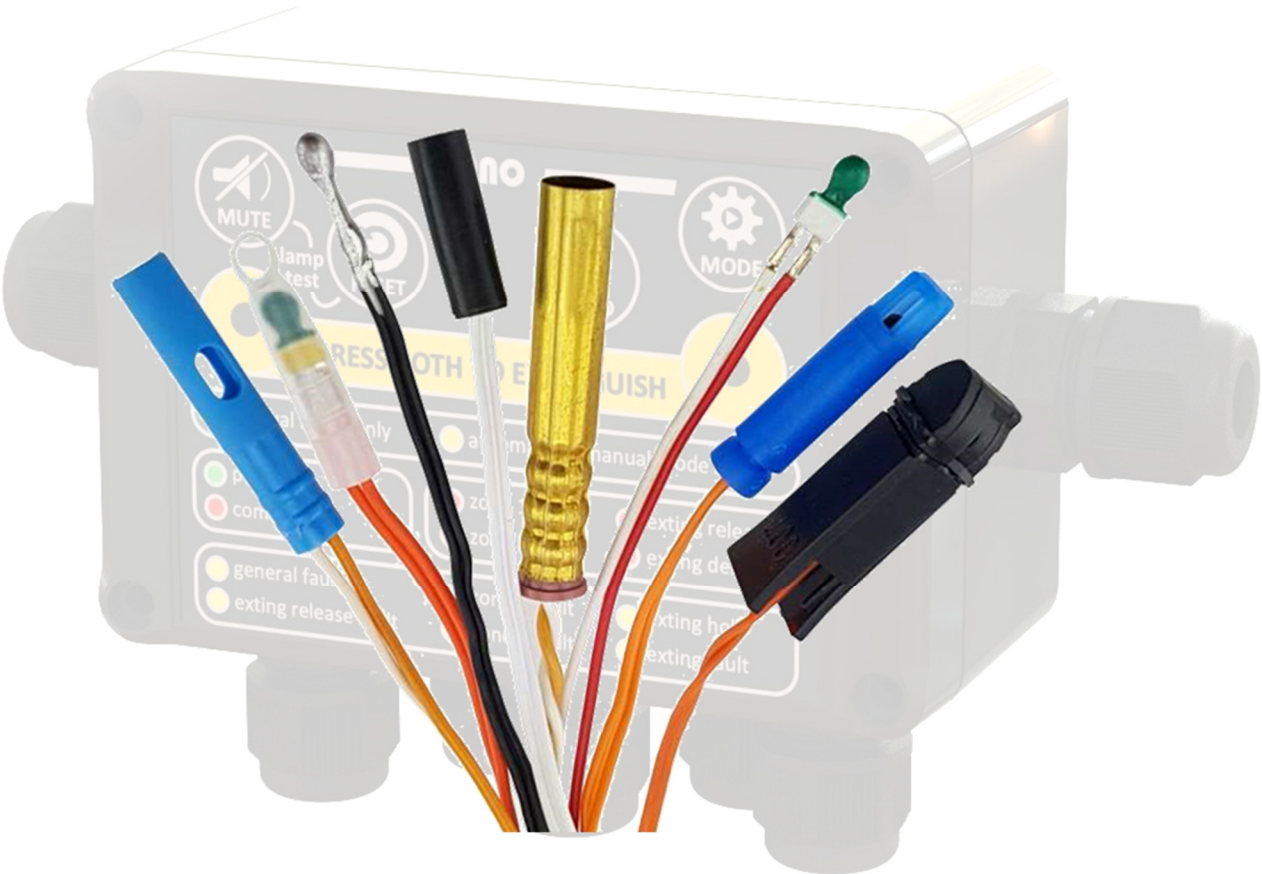
Electrical Igniter Manual

NANO

FIRE DETECTION EXTINGUISHING CONTROL SYSTEM



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1 DOCUMENT REVISION DETAILS

Issue	Modification Detail	Author	Date
1	1st publication document	CvT	01 / 03 / 2023

2 IMPORTANT NOTES

This electrical igniter manual is an integral part of the NANO user manual version 2.3 of March 1, 2023. This document should be read thoroughly and understood before installation and/or commissioning of the system is undertaken.

