



THE NANO MAR system

The NANO fire alarm/extinguishing system is intended and designed for activation of a modular electrically activatable aerosol extinguishing generator.

- Versatile
- Compact
- Easy operation
- Easy programming
- Logical system structure
- Dual activation technology
- Extinguishing at the source
- Input and output monitoring
- FCC, CE, EMC, DNV TAA000037H



The NANO/MAR systems consists of:

- NANO/MAR/MASTER
- NANO/MAR/SLAVE

The basis is formed by the NANO control panel which is placed on the bridge or in its vicinity. Then there are two extinguisher terminal boxes (ETB). These ETB boxes must be placed outside, but in the immediate vicinity of the protected engine room.

The NANO is designed as a stand-alone fire detection extinguisher panel, used in systems to protect engine rooms in vessels, yachts or electrical cabinets or rooms, and other areas and equipment where the user needs to be able to suppress a fire quickly and effectively.

The NANO system has a DNV-CG 0339-2021 type approval with certificate No: TAA000037H. To obtain this type approval, the NANO system design has been extensively tested on the latest EMC requirements and Marine specific environmental conditions and has been approved accordingly. Where applicable the NANO meets the requirements of the FSS CODE, the International Maritime Code for Fire safety Systems.



Delivery program

The NANO/MAR/BASIC is suitable for:

- connecting and activating 10 Stat-X extinguishing units
- equipped with two DC/DC converters to prevent earth faults and protect against peaks and interference in case of shore power connection of the vessel.

The NANO/MAR/MASTER is suitable for:

- same as NANO/MAR/BASIC
- additionally equipped with the possibility to make a Master/Slave connection for an additional 10 Stat-X extinguishers
- equipped with an emergency power supply that keeps the system operational for 24 hours in case of failure of backup power of the vessel.

The NANO/MAR/SLAVE is suitable for:

- same as NANO/MAR/BASIC
- but programmed as SLAVE suitable for receiving activation commands from the NANO/MAR/MASTER

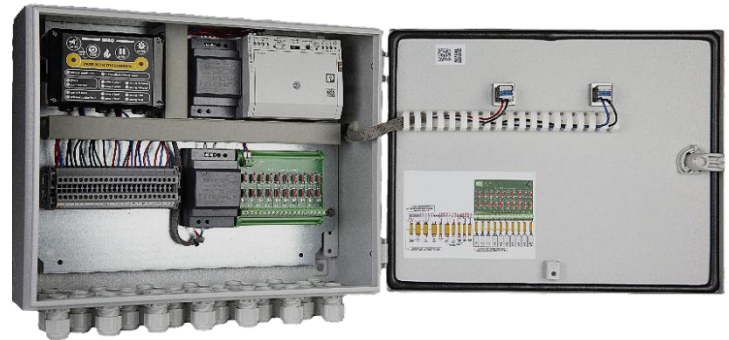




NANO/MAR EXTINGUISHING RELEASE SYSTEM

Power related specification

Input voltage main / backup	: 12/24 VDC +/- 30%
Maximum power usage	: 1 Watt quiescent
	: 5 Watt in alarm
Maximum contact rate relays	: 30 VDC/1A
Voltage fire zones	: 15Vdc
Alarm current fire detectors	: max 60 mA
Sounder / beacon voltage	: 18-22 VDC
Sounder / beacon current	: max 105 mA



Enclosure specification

Outside enclosure	: 120 x 80 x 58,5 mm w x h x d
Color of enclosure	: black RAL 9005
Enclosure material	: ABS suitable for outdoor use
Cable gland holes	: 7 predrilled holes

Environment

Ambient temperature range	: -25° to +55° Celsius
Dust and water rating	: IP65
Compass safe distance	: minimum 50 mm

NANO/MAR/BASIC

External dimensions	: 300 x 300 x 155 mm w x h x d
Glands	: 20 pre-drilled 17 provided with 10 pieces M20

