USER MANUAL

HiSPEC
LIFE SAFETY & HOUSING SOLUTIONS

Model: HSSA/CO/FF10 & HSSA/CO/RF10-PRO

220 - 240V AC Operated CO Alarm
With 10 Year Rechargeable Battery Backup

FAST FIX

INTRODUCTION

IMPORTANT: If you are installing this product for use by others, you must leave this manual *(or a copy of it)* for the end user.

HSSA/CO/FF10 is a carbon monoxide alarm which can be interconnected to other alarms of the same type. This interconnect feature allows up to 20 domestic fire/CO safety devices to be connected together over 150 metres maximum, and thus allowing all alarms to sound when any one is activated. This interconnect feature enables the CO alarm to be used as a type **A APPARATUS** when interconnected with HiSPEC strobe lights and remote indicators either directly or via a relay base device. Alternatively, the alarms can be wirelessly interconnected using a radio frequency version *(HSSA/CO/RF10-PRO)*.

SPECIFICATION

Power Supply:	220-240V, 50-60Hz 10 Year 3V Rechargeable Lithium Battery (As backup)
Power Consumption:	≤40 mA (In Alarm)
Detection Type:	Electrochemical CO
Temperature Ambient:	0°C to 40°C
Humidity Ambient:	10% to 90% (non-condensing)
Max Wire/Wireless Interconnection:	20 Units
Max Interconnection Distance:	150m
RF Band:	868.3 MHz
Max Wireless Distance:	30m (Enclosed) 80m (Open)
Alarm Sound Level:	85 Decibels at 3m
Approved by BSI to:	BS EN 50291-1:2018
Installation Standard:	BS EN 50292:2023

bsi
KM 792791
BS EN50291-1:2018

CLASS II APPARATUS
Apparatus Type A

DIAGRAM

Fig.1 Back View

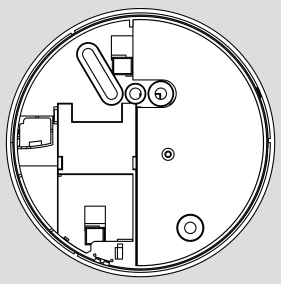


Fig.2 FrontView
Alarm unit: Ø 111mm

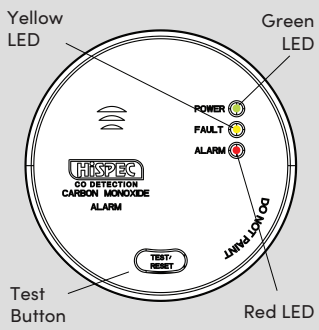


Fig.3 Side View

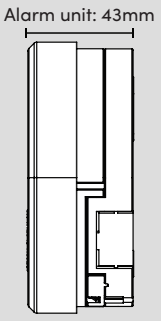


Fig.4 Installed View

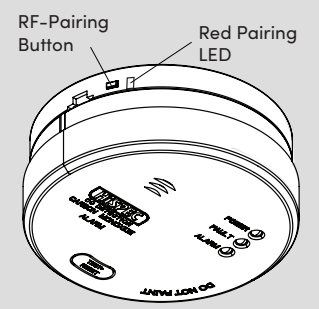
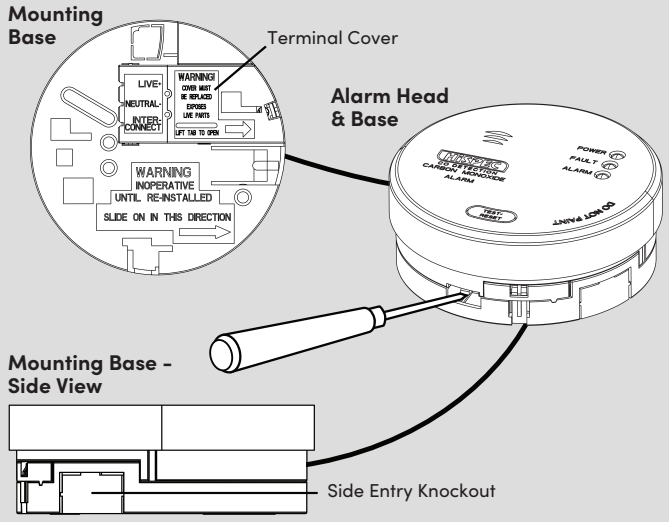


