

White Paper - Electrical Panels and Server Units

THE FIRETRACE FIRE SUPPRESSION SYSTEM FOR ELECTRICAL PANELS AND SERVER RACKS



INTRODUCTION

From a smouldering circuit board to a switch gear explosion, the risk of electrical fire in data, power generation and telecommunication centers is an ever-increasing concern for the owners and operators of these facilities.

Today's data centre and electronics industries are looking for a fire suppression solution that is safe, effective and mindful of the environment. The Firetrace Fire Suppression system is unique technology, utilizing Novec 1230 to the area and removes heat that sustains the fire with a high velocity, low pressure delivery. The system fills the hazard space and quickly extinguishes the fire leaving no residue whatsoever. Electronics are kept dry and there are no toxic agents or chemicals involved.

STATISTICS

Electrical fires are one of the top five causes of fires in manufacturing plants. Here a non-exhaustive list of specific electrical hazards:

Common causes

- Wiring that is exposed or not up to standard
- Poor housekeeping
- Loose and bad connections
- Overloaded circuits
- Static discharge
- Bad or no maintenance
- No fire detection / suppression systems installed

FATALITIES AND INJURIES CAUSED BY ELECTRICAL FIRES

- 1380 fatalities and injuries caused by electrical fires (Data from the Government HSE website, 2017/18)
- 15,432 fires caused by electricity (out of a total of 28,350 fires). (Data from the Government HSE website, 2017/18)
- 80% were caused by appliances and machinery
- Average of 27 a week and 4 a day

The damage caused by these fires can quickly compound thanks to several of the other items on this list. Any of the above hazards can cause a spark, which can serve as an ignition source for combustible dust, as well as flammable liquids and gasses.



IMPACT ON PRODUCTION AND INJURIES

- Loss of production due to damage to electrical control equipment
- Fire damage caused to building
- Personal injury
- Human fatalities

FIRETRACE SOLUTION AND BENEFITS

- No external power required (Completely Pneumatic), giving 24hr protection
- LPCB (Loss Prevention Certificate Board)
- Systems manufactured in-house
- System can be fully monitored with the use of pressure switches, allows connection to the building fire alarm or Building management systems etc
- Intelligent targeted deployment of extinguishing agent
- Multiple panel / compartment protection with the use of one cylinder of extinguishing agent
- No unwanted false activations
- Very quick detection hence rapid knock down of the fire
- Minimise down time
- Nationwide engineering coverage
- Self activating system, reliable and cost effective
- Firetrace established in 1996
- Intrinsically safe

SUCCESS STORIES

BMS are a Authorised Firetrace Installer.

FIRETRACE SYSTEM SAVES AN ELECTRICAL PANEL IN THE NORTH

Firetrace Automatic Fire Suppression System saves an electrical panel at a manufacturing plant in the North East of England.

How the fire suppression system helped

The Firetrace system activated in result of a component failure, which overheated and caught fire concluding in the system discharging in textbook fashion to extinguish the fire at source causing minimal damage to the machine.

The power supply to the machine was automatically turned off via the Interface that BMS Installed, thereby isolating the source of ignition into the panel. During this incident, there was no need to call the fire brigade. In addition, there was no damage to the machine or the rest of the adjacent components in the control panel. Our aim was to keep the downtime of the machine to a minimum as we understood it is a vital piece of equipment for the customers operations.

Luckily, BMS were able to attend site the next day and reinstall the Firetrace automatic fire suppression system, so the machine could continue operating.



FIRE SUPPRESSION SYSTEMS – SUSSEX BLAZE AVERTED TWICE

Two fires in two days could have spelled disaster for Favor Parker Mill in Robertsbridge, Sussex. But fortunately, the mill had been fitted with ten Firetrace systems in 2003, a year before the blaze.

The first fire

In the first blaze on-site engineers were alerted via an alarm system on a Firetrace panel. They discovered that a 200 Amp circuit breaker had faulted on the switchgear, sparking an ignition within one of the grinder control panels.

Fortunately Firetrace had installed a carbon dioxide system, which was fixed within the panel, so the problem was instantly detected. It meant the blaze was already extinguished by the time the on-site engineers arrived.

The speed of detection meant damage was limited to the faulty breaker alone and no other components were affected.

Speaking at the time, plant manager Philip Milton praised Firetrace and said: “If this panel had not been protected by Firetrace, the outcome could have been disastrous.”

The second fire

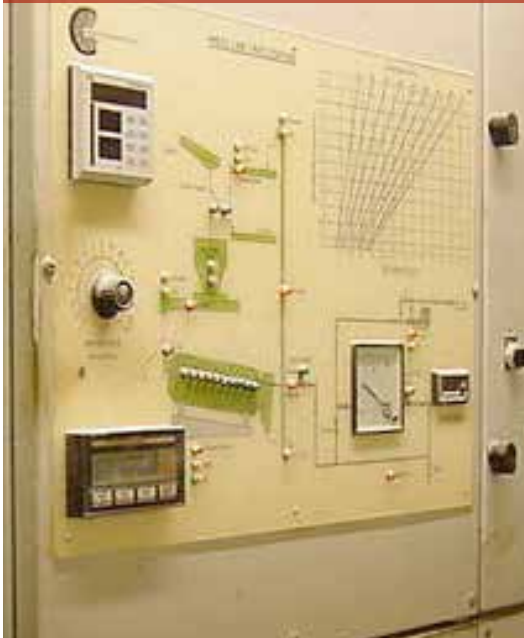
The second fire happened just two days later after Firetrace had reinstated the panel. The alarm was triggered by the same system again, but this time there was no trace of any damage, so production continued at the mill.

Firetrace engineers were called and discovered the second fault was caused by wiring in the panel overheating. Only a few wires were damaged in the incident, but these were quickly replaced, and the cause of the problem identified and solved.

The Firetrace system was replaced and it was back and running, all within the same day.

SYSTEM EXAMPLES

Electrical Cabinet fitted
with a Firetrace System



Panel fitted with a
Firetrace System







Firetrace detection tubing
typical burst hole



Electrical panel without a
Firetrace System (after a
fire occurred)








APPROVALS

-  LPCB (LPS 1666)
-  CE approved
-  PED compliant
-  ISO 9001 2015 certification



LPS1666: Issue 01
Cert/LPCB ref. 1430a

NOVEC 1230 (extinguishing agent)

-  Not CFC or HFC (exempt from 'F-Gas' regulations)
-  Non-toxic
-  Non-conductive
-  Safe for occupation (high concentration NOAEL)
-  Zero ODP
-  GWP 01 (FM-200 GWP 3500!)
-  Backed by 3M 'Blue Sky' warranty ensuring 20 year life

SPECIFYING NOTES

Standard Direct Firetrace Systems

- Compartments up to 6 cubic metre internal volume
- Multiple compartment protection using as single cylinder
- Up to 100 Metres of Firetrace detection tubing per system (max 20m linear distance from cylinder)
- Dual pressure switch which is removable under pressure to allow testing / maintenance
- Concealed isolation valve with options to monitor status with volt free contacts
- Removable gauge on all systems to provide visual indication of pressure
- 10 Year cylinder life
- Ozone friendly non-conductive Novec 1230 extinguishing agent

LPS 1666 Standard (systems approved by LPCB)

- Compartments up to 2 Cubic Metres internal volume
- Up to 4 compartments protected by one cylinder
- Up to 40 Metres of Firetrace Automatic detection tubing
- Tubing within 350mm of all identified risks



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