NANO/MAR/MASTER

External dimensions	: 360 x 300 x 155 mm w x h x d
Glands	: 20 pre-drilled 17 provided with 10 pieces M20

NANO/MAR/SLAVE

External dimensions	: 300 x 300 x 155 mm w x h x d
Glands	: 20 pre-drilled 13 provided with 10 pieces M20

Further characteristics of the NANO alarm panel:

- the electronics of the NANO, except the connections and the dipswitches, are sealed by potting, what make it suitable for use in a contaminated environment
- can activate the extinguishing system either manually, or by means of the selected option, in single or double zone dependency fire detection alarm
- has VFC outputs for fire, fault, and ventilation off
- has a full monitored output for the releasing an extinguishing system and audio-visual alarm
- two full monitored fire alarm input groups¹ (zones) for spot detectors or linear heat detection cable
- two full monitored alarm input groups for external extinguishing release and hold function
- double extinguishing release buttons to prevent unwanted releases
- extinguishing hold release button to postpone a release
- extinguishing release delay to prevent unwanted release
- additional option to override the extinguishing delay at manual release



EXTINGUISHERS CONNECTION TECHNOLOGY

In addition to the NANO, terminals and glands, the NANO/MAR system cabinet is equipped with built-in safety electronics (ETB) that ensure that all igniters of the extinguishing generators are activated simultaneously. Furthermore, the ETB/10 has provisions against overvoltage protection. A red test LED signals that an activation has occurred. An end-of-line and extinguishing unit switch intended to disconnect the activation mechanism from the extinguishing activation output makes the NANO/MAR a complete and reliable fire detection/extinguishing system.

Note:¹ Automatic fire detection is a programmable option

NANO/MAR EXTINGUISHING RELEASE SYSTEM

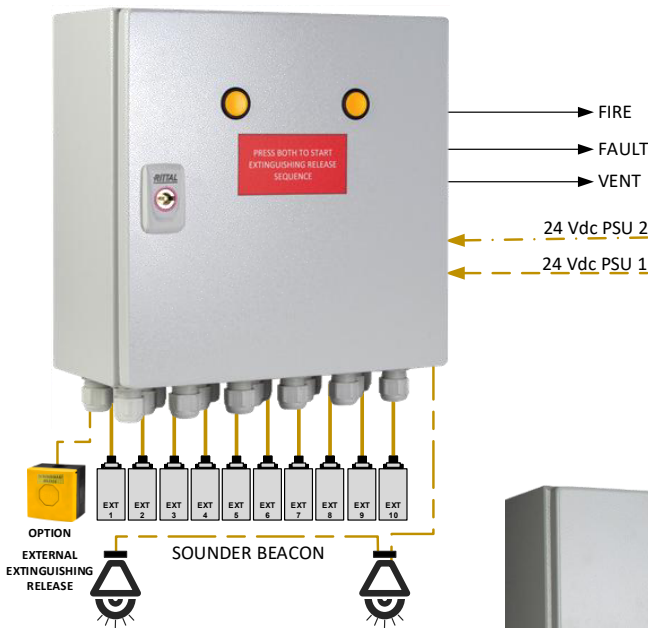
NANO SYSTEM CABINETS



Three system cabinets are available, each suitable for connecting up to 10 Stat-X aerosol extinguishing units. A system cabinet must be placed outside, but in the immediate vicinity of the engine room to be protected. From the system cabinet, a marine-approved cable leads

to the KVB Stat-X extinguishers installed in the volume to be protected. As on the front of the NANO, the front of the system cabinet is also equipped with 2 double-acting push buttons intended for starting the extinguishing activation sequence. In the event of a fire emergency, both yellow push buttons are pressed simultaneously to start the extinguishing release. An alarm is displayed on the NANO control panel and transmitted via potential-free contacts to the vessel's control system. The extinguishers are activated depending on the pre-programmed delay time. The cable connections are continuously monitored and scanned for short circuits and/or cable break.

PRINCIPLE DIAGRAM NANO BASIC



PRINCIPLE DIAGRAM NANO MASTER/SLAVE