Fig.5



POSITIONING OF THE ALARM

- Carbon Monoxide has a similar density to warm air and can be found in various locations. This alarm contains a CO sensor so it should be installed under the following conditions. CO is produced by the incomplete combustion of fuels such as wood, charcoal, coal, heating oil, paraffin, petrol, natural gas, propane, butane etc.
- Common sources of CO: attached garages, oil and gas furnaces, log burners, barbecues, fireplaces, gas boilers, portable generators, gas or kerosene heaters, clogged chimneys and cigarette smoke.
- Ideally, this alarm should be installed in every room containing a fuel burning appliance.
- Additional apparatus may be installed to ensure that adequate warning is given for occupants in other rooms, by locating the apparatus in remote rooms in which the occupant spends considerable time whilst awake, and from which they may not be able to hear an alarm from apparatus in another part of the premises, and every sleeping room.
- However, if there is a fuel burning appliance in more than one room and the number of CO alarms are limited, the following points should be taken into consideration when deciding on the best location: An apparatus should be located in a room containing a flueless or open-flued appliance.
- If there is an appliance in a room where people spend most time, an apparatus should be placed in that room.
- If there is an appliance in a room where people sleep, an apparatus should be placed in that room.
- In a bedsit, the apparatus should be placed as far from the cooking appliances as possible but near to where the person sleeps.
- If the appliance is in a room not normally used, such as a boiler room, the apparatus should be placed just outside the room so that the alarm will be heard more easily.

Ceiling Mounting
- Avoid areas where there is no air circulation. e.g. corners of rooms and keep away from items which may prevent the free flow of air.
- Place the unit at least 300mm from any light fittings or decorative objects which might obstruct CO from entering the alarm.
- Keep at least 300 mm away from walls. ***(See Figure 6.1)***
- The apparatus should be at a horizontal distance of between 1m and 3m from the potential source of CO.
- If there is a partition in a room, the apparatus should be located on the same side of the partition as the potential source. ***(See Figure 6.1)***

Wall Mounting
- Do not mount tightly into the corners. Put the top edge of your alarm between 150 and 300mm below the ceiling. Keep at least 300mm from room corners. ***(See Figure 6.1)***

On a Sloping Ceiling
- In areas with sloping or peaked ceilings install your alarm in accordance with ***(See Figure 6.2)*** because "dead air" at the apex may prevent CO from reaching the unit.

Fig.6.1 Position of the alarm in a room with fuel burning appliance

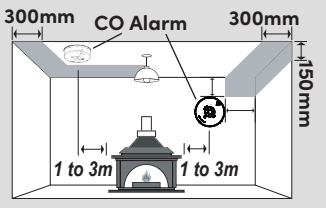
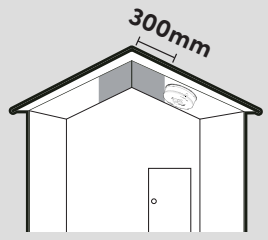