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.

4 INTRODUCTION

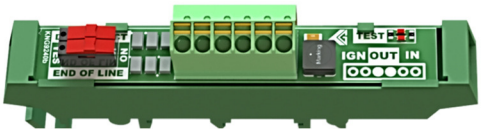
The NANO is designed as a stand-alone fire detection and extinguishant release panel to be used in systems for e.g., electrical cabinets, CNC machines, engine rooms, small areas, or with other equipment. The NANO has successfully passed CE and FCC, EMC testing according to EN 50130, EN 61000, EN 55016, 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 N2KB NANO is equipped with two activation techniques for the activation of fire extinguishing systems. The selection can be made using DIP switch 3. By default, the NANO is programmed for the activation of electrical igniters intended for aerosol fire extinguisher generators, with DIP switch 3 in the OFF position. The activation of aerosol fire extinguisher units is actuated by means of a current pulse of 1.3A for max 50ms.

5 ELECTRICAL IGNITER

An aerosol generator is activated by an electrical igniter. Mostly it is a bridge wire coated in a pyrotechnic composition. Each brand of aerosol generator have it's own type of igniter with different specifications. The parameters are, bridge resistance, no fire current, all fire current, all fire time and voltage. The igniters connected to the extinguishers output circuit need a high-power current at ignition.

6 THE ETB



The ETB is specially developed for connecting 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 the NANO system into a complete and reliable fire detection and extinguishing system. The standard ETB is suitable for an extinguisher igniting actuator with a maximum resistance of 2Ω. The ETB/H is suitable for an extinguisher igniting actuator with a maximum resistance of 4Ω.

7 APPLICABLE IGNITERS

Based on the underlying technical data provided by the suppliers, a list has been compiled of electrical igniters that are connectable on the NANO in combination with an ETB. It is important to acknowledge that this observation was made on March 1, 2021, and that, unknowingly, the technical specifications of the electrical igniters 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 igniters other than those used during the assessment.

8 NANO EXTINGUISHERS RELEASE TECHNOLOGY

The NANO has a very sophisticated extinguish release circuit. The igniter output is a current source of 1,3 Amperes and generates a pulse of max 50 milliseconds. Normally a Voltage source is used for igniters, but a current source gives a far better controlled power per igniter.

To determine how many extinguishing generators can be connected to the extinguishing output of the NANO/ETB combination, a calculation has been made based on the following assumptions.
A cable of 100 meter solid wire 2 x 1,5mm² with a cable resistance of 2,28 ohm (2 x 100m)

9 CONNECTABLE IGNITER LIST

Wire cross-sectional area	1,5	mm²				
Resistivity (Annelead copper = 1,71E-8)	1,71E-08	Ohm/m				
Cable length	100	m				
Total wire resistance	2,28	Ohm Ω				
		Stat-X	**DSPA**	**Greenex**	**AF-X**	**Salgrom**
Igniter resistance min.	Ohm Ω	1,2	0,4	0,8	1,3	3
Igniter resistance max.	Ohm Ω	1,8	0,8	0,9	3,2	4
Minimum ignition current	A	0,5	1,3	1,3	1	0,5
Minimum ignition time	ms	33	10	10	10	5
Cable length	m	100	100	100	100	100
Max. nr. of ignitors with ETB standard		8	10	10		
Max. nr. of ignitors with ETB-H	Remark 1				6	6
Max. nr. of ignitors without ETB	Remark 2	6	12	12	5	5

REMARK 1: For this calculation we asume a worst case scenario where all but one igniter has become high impedant

REMARK 2: NOT RECOMMENDED: Be aware that the ignition time is much shorter without ETB protection, because the first igniter that goes high impedant will immidiatly stop the current.

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.