NORDEN®

ADDRESSABLE INPUT OUTPUT CONTROL MODULE
INSTALLATION AND OPERATION MANUAL

Product Safety

To prevent severe injury and loss of life or property, read the instruction carefully before installing the module to ensure proper and safe operation of the system.

European Union directive

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points.

For more information please visit the website at www.recyclethis.info

EN54 Part 18 Compliance

NFA-T01CM Addressable Input/Output Control Module complies with the requirements of EN 54-18:2005.

EN54 Standard Conformity Information

EN54-18:2005
1330e/01

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NFA-T01CM
EN 54-18:2005

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1.Introduction

1.1.Overview

The Addressable Input Output Control Module serves as a versatile input/output relay and control unit. Typically, it is employed to override various equipment functions, including lift returns, door holders, smoke extract fans, air handling units, and auto-dialers to the fire brigade and building management systems (BMS). Notably, this module features a built-in feedback signal mechanism. When a pre-configured interface module commands a fire scenario, the alarm controller sends a start command to the relevant equipment. Upon receiving this command, the output module activates its relay, resulting in a change of state. Subsequently, once the module is under control and operational, a confirmation signal is transmitted back to the alarm controller. Additionally, the unit incorporates an intelligent processor that automatically monitors both open and short circuits in the input signal line. The unit is meticulously crafted to meet the requirements of the EN 54 Part 18 European Standard. Its design is not only aesthetically pleasing but also unobtrusive, seamlessly blending with modern building architecture. The plug-in assembly simplifies installation and maintenance, providing convenience to installers. Importantly, this unit is fully compatible with the NFA-T04FP Analogue Intelligent Fire Alarm Control Panel and this compatibility ensures seamless addressable communication, eliminating any potential compatibility issues.

1.2.Feature and Benefits

• EN54-18 Compliance
• Built-in MCU processor and digital addressing
• 24VDC/2A Output relay contact and Control module
• Input Fire or Supervisory signal configuration
• LED status indicator
• Onsite Adjustable Parameter
• Loop or external power input
• Aesthetically pleasing design
• Surface mounting with fix base for simple installation

1.3.Technical Specification

•	Listed	LPCB Certification
•	Compliance	EN 54-18:2005
•	Input Voltage	Loop Power:24VDC [16V to 28V]
		External PSU: 20 to 28VDC
•	Current Consumption	Loop: Standby 0.6mA, Alarm: 1.6mA
		External PSU: Standby 0.6mA, Alarm: 45mA
•	Control output voltage	24VDC / 2A rating
•	Input Relay	Normally Open dry contact
•	Input Resistance	5.1Kohms/ ¼ W
•	Protocol/Addressing	Norden, Value ranges from 1 to 254
•	Indicator Status	Normal: Single blink/Active: Steady/Fault: Double Blink
•	Material / Colour	ABS / White Glossy finishing

- Dimension / LWH   108 mm x 86 mm x38 mm
- Weight   170g (with Base), 92g (without Base)
- Operating Temperature   -10°C to +50°C
- Ingress Protection Rating   IP30
- Humidity   0 to 95% Relative Humidity, Non condensing

2.Installation

2.1.Installation Preparation

This interface module must be installed, commissioned and maintained by a qualified or factory trained service personnel. The installation must be installed in compliance with all local codes having a jurisdiction in your area or BS 5839 Part 1 and EN54.

Norden products has available range of interfaces, each interface module is designed for specific application, it is essential to consider the requirement of both sides of the interface to avoid malfunction and typical fault scenario. The main caution is to ensure that the voltage rating of the equipment and interface module are compatible.

2.2.Installation and Wiring

1. Mount the interface module base on standard one [1] gang electrical back box. Follow the arrow mark for the correct position. Do not over-tighten the screws otherwise the base will twist. Use two M4 standard screws.
2. Connect the wire in terminal according to the requirement as shown in Figure two [2] to five [5]. Verify the device address and other parameters then stick on the label before attaching the module. The sticker labels are available on the control panel. Align the interface module and tabs and gently pushing the device until it locks into place.
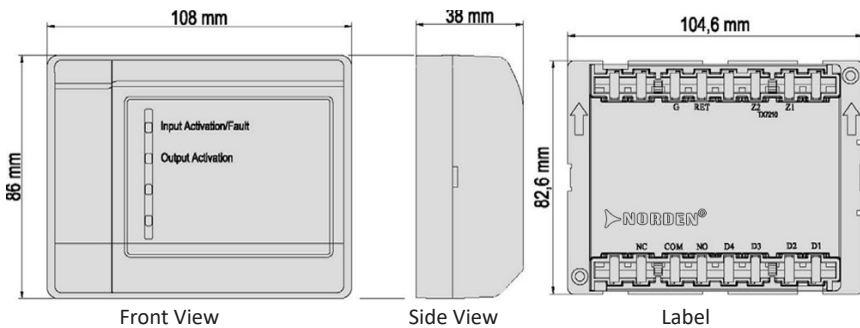

