



Smart, Efficient & Safe.

In-Cabinet Protection System

Industrial & Commercial
Homes & Offices



About Fire





Fire





A rapid, persistent chemical change that releases heat and light and is accompanied by flame, especially the exothermic oxidation of a combustible substance.

Types of Fire

In fire fighting, fires are organized into several fire classes that describe what kind of fuel or heat source it has, and by extension what methods will be necessary to contain it or put it out.

Potential Causes of Fire


	Electrical & Wiring Fault Lightning Strike, Power Surge, earth Leakage, High voltage discharge, Cabling Short circuit, Over current, Current leakage, Loose termination, Switchgear malfunctions.
	Electronics Components Fault Component overheated, Component malfunction, Flammable gases emitted from melted electronic components, Short circuit, over current, Current leakage, Loose termination.
	Chemical Substance (Non self explosive) Highly flammable chemical (Chemical Reaction) as source of fire due to heat or human mistake.
	General Flammable Paper Filing Cabinet as source of fire due to heat or human error.

Industries and Potential Fire Hazards	Potential Causes of Fire
Mechanical & Electrical services: Switch board, Feeder Pillar.	  
Information Technology & Telecommunication: Server Rack, UPS system.	  
Offices: Documents Storage Cabinet.	  
Instrumentation: Process / System control panel.	 
Machinery: Machine Control Panel.	   
Laboratory: Chemical Storage Cabinet.	 

F ~ O

WE put a 'fullstop' to the word fire.®

Malaysia ICP sole distributor:

 GLOBAL FOCUS

What is PYROGEN In-Cabinet Protection System?



Introduction of PYROGEN

In order to minimize and prevent all mentioned losses, Pyrogen In-Cabinet Protection (ICP) canister utilizes a Direct-To-Source (DTS) method to extinguish fire in a direct and rapid way. Pyrogen DTS method can be used where fire hazards are within a compartment or enclosure.

Why Pyrogen In-Cabinet Protection System?

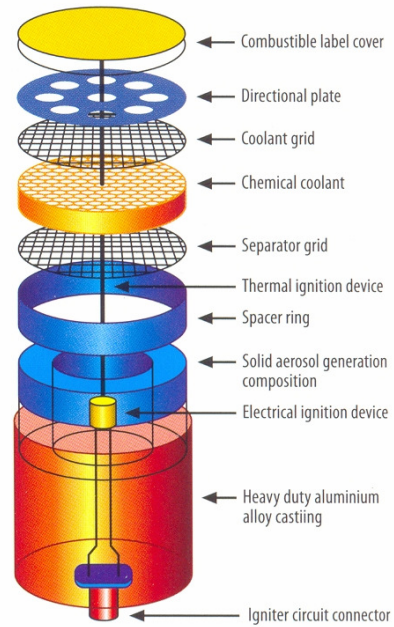
- Financially viable
- Virtually maintenance free
- Cost effective
- Fast and easy installation

How PYROGEN ICP works

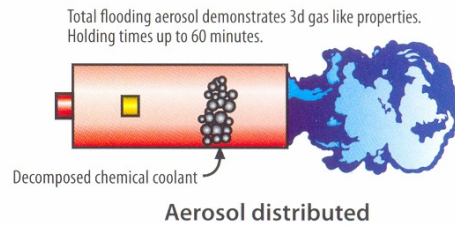
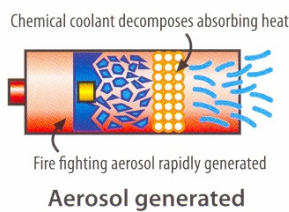
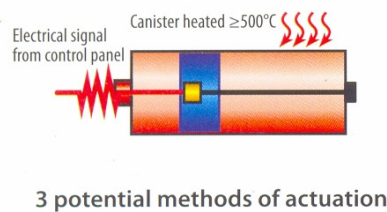
PYROGEN is an aerosol fire-extinguishing agent. The principle of extinguishing action employed by PYROGEN is unique - a special solid chemical, when electrically or thermally ignited, produces combustion products - micron size dry chemical particles and gas. Dry chemical particles (mainly potassium carbonates), and gaseous mixture (mainly carbon dioxide, nitrogen and water vapour), mix together into a uniform fire extinguishing aerosol. Before being released into a protected area, the aerosol propels itself through a unique solid chemical coolant, which decomposes absorbing huge amounts of heat, thus ensuring flameless discharge and uniform distribution of the cool aerosol within the area.

