

G002752

Control & Indication Unit

CN-AIOI

Part no. 023261

System: NSAC-1, TERRA FIRE, TERRA ONE

General description

CN-AIOI is a multifunction address/control unit on the loop, ideal as address unit to conventional detectors, sprinklers, external fire systems, aspirations or beam systems. It is also suitable for control and monitoring of doors, dampers, fans, or similar applications.

It has two inputs and three programmable relay outputs. In addition two of the relay outputs can have a supervised external control cable.

The CN-AIOI can be programmed for different types of control and monitoring functions. The functions are selected by means of a DIP-switch.

Normally CN-AIOI is powered by the line via a two-core cable, but when using the relays an external 24VDC power supply must be connected separately.

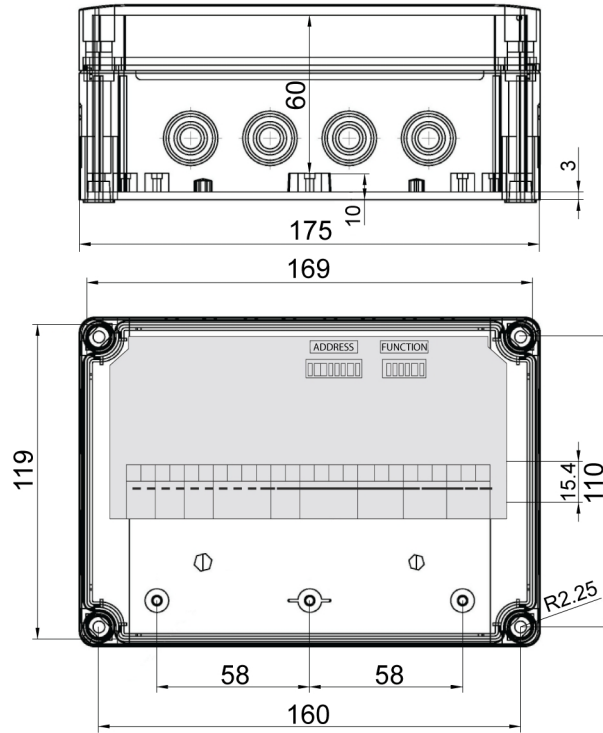
The PC-board is mounted in a plastic box. Cable connections are made through the cable glands.

The CN-AIOI can be fitted with expansion cards for special applications. See data sheet for RKS06 (delayed relay activation during power cuts).

Data

Nominal voltage	34 VDC
Working voltage	20 - 38 VDC 24 VDC \pm 20% (from external power supply)
Address setting	8-way DIP-switch
Function setting	6-way DIP-switch
Working current (loop)	0.3 mA
Alarm current (loop)	10 mA
In1 & In2 (output to Conv.Det./switch)	12 - 15 V DC
External 24 V DC power input	50 mA (~15 mA/relay is needed)
Max load relay contacts	24 - 48 VDC / 1,0 A
Ingress protection	IP65
Relative humidity	0-95% RH
Temperature range	-10 °C to +55 °C
Classification	EN54-17:2005/AC:2007 EN54-18:2005/AC:2007 IACS E10
Certified according to	CE 09 2531-CPR-232.1707 DoP: CN-1707
Enclosure material	PC/ABS
Weight	500 g \pm 5%

Dimensions (mm)



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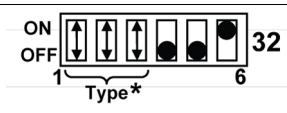
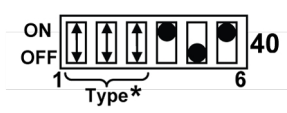
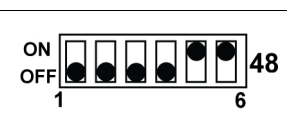
Connection

Relays 3 OUT3	23	NO	24	C	25	NO	
	22	NO	21	NC	20	C	
Relay2 OUT2	19	NO	18	NC	17	C	
	16	NO	15	NC	14	C	
Relay1 OUT1	13	NO	12	NC	11	C	
	10	NO	9	NC	8	C	
Superv. IN4	7	+	6	-	5	+	
	4	+	3	-	2	+	
Superv. IN3	1	+	Ext. 24V	11	+	12	-
	9	+	10	-	8	+	
Det/Switch IN2	7	+	8	-	9	+	
	5	+	6	-	7	+	
Det/Switch IN1	5	+	6	-	7	+	
	3	+	4	-	5	+	
Cable screen (earth connection)	1	+	2	-	3	+	
	1	+	2	-	3	+	
DSCI Line OUT	1	+	2	-	3	+	
	1	+	2	-	3	+	
DSCI Line IN	1	+	2	-	3	+	
	1	+	2	-	3	+	

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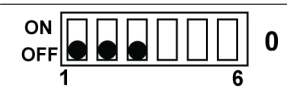
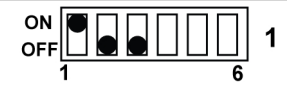
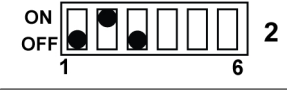
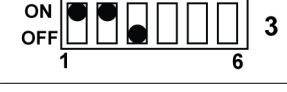




Function DIP-switch - Fire mode

Dip sw "6" in ON position.