Figure 1: I/O Control Module Structure

Terminal Description

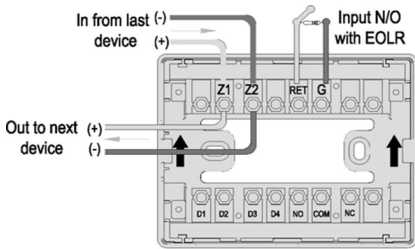|	
Z1 Signal In (+)	D1 External Power Supply In (+)
Z1 Signal Out (+)	D2 External Power Supply In (-)
Z2 Signal In (-)	D3 External Power Supply Out (+)
Z2 Signal Out (-)	D4 External Power Supply Out (-)
RET Input Cable	COM Output Cable
G Input Cable	NO, NC Output Cable

Figure 2: Input Wiring Details
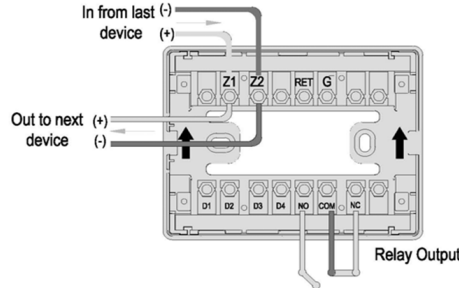Note: Change the parameter Input Check into 3Y
(Loop Powered)

Figure 3: Relay Output Wiring
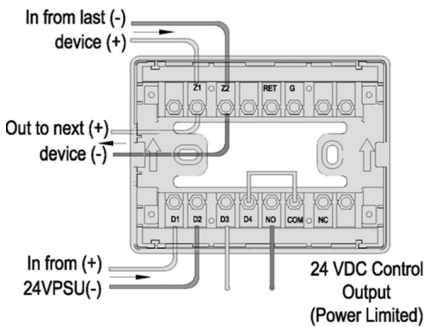Details (Loop Powered) mostly used

Figure 4: Control Output Wiring Details
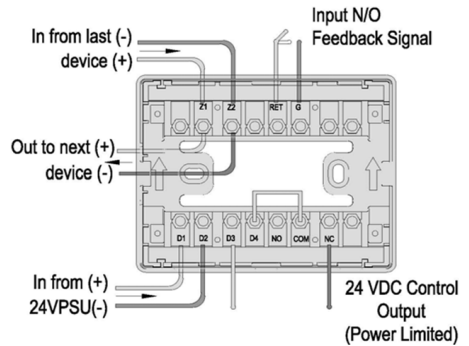(With External Power Supply)

Figure 5: Control Output with Feed-
back Signal Wiring Details
(With External Power Supply)

Signal	Monitoring	When Off(normal)	When On(active)
Input	YES (Optional)	Normally Open	Normally Close
Relay Output	YES	Normally Open	Normally Close
		Normally Close	Normally Open
Power Limited Output	YES	+1.5-3Vdc	+24Vdc

Input/output Parameters

Signal	Feedback	Input Check	Output Check
Input	-	**3Y** (Yes)- Fit with resistor - **4N** (No)- No resistor is required -–**Default setting**	-
Relay Output	**1Y** (Yes)- By the SELF **2N** (No)- By the EXTERNAL – (Note: in relation with the Input signal) **Default setting**	-	-
Power Limited Output	**1Y** (Yes)- By the SELF **2N** (No)- By the EXTERNAL - (Note: in relation with the Input signal) **Default setting**	-	**5Y**(Yes)-Supervise 24VDC continuity - **Default setting** **6N(**No)- No supervision

3.Interface Module Configuration

3.1.Preparation

The NFA-T01PT Programming tool is used to configure interface module soft address and parameter. This tools is not included, must be purchased separately. The programming tool is packed with twin 1.5V AA battery and cable, ready for usage once received.

It is mandatory for the commissioning personnel to have programming tool in order to adjust the module conferring to the site situation and environmental requirements.

