

# Compliance with BS 8243

This application describes how Ccomfort can be configured to comply with the BSI Standard BS8243:2010 - "Installation and Configuration of Intruder and Holdup alarm systems designed to generate confirmed alarm conditions" for the purpose of signalling to an ARC (Alarm Receiving Centre).

## Comfort Compliance Statement

The Comfort CP9000 is capable of compliance with BS8243:2010 using Ultra or Optimum firmware and RedCARE or DualCom Signalling to the ARC provided that the instructions contained in this document are followed. Comfort's Contact ID dialing method is currently non-compliant with the requirements of BS8243. All communications systems that require a Police URN (Unique Reference Number) will need to conform to BS 8243. This document should be read in conjunction with the relevant standards EN50131, PD6662 and BS8243:2010 which can be purchased from the British Standards Institute.

## Overview of BS8243:2010

BS8243:2010 requires that a confirmed alarm activation can only occur when two separate and independent detectors have been activated within a pre-determined time window (Minimum 30 to maximum 60 minutes). Detectors include any alarm sensor including PIRs. Magnetic contacts, tamper etc. On the first alarm activation, an unconfirmed intruder event is signalled to the ARC. A tamper alarm should signal a Tamper alarm to the ARC instead of an unconfirmed alarm (BS8243 H.7.1). If a second (confirmed) event occurs within the confirm time window a confirmed alarm is signalled to the ARC. If, however, no second alarm condition occurs, the intruder alarm condition will be restored at the end of the confirm time window and the restore will be signalled to the ARC. Any subsequent alarm event will be considered to be a first alarm activation and will signal as an intruder event. In the event of a single alarm condition occurring (a non-confirmed alarm) if, at the end of the confirm time window, the detector which activated the alarm remains open, then it will be automatically omitted "Inhibited" from the system and a signal indicating that a zone has been Inhibited is signalled to the ARC. In the event of a non-confirmed alarm being cancelled before the expiry of the confirm time window then the intruder condition is restored on entry of the user code and the alarm restoral is signalled to the ARC. Comfort Alert Type Zones cause Alert Alarms instead of Intruder Alarms, and a different Alert zone triggered within 30-60 mins is required to cause a Confirmed Intruder Alarm

## 5.4 Design, installation and configuration of Sequential confirmation I&HAs

### 5.4.1.1 Criteria for sequentially confirmed alarm conditions

1. At least two separate alarm conditions are reported, each originating from an independent detector, within the confirmation time
2. The two detectors must be: EITHER of different technologies (Dual technology PIRs are considered two different technologies so two can have overlapping coverage) OR (if they are of the same technology) the two detectors must not have overlapping areas of coverage.

The detectors must have separate outputs and be connected to separate zones in the control panel. The confirmation time, ie the time between the first activation and the 2nd, must be from 30 to 60 minutes. Where both detectors are movement detectors, further rules apply under the following section:

#### **5.4.2 Configuration of movement detectors that may offer a sequentially confirmed alarm**

The key points from this section are as follows;

Where any two movement sensors are used (single technology or dual technology) and they do not have overlapping areas of coverage, they should be located far enough apart to minimise the possibility of false alarms. (NSI suggests 2.5m) In the case of two movement detectors, with any overlapping areas of coverage, at least one must be a dual-technology detector. The overlapping areas of coverage should be at the far end of the field of view, to minimise the overlapping coverage areas and thus, the likelihood of false alarms. Again these detectors should be mounted "some distance apart"

Two separate dual-technology movement detectors with overlapping areas of coverage are allowed, providing the above criteria is met.

#### **5.4.4 Configurations not regarded as offering a sequentially confirmed alarm**

This section describes other configurations that are not acceptable under the BS8243 policy.

