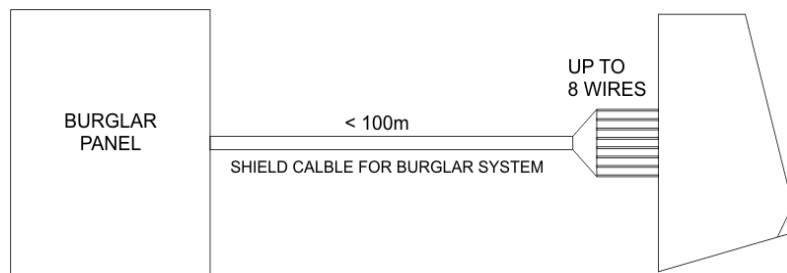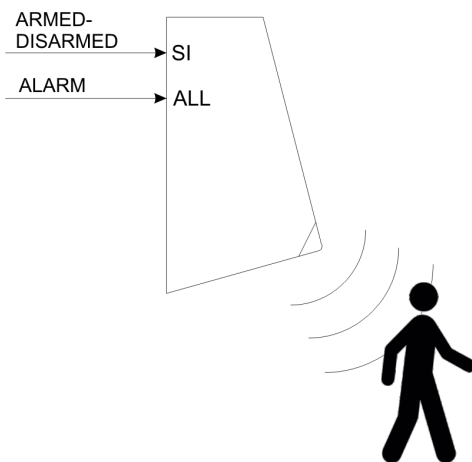# AN01 – APPLICATION NOTE
How to wire NUBI 4.0 to an existing burglar system with a multipolar cable.

NUBI 4.0 can be wired to an existing burglar panel using a multipolar cable to supply 12VDC power supply and provide the signals. The minimum recommended wire section is $0.22mm^2$ and the maximum connection length with the control panel is 100m. When the distance to the control panel exceeds 25 meters, use a $0.50mm^2$ wire for the supply conductors.

HOW TO DRIVE NUBI 4.0

Use of integrated PIR detector:

The integrated PIR work a double consent, to avoid the smoke supply due to false alarm. To use this function, the control panel will drive NUBI 4.0 with 2 signals:

1) System status armed/disarmed. (**SI** input)
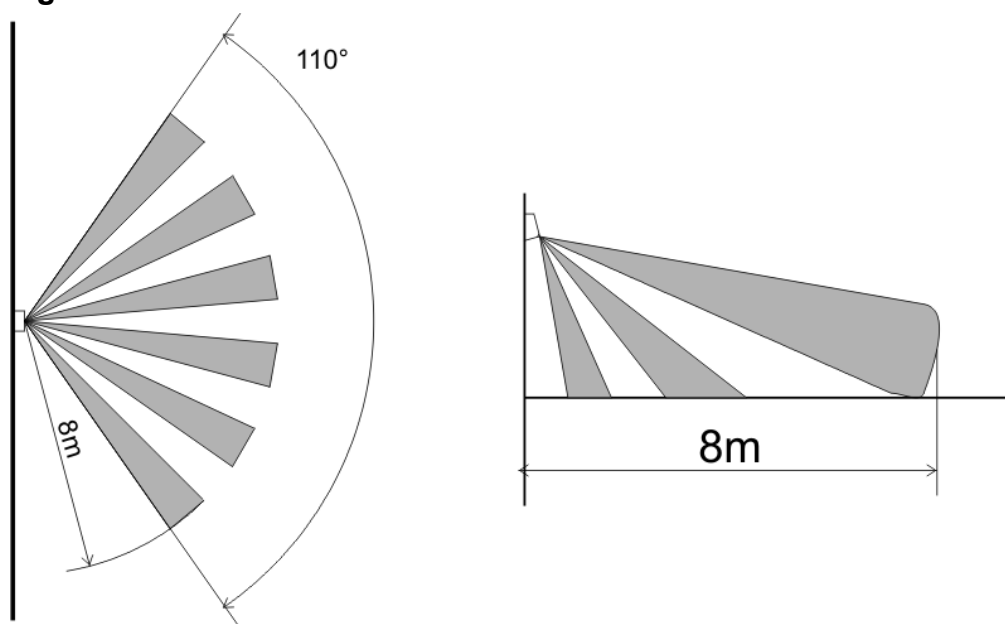2) Alarm (**ALL** input)

When the alarm system is disarmed, the smoke supply following alarm input or motion detection will be disabled.

