Air2-Flex2R/2I

Wireless module for home-automation and roller shutters

Installation and programming manual

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1. Description of Air2-Flex2R/2I

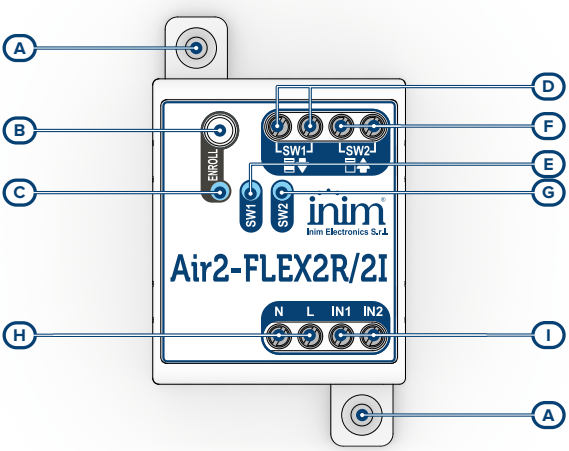
The Air2-Flex2R/2I wireless home-automation module connects to the control panel as a wireless device via the Air2-BS200 receiver and can be used as a module with two 5A relay outputs and two “NO” or “NC” input terminals.

Besides being able to manage autonomously the previously mentioned 4 terminals, it is possible to program the device in a further 11 modes, which include the management of roller shutters, venetian blinds (with interblock function for the two outputs) and light points.

The module is also equipped with status indicator LEDs for the relay outputs.

Air2-Flex2R/2I is capable of operating in accordance with the set programming even in the event of loss of communication with the control panel.

1.1 Description of parts



[A]	Removable flanges with fixing holes
[B]	'ENROLL' button
[C]	'ENROLL' Programming LED
[D]	'SW1' relay output terminals
[E]	'SW1' LED
[F]	'SW2' relay output terminals
[G]	'SW2' LED
[H]	Mains "N" and "L" terminals
[I]	input "IN1" and "IN2"

1.2 Technical specifications of Air2-Flex2R/2I

Operating voltage	from 90 to 250 V~ 50/60Hz
Current draw	
during standby	0.2 W
maximum	0.7 W
SW1 and SW2 relays	
Features	Max 5A @ 230V~ Max 5A @ 30V ⎓ Max. 5 connectable devices

AC1	1000VA
AC15	300VA
	500W
	100W
CFL-LED	100W
	300W
Operating environmental conditions	
Temperature	from -10 to +40 °C
Relative humidity	≤ 75% without condensation
Security rating	2
Environmental class	II
Dimensions (W x H x D)	
with flanges	41 x 69 x 25 mm
without flanges	41 x 49 x 25 mm
Weight	40g

(EN IEC 62368-1)

Terminal type	**IN1, IN2**	ES3, PS1
	SW1, SW2	ES3, PS3
	N, L	ES3, PS1

Technical specifications of Air2 system	
Operating frequency	
range	868.0 - 868.6 MHz
selectable channels	868.1, 868.3, 868.5 MHz
RF output power	25mW e.r.p.
Communication type	Two-way
Modulation	GFSK
Device monitoring	from 12 to 250 minutes

Note

In order to comply with the EN 50131-1 standards the alarm system supervision time must be below 120 minutes.

1.3 Operating mode

Air2-Flex2R/2I can operate in several modes, to be selected during the programming phase. These operating modes can be divided into three categories:

1. Generic home-automation module
2. Roller-shutter module
3. Light control module

Generic home-automation module

Default operating mode.

In this operating mode all 4 terminals are independent of each other and are managed completely by the control panel.

Roller-shutter module

The terminals in use are linked to a specific function which is defined depending on the type of home-automation selected:

- **Standard roller-shutters module**

  Long pressing the button (i.e. pressing and holding the button) connected to terminal “IN1” (/ “IN2”) will move the roller shutter downwards (/ upwards) until it reaches the end of its down (/ up) position or for the down (/ up) time, summed to the additional programmed time, regardless of its start position.

  The roller shutter will stop when the button is released.

