

# Compatible Device Manual



## NANO FIRE DETECTION EXTINGUISHING CONTROL SYSTEM



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## 1 DOCUMENT REVISION DETAILS

Issue	Modification Detail	Author	Date
1	1 <sup>st</sup> publication document	CvT	09 / 02 / 2023

## 2 IMPORTANT NOTES

This compatibility manual is an integral part of the NANO user manual version 2.3 of February 1, 2023. This document should be read thoroughly and understood before installation and/or commissioning of the system is undertaken. The NANO system is not to be regarded as properly used when it is used without regard to any relevant information or advice relating to its use that has been made available by the supplier. The NANO system and the associated connections must be installed, commissioned, and maintained by a skilled, knowledgeable, and competent person or organization that is appropriately qualified to perform this work and is familiar with the objective of the equipment and the associated technical terminology. This equipment is not guaranteed unless the complete installation is installed and commissioned in accordance with the laid down local and/or national standards by an approved and competent person or organization.

## 3 WARRANTY

N2KB BV represents the NANO system and is free from material defects in materials and workmanship. Our warranty does not cover a NANO system which is damaged, misused, and/or used contrary to the supplied operating manuals or which has been repaired or altered by others. The liability of N2KB BV is at all times limited to repair or, at N2KB BV's discretion, replacement of the NANO system. N2KB BV shall not under any circumstances be liable for any indirect, special or consequential damages such as, but not limited to, damage or loss of property or equipment, cost of de-installation or reinstallation, cost of transport or storage, loss of profits or revenue, cost of capital, cost of purchased or replacement goods, or any claims by customers of the original purchaser or third parties or any other similar loss or damage, whether incurred directly or indirectly. Remedies set forth herein to the original purchaser and all others shall not exceed the price of the NANO system supplied. This warranty is exclusive and expressly in lieu of all other warranties, whether expressed or implied, including, without limitation, any warranties of merchantability or fitness for a particular purpose.

### Reservations

No part of this manual may be reproduced, stored in an automated database or made public in any form or by any means either electronically, mechanically or by photocopying, recording, or in any other way, without prior written permission from N2KB BV. The policy of the N2KB BV is one of continuous improvement, and as such, we reserve the right to make changes to product specifications at any time and without prior notice.

Errors and omissions excepted.



## 4 INTRODUCTION

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The NANO is designed as a stand-alone fire detection and extinguishant release panel to be used in systems for e.g., electrical cabinets, CNC machines, engine rooms, small areas, or with other equipment. The NANO has successfully passed CE and FCC, EMC testing according to EN 50130, EN 61000, EN 55016, 47 CFR15-ICES-003, ANSI 63.4, IEC60945-pt11 and a DNV marine type approval according the DNV Class Guideline 0339-2021,certificate TAA000037H.

The NANO is a combined fire alarm control panel and extinguishing release system and has two detection zones, whereby any, or all detection zones can contribute to the extinguishant release decision. Despite the fact that the current power consumption of many conventional automatic fire detectors allows more than 4 fire detectors to be connected to a single fire zone, this number should be limited to a maximum of 4.

## 5 RESERVATION

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The NANO panel has been assessed using conventional (non-addressable) fire detectors, as mentioned in chapter 23 of NANO user manual version 2.3 of February 1, 2023, and chapter 21 of the Concise NANO user manual version 2.3 of February 1, 2023. A comparison was made between these widely used conventional fire detectors and generally well-known conventional (non-addressable) fire detectors from other manufacturers. Based on underlying technical data, a list has been compiled of the fire detectors deemed compatible with the fire detectors used during the assessment. It is important to acknowledge that this observation was made on March 1, 2022, and that, unknowingly, the technical specifications of the compatible conventional (non-addressable) fire detectors may have changed or may even have been removed from the delivery program of the relevant manufacturer since this date. We cannot be held responsible for faults, errors or malfunctioning of a fire alarm/extinguishing system caused by fire detectors other than those used during the assessment. Always test the alternative fire detector of your choice for proper functioning on a NANO panel before application or installation.

## 6 LOW CURRENT

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During the development of the NANO, low power consumption was given high priority. As a result, measures were taken to minimize power consumption without causing performance degradation. Components that can be connected to the NANO, therefore, have to be able to deliver high performance with a low power consumption level. The purpose of the NANO is to minimize the use of the emergency power supply during a main power failure. At the same time, the NANO must be able to continue to perform optimally in the event of a main power failure.

