



# Kidde Marine Fire Products

- ECS FM200
- ADS FM200
- ECS Novec 1230
- ADS Novec 1230
- CO2 fire fighting system
- WHDR Galley fire fighting system
- Foam fire fighting system
- Fire Detection system

# Clean Agent Gas suppression System

## GENERAL DESCRIPTION

Kidde FM-200 ECS Series engineered fire suppression systems are used to suppress fires in specific hazards or equipment where an electrically non-conductive agent is required, where agent cleanup creates a problem, where extinguishing capability with a low weight is desired and where the hazard is normally occupied. Kidde FM-200 systems are intended to protect spaces containing the following hazards:

- Class A - surface type fires—wood or other cellulose type material
- Class B - flammable liquids
- Class C - energized electrical equipment

## FM-200 EXTINGUISHING AGENT

FM-200 (1,1,1,2,3,3,3 - heptafluoropropane) is a compound of carbon, fluorine and hydrogen ( $\text{CF}_3\text{CHF}_2\text{CF}_3$ ). It is colorless, odorless and electrically non-conductive. It suppresses fire by a combination of chemical and physical mechanisms without affecting the available oxygen. This allows personnel to see and breathe, permitting them to leave the fire area safely. FM-200 has acceptable toxicity for use in occupied spaces when agent concentration is in accordance with NFPA 2001, and the applicable rules of the International Maritime Organization (IMO) and US Coast Guard.

## FM-200 SYSTEM HARDWARE

FM-200 is stored in steel cylinders superpressurized with nitrogen to 360 psig. The cylinder valve assembly is equipped



## MARINE APPROVALS

In addition to land-based approvals, the Kidde FM-200 ECS Series engineered fire suppression system is approved by the marine regulatory bodies listed below. More marine approvals are pending.

## FM-200 EXTINGUISHING AGENT

FM-200 is a clean, colorless and odorless compound. It suppresses fires by a combination of chemical and physical mechanisms with minimal affect on the available oxygen. Unnecessary exposure to FM-200 or any clean agent should be avoided per marine regulations. In the very unlikely instance where a discharge occurs in an occupied space, personnel will be able to see and breathe, permitting them to leave the area safely. As such, the system is authorized for use in normally occupied spaces.

## APPROVALS

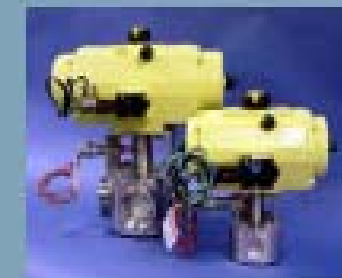
The Kidde Marine ADS System holds Marine agency approvals:

- US Coast Guard (Certificate of Approval)
- Underwriters Laboratories, Inc. (UL2166)
- Underwriters Laboratories of Canada (ULC/ORD - 1254C.6)
- Classification Society approvals pending

and in compliance with the applicable marine fire protection regulation. A highly trained distributor, located near you, can design, install, retrofit, recharge and maintain your system.



ADS 675 lb. System



# Suppression agent compare

Agent	Design Conc. Class A	Design Conc. Class B	Design Conc. Marine	NOAEL
Inergen™	34.2%	40.3%	40.3%	43.0%
Novec™ 1230	4.2%	5.85%	5.5%	10.0%
FM-200	6.4% - 7.17%	8.7%	8.7%	9.0%
NAF S-III	9.4%	12.9%	N/A	10.0%
HFC-125	8.0%	11.3%	N/A	7.5%
Halon 1301	5.0%	5.0%	4.25%	5.0%
CO <sub>2</sub>	34.0%	34.0%	35.0%	< 5.0%

NOAEL: No Observable Adverse Effect Level

# Environment impact

<u>Agent</u>	<u>O.D.P.</u>	<u>G.W.P.</u>	<u>A.T.L.</u>
Inergen™	0	0	0
Novec™ 1230	0	1	5 days
FM-200	0	3800	36.5 years
NAF S-III	0.036	1444	12 years HFC-
125	0	3800	32.6 years
FE-13	0	11900	250 years
Halon 1301	10 -16	6900	65 years