The high rate of aerosol discharge ensures a tremendous knockdown effect. Micron size aerosol particles exhibit gas-like three dimensional qualities that allow the agent to rapidly distribute throughout enclosure and reach even the most concealed and shielded locations. Homogeneous distribution is achieved in a matter of seconds, while long holding times all help to prevent fire re-ignition.

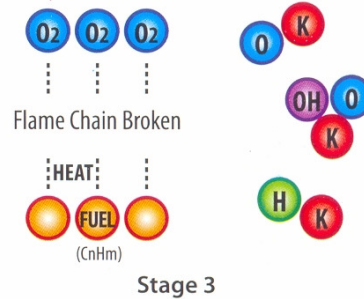
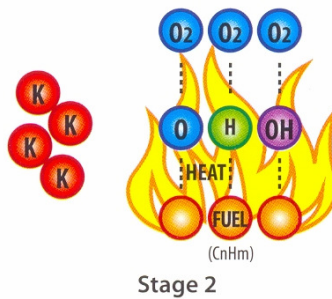
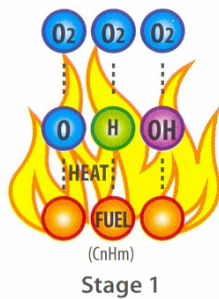
Pyrogen Canister (expanded component view)



PYROGEN Canister in action



PYROGEN aerosol is a chemical action agent



PYROGEN ICP benefits at a Glance



Spontaneous extinguishing action

By allocating Pyrogen ICP close to the source of fire, we are able to control and extinguish the fire the moment it is started.



Cost effective

With minimal space and weight requirements, simple installation, zero maintenance and up to 10 years service life, Pyrogen is arguably the most cost effective solution available.



Compact and weight saving

Pyrogen canisters can provide the smallest and lightest fire extinguishing system currently available.



Tested and certified

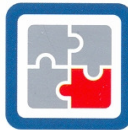
Pyrogen has been tested and certified by CSIRO* (Australia) and is undergoing further certification worldwide.

* Commonwealth Scientific and Industrial Research Organisation



Low toxicity

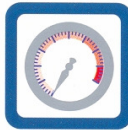
Pyrogen produces no aggressive Acids such as Hydrogen Fluoride upon contact with hot surfaces. Pyrogen produces no chlorine or bromide and does not deplete oxygen to suppress the fire.



Simple to install and re-commission

Pyrogen canisters are electrically (or automatically thermally) activated. Simple wiring and plug-in connectors can reduce installation times. If discharged, new canisters may be reinstalled in minutes*, affording minimal downtime.

* Providing all and any necessary safety checks and inspections have been completed



No pressurised cylinders or pipe work

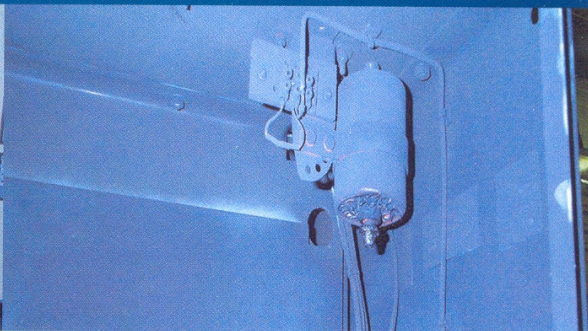
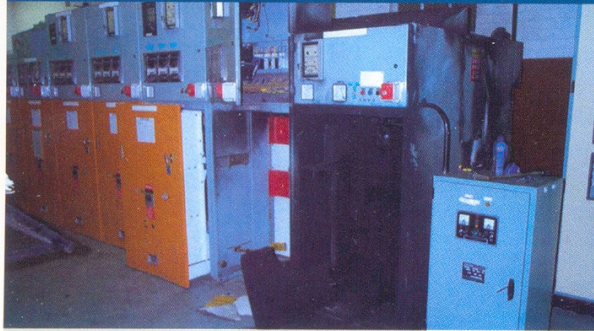
Pyrogen canisters are self contained, 0% pressure units. As well as being light and safe to transport, they require no additional pipes, nozzles or distribution equipment. They cannot leak, burst or deteriorate, and can be stored for up to 10 years without maintenance.