## 7 ALARM ZONES

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The NANO is equipped with two detection zone inputs. The loop inputs are continuously scanned for fire or fault detection. The loops are set to the following values:

- RESISTANCE value of less than 100  $\Omega$ : FAULT
- RESISTANCE value higher than 100  $\Omega$  and less than 1.5 k $\Omega$ : FIRE
- RESISTANCE value higher than 1.5 k $\Omega$  and less than 8 k $\Omega$ : FAULT
- RESISTANCE value higher than 8 k $\Omega$  and less than 12 k $\Omega$ : NORMAL
- RESISTANCE value higher than 12 k $\Omega$ : FAULT

The commissioning engineer should ensure that the detectors corresponding with the specifications below. The correct input voltage and alarm resistance values, and are suitable for application on the NANO. All monitored inputs are protected against short circuit and cable malfunction. The voltage of all monitored detection inputs is controlled by the NANO itself and are independent of the main power supply voltage.

Voltage fire zone	15 Vdc
Limited alarm current fire detectors	80 mA

## 8 CONVENTIONAL FIRE DETECTORS

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Any automatic fire detector of another brand that works within the mentioned limitations is capable of operating and functioning on the NANO system. Automatic fire detectors other than those listed in chapter 9 must meet the following requirements to function reliably on the NANO panel. Always check the specification of the fire detector of your choice before installation.

### 8.1 INPUT VOLTAGE

A fire detector must operate within the voltage range of 8 - 15 Volt, specified by us. The NANO alarm zones 1 and 2 operate in the quiescent state within the voltage range of 8 - 15 Vdc. In the event of a fire alarm, the voltage range increases to 21,7 Vdc.

### 8.2 FIRE ALARM STATE

When an automatic fire detector is connected to the NANO fire zone input, the NANO calculates the alarm load resistance based on the alarm zone voltage and alarm current. The alarm current is limited to 80 mA. The alarm load resistance of the automatic fire detectors, in combination with the end of line resistor of 10 k $\Omega$ , must not be less than a total value of 130 Ohm.

### 8.3 ZONE QUIESCENT STATE

The quiescent current is another aspect. The end line resistance lies between 8 and 12 k $\Omega$ . A lower resistance on the line creates an increase in the current; a higher resistance creates a decrease in the current. The quiescent current of the most well-known automatic conventional fire alarms varies from 20 to 130  $\mu$ A. Considering the requirements of sections 5.1 and 5.2, detectors within these limits are deemed applicable to the NANO without exception.



## 9 FIRE DETECTION DEVICES SUPPORTED BY THE NANO.

The list below includes conventional fire detectors that have been tested and proven to work properly on NANO. These conventional fire detectors have been used during the DNV approval sessions.

Part no	Type	Brand
ORB-OP-42001-MAR	smoke detector	Apollo
ORB-OH-43001-MAR	smoke/heat detector	Apollo
ORB-HT-41002-MAR	heat 61°C detector	Apollo
ORB-HT-41004-MAR	heat 73°C detector	Apollo
ORB-HT-41006-MAR	heat 90°C detector	Apollo

### 9.1 DETECTORS TESTED ON THE NANO

The list below includes conventional fire detectors that have been tested and proven to work properly on NANO.

Brand	Model	Type	Applicable
Apollo	ORBIS/MAR	ORB-OP-42001-MAR	4
Apollo	ORBIS/MAR	ORB-OH-43001-MAR	4
Apollo	ORBIS/MAR	ORB-HT-41002-MAR	4
Apollo	ORBIS/MAR	ORB-HT-41004-MAR	4
Apollo	ORBIS/MAR	ORB-HT-41006-MAR	4
Tyco/First Class	600 series	601 CH	4
Tyco/First Class	700 series	701 P	4
Tyco/First Class	700 series	701 PH	4
Tyco/First Class	700 series	701 H	4
Tyco/First Class	700 series	702 H	4
Tyco/First Class	700 series	703 H	4
Bosch	FCP 320 series	FCP-OC320	4
Bosch	FCP 320 series	FCP-OC320-R470	4
Bosch	FCP 320 series	FCP-OT320	4
Bosch	FCP 320 series	FCP-OT320-R470	4
Bosch	FCP 320 series	FCP-O320	4
Bosch	FCP 320 series	FCP-O320-R470	4
Bosch	FCH 320 series	FCH-T320	4
Bosch	FCH 320 series	FCH-T320-R470	4
Simplex	True alarm 4098*	4098-9601/9788	2
Simplex	True alarm 4098*	4098-9605/9788	2
Simplex	True alarm 4098*	4098-9612/9789	2
Simplex	True alarm 4098*	4098-9613/9789	2
Simplex	True alarm 4098*	4098-9614/9789	2
Simplex	True alarm 4098*	4098-9615/9789	2

## 9.2 DETECTORS NOT TESTED ON THE NANO

The list below includes conventional fire detectors that have not been tested and proven to work properly on NANO. However, based on the technical details and specifications, they could work well. However, test always the detector of your choice on the NANO before permanent installation.