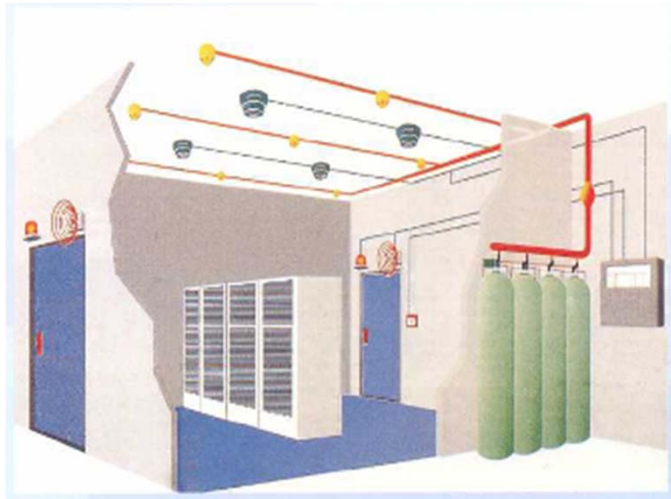
**ODP = Ozone Depletion Potential (CFC 11 = 1)**

**GWP = Global Warming Potential (CO<sub>2</sub> = 1)**

**ATL = Atmospheric Lifetime**

# Quantity of Cylinders

Protection area= 500 M<sup>3</sup>



HALON 1301

(1 CYLINDER)



FM 200

(2 CYLINDERS)



NOVEC 1230

(2 CYLINDERS)



CO2 SYSTEM

(15 CYLINDERS)



INERGEN GAS  
SYSTEM

(15 CYLINDER)





# Agent release



# How to work?



# System Component

- Agent storage
  - Tanks
  - Brackets
- Agent delivery system
  - Discharge hose
  - Piping
  - Nozzles
- Actuation system
  - Valve actuator
  - Actuation connection components
- Accessories
  - Recharge adaptors
  - Warning plates



# WHDR Galley fire fighting System

# Your Owner's Guide To...



A UTC Fire & Security Company

## APC WET AGENT FIRE SUPPRESSION SYSTEM

This guide helps you understand your responsibilities in fire protection. It covers system operation, maintenance precautions, and emergency procedures.

This guide is not the detailed Kidde Fire Systems APC Wet Agent Installation and Maintenance Manual, which is available through KIDDE-FENWAL, Inc.

**Caution:** Installation or maintenance of your system by personnel other than those trained by the system manufacturer may result in the system failing to operate properly.

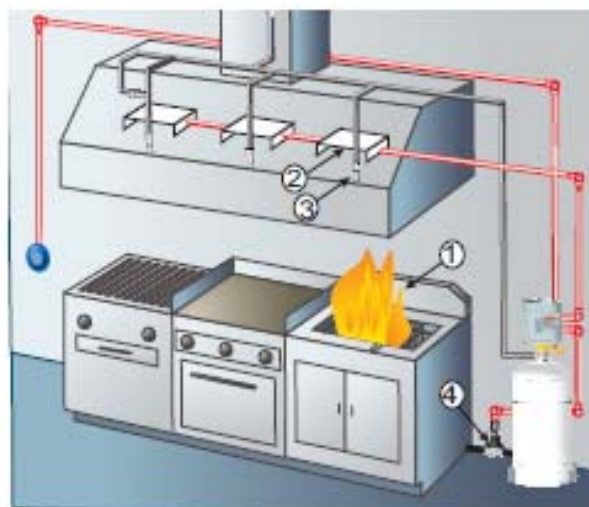
Such failure could cause serious personal injury and property damage.

Request that the installer provide you with a statement which specifies the equipment provided and the appliances protected.

Kidde-Fenwal  
400 Main Street  
Ashland, MA 01721, U.S.A.

December 2007

### How Your Automatic Fire Protection System Works



As illustrated above:

- ① A fire starts...
- ② A fusible link melts, or an electric probe detects fire temperatures...
- ③ An actuating device automatically opens the cylinder valve, allowing the wet agent solution, to discharge through pipe and nozzles, suppressing fire through a patented process.
- ④ Gas valves and electrical switches, where installed, will operate to shut off your sources of fuel.

### What You Should Do In The Event Of A Fire

1. Quickly and carefully, evacuate others from the premises.



2. If the system has not operated automatically...



...Manually activate the system. (Which type of manual operation do you have?)