Function DIP	Function	IN 1	IN 2	OUT1/2/3	Description
	Conventional zone	Conventional detectors/zone	Remote indication	Programmable	Interface for conventional detectors
	External fire alarm	Fire input, closing contact	Prealarm input	OUT 1 : Fire reset pulse OUT 2/3 : Programmable	Interface for external fire alarms (aspiration, beam detectors, ...).
	Sprinkler alarm	Flow switch, alarm is 15 sec delayed	Sprinkler valve, input open at closed valve	Programmable	Interface for sprinkler alarm

Device type selection

The presentation of the device type is selected by the settings of the Dip switches 1-3.

Function DIP	Device type
	DETECTOR
	SMOKE
	HEAT
	MANUAL CALL POINT
	IS NOTE: For normal applications use NS-AIN1 for intrinsically safe devices.
	FIRE
	SPRINKLER
	FLAME




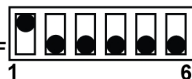
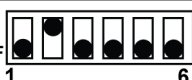
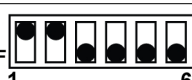
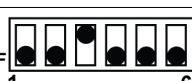
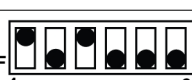
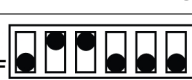
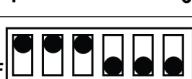





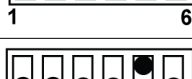
NOTE!

The external 24V power supply is not supervised when the CN-AIOI is set in fire mode

I/O mode

Dip sw. "6" in OFF position. The following options are available in different I/O settings:

- Safe Input 1 used for input of the safe condition, for example closed door position switch.
- Unsafe Input 2 used for input of the unsafe condition, for example open door position switch.
- Failsafe Relays will open in case of power loss.
- Watchdog Card RKS06 needed. Relays will keep position for a period of time in case of power loss on the loop.
- Auto Relays will open in case of any device within a +/- 3 address range from the CN-AIOI goes into fire alarm condition, fault condition or if one is disabled and goes into fire alarm condition.

Function DIP	Safe	Unsafe	Failsafe	Watchdog	Auto	Description
ON OFF  0						General I/O device.
ON OFF  1						General I/O device, bell control. NOTE! Only for RKS05.
ON OFF  2	<input checked="" type="checkbox"/>					General I/O device, door/fire damper control.
ON OFF  3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			General I/O device, door/fire damper control.
ON OFF  4			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Door/fire damper control.
ON OFF  5	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Door/fire damper control.
ON OFF  6	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Door/fire damper control. Use together with add-on board RKS-06.
ON OFF  7			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Door/fire damper control. Use together with add-on board RKS-06.
ON OFF  8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				General I/O device, door/fire damper control.
ON OFF  9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Door/fire damper control.
ON OFF  10			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Door/fire damper control. Use together with add-on board RKS-06.
ON OFF  11			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *	Door/fire damper control. Use together with add-on board RKS-06.
ON OFF  12			<input checked="" type="checkbox"/>			Failsafe general I/O device
ON OFF  16						Local timer.

*Automatically close relays if any disabled device on the same loop goes into fire alarm condition.

Connection example: Fire Mode (Dip sw "6")

Conventional detector interface with remote LED output. Select device as shown in [Device type selection](#).

