NUBI 4.0

AVAILABLE MODELS		
Model	Power Supply	PIR
NB40F3UX	10-15VDC <0,1mA	YES
NB40S2UX	10-15VDC <0,1mA	NO
NB40LP2UX	Lithium battery 3,6V	YES
NB40LPS2UX	Lithium battery 3,6V	NO

Thank you for purchasing NUBI 4.0, the intelligent smoke screen security device able to be connected to any burglar alarm system in new or existing systems.

OPERATIONAL OVERVIEW

NUBI 4.0 is an accessory for anti-theft systems which, under certain conditions, activates the smoke capsule housed inside. The capsule is packaged and supplied separately. NUBI 4.0 must be connected to an burglar alarm control unit via its inputs and outputs.

Activating the smoke capsule does not require any over-current from the power source, since the necessary energy has already been stored by the motherboard.

The XAFER S25 smoke capsule efficiently protects volumes up to 100 m^3. The smoke generated uses pyrotechnic technology and incense; it is not classified as harmful to human health. After use, the room must be ventilated before staying there.

NUBI 4.0 is activated through 3 inputs, one of which to control the immediate emission of smoke (*override input*), while the other two create a more complex logic which, when present, also includes the use of the internal infrared sensor.

The polarity of the inputs can be easily configured using the DIP switches.

NUBI 4.0 also has three outputs, one for tampering, one for alarm and one for anomaly. The logic of the outputs can be inverted using the DIP switches.

Devices equipped with an infrared sensor also have the possibility to change the default behavior thanks to a special configuration function that must always be performed via the DIP switches.

An optional internal siren (NBSR01) can be housed inside the box and connected to the dedicated connector on the motherboard.

An optional accessory (NBTMPX) is available for advanced tamper protection which contains sensors for vibrations, heat, proximity and antifoam.

The smoke capsule works only once, the smoke emission, when activated, can no longer be interrupted.

The replacement of the smoke capsule is very simple, each replacement capsule is equipped with an electronic card at the end of the wires to be easily connected to the appropriate motherboard connector.

See our website: https://www.smarteksrl.it to check the availability of this manual in other languages.

INSTALLATION
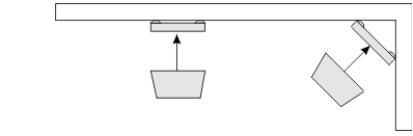
NUBI 4.0 can be easily installed on the wall or even in a corner at a height between 150 and 250 cm.
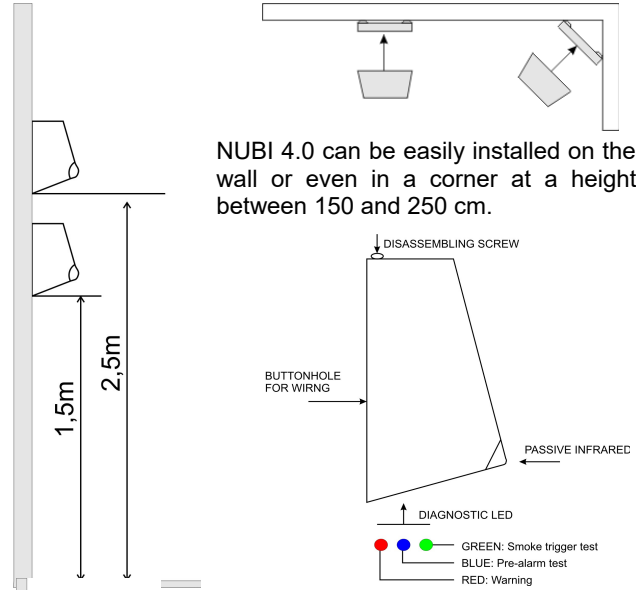

WARNING
Do not insert any obstacle at a distance of less than 1.5 meters from the smoke outlet hole.

The best performance is achieved when the jet of smoke coming out from NUBI 4.0 directly hits the floor, in this way the smoke will cool and spread better.