These are basically as follows:

- A "double knock" configuration
- A dual-technology detector
- Two (or more) detectors or devices of the same type with overlapping areas of coverage including: -
  - Two vibration sensors
  - Two glass break sensors
  - Two foil-on-glass detectors
  - Two door contacts fitted to the same door
  - Two audio monitoring devices
  - Two video motion detection devices
  - Two or more detectors responding to changes in atmospheric pressure

### **6.3 Methods of Completion of Setting**

The setting procedure to Away Mode is split into 2 distinct steps; from within the premises and the final step ends it from outside.

1. The setting to away mode is initiated by pressing the AWAY key at the keypad, or using a Digital Key (PACE)
2. The setting to Away Mode is terminated by closing the Final Door or by the locking of a Shunt Lock, or by pressing the button of a Comfort Door Station.

#### **Shunt Lock fitted to the final exit door**

This is a combined door lock and built in keyswitch. Setting the system should be a 2 step process. First initiate the Away arming process at the keypad, and exit and lock the door to complete arming. There should also be a contact installed on the entry door as Immediate so that any forced entry can be detected. Similarly unlocking the door should unset the system (see methods of Unsetting). The Lock switch contacts should be programmed as Normally Open Switch or Normally Closed Switch. The Zone On Response should be programmed to the Exit Terminator action. The Zone Off Response should be programmed to disarm the system

#### **Push button switch mounted outside the supervised premises**

A doorbell or door station push button can act as an Exit Terminator. Away Arming Method must be set to Exit Terminator. First initiate the Away arming at the keypad The entry door must be closed and all zones closed before the Doorbell button is pressed to complete the arming

#### **Protective switch (Door Contact) on the final exit door**

This is the normal means of arming. The entry door zone should be assigned as Entry Door Zone Type.

#### **Digital Key fob**

A digital key can be used to initiate the setting to away mode. The final setting is to be completed by the closing of the Exit Door.

## 6.4 Methods of Unsetting

### 6.4.2 (a) Unlocking the Initial Entry door unsets the Alarm System

This is in conjunction with using the shunt lock to complete setting the system described above. There is no entry door or entry route. All internal zones are alert alarm zones in the set state. Forcing open the entry door should generate an Unconfirmed alarm. Activation of a further detection device should cause a confirmed alarm. The programming is described in the section using Shunt Lock to complete the setting. Comfort is Compliant with this method

### 6.4.3. Unlocking the Initial Entry door disables all means of confirmation

The purpose of this method is to have a shunt lock to be used to unlock the door but the door contact to start an entry delay and for the system to be unset by entering code on the keypad. Once the entry door is opened, no confirmed alarm can be generated to the ARC. Thus, although Comfort can cater for this, the method in 6.4.2 is preferable if a shunt lock is to be installed.

### 6.4.4. Opening the Initial Entry door disables all means of confirmation

This is the traditional set up with an entry route and a PIN being entered at a keypad to unset the system. Once the entry door is opened there can be no confirmed alarm signals sent to the ARC.

Comfort can comply with this method by checking the option "Entry Alert Disables confirmation" in Modules and Settings (now called "Entry Alert No CMS")

### 6.4.5 Completion of unsetting is achieved using a Digital Key

This allows the user to unset the system before entering the premises or to initiate the entry time by opening the entry door and to complete the unsetting of the system using a portable ACE (Ancillary Control Equipment), for example a key fob or proximity card. A sequential confirmed alarm is possible if detectors not in the entry route are activated. If the entry time expires, an unconfirmed alarm should occur,

In accordance with EN500131-1 when alarm conditions occur during the unsetting procedure, they should not be notified for a minimum of 30 seconds after they occur or until the entry time has expired. A confirmed alarm should then be generated.

If the entry time expires and a minimum of 30 seconds has completed, a confirmed alarm is notified immediately

If a detector is activated after expiry of the entry time, a sequential confirmed alarm is activated immediately overriding the 30 seconds minimum

The IAS should be configured so that there is a timed entry procedure and when the initial entry door is opened, notification of any alarm is delayed until expiry of the overall entry time. If an alarm occurs during entry, and/or as a result of the expiry of the overall entry time, the alarm should be notified as an unconfirmed alarm.

