NANO ALARM & EXTINGUISHING SYSTEM

The NANO system

The NANO fire alarm/extinguishing system is intended and designed for activation of a modular electrically activated extinguishing generator or a fixed fire suppression system.

- 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 system consists of:

NANO Fire & extinguishing panel
NANO Extinguishers Terminal Board

The NANO system has a DNV-CG 0339-2021 type approval with certificate TAA000037H. To obtain this approval, the NANO system design has been extensively tested on the latest EMC requirements and Maritime specific environmental conditions and has been approved accordingly. Where applicable to the NANO, it also meets the requirements of the FSS CODE, the International Maritime Code for Fire Safety Systems. The NANO is small/compact and protect locations where a standard fire detection and/or extinguishing release panel is not applicable.

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

The NANO fire detection & extinguishing release panel offers an excellent value and performance for all small and compact fixed fire suppression systems

Enclosure specification

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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
Cable gland holes	: 7 predrilled holes

Environment

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

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 100 mA
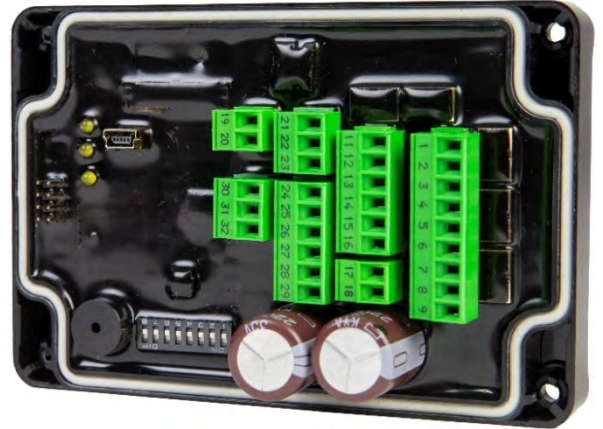
Further characteristics of the NANO alarm panel:

- 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 groups (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
- historic event log memory readable from a mini-USB port and RS 485 Modbus com port

The NANO fire alarm/extinguishing release panel is easy to program with dipswitches and has the following programming options:

- DP 1 overrides the extinguishing delay timer when using one of the manual release buttons.
- DP 2 extinguishing delay is disabled when the vessel or vehicle is leaved
- DP 3 the system is optionally suitable for electric igniters or solenoid release technology
- DP 4 extinguishing release with a single, instead of a double stage fire detection.
- DP 5 VFC relay switch at first or the second fire alarm
- DP 6,7-8 is for the delay timer settings, which can be set between 0 and 35 seconds.

Specials

In addition to a vessels engine room, the NANO can also protect the engine compartment of vehicles, including mining vehicles and others such as shovels, cranes, and loaders. If the extinguishing system is intended to protect the engine compartment of a vehicle, then a programmed extinguishing delay should be disabled, when the vehicle is parked, and the driver has left the vehicle. An extinguishing delay is then of no use. When the vehicle function (DP2) is ON, the programmed fire extinguisher delay is disabled when the vehicle is parked.

Double extinguishing technology

The NANO is equipped with activation technology for two types of fire extinguishing systems. The NANO is suitable for activating electrical igniters intended for aerosol extinguishers or a system using a solenoid as release technology.

The Extinguishers Terminal Board

The ETB is specially developed for the activation of aerosol extinguishers. This terminal connection board is equipped with built-in security electronics, which ensures that all igniters of the extinguishing units are activated. Together with an end line switch, this option turns this system into a complete and reliable fire detection and extinguishing release system. The ETB extinguishers terminal board unit is available in a built-in 35 mm DIN rail version.

The most important characteristics of the ETB

- easy connection by means of push connection
- minimum core diameter 0.5 mm² (AWG 20)
- maximum core diameter 1.5 mm² (AWG 16)
- bypass protection ensures that all electrical igniters ignite, even if one igniter malfunctions or behaves differently (e.g., ignites earlier) and goes into high
  impedance before other igniters are activated
- the ETB has a switch that enable the end of line monitoring diode at the last igniter
- a second switch is for disconnecting the extinguisher from the system for testing
  or maintenance, a red test LED indicate that the activation current is initiated
- the ETB is equipped with reverse polarity protection, which prevents connection errors
- the ETB is equipped with surge protection, which reduces the risk of activating an extinguisher in the vicinity of a lightning strike
- dimensions ETB 12,8 x 85 x 34,19 mm w x h x d