Fig.6.2 Position of alarm with no appliance in the room



AVOID THESE LOCATIONS

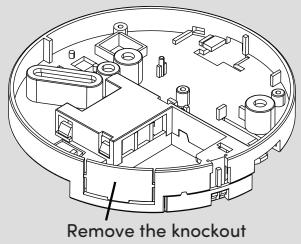
- Situations where the temperature may fall below 0°C or rise above 40°C for extended periods.
- Humid areas such as **BATHROOMS**, **SHOWER ROOMS** where the relative humidity may exceed 90% as vapour will cause false alarms.
- Near a **DECORATIVE OBJECT**, **DOOR**, **LIGHT FITTING**, **WINDOW MOULDING** etc., that may prevent **CO** from entering the alarm.
- Adjacent to or directly above hot components such as **RADIATORS** or **WALL VENTS** that can affect the direction of air currents.
- Locate the alarm at least 1.5m away and route wiring at least 1m away from **FLUORESCENT LIGHT FITTINGS** as electrical 'noise' and/or flickering may affect the alarm. Do not wire into the same circuit as fluorescent lights or dimmers.
- Do not locate in **INSECT INFECTED AREAS**, as insects and contamination on the alarm sensor can increase its response time.

INSTALLATION - WIRING

1. Lift tab to remove terminal cover ***(See Figure 5)***
2. For side entry wiring, remove the knockout where necessary. ***(See Figure 7)***

INSTALLER PLEASE NOTE:
WARNING – This alarm is mains powered and requires wiring by a qualified electrician in accordance with the current IET Wiring Regulations *(BS7671)*.

Fig.7



WIRING PRECAUTIONS:
- It is important to note that this CO alarm is designed to be interconnected with other Hispec fire safety devices. Connecting it with different brands or models may cause damage or pose risks like electric shock or fire hazards.
- It can be interconnected with up to 39 fire safety devices in total, with a maximum of 20 devices/alarms for wired connections and 20 devices/alarms for wireless connections.
- The alarm has four labelled terminals: interconnect, neutral, earth, and live. Proper wiring is crucial to ensure correct functionality and to avoid damage that would void the warranty. Please refer to ***(See Figure 8)*** for guidance on the appropriate wiring.
- When interconnecting fire alarms, ensure that the length of the wire does not exceed 150m, and the spacing between interconnected alarms should not exceed 30m per alarm. The minimum wire cross-section required is 0.75mm2. All interconnected fire alarms should be connected to the same final sub-circuit.

WARNING: LOOSE NEUTRAL CAN RESULT IN DETECTOR FAILURE.

If the **RED LED** on the front of the alarm flashes 3 times per second this means there is a loose neutral connection within this alarm circuit. Please ensure all neutral conductors are tightened in their terminals correctly and check for any breaks in the cable run. A strong neutral connection is imperative to avoid an overcurrent within the internal detector's circuitry.

- **DO NOT USE EARTH AS INTERCONNECT.**
- **DO NOT CONNECT LIVE** 230V to the interconnect terminal.
- Connect the IC wire **ONLY** to the IC terminal of other Hispec Fire Safety Devices.
- Alarms should only be connected to individual dwellings as excessive nuisance activations can cause distress.
- This product is specifically designed to be connected to a 230V, 50Hz AC supply.
- It is important to avoid connecting it to power sources that utilise an inverter, such as a PV solar panel, as this may result in Total Harmonic Distortion (THD) issues.

MOUNTING & TERMINATION

Before installing the CO alarm, it is crucial to thoroughly review the provided instructions. The alarm is composed of two parts: the mount base assembly and the alarm unit. It is recommended to keep the alarm unit separated until the building commissioning phase. This phase usually involves activities like sanding, preparing for painting, actual painting, and floor laying.

Please follow these steps to mount the alarm:
1. Choose a suitable location on the ceiling that complies with safety regulations.
2. Separate the mounting base from the alarm head.
3. Strip the Live, Neutral, and Interconnect *(if applicable)* wires according to the specified strip length shown in ***(See Figure 8)***.
4. Remove the terminal cover to access the terminals, as depicted in ***(See Figure 5)***.
5. Connect the wires to the corresponding terminals on the flush mounting base, as shown in ***(See Figure 8)***. Make sure to securely tighten the screws.