Comfort is Compliant with this method using a compliant 3rd party ACE

Uncheck the option "Entry Alert Disables confirmation" in Modules and Settings (now called "Entry Alert No CMS")

Note: Once the entry time has expired without the unsetting being completed, any alarm activations will contribute to the confirmed alarm condition if within the Time Window

### 6.4.6 Unsetting is carried out in conjunction with the ARC

This option is not discussed in this application.

## Hold-Up Alarms (HUA)

### 4.2.2 Hold-up Alarm Systems

Holdup Alarm systems (HAS) Confirmation can be by one or more of the following methods

1. Audio

2. Visual
3. Sequential
4. Telephone

#### **5.4.1.2 Criteria for Sequentially confirmed Holdup Alarm System (HAS)**

For an alarm (Panic) to be considered as sequential,

1. 2 separate HD alarms to be generated or
2. A multi-action Hold-Up (HD) eg press and hold

The hold-up confirmation time should be 8 hours to 20 hours

Sequential confirmation of Hold-up alarm systems is not implemented currently in Comfort.

### **H.3.2 Combination of HUA and Tamper**

A combination of Hold-up and Tamper alarm is considered a Sequential confirmed alarm

## **Tamper Alarms**

### **H.7.1 Processing of Tamper**

A tamper alarm should generate a separate Tamper signal only. The ARC should treat a Tamper signal as an unconfirmed alarm. A tamper alarm followed by an unconfirmed alarm should result in a confirmed alarm.

If a confirmed alarm is generated by a tamper condition, the tamper condition should be notified, as required by BS EN 50131-1:2006+A1 in addition to the confirmed alarm.

A tamper alarm followed by a confirmed alarm should be considered as a confirmed intrusion alarm.

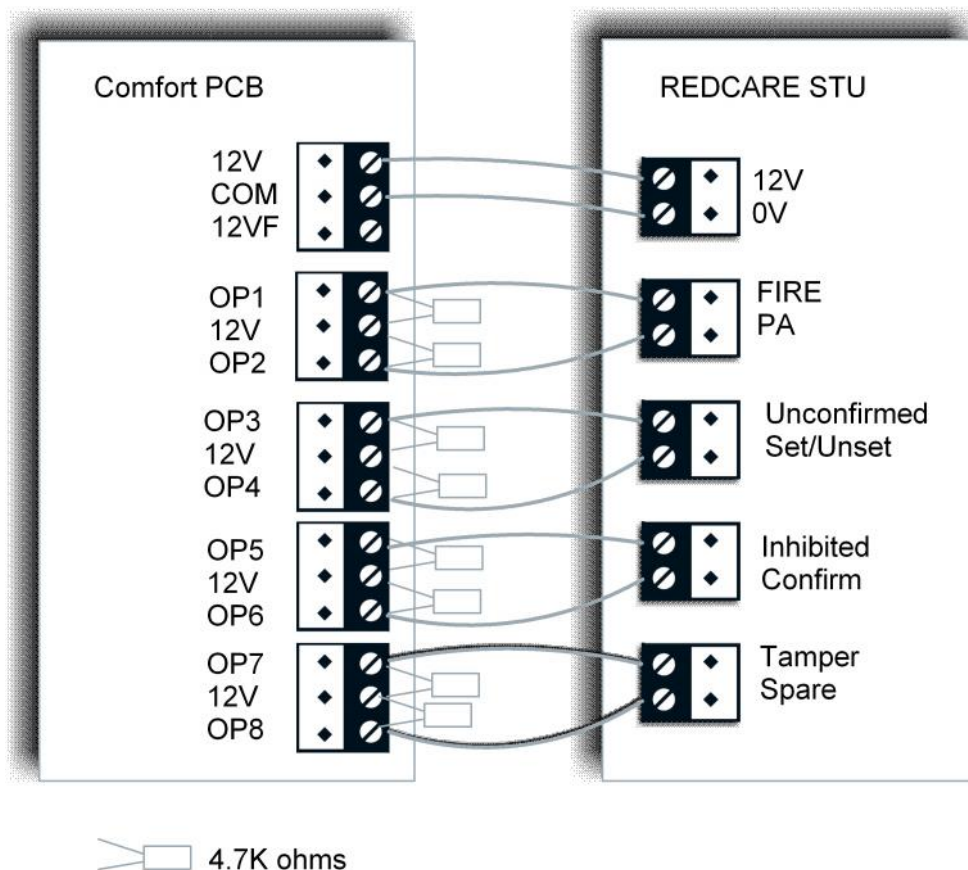
## **Comfort Connections to the Redcare STU**