Brand	Model	Type	Applicable
Apollo	65 series	OP 55000-317	4
Apollo	66 series	HEAT 55000-1**	4
Apollo	Orbis	OP-12001-APO	4
Apollo	Orbis	OH-13001-APO	4
Apollo	Orbis	OP-11001-APO	4
Siemens	110 series	OH110	4
Siemens	110 series	OP110	4
Siemens	110 series	HI110	4
Siemens	110 series	HI112	4
Siemens	120 series	OH121	4
Siemens	120 series	OP121	4
Siemens	120 series	HI121	4
Hochiki	SLR Series	SLR 835	4
Hochiki	SLR Series	SLR 835H	4
Hochiki	SLR Series	SLR E3N	4
Hochiki	DCD series	SOC-E3N	4
Hochiki	DCD series	DCD-AE3	4
Hochiki	DCD series	DFJ-AE3	4
Hochiki	DCD series	DCD-CE3	4
Hochiki	DCD series	DFJ-CE3	4
Kidde	500 series	521B	4
Kidde	500 series	521BXT	4
Kidde	700 series	711U / 701U	4
Kidde	700 series	721UT / 701U	4
System Sensor	<i>i</i> <sup>3</sup> series	2151 / B110 LP	2
System Sensor	<i>i</i> <sup>3</sup> series	2151T / B110 LP	2
System Sensor	<i>i</i> <sup>3</sup> series	5151 / B110 LP	2
System Sensor	<i>i</i> <sup>3</sup> series	2W-B / B110 LP	2
System Sensor	<i>i</i> <sup>3</sup> series	2WT-B / B110 LP	2
System Sensor	Series 300	2351E / B401	2
System Sensor	Series 300	2351TEM / B401	2
System Sensor	Series 300	4351EA / B401	2
System Sensor	Series 300	5351EA / B401	2
System Sensor	Series 300	5351TE / B401	2
Notifier/Honeywell	ECO1000 series	ECO 1003/1000B	4
Notifier/Honeywell	ECO1000 series	ECO 1002/1000B	4
Notifier/Honeywell	ECO1000 series	ECO 1004T/1000B	4
Notifier/Honeywell	ECO1000 series	ECO 1005/1000B	4
Notifier/Honeywell	ECO1000 series	ECO 1005T/1000B	4



## 10 THE SOUNDER/BEACON

The list below includes the sounder/beacon that have been tested and proven to work properly on NANO. This sounder/ beacon have been used during the DNV approval sessions.

The sounder/beacon type below has been tested on the NANO and is approved for such		
Part no	Type	Brand
VTB-32EM-DB-RB/RL VTB	sounder beacon	Cranford

### 10.1 SOUNDER/BEACON CURRENT

Until recently, the highest power consumption of a sounder/beacon combination was initiated by the beacon component. But with the introduction of high-level LED technology, this is no longer the case. Within the framework of low power consumption, only a sounder/beacon combination that uses LED technology is recommended for connecting to the NANO. Always check the specification of the alarm devices before connecting it to the NANO.

Sounder/beacon operating outside the NANO limitations and specifications will NOT operate according to the specified values such as sound pressure and light output candela.

Brand	Model	Type
Hosiden	Banshee Excel Lite	CHX/CHL
Fulleon	Symphoni	LX Wall
Fulleon	RoLP	LX Wall
Fulleon	RoLP	Solista
Fulleon	RoLP	Max Solista
Klaxon	Sonos	PSC-00**
Klaxon	Nexus 110	PNC-00**
KAC	Enscape	CWSS-WR-W4

Outdated or replaced computers and electronics are valuable sources for secondary raw materials if recycled. Dealers of the NANO system must comply with local regulations for waste separation applicable in the country where the supplier is located.

Questions concerning the information presented in this manual may be addressed to your dealer. For technical questions or support contact your dealer for further assistance.