PRINCIPLE DIAGRAM
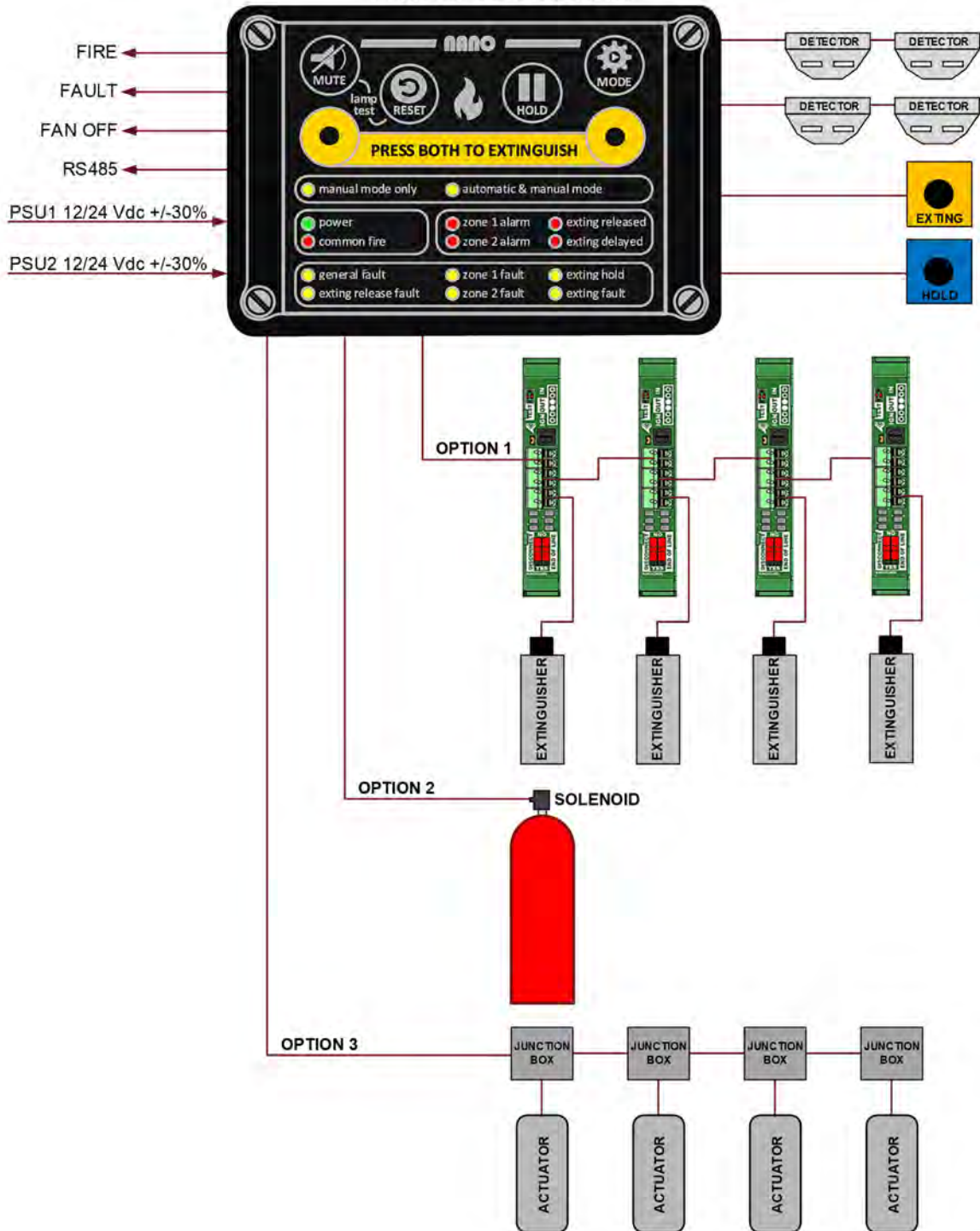
This schedule of working principles of the NANO fire extinguishing system is intended to be supportive of this leaflet and therefore not intended and suitable for technical realization. For more detailed information ask for the N2KB BV User Manual NANO-EN September 2022 V2.2

Ordering
Article code NANO panel N2KB/NANO
Article code excluding junction box N2KB/ETB/NORM/R for low resistance igniter
Article code excluding junction box N2KB/ETB/HIGH/R for high resistance igniter