Comfort Outputs are open-collector, ie the terminals outputs are open circuit when off, and pull to ground when turned on. The load is connected between the Output terminal and the centre +12V terminal. A 4.7 kilo-ohm resistor should be connected between each Output and +12V as shown. The Comfort 12V output supplies the 12V voltage for the STU.

The Output assignments programmed in this application are shown in the table below

| STU Input         | Comfort Output |
|-------------------|----------------|
| Fire              |                |
| Personal Attack   |                |
| Unconfirmed alarm |                |
| Set/Unset         |                |
| Inhibited         |                |
| Confirmed Alarm   |                |
| Tamper            |                |

A reinstatement message is signalled by the removal of the Unconfirmed alarm (H.7.2)



### Comfort Connection to STU

Each output should have a 4K7 pull-up resistor connected between +12V and the output

The Outputs are programmed as follows;

#### Fire

A Fire Alarm Type activation turns on the Fire output. A zone must be assigned to one of the Fire Zone Types; Fire Normally Open, or Fire Normally closed. The Fire Output is reset by restoral of the Sensor by using the Zone Off Response to reset the output. Or by siarming the alarm

#### Hold-up (Panic))

A Panic Alarm Type activation turns on the PA Output. A zone must be assigned to the Panic Zone Type. The PA output is reset by Restoral of the Panic Zone or by disarming the alarm

#### Unconfirmed Alarm

The 1st alarm activation turns on the Unconfirmed (Burglar) alarm output. This output remains on for for the alert time duration (30 to 60 minutes). This delay duration is determined by the Alert Time programmed in Configuration > Modules and Settings > Alert Time. Alert or Perimeter Zone Types will also cause an Unconfirmed alarm. If the timer expres without a confirmed alarm or the system is disarmed, the output is turned off

#### Open/Close

The Set Output is turned on when the security system is armed and turned off when the security system is disarmed.

#### Inhibit

The Inhibit Output is turned on when a zone which caused the unconfirmed alarm is still open when the confirmation timer expires

### **Confirm**

A sequential confirmed alarm (ie Intruder Alarm Response) will turn on the output. The output is turned off by disarming the system (System Disarmed Alarm Type Response).

### **Tamper**

The Tamper Output is activated by a tamper alarm as an unconfirmed alarm. A combination of a tamper alarm and an unconfirmed Intruder alarm is considered a sequential confirmed alarm (H.3.1) The tamper output is restored when the system is unset following an alarm

### **Comfort Programming**

The following settings are applied in the example file.

1. Alert Time (confirmation time) = 30 to 60 minutes
2. Away Arm Method = final door or exit terminator. The final Exit Terminator button is required to complete the Away arming of the system
3. Show alarms = off. This means that keypads LCD display and led indicators shall turn off after 30 seconds. (EN50131-1)
4. Keypad Arm Keys - check "Require Code" so System is set at Access level 2 (EN50131-1 Table 2)
5. Tamper Alarm is not heard on the external bellbox when unset, is heard on the external Bellbox when set (EN50131-1 Table 7)

### **Immediate Zones**

The 1st Intruder alarm causes the Unconfirmed alarm output to be turned on. It also starts an ALERT timer (based on the Alert Time setting of 30 to 60 minutes). If a 2nd alarm zone is activated within the alert time, the Confirmed alarm output is also turned on. If the timer expires without a Confirmed alarm the Unconfirmed alarm output is turned off. If the unconfirmed alarm times out, and the original zone remains open, the zone is bypassed or inhibited and the Inhibit Output is turned on to indicate to the ARC that a zone is inhibited.