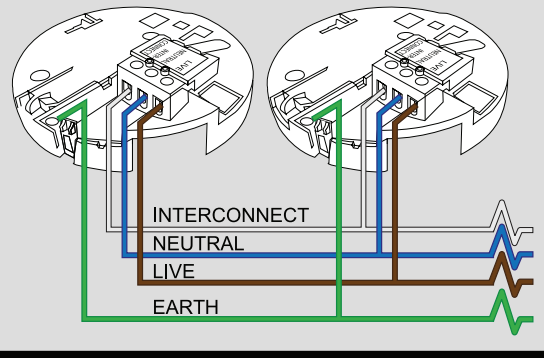
   Note: If you are interconnecting the alarms via radio frequency, do not link out the IC terminals on the alarm mounting base, leave them empty. The interconnect terminal of the alarm is only meant for direct hard wire connections with other Hispec Fire/CO safety devices.
6. Reattach the terminal cover.
7. Securely mount the base to the ceiling using the screws provided.

Fig.8 Interconnecting Fire/CO Alarms

20 alarms maximum

150 metres maximum between first and last interconnected alarm unit.

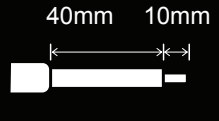
TERMINAL	
L:	Live
⏚	Earth or Loop
N:	Neutral
IC:	Interconnect



A minimum cable size of 0.75mm² and rated at 250V should be used.

Both the interconnect and neutral wires must be connected to enable the hardwired interconnection.

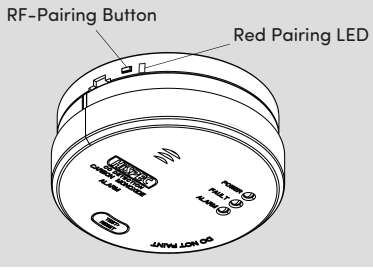
Cabling and Wiring



COMMISSIONING

STEPS TO ACTIVATE THE CO ALARM:
1. Remove the alarm unit from the packaging.
2. Fill out the 'Date of Installation' Label and stick it to the side of the alarm.
3. Align the fixing points on the head unit with the fixing latch on the mounting base. **(See Figure 5)**
4. Slide and firmly push the alarm unit until it clicks into place on the mounting base. The battery activates when sliding into the mounting base.
   Note: The battery will activate once the alarm unit is inserted into the mounting base. It is designed to provide a 10 year lifespan during regular operation.
5. The alarm is now securely attached to the mounting base. Switch the permanent mains supply on to power the alarm. A green LED will be illuminated on the front to indicate mains power. The green LED will flash every 40-60 seconds to signal normal operation. If any other sequence of flashing LEDs occurs, refer to the INDICATION AND ACTION section of this manual.
6. Wirelessly pair the alarms together *(RF10-PRO versions only)*.
   SEE SECTION - RF WIRELESS INTERCONNECTION FOR FURTHER DETAILS.
7. Press and shortly **HOLD** the test button for 2 seconds, the alarm will sound and trigger any other interconnected units within 30 seconds.
   Note: After the test button has been pressed, the CO alarm will automatically stop test mode and silence after 30 seconds.

RF WIRELESS INTERCONNECTION (HSSA/CO/RF10-PRO ONLY)



WIRELESS CONNECTING THE ALARM
Wireless pairing of the CO, smoke alarm, or heat alarm

1. On First Alarm, press wireless pairing button & hold for 5 seconds until LED lights up.
   NOTE: The alarm will stay in pairing mode for 2.5 minutes, which will be indicated by a solid **RED LED** on the side of the mounting base.
2. On all additional alarms, press the wireless pairing button 2 times. Pairing light will flash RED 5 times. Repeat for each additional alarm.
   NOTE: The RF pairing button is only used for wireless interconnection, and the alarms can only be tested when the alarm isn't in pairing mode.

Clear Pairing Memory
Press the RF pairing button 5 times, and the red LED on the alarm will flash 10 times.

OPERATION

This alarm has a built-in feature to detect the power source. If the Live (L) connection is present and the alarm is activated, it operates as a 220-240V mains-powered CO alarm. In this case, the battery acts as a backup and lasts for 10 years from installation. If mains power is not present and the alarm is activated, it relies solely on battery power. The battery, under normal conditions, lasts for 30 days.

