HOCHIKI

World Class Leaders in Fire Detection Since 1918

IS

Intrinsically Safe

Range Overview

Intrinsically Safe Fire Detection

The purpose of specifying I.S Fire Detection equipment within hazardous areas is to prevent the occurence of a fire or an explosion from the operation of that equipment. To be able to achieve this intrinsic safety, all products that are installed within a hazardous area should be designed such that they cannot store sufficient energy to create a spark or reach a surface temperature, even when faulty, to ignite the hazardous material being stored or processed.

Within the UK this requirement is tested by an independent third party, for example, EECS. This requirement also applies to any cabling entering into the hazardous area, regardless if its for a zone of detectors or a sounder circuit. This is why a Zener barrier or Galvanic isolator must be used in conjunction with I.S Products to limit the energy

Hochiki is a wholly independent, multinational, publicly listed group of companies with over 2000 employees working across six manufacturing plants, 38 sales offices and 14 subsidiaries.

One of the world's leading manufacturers of commercial and industrial fire detection and emergency lighting solutions, Hochiki has acquired global acceptance as the benchmark for high-integrity and long-term reliability.

91%
of customer reviews rated our product quality as "VERY GOOD" or "EXCELLENT"

88%
of our customers are extremely likely to recommend our products based on quality

92%
of our customers rated us as VERY GOOD or EXCELLENT.

Statistics from the Hochiki customer service survey

Hochiki's facilities in Japan, the United States of America and Europe design and manufacture products and provide technical support suited to local standards and customer requirements.

Total commitment to meeting the needs of individual national markets has reinforced the company's global reputation, resulting in Hochiki products being installed in many prestigious sites and in over 80 countries worldwide.

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Things to consider

HAZARDOUS AREA

What constitutes a hazardous area can be difficult to determine for the Fire Installation company; close evaluation and consultation on the site must take place to identify potential hazards.

Many industrial processes produce hazardous environments such as Chemical Plants, Paint factories and other processes that involve chemical mixing.

A hazardous area is defined by the Category Classification for Gas - ATEX Directive (from July 1st 2003) as being in one of three categories:

CATEGORY 1

Where flammable atmospheres are present continuously or more than 1000 hours annually.

CATEGORY 2

Where flammable atmospheres are present intermittently or more than 10 but less than 1000 hours annually.

CATEGORY 3

Where flammable atmospheres are present abnormally - less than 10 hours annually.

APPROVALS

It is a clear requirement that all equipment installed within a hazardous area must be certified by a third party, this is to ensure that it will not cause any sparks or surface heat capable of causing the hazardous material to ignite.

It is recommended that all equipment installed should be approved to EN54 parts 5 and 7, for heat and smoke performance respectively.

Within the UK the main independent approval bodies for testing to the European Standards (EN54) are the Loss Prevention Certification Board (LPCB) and the British Standards Institute (BSI).

INSTALLATION

Apart from selecting and installing good quality third party approved equipment such as Hochiki's conventional I.S range of detectors, a number of safety precautions need to be considered.

This is especially important in Category 1, where no tools can be used that create a single spark. In Categories 2 and 3 tools can be used that create a single spark, as they typically do not have sufficient energy to ignite the Gas within the area.

In any of the Categories tools such as electric drills which produce a continuous stream of sparks, should not be used appropriate tools should be rated for I.S.

A consideration which is often forgotten is "Static Electricity" as this can produce high voltage discharges in the 20,000V range.

So every precaution should be taken to prevent static build-up such as the use of anti-static "wrist straps" or "ankle straps" that can provide a safe connection to the earth potential.