After opening the top cover, remove the motherboard to fix the lower part of the box on the wall.
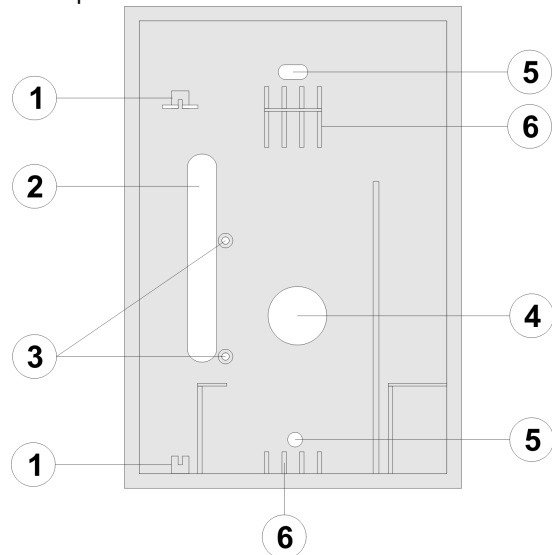
1	Motherboard rails
2	Cabling wire buttonhole
3	Internal siren fixing spacers
4	Internal siren sound outlet hole
5	Device fixing holes
6	Smoke cartridge supports

MAINBOARD(s)
10..15VDC Versions
NB40F3UX - NB40S2UX
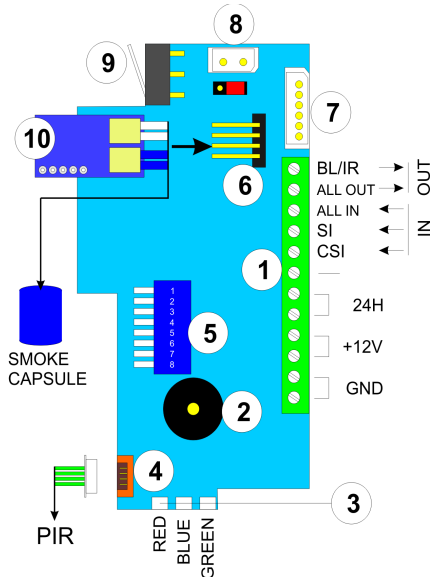
3,6V battery self-powered versions
NB40LP2UX - NB40LPS2UX
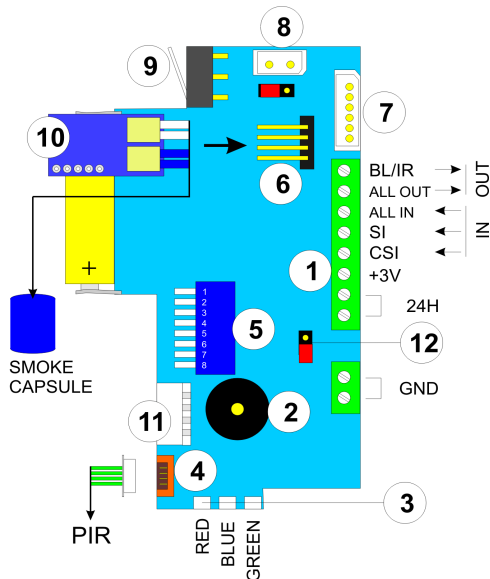
1) Main connector
2) Buzzer
3) Diagnostic LEDs
4) PIR connector[1]
5) DIP Switch
6) Smoke capsule connector
7) Expansion bus connector
8) Internal siren connector
9) Tamper switch
10) Activation board provided with smoke capsule
11) Optional auxiliary battery pack[2]
12) Close this Jumper when the motherboard is powered with external battery.[2]

NOTE 1: Models with integrated PIR
NOTE 2: Only for 3,6V battery self-powered models

MAIN CONNECTOR

PIN	Description	Dir
GND	Ground	
+12V	+10..15VDC power supply[1]	IN
24H	Tamper clear contact	OUT
+3V	External power supply IN or OUT[2]	I/O
CSI	Immediate smoke delivery (override)	IN
SI	System state (armed/disarmed)	IN
ALL IN	System in alarm	IN
ALL OUT	Device in alarm	OUT
BL/IR	Fault / Device ready. *Configurable output on models with infrared sensor.*	OUT

NOTE 1: Only for models with 12V power supply
NOTE 2: For battery self-powered models only.

UNDERVOLTAGE PROTECTION

In the version powered at 10..15VDC, when the supply voltage drops below 10V, the emission of smoke will be inhibited.

Similarly, the emission of smoke will be inhibited when the battery is too low to guarantee correct device operation.