3. Call the Fire Department.  
Number: \_\_\_\_\_



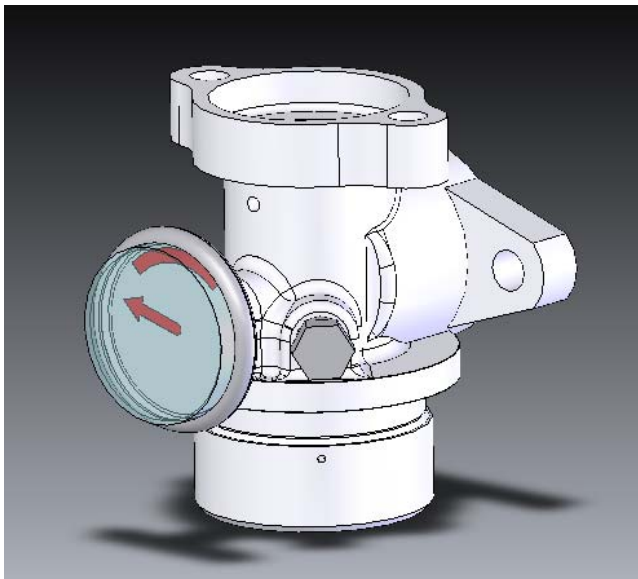
4. Stand by with a fire extinguisher if it is safe to do so.





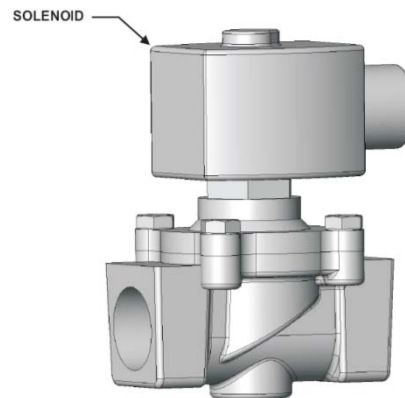
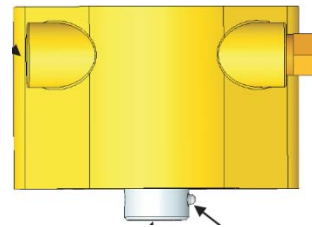
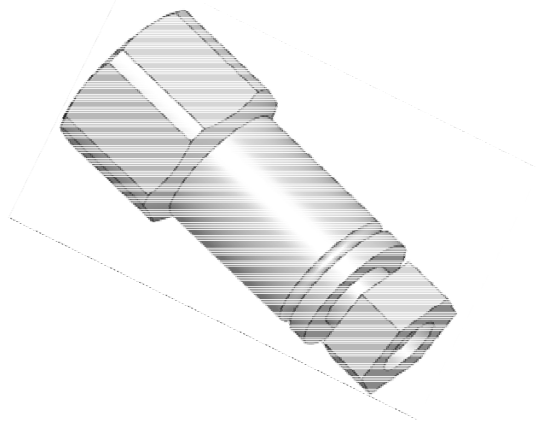
# Cylinder & Valve Assembly

- 1.25 gallons (4.7 liters)
- 2.66 gallons (10.1 liters)
- 4 gallons (15.1 liters)
- 6 gallons (22.7 liters)