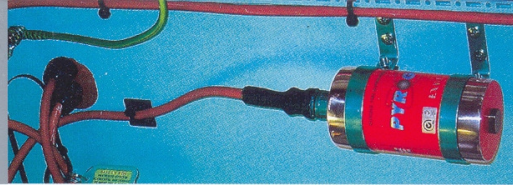


Environmentally friendly

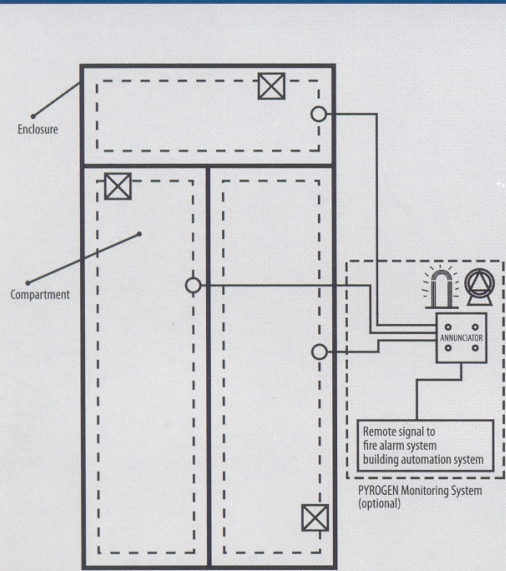
Pyrogen has been certified as having 0% Ozone Depleting Potential (ODP) and 0% Global warming Potential (GWP). It is officially listed by the US Environmental Protection Authority under its Halon replacement 'Significant New Alternatives Program' (SNAP).

PYROGEN SUCCESS STORY: Client - A South African goldmining company Protected area - Electrical switchgear cabinets Cause of activation - Busbar failure leading to internal arcing, protected by PYROGEN

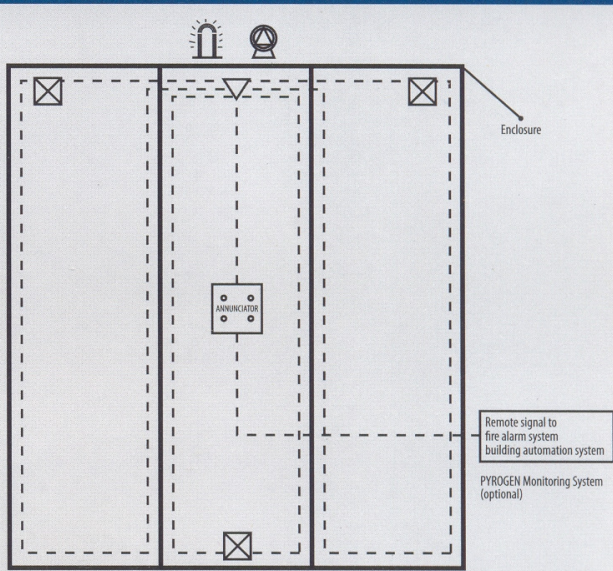




PYROGEN ICP fire protection system for enclosure using Linear heat detector cable as thermo sensing device



PYROGEN ICP fire protection system for enclosure using T.A.D. as thermo sensing device



Legend of Symbols

- ☒ PYROGEN ICP canister
- - Linear heat detector sensor cable / fire rate cable
- Auxiliary contact point for remote signal
-  Visual alarm signal
-  Audible alarm signal
-  Alarm Annunciator panel
-  TAD system

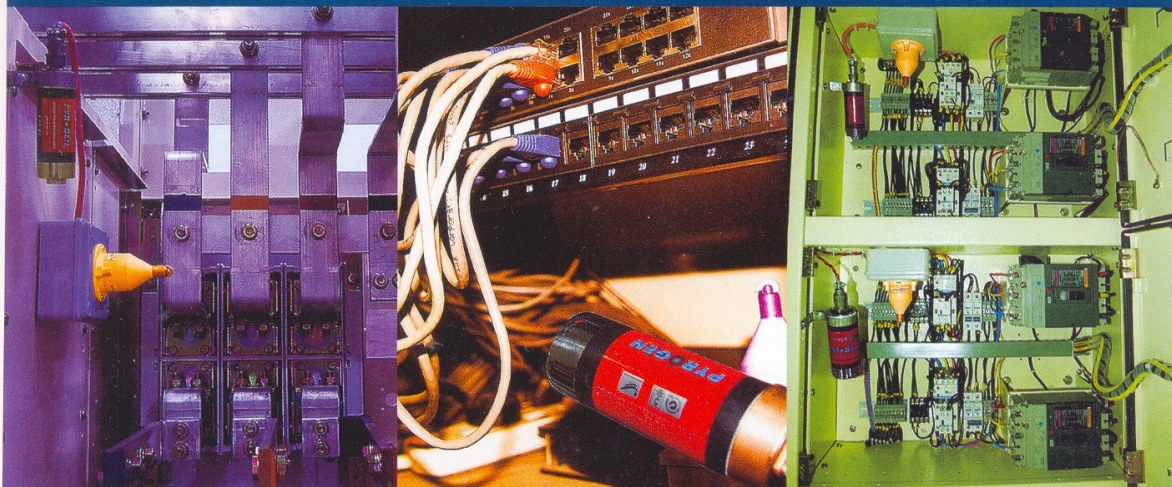
Note:

Detailed study and design in positioning the Pyrogen **ICP** unit within enclosure is required to maximize the reformation or the discharge aerosol.

Other than routine visual checking on the installation brackets, Pyrogen **ICP** unit is virtually maintenance free.

Add on Accessories

- Linear heat detector sensor cable
- Thermal activation device (TAD)
- Auxiliary contact relay
- Multi way alarm indicator panel contact relay for building automation system/ fire alarm system
- Visual alarm / audible alarm



Technical specification

THIS ENCLOSURE IS FITTED WITH A
PYROGEN
FIRE EXTINGUISHING AEROSOL SYSTEM.
DO NOT CONDUCT ANY SERVICE WORK
UNLESS PYROGEN CANISTERS HAVE BEEN
ELECTRICALLY ISOLATED.
DO NOT EXPOSE

Note:

The following details are a representative extract of the technical specification for the Pyrogen EXA ICP series, pyrotechnically generated, aerosol fixed fire suppression system and may be subject to change. Complete and current details should be determined from the designated supplier's technical manual / data sheets.

Parameter	Mass of aerosol forming composition	Max protected volume at 100g/m ³	Nozzle outlet	Length	Diameter	Discharge times
EXA-Z3	30g	0.3 m ³	Mono	101 mm	38 mm	< 30 s
EXA-Z6	60g	0.6 m ³	Mono	115 mm	63 mm	< 30 s
EXA-1	100g	1 m ³	Mono	117 mm	63 mm	< 30 s
EXA-2	200g	2 m ³	Mono	156 mm	63 mm	< 30 s
EXA-5	500g	5 m ³	Mono	215 mm	95 mm	< 40 s
EXA-10	1,000g	10 m ³	L/R	170 mm	265 mm	< 30 s

Classifications:

Suitable for fire: Class A – Combustible solids
(According to Class B – Flammable liquids
AS/NZ 1851.16:1997) Class C – Flammable gasses
Class E – Electrically energized fires

Handling and transport: In accordance with the requirements for Dangerous Goods Class 4.1, category C

Minimum design factor:

Class B and surface Class A fires: 100 g/m³

Canister characteristics:

Material: Stainless steel
Temperature range: -50°C to +85°C
Humidity range of application: 0 – 98%, non-condensing

Aerosol characteristics:

Minimum particle size: -1 micron
Oxygen level: 17% to 10% (typical)
Holding Time: ≤60mins

Electrical activation:

Nominal resistance: 2.0 – 3.0 Ohms
Activation current: 500 – 1,000 mA (depends on model)
Actuation time: 1 – 2 milliseconds
Connector: 4 pin Military Type
Service Life: 5 – 10 years (depends on installation environment)