Program a unique address number for each device according to the project layout before placing from the Terminal Base.

Warning: Disconnect the loop connection whilst connecting to the programming tool.

3.2.Write: Addressing

1. Connect the programming cable to Z1 and Z2 terminals (Figure 6). Press "**Power**" to switch on the unit.
2. Switch-on the programming tool, then press button "**Write**" or number "**2**" to enter Write Address mode (Figure 7).
3. Input the desire device address value from 1 to 254, and then press "**Write**" to save the new address (Figure 8).

Note: If display "**Success**", means the entered address is confirmed. If display "**Fail**", means failure to program the address (Figure 9).

4. Press "**Exit**" key to go back Main Menu. Press "**Power**" key to switch-off the programming tool.
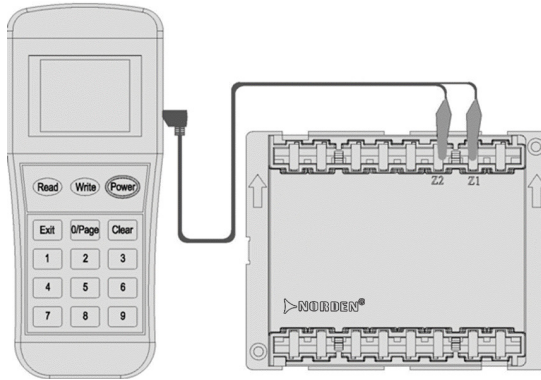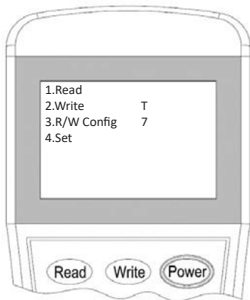
Figure 6: Programming tool Connection Detail

| Figure 7 | Figure 8 | Figure 9 |

3.3.Feedback Mode

1. Feedback mode has two types, SELF and EXTERNAL. Under SELF-feedback mode, once the interface module received active command from the panel, the module automatically send feedback signal to the control panel, alongside the Feedback LED indicator goes turn-on. While the External-feedback mode will do similar action when the interface module detects feedback signal from Input terminal. Default setting is External-feedback mode.
2. Connect the programming cable to Z1 and Z2 terminals (Figure 6). Press "**Power**" to switch-on the unit.
3. Switch-on the programming tool, then press button "**3**" to enter to Configuration mode (Figure 10).
4. Input the "**1**" for Self-feedback mode or "**2**" for External-feedback mode then press "**Write**" to change the setting (Figure 11).
    Note: If display "**Success**", means the entered mode is confirmed. If display "**Fail**", means failure to program the mode.
5. Press "**Exit**" key to go back Main Menu. Press "**Power**" to switch off the programming tool.
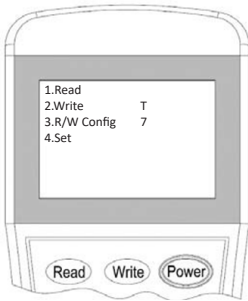
www.nordencommunication.com

1.Read	
2.Write	T
3.R/W Config	7
4.Set	

Feedback	1Y	2N
Input Check	3Y	4N
Output Check	5Y	6N

Parameter Description

1Y Self-Feedback Mode
2N External-Feedback Mode
(Default)

Figure 10   Figure 11

3.4.Input Check Mode

1. Input Check mode is used to enable the input cable monitoring, this option is available when parameter is set to 3Y with fitted end of line resistor. The module monitor will report to the panel in the event of open or short circuit occurs in the wiring.
2. To set to check mode. Connect the programming cable to Z1 and Z2 terminals (Figure 6). Press "**Power**" to switch-on the unit.
3. Switch-on the programming tool, then press button "**3**" to enter to Configuration mode (Figure 12).
4. Input the "**3**" key for Check mode then press "**Write**" to change the setting (Figure 13).
Note:If display "**Success**", means the entered mode is confirmed. If display "**Fail**", means failure to program the mode.
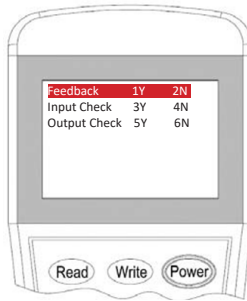5.   Press "**Exit**" key to go back Main Menu. Press "**Power**" to switch off the programming tool.