- **‘Smart’ roller-shutters module**

  In this mode the roller shutter will behave as follows:

  - Short pressing the button (i.e. pressing and releasing the button within 1 second) connected to terminal “IN1” (/ “IN2”) will move the roller shutter downwards (/upwards) in steps of a 1/4 of the full run of the roller shutter.
  - Long pressing the button (i.e. pressing and holding the button for at least 1 second) connected to terminal “IN1” (/ “IN2”) will move the roller shutter downwards (/ upwards) to the end of its run or for the duration of the down (/up) time, summed to the additional programmed time, regardless of the start position.
  -
  - If either of the buttons, connected to “IN1” or “IN2” is pressed while the blind is opening or closing, the ongoing operation will stop.

- **Roller-shutters module with single ON/OFF button**

  Short pressing the button (i.e. pressing and releasing the button within 1 second) connected to terminal “IN1” will activate the roller shutter in a repetitive way in accordance with the following scheme:

  - active moving downward
  - stopped
  - active moving upward
  - stopped

  If the roller shutter is not stopped distinctly, it will be active until it reaches the end of its run, or for the down (/up) time, summed to the additional programmed time.

- **Roller-shutters module with one long press button**

  Long pressing the button (i.e. pressing and holding the button) connected to terminal “IN1” will activate the roller shutter. On release of the button, the roller shutter will stop.

  The order in which the activations occur is repetitive and in accordance with the following scheme:

  - active moving downward / stopped
  - active moving upward / stopped

If the button is pressed and held, the roller shutter will be activated until the end of its run, or for the down (/up) time, summed to the additional programmed time.

- **Roller-shutters module with no buttons**

  In this operating mode there are no manual operations: the roller shutter will only carry out commands given by the system.

- **Venetian blind module**

  In this operating mode, the Venetian blind will behave as follows:

  - Short pressing the button (i.e. pressing and releasing the button within 1 second) connected to “IN1” (/ “IN2”), will rotate the Venetian blind slats to the closed (/ open) position, regardless of their initial position, for the programmed duration of a step and up to a maximum number of programmed steps.
  - Long pressing the button (i.e. pressing and holding the button for at least 1 second) connected to “IN1” (/ “IN2”) the Venetian blind will move downwards (/ upwards) towards the end of its run, or for the duration of the down (/ up) time, summed to the additional programmed time.
  - If either of the buttons, connected to “IN1” or “IN2” is pressed while the Venetian blind is opening or closing, the ongoing operation will stop.

Note

In the case of roller shutters or Venetian blinds, the device is equipped with a function for self-calibration of position which, if necessary, can cause the roller shutter to open completely before reaching the selected position.

Light control module

The terminals in use are linked to a specific function which is defined in accordance with the selected type of lighting control:

- **One light point module with switch**

  In this operating mode, the light point connected to terminal “SW1” will be switched on when the switch connected to terminal “IN1” is closed. Vice versa, it will be off when the switch is open.

  The switch connected to terminal “IN1” acts as a diverter with respect to any output activation or deactivation commands given by the control panel to the respective “SW1” terminal.

- **Two-point light module with switch**

  In this mode, the light point connected to terminal “SW1” (/ “SW2”) will be switched on when the switch connected to terminal “IN1” (/ “IN2”) is closed. Vice versa, it will be off when the switch is open.

  The switch connected to terminal “IN1” (/ “IN2”) acts as a diverter with respect to any output activation or deactivation commands given by the control panel to the respective terminal “SW1” (/ “SW2”).

- **Button module with one light point**

  In this operating mode, the light point connected to terminal “SW1” will switch its on/off status each time the button connected to terminal “IN2” is pressed or when it receives output activation or deactivation commands given by the control panel to the respective “SW1” terminal.

- **Button module with two light points**

In this operating mode, the light point connected to terminal “SW1” (/ “SW2”) will switch its on/off status each time the button connected to terminal “IN1” (/ “IN2”) is pressed or it receives output activation or deactivation commands given by the control panel to the respective “SW1” (/ “SW2”) terminal.

2. Installation of Air2-Flex2R/2I

Air2-Flex2R/2I does not have integrated tamper protection and exposes the cables in use to possible tampering.