WARNING: SLIDING THE ALARM HEAD ONTO THE MOUNTING BASE WITHOUT MAINS POWER CONNECTED WILL DRAIN THE BATTERY. CONNECT AC MAINS POWER ASAP TO RECHARGE THE BATTERY.

TESTING

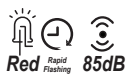
It is recommended that you test your alarm once a week to ensure it is working correctly. Push and briefly hold the test button for approximately 2 seconds. The alarm should chirp 4 times, and a **RED** indicator light *(LED)* will flash at the same time. Test mode will automatically stop after 30 seconds. (*If other alarms are interconnected, they will also sound).*

Note: For multiple interconnected alarms, only the **RED** indicator light *(LED)* of the originating unit will flash rapidly. All other units in the interconnect system will sound an alarm, but their **RED** indicator light *(LED)* will NOT flash. Test each alarm, checking that the alarm is triggered by all other alarms installed.

WARNING: Never use an open flame of any type to test your alarm.

WARNING: Do not apply excessive force to the "HUSH/TEST" button; this may damage the alarm and may void the warranty.

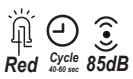
Featured LED and Alarm Signal



CO Detected Signal
The CO alarm will sound a loud alarm *(85 dB)* and the red LED will flash rapidly. This will continue until the air is cleared.

Standby
The Green LED flashes once every 40-60 seconds to indicate the fire alarm and battery are functioning correctly.

Memory Function
If one of the alarm indicators *(RED LED)* is flashing every 4 seconds, it indicates that the CO alarm has previously been activated.



Low Battery
The CO alarm indicates a low battery by flashing the red LED once and emitting a chirp every 40-60 seconds.

Green LED

Green LED
The green LED is illuminated when the mains power *(220-240V)* is on. If the CO alarm is powered only by a battery. The Green LED will not be illuminated.

INDICATION AND ACTION

For LED indicators 1, 2 & 3 **(See figure 9)**.

STATUS	LED INDICATOR (1 2 3)	SOUNDER (85dB)	ACTION REQUIRED
Standby Mode *(Powered by battery only)*	1) Green LED not illuminated 1) Green LED 1 flashes every 40-60 seconds	NONE	CO alarm in standby condition, powered by an internal sealed battery. Connect the CO alarm to AC power to complete the installation.
Standby Mode *(240V AC mains powered)*	1) Green LED illuminated 1) Green LED 1 flashes every 40-60 seconds	NONE	CO alarm in standby condition, powered by 240V AC mains and backup battery. No action required.
CO detected	3) Red LED flashing rapidly until CO is clear	Chirping 4 times every 5 seconds	CO is present. See section - "In case alarm sounds".
Test Mode	3) Red LED flash 4 times	4 chirps simultaneous with the Red LED flash	Release the test button to cease test mode
Low battery warning	3) Red LED 1 flashes every 40-60 seconds	1 short chirp every 40-60 seconds *(chirp pattern syncs with the Red LED)*	The battery is low. Check section - "Maintenance, repairs and service" for further details.
Memory Function	3) Red LED 1 flashes every 4 seconds, lasting 72 hours	None	This indication will last for 72 hours. Then it will automatically resume to standby mode. No action required.
Unit Faulty	2) Yellow LED 2 short flashes every 40-60 seconds	2 short chirps every 40-60 seconds (chirp pattern sync with the Yellow LED)	The alarm unit is faulty. Check section "Maintenance, repairs and service" for further instructions.
Loose neutral contract	3) Red LED 3 short flashes every second	None	There is a loose neutral connection within this alarm circuit. Ensure all neutral conductors are tightened in their terminations correctly and check for any breaks in the cable run.
End of life	2) Yellow LED flashes 3 times every 45 seconds	Chirps 3 times every 45 seconds	Replace alarm

