

FVE skylight user manual

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1. Important information

Read the entire instruction before using the FVE skylight.

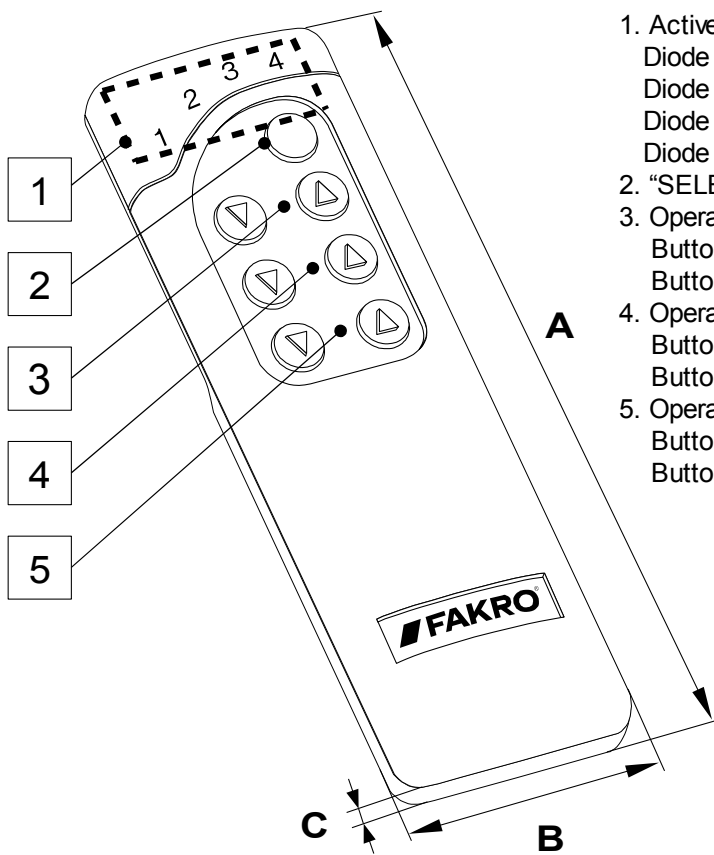
- Make sure that insect screen is installed prior to operation of the skylight.
 - FVE skylight and accessories (when connected) are factory set to operate in AUTOMATIC mode. It means that one press of „open” button will open the skylight to it's maximum. When „close” button is pressed, the skylight will close totally. In order to stop the skylight in desired position, you need to press one time the „close” button during opening and „open” button during closing process of the skylight.
 - Remote control ZRC US has been designed for the use with FAKRO products. Use of this unit with other equipment may cause malfunction.
 - The batteries provided are AA, 1.5V batteries.
 - After removing the packaging, make sure the equipment has not been damaged.
 - Before connecting the equipment, make sure that the supply voltage corresponds to the appliance voltage indicated on the “technical data” label on the equipment.
 - This equipment must be only used for the purpose which it has been built for . The manufacturer cannot be considered liable on any damages or problems arising from improper use.
 - The installation has to be carried out in accordance with the instructions of the manufacturer. The non observance of these instructions could compromise safety.
 - The power must be switched off when connecting the skylight, installing accessories, and whenever the cover of the electric elements is removed,
 - Call for a service when the product does not work properly,
 - Make sure children will not be able to play with the skylight (keep the remote away from children),
 - Switch off the power to the system before you have your hand or body out of the skylight. The motor automatically closes the skylight when any of the rain sensors get wet.
 - To clean the skylight or perform the maintenance always switch of the power to the system.
- Disposal of used batteries shall conform with relevant environmental regulations.

2. QUICK START UP - Description of the remote control ZRC US

The ZRC US (remote control) enables remote control of electric products compatible with the “infrared” system like FVE skylight. The ZRC US controller can operate up to 4 skylights separately. The single button in the upper section (No. 2 – *Figure 1*) is used for selection of one of the four channels (No. 1 – *Figure 1*) with which the devices can be assigned. The fifth channel is signaled by all 4 LEDs. It allows to operate all of the devices at the same time.

The ZRC US controller is equipped with a “infra red” transmitter. In *Figure 1*, there is presented a general view of the ZRC US remote control with description of buttons and signaling numbers.

Note !!! Every FVE skylight is delivered with one ZRC US remote control.