# Components

- Agent
- Cylinders
- Nozzles
- Detectors
- Controls



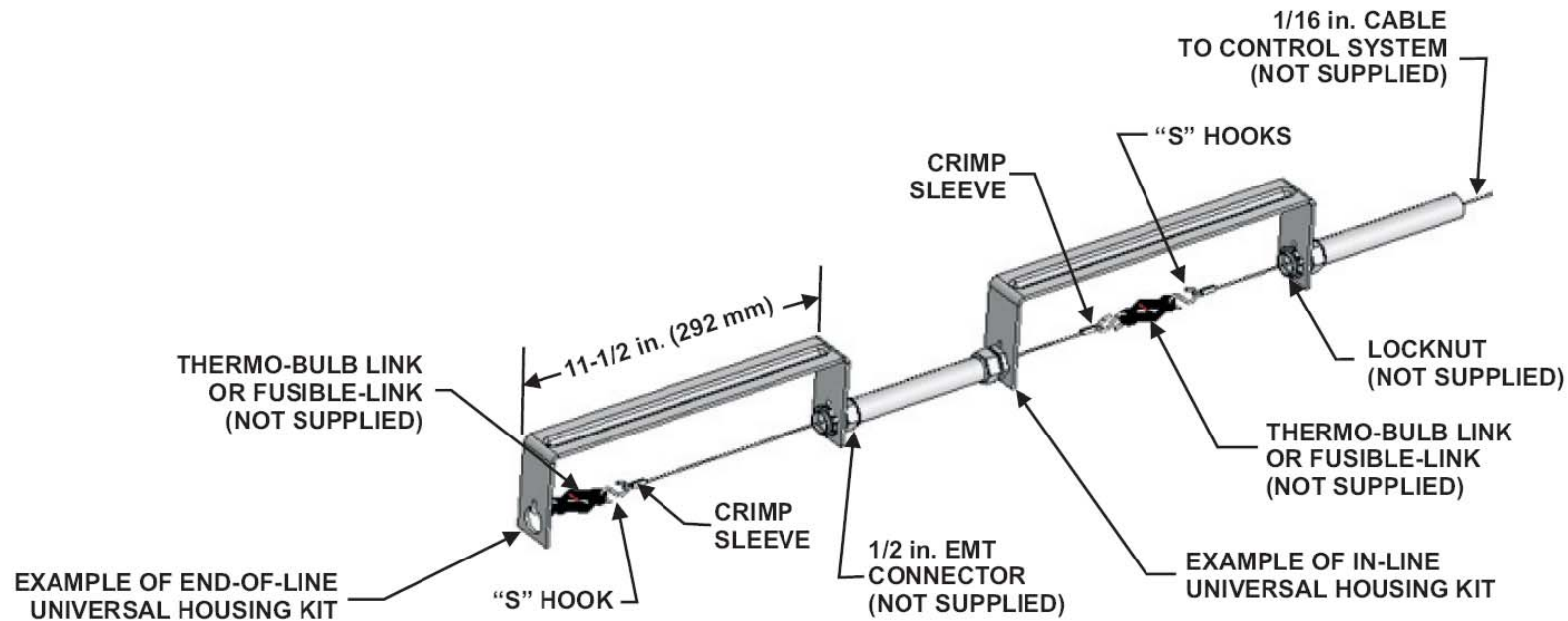
# Agent

- Kidde APC
  - Aqueous potassium carbonate
  - Superior fire-fighting capabilities
    - Saponification
    - Temperature reducing effects