1 Unlimited number of **Intrinsically Safe Manual Call Points** (CCP-E-IS) (Always first on the Zone)

2 Up to 20 **Intrinsically Safe Detectors** (SOC-E-IS or DCD-1E-IS)

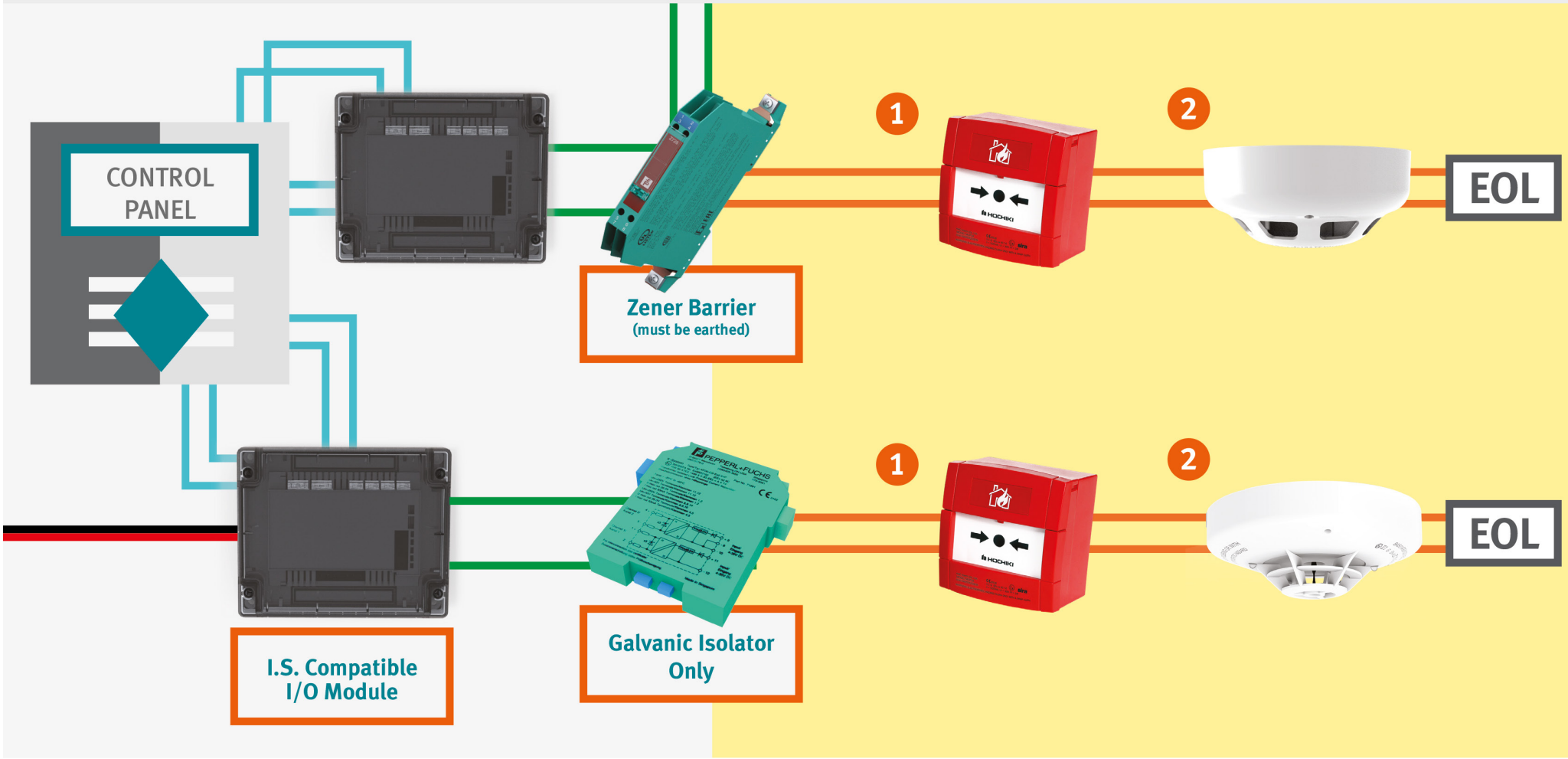
EOL To ensure that the surface temperature of the resistor remains below that of the flash-point of the hazardous material present it is certified that the overal surface area must be greater than 230mm².

Hazardous Area Zone Circuit

Safe Area Zone Circuit

Loop Cables

Auxiliary Power 24VDC



IS Product range

SOC-E-IS

The SOC-E-IS is a Photoelectric Smoke Detector, which is fully compatible with the majority of existing Conventional systems. The SOC-E-IS incorporates Hochiki's unique High Performance photoelectric smoke chamber removing the need to use Ionisation Detectors in the majority of applications.

'ASWV' Drift Compensation technology is incorporated to ensure the Detector is operating at its optimum sensitivity and therefore reducing potential false alarms.

- Removable, High Performance chamber
- Automatic Sensitivity Window Verification (ASWV) – Drift Compensation Technology
- Remote Indicator output
- Wide voltage range (9.5 ~ 30 VDC)
- Low profile design with one piece outer cover
- Single fire LED - 360° viewing
- ATEX Classification to: Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C)
- Suitable for installation in areas at Category 1 (inc all lower categories)
- Approved by LPCB & VdS.

DCD-1E-IS

A Conventional I.S. Rate of Rise Heat Detector designed for use in hazardous areas. Incorporates a remote indicator output and a 60°C fixed temperature element.

- Twin fire LEDs allow 360° viewing
- Electronics free mounting base
- Remote indicator output
- ATEX certification to: Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C)
- Suitable for installation in areas at Category 1 (inc all lower categories)
- Approved by LPCB, GL and to IECEx
- Also available in White - DCD-1E-IS(WHT).