It is therefore advisable to protect the connections and also the device by installing it inside an enclosure, which can be:

- junction box
- electrical cabinet
- roller-shutter enclosure

Note

In order to comply with standard 50131, the enclosure used and the device must be equipped with tamper protection.

In addition, the enclosure must be fireproof with flammability class UL 94-V0.

The installation must be carried out in accordance with the national regulations governing the equipment concerned.

The cables used for the wiring of the product must have an adequate section and comply with the IEC 60332-1-2 or IEC 60332-2-2 standards.

1. Choose a suitable mounting placement.

Attention!

Ferromagnetic materials which are located in the vicinity of the mounting position can influence the magnetic field and can result in the reduced operating capacity of the device.

2. Secure the device enclosure inside the box.
3. Pull the wires through the cable entry and wire up the device.
4. Install the device *tamper* protection.
5. Close the box.
6. Enroll the device.

Wireless signal reception level

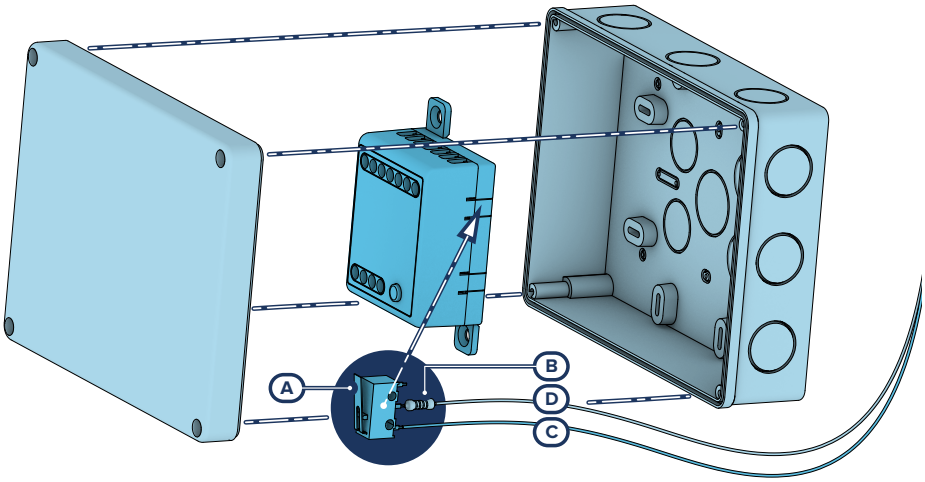
Immediately after enrolling and for the next 3 minutes or so, each time an alarm is generated, the device LED provides information on the level of the wireless signal:

- 2 flashes = low RF signal level
- 3 flashes = medium RF signal level
- 4 flashes = high RF signal level

Note

However, such indications are shown on the LED only if for programming the "Use sensor LED" option has been activated.

2.1 Anti-tamper



The peripherals with visible terminals and which do not have an anti-tamper device can still be equipped with protection by intervening on the assembly procedure.

Please note that in order to comply with security standards, all the control panel peripherals must be protected against tamper.

Here we provide information on one of the possible procedures that can be adopted. This involves the assembly of a microswitch on the device, which signals any attempted tamper, and the consequent programming of the terminal used for this contact.

1. Procure a microswitch with at least two normally-open contacts *[A]* (preferably with 3 contacts: COM-NO-NC).
2. Employ a terminal and program it as a '24H' input, whose description type is 'Tamper', balanced with a single 6K8Ω *[B]* resistance, unlimited alarm cycles and belonging to a partition that is viewable on at least one keypad.
3. Using 2 wires, connect the microswitch to the '24H' input terminal.
4. On the microswitch:
   - identify the common contact (COM) and connect it using one of the two wires, to the GND terminal of the '24H' terminal *[C]*.
   - identify the normally open contact (N.O., which is the contact that generates a short-circuit between the contact itself and the COM contact when the switch lever is compressed) and connect one end of the 6k8Ω resistor to it *[D]*.

Connect the other end of the resistance to the wire which is connected to the '24H' input terminal.

Note

If the terminal in use belongs to the Air2-Flex2R/2I module, the input cannot be balanced.

5. Install the microswitch in such a way that under normal conditions the switch lever is compressed. If a tamper attempt occurs, the lever will release thus generating the opening of the contact and an immediate alarm on the '24H' terminal.