# Universal Link Detector Housing Kit

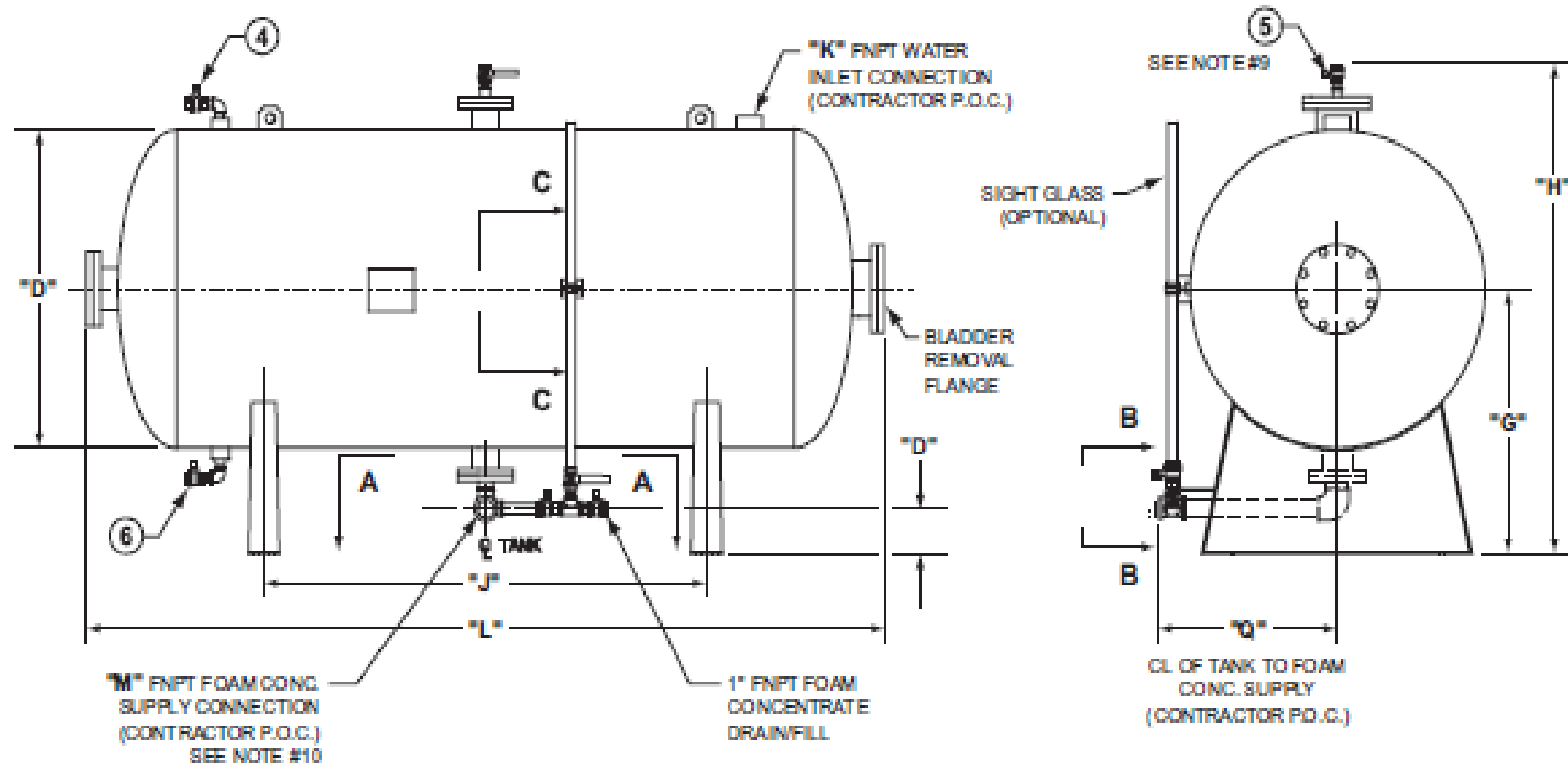


# Foam fire fighting System

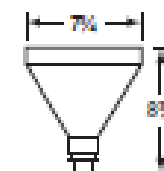
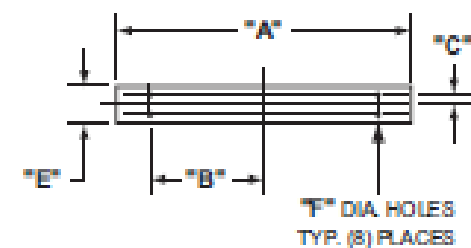
# Typical Balanced Pressure Skid with Integral Storage Tank

- Fixed Systems
  - Marine
  - Industrial
  - Integrated Packaged Foam Proportioning Systems
  - System Design
  - Component Supply





VALVE DESCRIPTION		
Valve No.	Description	Normal Position
4	Tank Water Vent	Closed
5	Concentrate Vent/Fill	Closed
6	Water Drain/Fill	Closed
7	Concentrate Drain/Fill	Closed
8	Sight Glass (Optional)	Closed
9	Sight Glass Supply (Optional)	Open



## Universal Alcohol-Resistant Aqueous Film-Forming Foam (AR-AFFF)

Universal Gold 1%/3%  
Universal Plus 3%/6%  
Universal CG 6%

- Highly versatile, eliminates the need to stock a variety of foam types
- Listed for use on a wide variety of polar solvent fuels and oxygenated fuel blends
- Select hazardous material applications
- Suitable for use with fresh and sea water
- Suitable for use with foam compatible dry powder extinguishing agents





# Monitors

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Manually operated aluminum and brass monitors provide unparalleled performance with simple, yet rugged, design features that provide ease of operation, minimum maintenance and resistance to normally destructive environments. They are suitable for use with all foam concentrate types.

Water-powered oscillating monitors provide unparalleled performance with simple, yet rugged design features in a compact package. The monitor is designed to provide an oscillating water or foam stream over a preset area of protection. The monitor can be supplied with either an integral non-aspirating or air-aspirating nozzle. Monitors are available with flow rate choices from 60 to 500 gpm (227 to 1893 lpm) at 100 psi (16.9 bar) inlet pressure to the monitor connection.