INPUTS

CSI	*Override*. When active, it drives the immediate smoke triggering, regardless of the status of the other inputs and the infrared sensor.
SI	*System state*. When active it enables NUBI 4.0 to trigger smoke according to the state of the *ALL-IN* input and the infrared sensor when present. It is usually connected to the armed/disarmed state of the alarm system.
ALL IN	*System alarm*. When the *SI* input is not active, the *ALL-IN* input will have no effect. When *SI* is active *ALL-IN* will produce the following effect: **1) Without PIR or PIR disabled:** NUBI 4.0 will trigger smoke when the *ALL-IN* input goes to active state. **2) With PIR:** NUBI 4.0 triggers smoke when both the activity of the *ALL-IN* input and that of the infrared sensor are detected in a 15-minute window, regardless of who activated first.

OUTPUTS

|	
24H	Tamper clear contact
ALL OUT	Output active for 90 seconds starting from when NUBI 4.0 starts to trigger smoke.
BL/IR	Active output when the device has a fault and therefore is not ready to deliver smoke. With DIP SW5 ON it takes on the meaning of "**device ready**". The output is programmable in devices with infrared sensor, as better described below.

BL/IR OUTPUT

This output becomes active when at least one of the following conditions occurs:

- Supply voltage too low (<10V in devices powered at 10..15VDC and battery to be replaced in those powered by 3.6V lithium battery).
- Smoke capsule exhausted.
- Devices in programming state (only models with infrared).

If you want a "*device ready*" signal, switch the DIP SW5 to the ON position, in this case the output will be active (closed to the GND), when NUBI 4.0 is regularly powered, functioning and ready to trigger smoke.

INPUTS WIRING

When the DIP Switches 1..4 are set to OFF, NUBI inputs will become active when switched to GND.
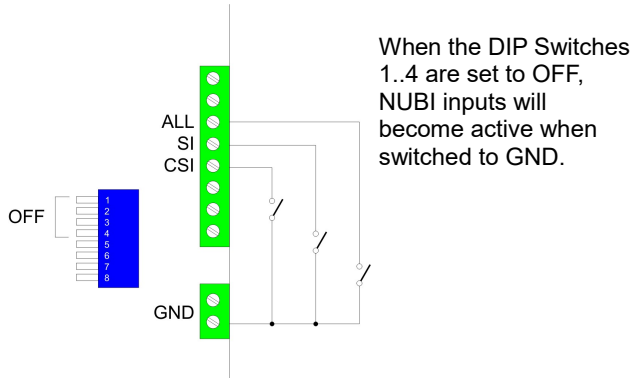
With the DIP SW1 the inputs reference can be changed from GND to +VCC (pin +12 V or +3V).
Using SW2, SW3, SW4 each input logic can be switched from normally open to normally closed as shown the following DIP Switches functional table.

In the event that the inputs are not driven with a clean contact to GND, **never apply a voltage higher than +VCC (pin +12 V or +3V)**, this would irreversibly damage the electronic circuit.

DIP SWITCHES

DIP	OFF	ON
1	Inputs active to GND	Inputs active to +VCC
2	CSI input normally open	CSI input normally closed
3	SI input normally open	SI input normally closed
4	ALL input normally open	ALL input normally closed
5	BL/IR output active low	BL/IR output active open
6	ALL output active low	ALL output active open. (Not for internal siren use)
7	Operating mode	Test mode
8	Tamper enabled	Tamper disabled

DIAGNOSTIC LEDs

The LEDs are active in TEST mode (SW7 ON), except for the red one which flashes during the alarm phase.

| BLU	Pre-alarm. Only for devices with infrared sensor. Flashes quickly when, with the *SI* input active, NUBI 4.0 has detected the *ALL-IN* input or a movement from the infrared sensor and waits for the second event.
VERDE	Flashes for 1 second to simulate the smoke capsule trigger.
ROSSO	Warning. (test mode) Alarm state. (operating mode)

OUTPUTS INTERNAL DIAGRAM
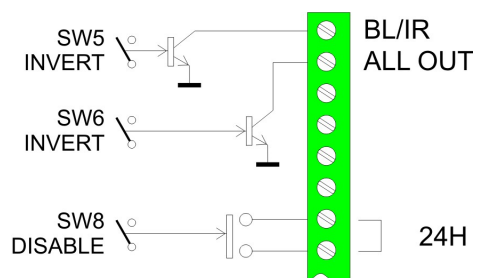
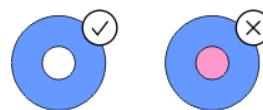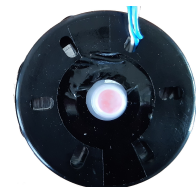The picture shows the NUBI 4.0 outputs simplified internal diagram.