Note

This wiring method can be applied in most situations, however, it is only a point of reference. In order to ensure proper protection, you must always take into account the specific mechanical and electrical conditions of the device you are working on.

For compliance with grade 3 of the EN 50131-3 safety standard, the device must be fastened inside an enclosure which is in turn must be protected against forced opening and removal from the wall (for example the control panel enclosure).

2.2 Enrolling a wireless device

The enrolling process allows you to associate an INIM wireless device with the Air2-BS200 transceiver that connects to the anti-intrusion control panel.

This procedure varies depending on the control panel in use and the programming software or application:

1. Access the control-panel programming section.
2. Select the device to be enrolled in accordance with its type:
   - an expansion board for a transceiver
   - an input terminal, for a detector (motion detector, magnetic contact, etc.)
   - an output terminal, for an output device connected to a terminal of the Air2-MC300 magnetic contact
   - a keypad
   - a sounder/flasher
   - a key, for a remote control device, selecting as the associated reader the one simulated by the transceiver
   - a home-automation module
   - a fog system
   - a temperature sensor
3. Set the device as "Wireless".
4. Start the learning phase from the control panel.
5. Press the **ENROLL** button on the wireless device.

Via Prime/STUDIO software application

Once the solution for the system to be designed has been opened, click on the **System Layout** button on the menu on the left. Then in the section on the right click on the **Add device on BUS** button.

A window opens where you can select the devices to be configured and add them to the configuration.

In the section on the left you can increase the number using the button corresponding to the selected device type.

To remove a device from the structure, work through the Add device procedure, but instead deselect the device you want to remove

Alternatively, you can access the programming section by clicking on the relevant button on the menu on the left, and from the list that appears click on the **Delete** button that corresponds to the line of the device to be removed.

By selecting a single module, in the section on the right, via the box under the description it is possible to select the type you want to attribute.

If wireless module is selected, the programming section will show the **Learn** button which allows the enrollment procedure to start.

As soon as the device is enabled it must be configured as 'Wireless':

```
PROGRAMMAING HomeAutom.module, ChoosePeripheral, "module", Wireless
```

Once the **OK** button has been pressed, it is necessary to work through the menu options in order to enroll it.

2.3 Connecting the Air2-Flex2R/2I module

The device must be powered by connecting the primary power source (from 90 to 250 V~) to the "**N**" and "**L**" terminals.

Terminals 'SW1' and 'SW2' can be used for connections with both AC and DC powered devices.

Attention!

Dangerous outputs

The installer can choose to use the 'SW1' and 'SW2' outputs to drive exclusively 2 hazardous voltage devices.

If the outputs are used on mains (hazardous) voltage, in addition to the above requirements, it is necessary to take the following compulsory measures:

- to connect in series an appropriate protection fuse to the selected output
- to use through phase only or through neutral only for all the terminals

The connections for home-automation functions, or for operating as a roller-shutter or light control module, depend on the operating mode selected during the programming phase.

- **Home-automation module**

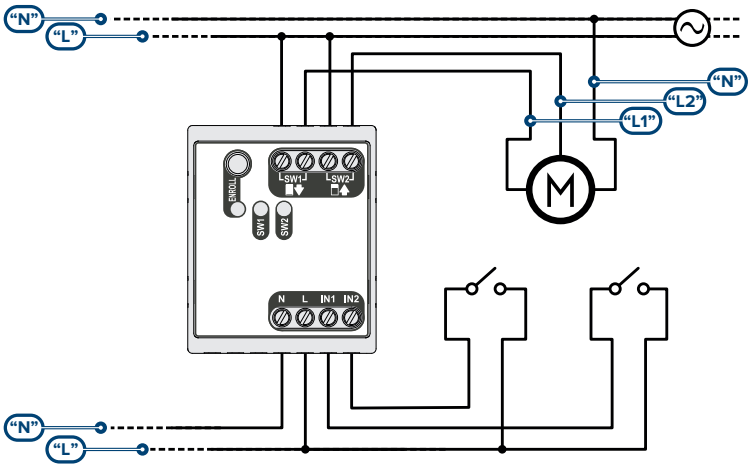
  The 4 terminals are all independent and can be controlled via the control panel.