Monitors are commonly used for loading rack, dike, and helipad protection, as well as under-wing protection in aircraft hangars. They can also be used in marine



## DATA SHEETS

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HOM-2B Water Powered Oscillating Monitor  
HOM-4A Water Powered Oscillating Monitor  
HOM-4B Water Powered Oscillating Monitor  
MMA-3 X 2-1/2 Manual Aluminium Monitor  
MMB-3 X 2-1/2 (GS) Manual Brass Monitor  
MMB-3 X 2-1/2 Manual Brass Monitor

## DATA SHEETS (SPANISH)

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HOM-2B Water Powered Oscillating Monitor  
HOM-4A Water Powered Oscillating Monitor  
HOM-4B Water Powered Oscillating Monitor  
MMA-3 X 2-1/2 Manual Aluminium Monitor  
MMB-3 X 2-1/2 (GS) Manual Brass Monitor  
MMB-3 X 2-1/2 Manual Brass Monitor

# PC Nozzles

## High Capacity Foam Nozzles

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The PC range of Air Aspirating Foam Nozzles are designed to be mounted on fixed or portable monitors and can be used anywhere high capacity foam streams are required. The air aspirating design produces superior foam with all foam types, resulting in increased expansion and longer drainage times than with non-air aspirating type nozzles. This results in premium foam blanket performance and stability for safer operation. Nozzle discharge pattern is adjustable from full spray to straight stream allowing the operator precise control of the foam application.



### DATA SHEETS

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PC-40, 50, 60 Nozzles  
PC-90, 100, 110 Nozzles  
PC-150, 200 Nozzles

### DATA SHEETS (SPANISH)

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PC-40, 50, 60 Nozzles  
PC-90, 100, 110 Nozzles  
PC-150, 200 Nozzles

## High Expansion Foam Generators

- Five different models available.
- No outside source of power required – only the foam solution under pressure.
- UL Listed ranges from 2,500 cfm to 28,500 cfm depending on unit selected and inlet pressure.
- Largest UL Listed operating pressures between 40 psi and 100 psi.
- Stainless steel screen.
- Easy installation with units capable of being mounted and used in the horizontal or vertical configuration.
- Foam solution piping and discharge nozzle are of open design allowing passage of particles up to 1/4" in diameter without use of a strainer.





# Fire Detection System

# Syncro ASM

## Marine & Offshore Analogue Addressable 1 or 2 Loop Control Panel



BS-EN54-2  
BS-EN54-4  
KM 73505

### Features

- 16 zonal LED Indicators
- 2 programmable sounder circuits
- 5 programmable inputs
- 3 programmable relays
- 3A power supply
- Large graphic display
- Real time clock
- Powerful, network wide cause and effects
- Sensitivity adjustment and Drift Compensation
- Hochiki protocol
- Same look and feel as Syncro range
- Stores 1000 last events in event log