### **Alert Zone Types**

When an alert zone is triggered, it does not cause an immediate Intruder Alarm, instead goes into Alert state and turns on the Unconfirmed alarm output. It also starts an ALERT timer (based on the Alert Time setting of 30 to 60 minutes). If another Alert or perimeter or immediate zone is triggered within the alert time, then a full Intruder Alarm is triggered and the Confirmed Output is turned on.

If the timer expires without a Confirmed alarm the Unconfirmed alarm output is turned off. If the unconfirmed alarm times out, and the original zone remains open, the zone is bypassed or inhibited and the Inhibit Output is turned on to indicate to the ARC that a zone is inhibited.

Both Alert and Immediate zones can cause unconfirmed alarms which start a confirmation timer. The difference is in the siren behaviour for alert zones.

### **Setting and Unsetting Means**

Comfort may be programmed to comply with BS8243:2010 for the following two methods ;

1. Shunt Lock to complete setting to and to unset the system
2. ACE complete the setting and to disarm the system.

The other alternative, ie for the Entry door to start entry delay but not able to generate a confirmed alarm can also be programmed but is not considered in this application as it may not meet the insurers requirements.

### **Shunt Lock for Setting/Unsetting**

In this scenario, a shunt lock is used to complete the setting to Away Mode when the final door is locked as well as to unset the system when the door is unlocked.

To set to away mode, the keypad Away Button is pressed to initiate. Any open zones are announced on the speaker and displayed on the LCD in sequence. When all open zones are closed the keypad announces "Please Exit". Exit from the entry door and close the entry door. Lock the door to complete the away arming process. The system will not arm if the door is not locked. Keypad will announce "Away Mode".

To set to Night or Day Mode, press the Night or Day button on the keypad.. Any open zones are announced. It is not necessary to lock the door to set to night mode

Unlocking the Entry door will unset the system when it is set. Forcing open the entry door will cause an (unconfirmed) alarm and not start an entry delay. In Night Mode, the system can be unset by entering the user code on the keypad.

The Front Door Zone is named FrontDoor(Lock) programmed as zone type 2, but with Cancel Entry Delay Response so opening the door will cause an immediate Unconfirmed alarm.

The Door Lock Zone is a Switch Normally Open Zone Type. The On Response (Lock) is Exit Terminator and Off Response is Unset.

### ACE for Setting/Unsetting

An ACE or keyfob is used for unsetting and optionally for setting in this configuration. A 3rd party device must be used. Separate Set and Unset Zones are provided in the configuration, but a single zone with Set/Unset Responses can also be programmed. When an ACE is used, it is assumed that the shunt lock will not be used. Hence the Door Lock zone is not used. The Entry Door zone FrontDoor(ACE) in this case is identical to the Zone setting in the case of Shunt Lock except that opening the door when the system is armed will start an entry delay

Ace Low Battery dry contact should be connected to a spare channel on the REDCARE STU to be reported as Low Battery .This will report Low battery Alarm to the ARC. Ensure that the output from the ACE low battery is a latching signal which restores when the battery condition is restored.

### Zone Settings for Shunt Lock and ACE

The same configuration cclx file contains both zone settings for Shunt Lock and ACE for setting and unsetting.

| Zones      | Shunt Lock                                                 | ACE                                             |
|------------|------------------------------------------------------------|-------------------------------------------------|
| Entry Door | Use Entry Door (Lock) - Causes Unconfirmed alarm when Set. | Use Entry Door(ACE) Starts Entry Delay when set |
| Shunt Lock | Use Door Lock Zone                                         | Dont use Door Lock Zone - set to NullZone Type  |
| ACE -set   | KeyArm-ACE zone not used - Set to Null Zone Type           | KeyArm-Ace Zone for final set                   |
| ACE -Unset | KeyOff-ACE zone not used - Set to Null Zone Type           | KeyOFF-Ace Zone for unset                       |

Unused zones in each configuration should be set to Null Zone Type.