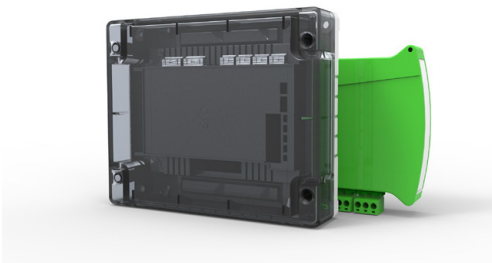
CHQ-DZM(SCI)-IS

A Dual Zone Module which is fully compatible with Hochiki's ESP analogue addressable protocol and I.S. equipment.

The module will allow connection of up to 40 Hochiki I.S. conventional detectors (20 per zone) through a Galvanic isolator or Zener barrier, which are then fully monitored for open and short circuit.

Also available as a DIN Rail mountable version. Both models feature an integral short-circuit isolator.

- Single loop address
- Supports two independent zones of Hochiki I.S. Conventional Detectors
- Both zones fully monitored for short/ open-circuit
- Requires an auxiliary 24 VDC supply
- DIN rail version available
- Both models feature an integral short-circuit isolator
- Both models approved by LPCB
- Installed in safe area only
- Can be used with CHQ-BACKBOX to comply with BS 7671

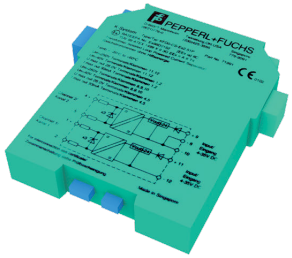


CHQ-ISM

This Sounder Control Module interfaces between the Hochiki Analogue system via a CHQ-DSC2 or conventional sounder O/P's and the intrinsically safe sounder/beacon units via an intrinsically safe barrier.

The module provides line monitoring for open or short circuits on the wiring connected to both the safe and hazardous areas.

- Provides dual sounder circuits
- Provides fault-monitored input
- Fully monitored for short-circuits
- Requires 24 VDC external power supply
- Also available as a DIN module
- Installed in safe area only
- Requires I.S. barrier
- Interfaces between loop and I.S. sounders/beacons
- Allows 1 I.S. Sounder or Beacon to be connected per channel
- Can be used with CHQ-BACKBOX to comply with BS 7671.



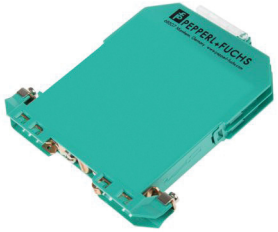
KFD0-CS-EX2.51P

This Isolated Barrier is used for intrinsic safety applications.

It transfers DC signals from fire alarms, smoke alarms, and temperature sensors in hazardous areas.

It can also be used to control I/P converters, power solenoids, LEDs, and audible alarms.

- 2-channel isolated barrier
- Current input/output 0 mA to 40 mA
- I/P or transmitter power supply
- Accuracy 1%
- Reverse polarity protection
- SIL capable.



Z787

A Zener-Diode Barrier dual channel*, DC version, positive polarity, Working voltage 26.5 V at 10 µA, Series resistance max.

327 Ω, Fuse rating 50 mA, DIN rail mounting, With diode return.

- Simple installation onto standard DIN 'top-hat' railing
- Removable colour-coded terminals for easy connection
- Can accommodate conductors up to 2.5 mm^2.

* 1 x channel for zone wiring and 1 x channel for 24V (sounders/beacons, power for flame detectors, not for zone wiring)

IFD-E(IS)

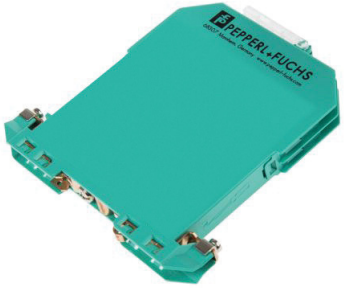
An Intrinsically Safe Conventional Infrared Flame Detector designed to respond to low-frequency (1 to 15Hz) flickering IR radiation emitted from flames during combustion, the unit can discriminate between flames and spurious sources of radiation such as sunlight

- Unaffected by convection currents, draughts or wind and solar-blind
- Tolerant of fumes, vapours, dust and mist
- ATEX certification to:
- EEx ia IIC T4 (135°C) (zones 0, 1 and 2)
- Selectable response speed
- Class 1 performance as defined in
- BS EN54-10:2002 (on the high sensitivity setting)
- Approved by LPCB
- SIL capable
- Mounting bracket available IFD-MB.

