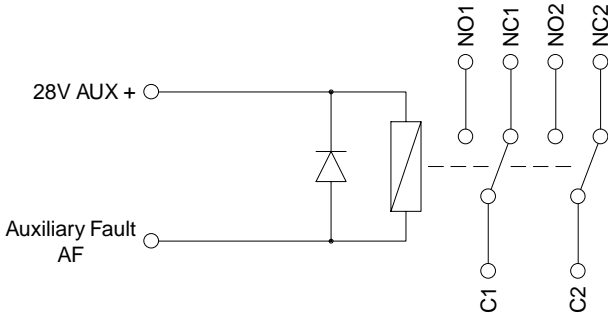
A relay may be connected anywhere on the alarm zone wiring provided that two diodes (1N4001 or equivalent) are fitted as shown in the diagram. The end of line resistor is not shown, but must be connected at the end of the alarm zone wiring.

The relay must have a 24V DC coil.

## Additional Wiring Information

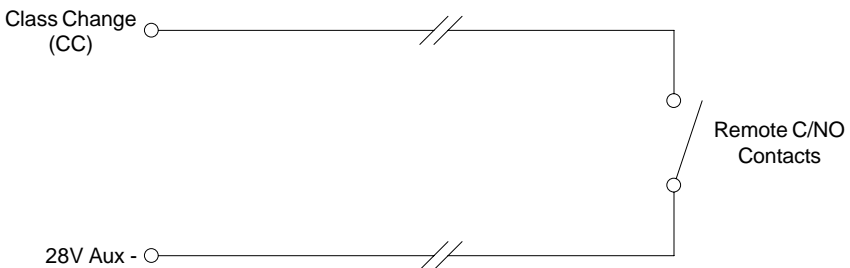
### Connecting a relay to the auxiliary fault (AF) output.

A fault relay can be connected to the panel as shown. The diode (1N4001 or equivalent) must be fitted. The relay must have a 24V DC coil. The relay will normally be energised, dropping out if the panel signals a fault condition.



### Ringling the alarms remotely.

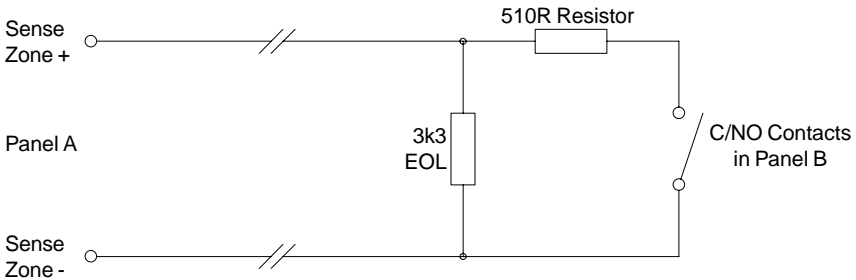
The class change (CC) facility allows a remote source to sound the alarms. When the CC terminal is connected to the '28V Aux -' terminal, the alarms will sound.





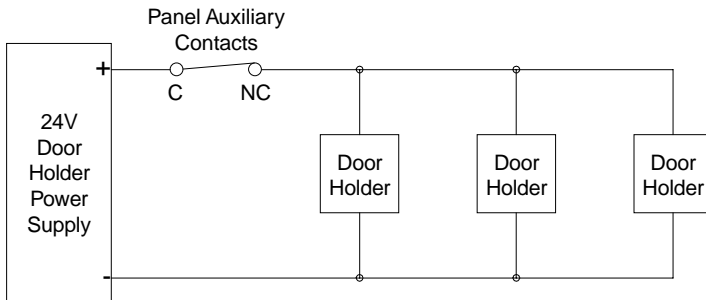
**Signalling fire to another panel.**

By connecting two panels as shown below, when panel B closes its auxiliary contacts, panel A will go into fire. If the zone on panel A is set to non-latching it will automatically reset when panel B opens its auxiliary contacts. If both panels need to signal fire to each other, simply duplicate the circuit substituting panel A for panel B and vice versa.



**Connecting magnetic door holders.**

Low voltage magnetic door holders can be switched using a set of auxiliary contacts in the panel. When the panel goes into fire, power to the door holders is removed allowing the doors to close. Care must be taken to ensure that the auxiliary contacts rating of 30V / 1A is not exceeded. Mains voltages MUST NOT be switched directly from the auxiliary contacts - instead, fit a heavy duty relay operated from the auxiliary contacts.



**Multizone System Log**

All events should be properly recorded in this log book. An 'event' should include fire alarms (whether real or false), faults, tests, temporary disconnections and the dates of installing or servicing engineer's visits with a brief note of work carried out and outstanding.

Name and address .....  
of installation .....  
.....  
.....  
.....

Person responsible ..... Date .....  
for log book ..... Date .....  
..... Date .....  
..... Date .....

System installed by .....

and is maintained under contract by .....  
Tel. ....

**Notes:**