SYMPTOMS OF CO POISONING

CO Level (PPM)	Symptoms
35ppm	The maximum allowable concentration for continuous exposure for healthy adults in any 8 hour period.
200 ppm	Slight headaches, fatigue, dizziness, and nausea after 2-3 hours.
400 ppm	Frontal headaches within 1-2 hours, life threatening after 3 hours.
800 ppm	Dizziness, nausea and convulsions within 45 minutes. Unconsciousness within 2 hours. Death within 3 hours.
1600 ppm	Headache, dizziness and nausea within 20 minutes. Death within 1 hour.
6400 ppm	Headache, dizziness and nausea within 1-2 minutes.

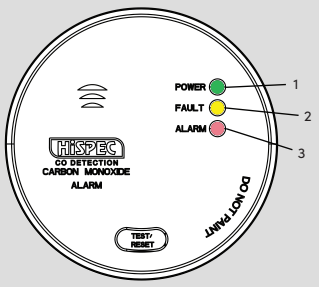
The following symptoms are related to CARBON MONOXIDE POISONING and are to be discussed with ALL members of the household:

Mild Exposure: Slight headache, nausea, vomiting, fatigue (often described as "flu-like" symptoms).

Medium Exposure: Severe throbbing headache, drowsiness, confusion, and a fast heart rate.

Extreme Exposure: Unconsciousness, convulsions, cardio-respiratory failure, death.

Fig.9

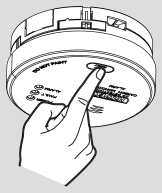


Carbon Monoxide Concentration and Alarm Response Time	
Carbon Monoxide Level *(PPM)*	Response Time *(MIN)*
50	60-90 Minutes
100	10-40 Minutes
300	< 3 Minutes

SILENCE FUNCTION

- This CO alarm has a built-in silence feature incorporated into the test button. If a low battery causes the alarm to chirp, it can be temporarily silenced by pressing the test button for 1 second. The alarm will then enter a silence period for 10 hours. After the 10 hour silence period, the CO Alarm will resume normal operation.
  Note: For the carbon monoxide warning, the apparatus cannot be silenced and will not return to normal mode until carbon monoxide is clear in the surrounding area.
- This CO alarm has a self-diagnosis. If the alarm detects the battery is low and/or an internal fault, it will chirp. This alarm can be temporarily silenced by holding the test button for 1 second. The alarm will not chirp for 10 hours, but the alarm will continue to function. It is recommended to replace the alarm as soon as possible after this period of time.
  Note: Silence will not affect the basic warning functions of a alarm. During the silenced period, if the alarm detects CO, it will still emit an alarm signal.

Fig.10



Low Battery → **SILENCE 10 Hours**

IMPORTANT SAFEGUARDS

The installation of your CO alarm is only one step in your safety plan. Educate yourself and your family about the sources and symptoms of CO poisoning and how to use your carbon monoxide alarm:

- Buy appliances accepted by a recognised testing laboratory.
- Install the appliances properly, following the manufacturer's instructions.
- Have installations done by professionals.
- Have your appliances checked regularly by a qualified serviceman.
- Clean chimneys and flues yearly.
- Make regular visual inspections of all-fuel-burning appliances.
- Check appliances for excessive rust and scaling.
- Do not barbecue indoors or in attached garages.
- Open windows when a fireplace or wood burning stove is in use.
- Be aware of CO poisoning symptoms.

DO NOT:

- Burn charcoal inside your home, RV, camper, tent or cabin
- Install, convert, or service fuel burning appliances without proper knowledge, skill and expertise
- Use a gas range, oven or clothes dryer for heating
- Operate unvented gas burning appliances using kerosene or natural gas in a closed room
- Operate gasoline powered engines indoors or in confined areas
- Ignore a safety device when it shuts an appliance off
- Ignore any warning from your CO alarm
- The following is a list of substances which, at high levels, can affect the sensor and may cause a nuisance alarm that is not a carbon monoxide alarm: methane, propane, iso-butane, ethylene, ethanol, alcohol, iso-propanol, benzene, toluene, ethyl acetate, hydrogen, hydrogen sulphide, sulphur dioxide. Also, most aerosol sprays, alcohol based products, paints, solvents, adhesives, hair sprays, aftershaves, perfumes and some cleaning agents.