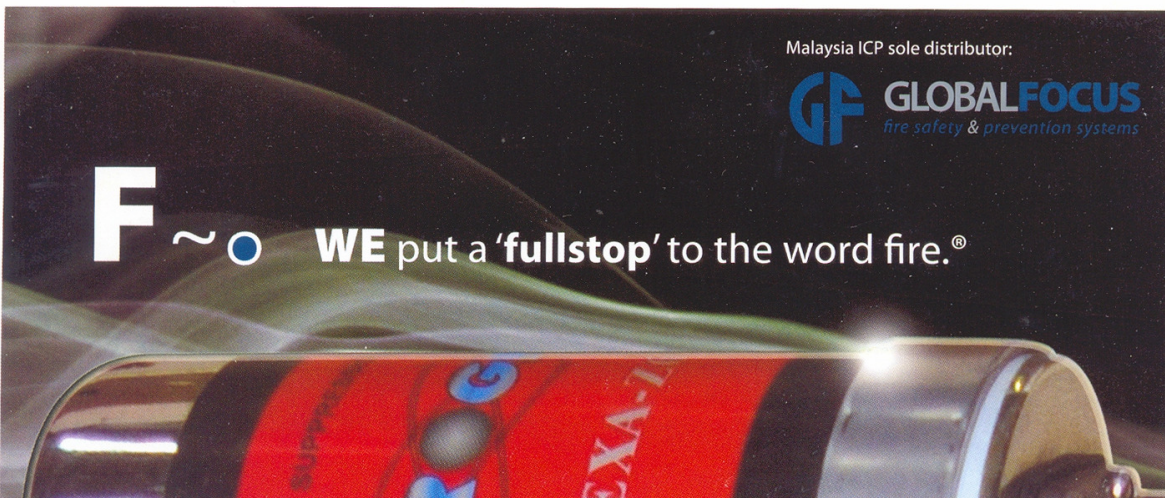
Design requirements

Only trained personnels from manufacturer are approved to carry out the designs for the installation of Pyrogen ICP system to ensure that:

- The correct calculation for the selection of models is used
- The positioning of the generators is according to manufacturer's specification

Minimum clearance distances

It is important to make sure that the positioning of the canister is according to the minimum distances between the outlet of the installed generator and other objects. This is to ensure that no object is blocking the discharge of the aerosol that could minimize the performance of Pyrogen ICP unit.



Aftermath

Losses / Consequences of Fire Hazards

Fire hazards may cause numerous undesirable effects, which includes loss of human lives, properties, assets and jeopardizes business reputations.

- Production factories will suffer system breakdown, causing production down time.
- Utility providers will not be able to provide services thus affecting consumers in their day-to-day routine.
- Telecommunication system breakdown affecting millions.
- Crucial information would not be able to be recovered from damage of digital storage components or filing document.
- Monetary lost: cost of fire hazard prevention is much lesser the cost of recovery from a fire hazard is much greater than the.
- Disruption of daily business operations.

A General Conclusion

There are numerous fire hazard prevention systems which have been implemented into building structure to control fire hazards. These systems are effective in preventing fire hazards by acting on the secondary fire using total flooding system.

With Pyrogen cutting edge technology of In-Cabinet Protection (ICP) system, it will "put a full stop to the fire at the heat source". Documents, data accumulated on computer systems, electrical systems consisting switch gears, cables and controllers can be protected by ICP. This is a more efficient and effective method of extinguishing fire rapidly at the fire source. Thus, preventing costly collateral damages.

NOTE - BUILDING FIRES GENERALLY ARE NEVER HOT ENOUGH TO SIGNIFICANTLY DAMAGE METALS SUCH AS COPPER, BRASS OR STEEL. IF EROSION OR SIGNS OF LOCALISED MELTING OF BRASS TERMINALS OR CONNECTORS IS FOUND IN THE AREA OF FIRE ORIGIN, IT USUALLY INDICATES THAT THIS HAS BEEN A "HOT CONNECTION" OR HIGH RESISTANCE POINT AND COULD HAVE CAUSED THE FIRE.



Behind every problem
lies a perfect solution.®

info@globalfocus.com.my



Australian & New Zealand
Standards Approval
AS/NZS 4487:1997



Bomba Malaysia



Scientific Services
Laboratory



American Bureau
of Shipping



Royal Navy Lifeboat
Institution (RNLI)



European Certification
Bureau



Work Cover Authority



Bureau Veritas



US EPA SNAP



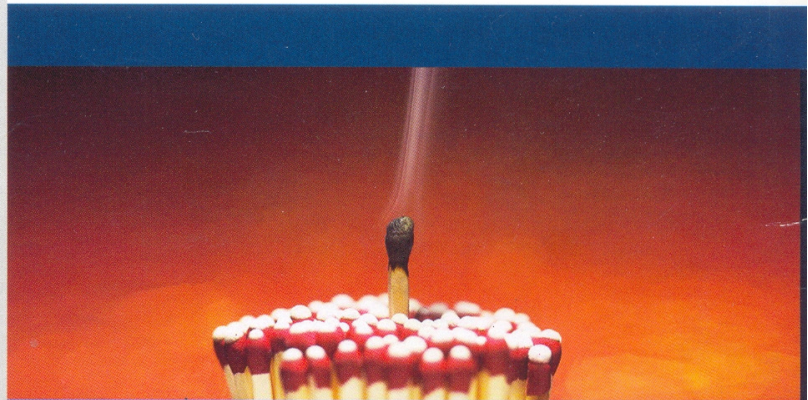
Waterways Authority



RINA Approval



Maritime and Coastguard
Agency



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