IFD-E(Exd)

A Conventional Explosion-Proof Infrared Flame Detector designed to respond to low-frequency (1 to 15Hz) flickering IR radiation emitted from flames during combustion, the unit can discriminate between flames and spurious sources of radiation such as sunlight

- Unaffected by convection currents, draughts or wind and solar-blind
- Tolerant of fumes, vapours, dust and mist
- ATEX certificated to: EEx d IIC T6 (85°C) (zones 1, 21, 2 and 22)
- Selectable response speed
- Class 1 performance as defined in
- BS EN54-10:2002 (on the high sensitivity setting)
- Approved by LPCB
- SIL capable
- Mounting bracket available IFD-MB.



Z728

A Zener-Diode Barrier single channel, DC version, positive polarity, Working voltage 26.5 V at 10 µA, Series resistance max.

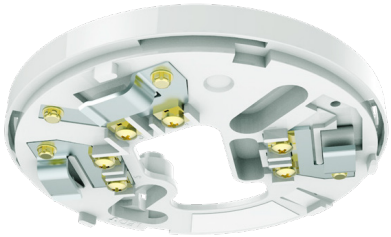
327 Ω, Fuse rating 50 mA, DIN rail mounting,

Number of channels: 1-channel,

Type: DC, positive,

Working voltage: max. 26.9 V.

- Simple installation onto standard DIN 'top-hat' railing
- Simplified installation and maintenance using plug-in connectors
- Input circuit protected against reverse polarity.



YBN-R/4(IS)

A Conventional Detector Mounting Base for use with Intrinsically Safe and SIL capable conventional detectors.

- Low Profile, only 8mm
- Rugged design
- Dedicated cable screen terminal
- Accepts from 1 to 2.5mm2 cables
- Quick connection via square cable clamps
- Electronics free
- GL Type approval
- SIL2 capable
- Available in Ivory or White.

CCP-E-IS

A Conventional Manual Call Point designed for use in hazardous areas and based upon the industry standard KAC world series housing.

Supports either a 'Frangible Glass' element or a 'Non Frangible Plastic' element.

- Terminals can accommodate up to a 2.5mm2 solid conductor
- Approved to EN54 Part 12
- Rugged design
- ATEX Classification to:II 1G EEx ia IIC T4
- GL Type approval.

CCP-W-IS

A Conventional weatherproof call point designed for use in hazardous areas and based upon the industry standard KAC world series housing.

- Sealed to IP67
- Supports either a 'Frangible' glass element or a 'Non Frangible' plastic element
- Terminals can accommodate up to a 2.5mm2 solid conductor
- Approved to EN54 Part 12
- ATEX Classification to: II 1GD Ex ia IIC T4 Ga
- Rugged design, with anti-tamper facility.

ATEX Certification Explained

Heading	Mark	Meaning				
Explosion proof	Ex	In accordance with ATEX directive				
Equipment group	I	For use in underground mine				
	II	For use in all other places				
Category	1	Equipment that is intended for use in areas where an explosive atmosphere is present continuously, for long periods or frequently				
	2	Equipment that is intended for use in areas where an explosive atmosphere is likely to occur in normal operation and must ensure a high level of protection				
	3	Equipment that is intended for use in areas where an explosive atmosphere is unlikely to occur in normal operation and must ensure a normal level of protection				
Gas / Dust	G	Equipment certified for use in flammable gases				
	D	Equipment certified for use where dust is present in the atmosphere				
Type of protection	d	Flameproof				
	la	Intrinsically Safe				
	e	Increased safety				
Gas group	I	Mines				
	II	Surface above ground industries				
Gas subgroup	A	Less easily ignited gases e.g. propane				
	B	Easily ignited gases e.g. ethylene				
	C	Most easily ignited e.g. hydrogen or acetylene				
Temperature classification	T1	450°C	T3	200°C	T5	100°C
	T2	300°C	T4	135°C	T6	85°C

ATEX Classification Quick Reference:

- SOC-E-IS / DCD-1E-IS
  Ex II 1 G Ex ia IIC T5 Ga (-20 °C ≤ Ta ≤ + 55 °C)
- CCP-E-IS / CCP-W-IS
  II 1GD Ex ia IIC T4 Ga
- IFD-E(IS)
  EEx ia IIC T4 (135°C) (zones 0, 1 and 2)
- IFD-E(Exd)
  EEx d IIC T6 (85°C) (zones 1, 21, 2 and 22)

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Intrinsically Safe

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Assessed to ISO 9001

Environmental Certificate No.164EMS
Assessed to ISO 14001

Business Member

Fire Industry Association

Affiliate Member

Your Safety Our Technology