IN CASE ALARM SOUNDS

The apparatus may not prevent the chronic effects of carbon monoxide exposure, and the apparatus will not fully safeguard individuals at special risk. WARNING: ACTIVATION OF YOUR CO ALARM INDICATES THE PRESENCE OF CARBON MONOXIDE (CO), WHICH CAN KILL.

If the alarm signal sounds:

1. Immediately move to fresh air – outdoors or by an open door/window. Do a head count to check that all persons are accounted for.
2. Where possible, turn off all fuelled appliances and stop using them.
3. Call your emergency services.
4. Do not re-enter the premises nor move away from the open door/window until emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition.
5. Call a qualified appliance technician to investigate the sources of CO from fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection, have the equipment serviced immediately.

Note: Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

MAINTENANCE, REPAIRS AND SERVICE

To ensure your CO alarm is properly maintained, repaired, and serviced, it is crucial to follow the appropriate guidelines. Please review the information provided below:

Maintenance:
To optimise performance, it is advised to conduct a monthly inspection of your CO alarm. Check for any accumulation of dirt, dust, or insects. You can use a vacuum cleaner or a soft brush to gently remove any debris. Additionally, wiping the alarm with a damp cloth will help deter insects. After cleaning, always test the alarm to confirm it is functioning correctly.

Repairs / Servicing:
If you encounter a defective alarm, it is important not to attempt any repairs yourself, as tampering will cause further malfunction and/or electric shock. The unit does not contain parts that can be serviced by the user. Instead, it is recommended to seek professional assistance for replacement or servicing.

LIMITATION OF CO ALARMS

- CO alarms are not designed to protect life safety against fire and smoke. CO alarms will only warn of carbon monoxide gas.
- Standard CO alarms do not effectively alert individuals who have hearing impairments. For those with hearing impairments, it is advised to use specialised devices such as Hispec strobe lights and vibrating pads to ensure everyone in the building is alerted during an emergency.
- By being aware of these limitations, individuals can take proactive measures to optimise the effectiveness of their carbon monoxide alarms and prioritise their safety by taking appropriate precautions against the risks of fire and carbon monoxide.

WARRANTY

WARNING: DO NOT ATTEMPT TO OPEN THE HOUSING.

This alarm is in warranty under normal use and service for 5 years *(including battery)* from the date of purchase. The company will not be obligated to repair or replace parts which are found to need repair because of misuse, damage or alterations present after the date of purchase. If the alarm is proven to be faulty, within the warranty period, it must be returned to where it was purchased, carefully packaged, with the fault clearly stated along with proof of purchase. The liability of the company arising from the sale of this alarm shall not in any case exceed the cost of replacement of the alarm, and in no case shall the company be liable for consequential loss or damages resulting from the failure of the alarm.

HiSPEC Electrical Products Ltd., Chorley, Lancs, England **18** Technical Documentation Held by Manufacturer	HiSPEC Electrical Products Ltd., Chorley, Lancs, England **24** Technical Documentation Held by Manufacturer
CE	UK CA

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This does not affect your statutory rights. This alarm is only suitable for residential dwellings and is not suitable for commercial or industrial use.

Waste electrical products should not be disposed of with normal household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice. New regulations will encourage the recycling of Waste from Electrical and Electronic Equipment *(European "WEEE Directive" effective August 2005).*

UK: HiSPEC Electrical Products Ltd, Unit 21, Drumhead Road, Chorley North Business Park, Chorley, PR6 7BX

EU: HiSPEC Electrical Products Ltd, Dublin, Ireland, D02 Y940

T: 01257 262 197
E: customerservices@hispec.co.uk
W: www.hispec.co.uk

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