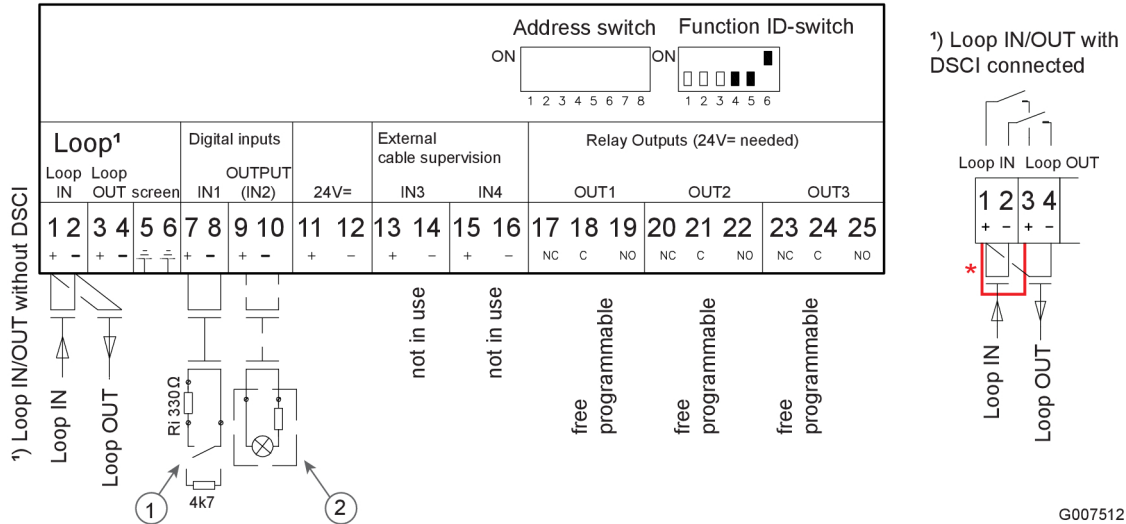
1. Conventional FIRE detector
2. Remote LED indicator



NOTE!

If the detector does not have an internal Ri resistor, add a ~330 Ω series resistor as shown in the figure below. This separates the fire signal from short circuit fault.

The "IN1"/"IN2" supplies the conventional detector/LED from the loop with ~12 - 15 V.



*) If the DSCI is used it is recommended to interconnect or crossconnect the (+) leads to one terminal, using a jumper or similar.

Connection example: External FIRE system (ID dip sw 4+6)

Fire/sprinkler panels, Aspiration system, Beam detector etc. Select device as shown in [Device type selection](#).

1. FIRE alarm.



NOTE!

If the detector does not have an internal Ri resistor, add a ~330 Ω series resistor as shown in the figure below. This separates the fire signal from short circuit fault.

2. PRE-Alarm and External fault (PRE-Alarm = closed contact, External fault = open circuit)

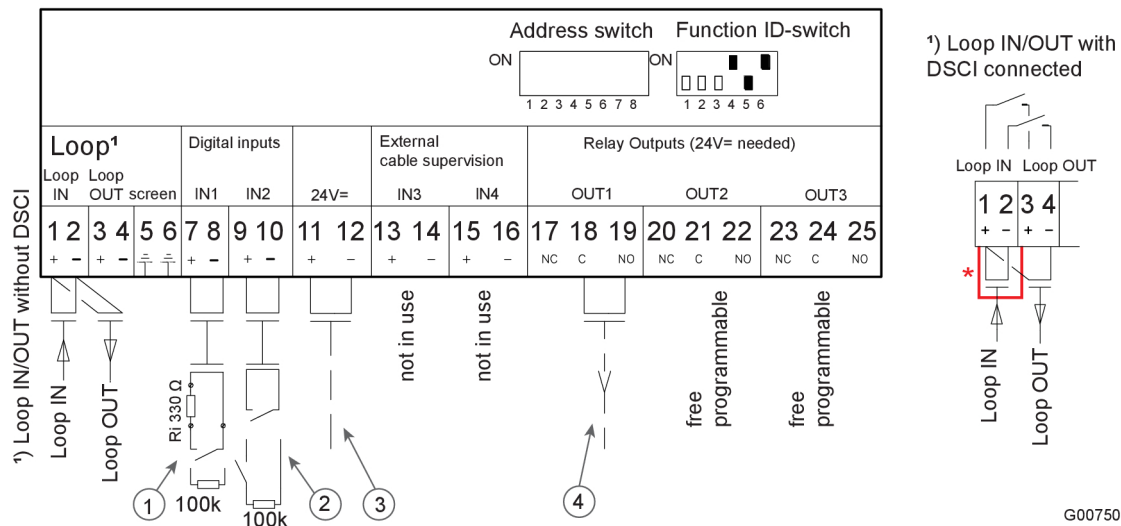


NOTE!

Pre-alarm is not available in the **Terra One** fire alarm system (Terra One is the single loop panel).

3. 24V= IN/OUT (only needed if a relay is used)

4. FIRE RESET pulse (~3 sec) to external system



*) If the DSCI is used it is recommended to interconnect or crossconnect the (+) leads to one terminal, using a jumper or similar.