When the burglar system is active, the smoke will be immediately delivered when the integrated PIR detects movement and the the burglar system goes in alarm, regardless of which one was the first. In order to have the smoke delivery, the two events must take place within a 15 minute time window.

It is recommended to allow users to remedy any alarm due to forgetfulness in disarming the system without dispense the smoke, pointing the PIR beams in the appropriate direction.
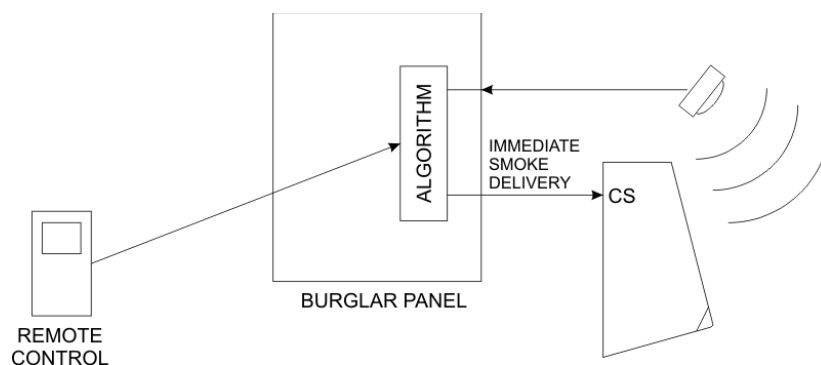
PIR coverage

Use of immediate smoke delivery input:

The immediate discharge input (**CS** input) drives the immediate smoke delivery, regardless of the status of the other inputs.

The immediate discharge input is useful for manually controlling smoke delivery, usually via a remote control or APP. Some burglar systems are able to send this command, otherwise you can use the NUBI 4.0 **SMART WiFi** expansion that allows with a smartphone to view one or more cameras and to command smoke escaping. For more information on this expansion see the specific documentation.

> The immediate discharge input can also be used to automatically control smoke delivery, without using the integrated PIR.
>
> In this case it is recommended to create a logic programmed on the burglar panel to drive the smoke delivery with a double check sensor.

Inputs polarity:

The inputs have programmable polarity with the DIP switches. See the installation manual to configure the polarity in order to right interface with the burglar panel that could supply the active signal either towards GND or towards + 12V.

> On the NB40F1 model always connect the supplied resistors to all the inputs, even if the inputs are not used.

NUBI 4.0 OUTPUTS

Tamper:

A dry contact will indicate the opening of the box and therefore a probable attempt to tamper with it. Two conductors are required to bring this signal to the burglar panel.

Empty aartridge:

The output OUT of NUBI 4.0 reports to the burglar panel that the cartridge is exausted and therefore must be replaced. Through the DIP SWITCH the output polarity can be configured, as explained in the manual.

Alarm:

When NUBI 4.0 is driven by a burglar panel, the use of this output is not necessary, because this can be done by the burglar panel. The alarm output, called OC is active towards GND, has a protection series resistance and can supply a maximum current of 10mA.

USED WIRES SUMMARY TABLE

Power supply	2
Use of embedded PIR (SI + ALL inputs)	2
Use of immediate smoke delivery (CS input)	1
To report tamper to the burglar panel (24H output)	2
To report empty cartridge to burglar panel (OUT output)	1
Total max number of conductors	**8**

- Use a shielded cable typical for burglar systems. Connect the shield to GND only on the control panel and isolate it from the side of NUBI 4.0.

- The minimum wire section must be $0,22mm^2$.

- For a cable length of more than 25 meters, the section of $0,50mm^2$ is recommended for the 2 power supply wires.