PIR RANGE

The following image shows the integrated PIR range when the device is installed at a height of 2.50 m.
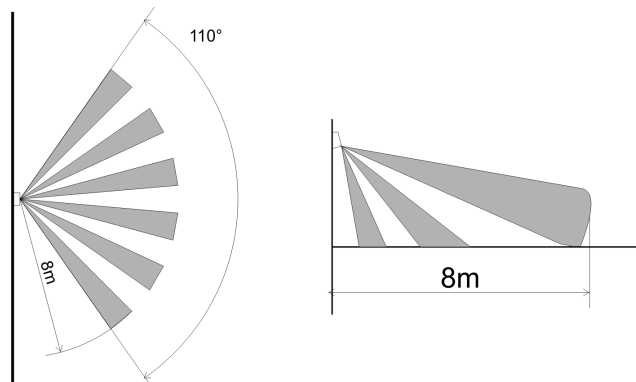
FIT THE SMOKE CAPSULE

CAUTION
Before assembling the smoke capsule, check the color of the shock indicator. **Do not use the capsule** if the indicator is **stained red**.


Fit the smoke capsule in its housing as shown in the following picture.

First place the lower part (1) and then rotate the capsule to fit it in the support (2).

CAUTION
Remove the power supply or the battery from the motherboard before connecting the smoke capsule and wait at least 10 seconds.

The capsule is supplied together with the activation card which is connected to the ends of the wires. Insert the activation card connector into the appropriate one on the motherboard.
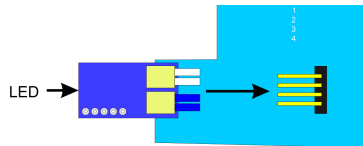
Only in test mode (SW7 ON) the green LED on the back of the activation card will flash when the capsule is full, if it remains off it means that it is empty and must be replaced.

PROGRAMMING

Only devices with the embedded PIR can be programmed to change the default behavior. To activate programming, follow the **procedure for saving the options**:

- Remove the power supply
- Set DIP SW7 to ON
- Position the other DIP SW to obtain the desired configuration (see next table)
- Supply the power
- The blue and green LEDs flash, within 30 seconds set the SW7 switch to OFF, then to ON and again to OFF.
- The buzzer will confirm the options saving and all the LEDs will flash.
- Remove the power supply
- Place the DIP SW in the desired operating mode.

DIP	ON	OFF
1	Double pulse PIR	Single pulse PIR (default).
2	-	-
3	ALL-IN disabled	ALL-IN enabled (default)
4	BL/IR output as the previous version.	BL/IR output means fault or device ready. (default).
5	PIR disabled	PIR enabled (default)
6	-	-

Single/double impulse:

In double pulse mode, the alarm signal is validated by the infrared sensor when a second pulse is detected after the first pulse in a time window between 3 and 30 seconds. It is recommended to use the double impulse mode especially when the *ALL-IN* input is disabled.

ALL-IN disabled:

When *ALL-IN* is disabled, in addition to override (*CSI*), the smoke will be triggered when the *SI* input is active (system armed) and the infrared sensor detects movement. To limit false alarms, it is recommended to program the infrared in double pulse mode when *ALL-IN* is disabled.

PIR disabled:

When the PIR is disabled, in addition to the override (*CSI*), the smoke will be triggered when the *SI* input is active (system armed) and the *ALL IN* input becomes active, as in a device without PIR.

NOTE: By disabling both *ALL-IN* and PIR, the device can only trigger smoke by activating the override input (*CSI*).

BL/IR output:

By activating this option, the *BL/IR* output will have the same functionality as the previous version:

- IPIR detection for models powered at 10..15 V DC
- Low battery for models powered at 3.6 V.

Restore to default:

To restore the default conditions, switch off the device, set all the DIP SW switches to OFF with the exception of SW7 and carry out the "**procedure for saving the options**" as previously described.

TEST MODE

In test mode the smoke trigger is automatically disabled.

With the device already powered, set DIP SW7 to ON to activate the test mode. All the LEDs and the buzzer flash 8 times, then the first diagnostic is performed. If the supply voltage is too low or the smoke capsule is not connected or exhausted, the red LED and the buzzer will remain on.