  They can be wired for any of the functions available to them.

- **Standard roller-shutters module**

  'Smart' roller-shutters module

  Venetian blind module

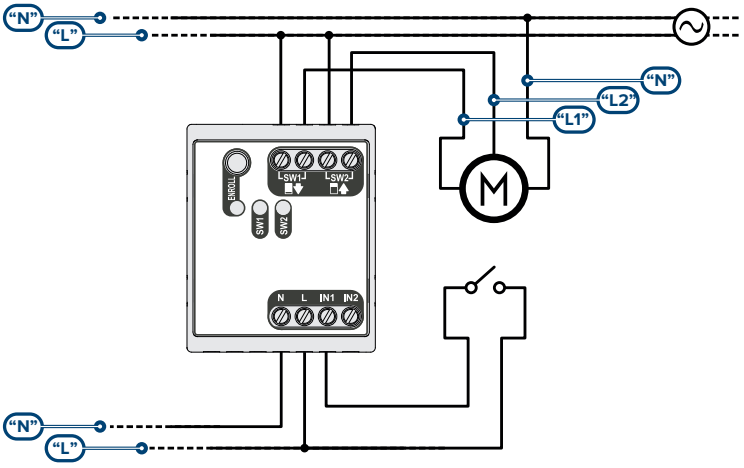


For this operating mode it is necessary to connect two buttons to terminals "T2" and "IN2", respectively for driving the roller shutter up or down. We recommend a double or tilting pushbutton panel, with mechanical interlock, specially designed for roller shutters.

Terminals 'SW1' and 'SW2' must be connected respectively to the up and down phases of the roller shutter.

- **Roller-shutters module with single ON/OFF button**

  Roller-shutters module with one long press button

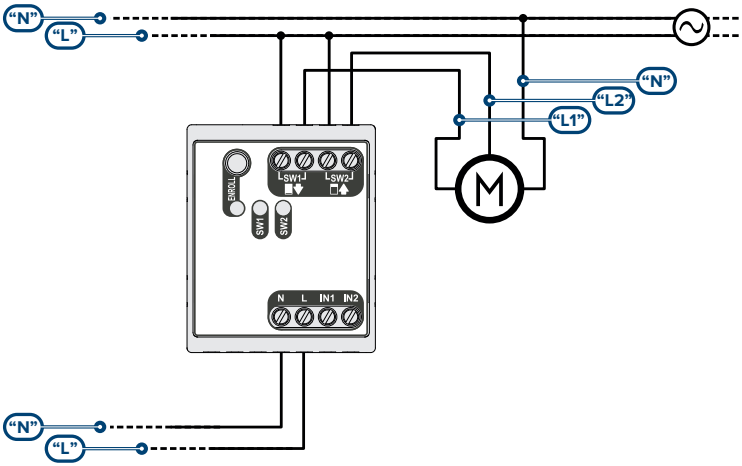


For this operating mode, a single button must be connected to terminal “IN1” in order to drive the roller shutter.

Terminals ‘SW1’ and ‘SW2’ must be connected respectively to the up and down phases of the roller shutter.

Terminal “IN2” remains available for use via the control panel and can be wired for any of the supported functions.

- **Roller-shutters module with no buttons**



For this operating mode it is necessary to connect terminals “SW1” and “SW2” respectively to the up and down phases of the roller shutter.

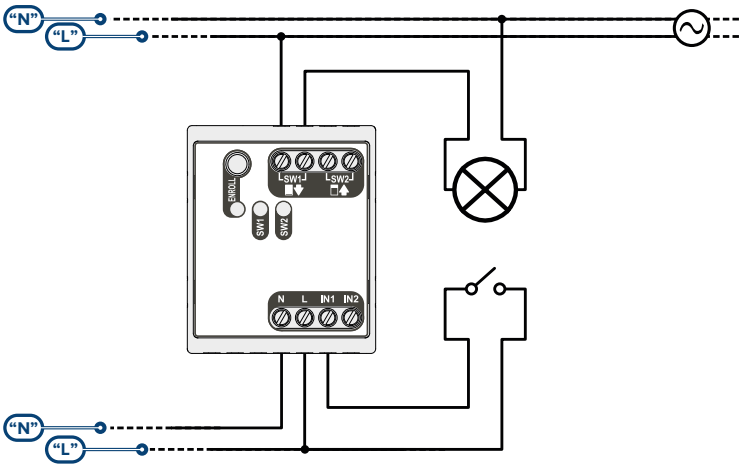
Terminals “IN1” and “IN2” remain available for use via the control panel and can be wired for any of the supported functions.