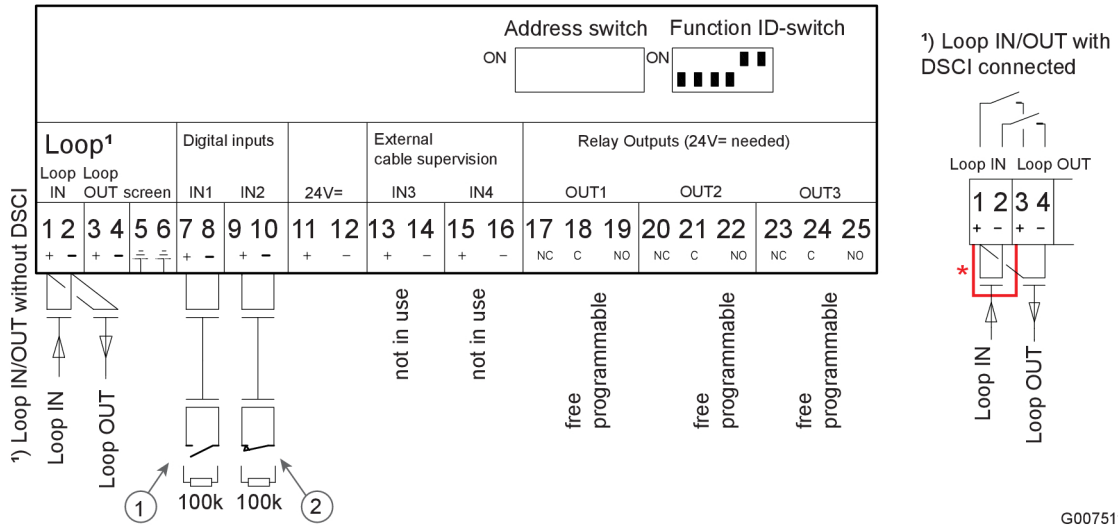
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Connection example: Sprinkler Pipe Section (ID dip sw 5+6)

15 sec delay to avoid alarm at pressure shocks.

Section valve (IN2) supervised for fully open position.

1. Sprinkler section alarm, delayed ~15 sec.
2. Fully open section valve



*) If the DSCI is used it is recommended to interconnect or crossconnect the (+) leads to one terminal, using a jumper or similar.

Connection example: I/O Mode

Function is set by dip switch 1-5 ("value"). The figure below shows General IO ("0")

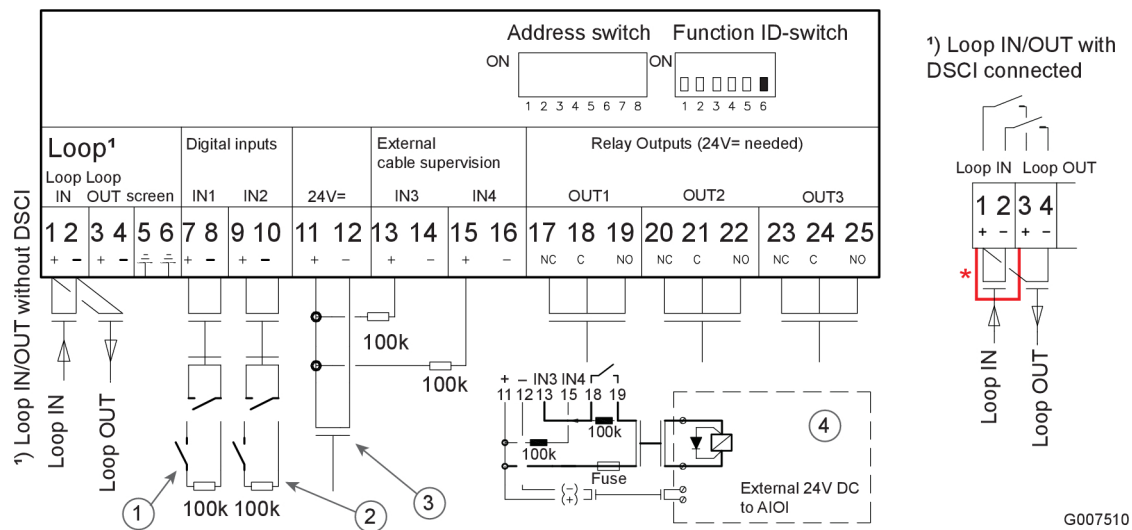


NOTE!

Switch 6 must be OFF in IO mode.

- 2 Digital inputs
- 2 External cable supervision
- 3 Relay outputs
- External 24 VDC supervision

1. Input 1 "External FAULT" address xx.1
2. Input 2 "External FAULT" address xx.2
3. External 24 V = IN/OUT (supervised). This supply is needed for the relay activation and IN 3 & 4 supervision.
4. Sample with external cable break supervision. External controlled equipment such as relay, contactor: Use switch off diode to avoid voltage spike!



*) If the DSCI is used it is recommended to interconnect or crossconnect the (+) leads to one terminal, using a jumper or similar.