Otherwise the green LED will flash from 1 to 3 times to indicate the battery charge status (1 time = near to run out) or only once in the device powered at 10..15VDC.

The test continues and the blue LED flashes slowly to indicate that test mode is activated.

In devices with PIR, when it detects movement, the red LED flashes and the buzzer activates for 1 second. With the alarm armed (*SI* input active), an event between motion detection or activation of the *ALL-IN* input will activate the pre-alarm status for 15 minutes and the blue

LED will flash rapidly. At the second alarm event within this period, the green LED will flash for 1 second to simulate smoke delivery.

> **Remember to activate the normal operating mode (DIP SW7 OFF) at the end of the test.**

TEST CAPSULE (*NCBT*)

The test capsule (NBCT) is an accessory that allows you to test the operation of the device in operating mode. It simulates the behavior of the smoke capsule, but instead of delivering the smoke it emits a series of beeps and turns on its LEDs. NUBI 4.0 with the test capsule is immediately operational and ignores the 30 minute safety time described below.

COMMISSIONING

We recommend carrying out a test (see the previous chapter Testing mode) before carrying out a final commissioning of the device. Set DIP SW7 to OFF to switch to operating mode. The removal of the adhesive that protects the smoke exit hole of the smoke capsule is optional, if it is removed the smoke emission starts silently, otherwise the capsule is better protected against humidity and the delivery of the smoke will start with a light "bang", like a shot of a lightning gun.

<u>NO UNWANTED TRIGGER</u>

NUBI 4.0 PREVENTS UNDESIRABLE SMOKE EMISSIONS ON THE FIRST POWER-ON, DUE TO WIRING ERRORS. IN ADDITION IT ALLOWS TO PERFORM FUNCTIONAL TESTS WITHOUT ACTIVATING THE SMOKE CAPSULE.

In the first 30 minutes after supplying power, NUBI enters a special *safety operating mode*. During this period the capsule triggering is preceded by a *warning signal*, the buzzer emits an intermittent sound for 120 seconds and the red LED flashes. To stop smoke activation, simply do one of the following:

- Place SW7 ON, even for a moment
- Disarm the alarm (input SI) when the alarm was caused by the ALL-IN input and/or the infrared sensor.
- Give a new impulse to the CSI input when the alarm was caused by a previous impulse on this input.
- Remove the power to the device.

If this warning procedure is not interrupted, smoke will be delivered at the end of the 120 seconds.

Each time the *warning signal* is triggered, the 30 minute timer is regenerated to allow for another 30 minutes of *safety operating mode*.

MAINTENANCE

We recommend replacing the smoke capsule every 5 years using only the original replacement.

SMOKE CAPSULE REPLACEMENT

When a smoke capsule is exhausted, it must be replaced with a new one, using only original spare parts.

> **Remove the power supply or the battery and wait at least 10 seconds before replacing the smoke capsule.**

WARRANTY

SMARTEK s.r.l. guarantees its products against all manufacturing defects for a period of 30 months from the date of the production batch indicated on the label.

RECOMMENDATIONS

Before leaving, ventilate the rooms thoroughly after the smoke has been delivered.

ADVANCED WIRING

When the inputs are driven in voltage, it is recommended to respect the following thresholds:

	12VDC		Battery 3,6V	
	Min V	*Max V*	*Min V*	*Max V*
Level 0	GND	2,0V	GND	0,5V
Level 1	8,0V	+VCC	1,9V	+Vbatt

When only one alarm output is available from the alarm control unit but not the system status, it is possible to drive the *SI* and *ALL-IN* inputs in parallel using this output, therefore NUBI 4.0 will deliver smoke when it detects a movement with the embedded infrared sensor, but only while the alarm output remains active. Caution, if the control panel output also become active with the tamper alarm, NUBI 4.0 will be activated also for this condition.

TECHNICAL SPECIFICATIONS

Power supply (12VDC models)	From 10 to 15VDC < 0,1mA
Power supply (Battery models)	3,6V lithium battery AA such as SAFT LS14500 Autonomy about 10 years
Size	12cm x 17cm x 14cm
Saturable volume	100m^3
Weight	760g
Smoke average delivery time	25sec
Operating temperature	From -20°C to +70°C
Maximum relative humidity	90%
Inputs	3
Outputs	3

CE