Note

To use Air2-Flex2R/2I in any of the roller shutter/Venetian blind modes, make sure that the motor is equipped with an internal-limit switch or, alternatively, install independent external-limit switches.

- **One light point module with switch**

  Button module with one light point

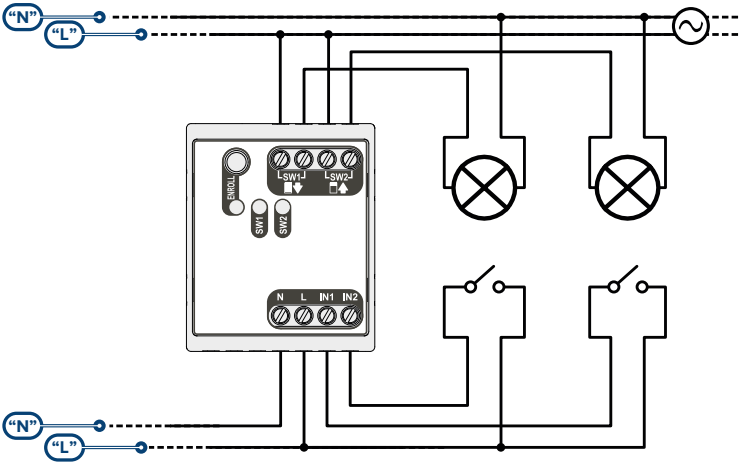


For this operating mode, a switch/button must be connected to terminal "IN1" in order to control the light point. Terminal 'SW1' must be connected to the light point that is to be controlled.

Terminals "IN2" and "SW2" remain available for use via the control panel and can be wired for any of the supported functions.

- **Two-point light module with switch**

  Button module with two light points



For this operating mode, it is necessary to connect two switches/buttons to terminals "IN1" and "IN2" respectively to control the light points connected to terminals "SW1" and "SW2".

3. Programming of Air2-Flex2R/2I

The programming of Air2-Flex2R/2I devices, as peripherals of the Inim Electronics control panel, can be carried out either via software or from a keypad.

3.1 Programming of home-automation modules

Via software

Click on the **Project** button in the menu on the left then select one of the home-automation modules added to the configuration.

Clicking the right mouse button on the module icon makes it possible to set the required use of the module itself:

- Expansion module with 4 terminals (home-automation module)
- Roller-shutter module
- “Smart” roller-shutter module
- Roller-shutter module with 1 ON/OFF button
- Roller-shutter module with 1 long press button
- Roller-shutter module with no buttons
- Venetian blind module
- Light point 1 switch and 1 relay
- Light point 1 button and 1 relay
- Light point 2 switches and 2 relays
- Light point 2 buttons and 2 relays

Instead, by clicking on the right mouse button on a terminal it is possible to configure it.

By clicking on the ‘Home-automation modules’ button on the menu on the left, the section on the right will show the list of all the configured modules.

Selecting one of the options will allow you to configure the parameters of the single peripheral by clicking on the button.

Via keypad

`Type in Code (Installer), PROGRAMMING Home-automation modules, ChoosePeripheral`

This section allows you to program the various options of the selected module.

3.1.1 Parameters of home-automation modules

The parameters of a home-automation module are different, depending on the use for which the module has been programmed.