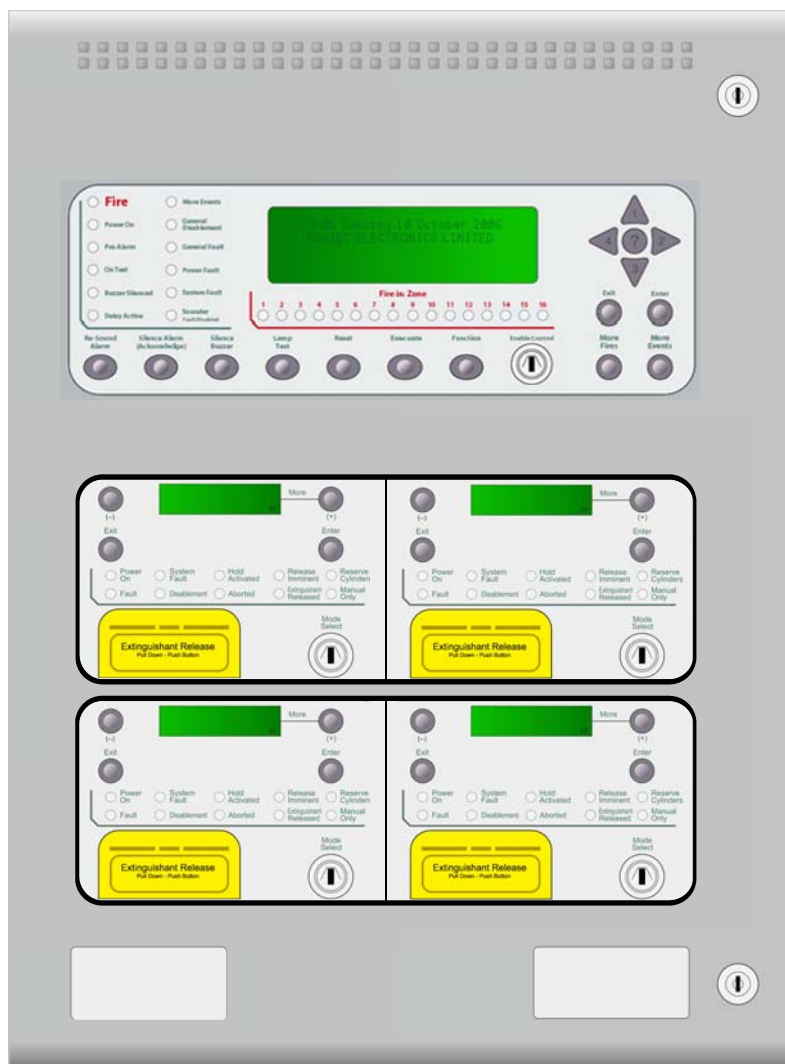
### Product Overview

- The Marine & Offshore Syncro ASM is a versatile range of open protocol fire alarm control panels compatible with existing Syncro fire alarm panel technology.
- Hosting up to 127 Hochiki fire detection devices and modules per loop, Syncro ASM uses leading edge microprocessor based electronics to provide a flexible control system with high reliability and integrity.
- Suitable for all small to medium sized vessels, Syncro ASM control panels can be expanded and networked to become part of much larger systems if the need arises, therefore providing a future proof solution for any vessel.
- With its large graphical display and ergonomic button and indicator layout, the Syncro ASM control panel is simple and straightforward to understand for installers, commissioning engineers and end users alike.

## Config. Features

- ☐ Comprehensive day/night mode facility
- ☐ Programmable one touch test mode
- ☐ Powerful and versatile cause & effect programming
- ☐ Cause & effect wizard including:
  - ☐ Cause & effect action
  - ☐ Disablement configuration
  - ☐ Test mode configuration





## SYNCRO XT+ CONTROL PANEL

A combined Control and Indicating Equipment / Extinguishing Control & Delay (CIE/ECD) Analogue Addressable Control Panel

16 Zonal LED Indicators

Available as a single detection loop or two detection loops Panel

Supports Apollo and Hochiki ESP protocol devices

Models available with up to four integrated ECD Extinguishant Modules

# Discovery Marine Optical Smoke Detector



## Operating principles

The Discovery Marine Optical Smoke Detector has a white moulded polycarbonate case with wind-resistant smoke inlets. The indicator LEDs are colourless when the detector is in quiescent state and red in alarm. Within the case is a printed circuit board which, on one side, has the light-proof chamber with integral gauze surrounding the optical measuring system and, on the other, the signal processing and communications electronics.

An infra-red light emitting diode within its collimator is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight-blocking filter.

The IR LED emits a burst of collimated light every second (Fig 1). In clear air the photo-diode receives no light directly from the IR LED, because of the angular arrangement and the chamber baffles. When smoke enters the chamber it scatters light from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed to provide an analogue value for transmission when the detector is interrogated.

# Discovery Marine

## Manual Call Point



### Technical description

The Discovery Marine Manual Call Point (MCP) is based on the KAC conventional MCP range. It is electronically and mechanically compatible with previous Apollo call points based on KAC's World Series product.

The address of each call point is set at the commissioning stage by means of a seven-segment DIL switch.

If a MCP is activated, it interrupts the normal protocol to give a fast response.

A single bi-coloured alarm LED is provided on the manual call point. This LED is controlled, independently of the call point, by the control panel and may be set to flash each time the call point is polled. The red LED is illuminated when the call point has been activated and sent into alarm. On the isolated versions an amber/yellow LED indicates a short-circuit on the loop wiring either side of the call point.

Call points can be remotely tested from the panel by transmission of a single bit in the communications protocol. Call points respond by providing a value of 64 which corresponds to the alarm value. The panel should recognise this response as a test signal and should not raise a general alarm.

Discovery Marine manual call points are available with or without an isolator. Each version is available with a resettable element and a backbox for surface mounting as standard. If a glass option is required, spare glasses are available on request.

## Company, Product Approvals & Associations:



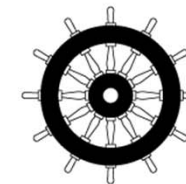
Certificate No. FM 32987  
BS EN ISO 9001: 2008



Certificate No. EMS 518118  
BS EN ISO 14001:2004



Certificate No.360



## Marine Approvals:



- Watermist System
- CO2 System
- Sprinkler System
- HSSD System
- CCTV System
- Door Locker & Access control
- Deluge System
- Portable Extinguisher



# Questions?