Entry Door zones have different settings for each configuration.

## Entry Time-Out (Annexe G)

The following requirements are stated in Figure G1 to G4

### G.1 Entry timeout before expiry of minimum 30 seconds operation of indicator or warning device

If a non-entry path detector is activated during the entry delay, a remote notification delay of minimum 30 seconds is started. At the end of the notification delay, unconfirmed and confirmed alarms are notified

### G.2 Entry timeout after expiry of minimum 30 seconds operation of indicator or warning device

If a non-entry path detector is activated during the entry delay, a remote notification delay of minimum 30 seconds is started. If the notification delay expires before the end of entry delay the notification is delayed until the end of the entry delay. At the end of the entry delay, unconfirmed and confirmed alarms are notified.

### **G.3 Entry timeout before expiry of minimum 30 seconds operation of indicator or warning device (WD) (second detector before end of 30 seconds delay)**

If the notification delay 30 secs minimum is started and 2 non entry detectors occur during the delay, the 2nd non entry path detector should terminate the notification and entry delays and the unconfirmed and confirmed alarms should be notified.

### **Figure G.4 Intruder alarm before entry and detector of the entry route during entry**

If intruder alarm starts before entry alert, causing an unconfirmed alarm i.e. confirmation alert timer is running e.g. 30 minutes, if non entry path detector is activated within entry delay, the notification delay is not started. Confirmed alarm is notified at the end of entry delay.

## **Firmware /Configurator Notes**

13 December 2012

### **Security Outputs**

In Configurator there will be new Status > Outputs to assign Outputs to Panic, Fire, Unconfirmed alarm, Confirmed alarm, Inhibit, Set/Unset for Redcare so that it is not necessary to program the outputs. Each of these events can assign an Output to be set and reset based on the event and restore. Unconfirmed alarm output will be set when an unconfirmed alarm is activated and will reset if the confirm alert time window has elapsed. The confirmed alarm output will be set if a second alarm occurs within the time window. If an unconfirmed time window expires and the zone is still open the Inhibit output will be set. When the system is unset, all the outputs will be reset. When the alarm is set the Set/Unset Output will be set. If the Alarm Output is set to 0 or 255 or an invalid output then there will be no effect.

### **Confirmed/Unconfirmed alarms**

An initial Intruder alarm will cause the unconfirmed alarm output to be set. This starts the Alert Time (min 30 Minutes max 60 minutes). If a second immediate zone is detected the confirmed alarm output is also set.

If an Alert zone or perimeter zone starts the alert time, the Unconfirmed alarm output is also set. When a subsequent zone causes an Intruder alarm, the confirmed alarm output is set.

Alert/perimeter zones do not need to be used to comply with BS8243. The difference is that the Alert zone will activate the Alert Alarm Type and will not turn on the siren whereas an immediate zone will turn on the siren and activate the Intruder Alarm Type.

### **Notification Delay**

23 March 2013

This means that the entry delay behaviour in Comfort must be changed.

The entry delay timer must continue even after a non-entry path detector causes a Entry warning alarm. The Entry warning time does not apply anymore. The entry warning time will be the remainder of the entry alert time.

“Entry Dial delay “ in Modules and settings should be removed in configurator 3.7. An automatic Notification delay of 30 seconds is used which can run at the same time as entry delay.

If option “Entry Alert Disables confirmation” in Modules and Settings is checked entry alert will not allow a confirmed alarm to be reported.

The 2nd non-entry path detector during an entry alert must be monitored.

## Document History

27 June 2012 - Started Draft

13 Dec 2012 - added Firmware Notes

23 March 2013 - further expansion