Parameter			Software section	Installer menu section
Description	This string identifies the home-automation module, customizable by the installer.		 Configured home-automation modules, selected module	HomeAutom.module, ChoosePeripheral, "module", Description
Enroll	If "wireless" type is selected, this button appears to start the learning procedure of the wireless device.			Wireless
Generic **Roller blind** **Lights**	Option to enable the operating mode of the selected module.			✓
Operating type	Checkbox for the selection of one of the operating modes. Depending on the type of operation, additional parameters are available:			✓
	Roll up time	in mS, from 1 to 200 seconds		✓
	Roll down time	in mS, from 1 to 200 seconds		✓
	Additional roll up/roll down time	in mS, from 0 to 20 seconds		✓
	Pulse time of Venetian blind rotation	in mS, from 1 to 10 seconds		✓
	Number of Venetian blind pulses	from 0 to 4		✓

Note

In the case of programming the device to control roller-shutters, it is necessary to enter, as accurately as possible, the times for up/down and Venetian blinds movement.

3.2 Programming terminals

The Air2-Flex2R/2I terminals used for connections must be programmed through the control panel in accordance with the *operating mode* selected for the home-automation module.

- **Generic home-automation module**

Terminals "IN1" and "IN2" can be programmed as:

Terminals 'SW1' and 'SW2' can only be programmed as 'relay use' outputs. The 'buzzer' and 'dimmer' options are unavailable.

- **Standard roller-shutters module**

Terminals "IN1" and "IN2" are "technological" zones, normally open, they belong to all partitions and they have all other programming options at default.

Terminals 'SW1' and 'SW2' are outputs with the 'monostable' (monostable time 0, unprogrammable), 'relay use', 'home automation' and 'interlock' options enabled.

- **'Smart' roller-shutters module**

Terminals "IN1" e "IN2") are "technological" zones, normally open, they belong to all partitions and they have all other programming options at default.

Terminals 'SW1' and 'SW2' are outputs with the 'monostable' (mono-stable time 0, unprogrammable), 'relay use', 'home automation' and 'interlock' options enabled.

- **Roller-shutters module with single ON/OFF button**

  Terminal “IN1” is a “technological” zone, normally open, associated with all partitions and with all other programming options at default.

  Terminal “IN2” is fully customizable, as in the case of a home-automation module.

  Terminals ‘SW1’ and ‘SW2’ are outputs with the ‘monostable’ (monostable time 0, unprogrammable), ‘relay use’, ‘home automation’ and ‘interlock’ options enabled.

- **Roller-shutters module with one long press button**

  Terminal “IN1” is a “technological” zone, normally open, associated with all partitions and with all other programming options at default.

  Terminal “IN2” is fully customizable, as in the case of a home-automation module.

  Terminals ‘SW1’ and ‘SW2’ are outputs with the ‘monostable’ (monostable time 0, unprogrammable), ‘relay use’, ‘home automation’ and ‘interlock’ options enabled.

- **Roller-shutters module with no buttons**

  Terminals “IN1” and “IN2” are fully customizable, as in the case of the home-automation module.

  Terminals ‘SW1’ and ‘SW2’ are outputs with the ‘monostable’ (monostable time 0, unprogrammable), ‘relay use’, ‘home automation’ and ‘interlock’ options enabled.

- **Venetian blind module**

  Terminals “IN1” and “IN2” are “technological” zones, normally open, they belong to all partitions and they have all other programming options at default.

  Terminals ‘SW1’ and ‘SW2’ are outputs with the ‘monostable’ (monostable time 0, unprogrammable), ‘relay use’, ‘home automation’ and ‘interlock’ options enabled.

- **One light point module with switch**

  Terminal “IN1” is a “technological” zone, normally open, associated with all partitions and with all other programming options at default.

  Terminal “IN2” is fully customizable, as in the case of a home-automation module.

  Terminal ‘SW1’ is an output with the ‘relay use’, ‘home automation’ options enabled.

  Terminal ‘SW2’ is a fully customizable output except for the ‘analogue’ and ‘interlock’ options (it cannot be used in pair with ‘SW1’) while the ‘relay use’ option is active and cannot be deactivated.

- **Two-point light module with switch**

  Terminals “IN1” and “IN2” are “technological” zones, normally open, they belong to all partitions and they have all other programming options at default.

  Terminals ‘SW1’ and ‘SW2’ are outputs with the options ‘relay use’ and ‘home automation’ enabled.

- **Button module with one light point**

  Terminal “IN1” is a “technological” zone, normally open, associated with all partitions and with all other programming options at default.