1.Read	
2.Write	T
3.R/W Config	7
4.Set	

Feedback	1Y	2N
Input Check	3Y	4N
Output Check	5Y	6N

Parameter Description

3Y Enable Input Check Mode
4N Disable Input Check Mode
(Default)

Figure 12   Figure 13

3.5.Output Check Mode

1. Output Check mode is used to enable voltage monitoring. The module will report to the panel in the event of low voltage output caused by open and short circuit occur in the wiring.
2. Connect the programming cable to Z1 and Z2 terminals (Figure 6). Press "**Power**" to switch-on the unit.
3. Switch-on the programming tool, then press button "**3**" to enter to Configuration mode (Figure 14).
4. Input the "**5**" for **Check** mode then press "**Write**" to change the setting (Figure 15).
   Note: If display "**Success**", means the entered mode is confirmed. If display "**Fail**", means failure to program the mode.
5. Press "**Exit**" key to go back Main Menu. Press "**Power**" to switch off the programming tool.

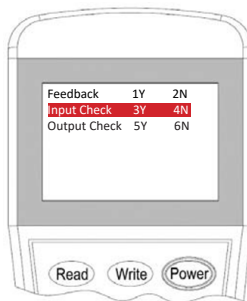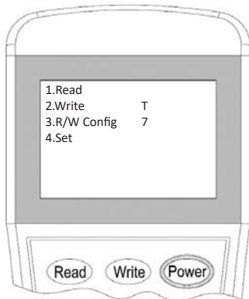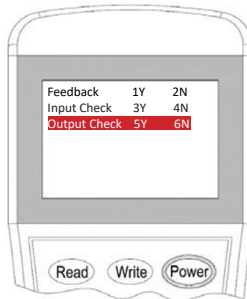|	
1.Read	
2.Write	T
3.R/W Config	7
4.Set	

Feedback	1Y	2N
Input Check	3Y	4N
Output Check	5Y	6N

Parameter Description

5Y Enable Output Check Mode
6N Disable Output Check Mode (Default)

Figure 14   Figure 15

3.6.Read Configuration

1. Connect the programming cable to Z1 and Z2 terminals (Figure 6). Press "**Power**" to switch-on the unit.
2. Switch-on the programming tool, then press button "**Read**" or "**1**" to enter to Read mode (Figure 16). The programming tool will display the configuration after few seconds. (Figure 17).
3. Press "**Exit**" key to go back Main Menu. Press "**Power**" key to switch off the programming tool.
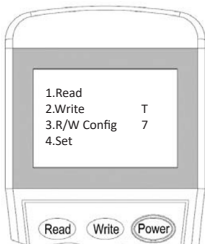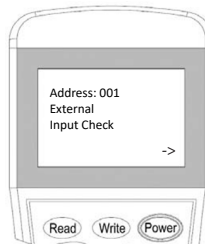

1.Read	
2.Write	T
3.R/W Config	7
4.Set	

Address: 001
External
Input Check
                                  ->

Output
Uncheck
ID:123456789012
<-

Parameter Description

Address: Unique number assigned
1Y Self-Feedback Mode
2N External-Feedback Mode (Default)
3Y Enable Input Check Mode
4N Disable Input Check Mode (Default)
5Y Enable Output Check Mode
6N Disable Output Check Mode [Default]
ID: Device serial number

Figure 16   Figure 17

4.General Maintenance

1. Inform the suitable personnel before conducting the maintenance.
2. Disable the interface module on the control panel to prevent false alarm.
3. Do not attempt to repair the circuitry of the interface module, it may affect the operation to respond to a fire condition and will void the manufacturer's warranty.
4. Use a damp cloth to clean the surface.
5. Notify again proper personnel after conducting the maintenance and make sure to enable the interface module and confirm if up and running.
6. Perform the maintenance on semi-annually or depending on the site conditions.

5.Troubleshooting Guide

What you notice	What it means	What to do
Address not enrolling	The wiring is loose The address is duplicate	Conduct maintenance Re-Commission the device
Unable to commission	The damage of the electronic circuit	Replace the device

Appendix 1

Limitation of Interface Module

The Interface Module cannot last forever. To keep the interface module working in good condition, please maintain the equipment continuously according to recommendations from manufacturers and relative nation codes and laws. Take specific maintenance measures on the basis of different environments.

This interface module contains electronic parts. Even though it is made to last for a long period of time, any of these parts could fail at any time. Therefore, test your module at least every half-year according to national codes or laws. Any interface module, fire alarm devices or any other components of the system must be repaired and/or replaced immediately as they fail.

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