  Terminal “IN2” is fully customizable, as in the case of a home-automation module.

Terminal ‘SW1’ is an output with the ‘relay use’, ‘home automation’ options enabled.

Terminal ‘SW2’ is a fully customizable output except for the ‘analogue’ and ‘inter-lock’ options (it cannot be used in pair with ‘SW1’) while the ‘relay use’ option is active and cannot be deactivated.

- **Button module with two light points**

  Terminals “IN1” and “IN2” are “technological” zones, normally open, they belong to all partitions and they have all other programming options at default.

  Terminals ‘SW1’ and ‘SW2’ are outputs with the options ‘relay use’ and ‘home automation’ enabled.

4. General information

4.1 About this manual

Manual code: DCMIINE0A2FLEX2R2I8E

Revision: 120

4.2 Manufacturer's details

Manufacturer: Inim Electronics S.r.l.
Production plant: Centobuchi, via Dei Lavoratori 10
63076 Monteprandone (AP), Italy
Tel.: +39 0735 705007
Fax: +39 0735 734912
E-mail info@inim.it
Web: www.inim.it

The persons authorized by the manufacturer to repair or replace the parts of this system have authorization to work only on devices marketed under the brand Inim Electronics.

4.3 Warranty

Inim Electronics S.r.l.. (Seller, Our, Us) warrants the original purchaser that this product shall be free from defects in materials and workmanship under normal use for a period of 24 months.

As Inim Electronics does not install this product directly, and due to the possibility that it may be used with other equipment not approved by Us;Inim Electronics does not warrant against loss of quality, degradation of performance of this product or actual damage that results from the use of products, parts or other replaceable items (such as consumables) that are neither made nor recommended by Inim Electronics. Seller obligation and liability under this warranty is expressly limited to repairing or replacing, at Seller's option, any product not meeting the specifications. In no event shall Inim Electronics be liable to the purchaser or any other person for any loss or damage whether direct of indirect or consequential or incidental, including without limitation, any damages for lost profits, stolen goods, or claims by any other party caused by defective products or otherwise arising from the incorrect or otherwise improper installation or use of this product.

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover damage arising from improper maintenance or negligence, damage caused by fire, flood, wind or lightning, vandalism, fair wear and tear.

Inim Electronics S.r.l. shall, at its option, repair or replace any defective products. Improper use, that is, use for purposes other than those mentioned in this manual will void the warranty. Contact Our authorized dealer, or visit our website for further information regarding this warranty.

4.4 Limited warranty

Inim Electronics S.r.l. shall not be liable to the purchaser or any other person for damage arising from improper storage, handling or use of this product.

Installation of this Product must be carried out by qualified persons appointed by Inim Electronics. Installation of this Product must be carried out in accordance with Our instructions in the product manual.

4.5 Documents for the users

Declarations of Performance, Declarations of Conformity and Certificates concerning to Inim Electronics S.r.l. products may be downloaded free of charge from the web address www.inim.it, getting access to Extended Access and then selecting "Certifications" or requested to the e-mail address info@inim.it or requested by ordinary mail to the address shown in this document.

Manuals may be downloaded free of charge from the web address www.inim.it, getting access to the reserved area, after the login, and then to the section of each product.

4.6 Disposal of the product

Informative notice regarding the disposal of electrical and electronic equipment (applicable in countries with differentiated waste collection systems)

The crossed-out bin symbol on the equipment or on its packaging indicates that the product must be disposed of correctly at the end of its working life and should never be disposed of together with general household waste. The user, therefore, must take the equipment that has reached the end of its working life to the appropriate civic amenities site designated to the differentiated collection of electrical and electronic waste. As an alternative to the autonomous-management of electrical and electronic waste, you can hand over the equipment you wish to dispose of to a dealer when purchasing new equipment of the same type. You are also entitled to convey for disposal small electronic-waste products with dimensions of less than 25cm to the premises of electronic retail outlets with sales areas of at least 400m2, free of charge and without any obligation to buy. Appropriate differentiated waste collection for the subsequent recycling of the discarded equipment, its treatment and its environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and favours the re-use and/or recycling of the materials it is made of.

Evolving Protection

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