1. Active channel signaling:
 - Diode indicating preselection of channel #1 to operate skylight #1
 - Diode indicating preselection of channel #2 to operate skylight #2
 - Diode indicating preselection of channel #3 to operate skylight #3
 - Diode indicating preselection of channel #4 to operate skylight #4
2. “SELECT” button for changing channels.
3. Operating buttons pair No. I
 - Button „open skylight”
 - Button „close skylight”
4. Operating buttons pair No. II
 - Button „open accessory 1”
 - Button „close accessory 1”
5. Operating buttons pair No. III
 - Button „open accessory 2”
 - Button „close accessory 2”

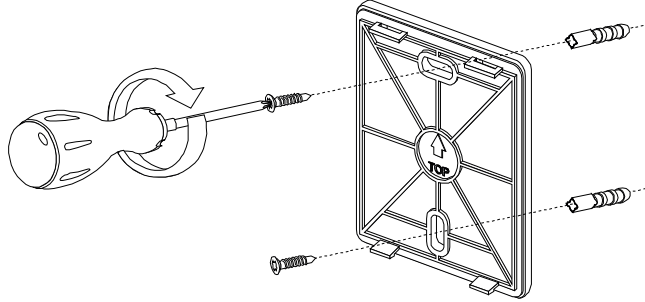
Dimension	ZRC US
A	157 [mm]
B	38 [mm]
C	19 [mm]

Figure 1: ZRC US remote control

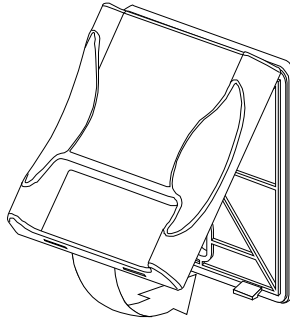
3. QUICK START UP - Installation of ZRC US controller

The holder of ZRC US controller should be attached to the wall or other permanent building element by means of two screws driven into cylindrical plugs inserted into openings drilled in the wall.

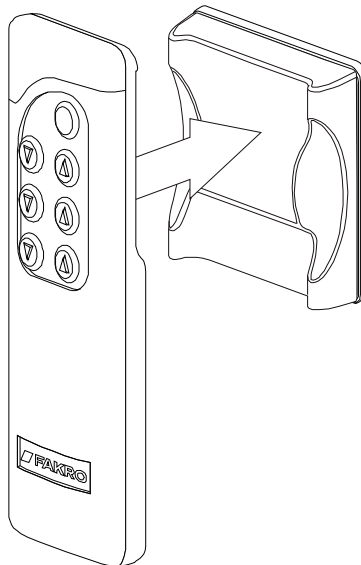
1. Screw the bottom section of the holder to the wall using the included screws which are driven into plugs inserted into the drilled openings.



2. Mount the upper part of the holder

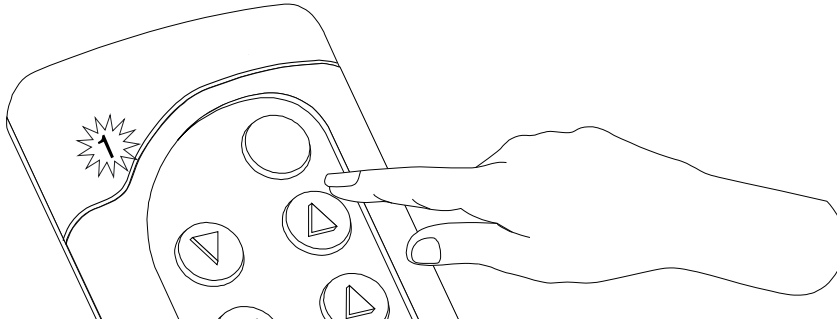


3. Place ZRC US controller on the holder.



4. QUICK START UP - Operation of single skylight with ZRC US remote control

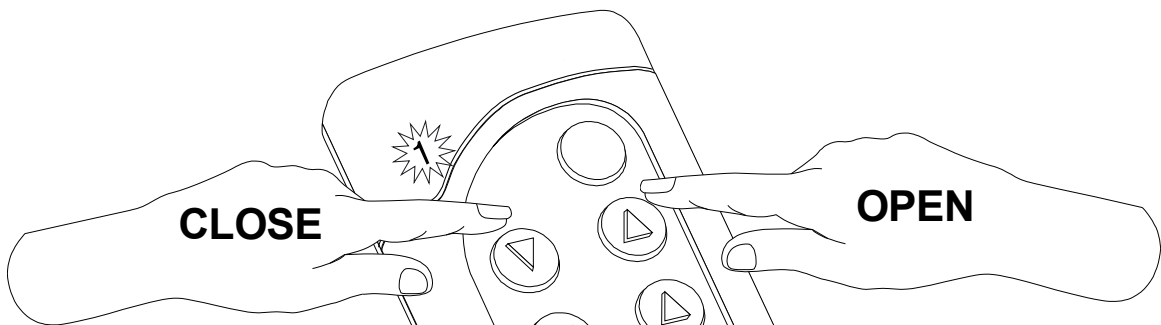
ZRC US remote control is factory set to operate just one FVE skylight and one internal blind. Both are operated using channel #1 of the remote.



To open/close the skylight, make sure channel #1 is selected. To check the channel selection, press control unit preselection button. First red diode on the left should light on.

If any other diode lights on, keep pressing preselection button, until the first diode on left will light on.

To open or close the skylight, point the remote control towards the skylight and press the „▲” button to open and „▼” button to close the skylight (first pair of the buttons on the remote control). The buttons in row two and three operate internal and external accessories respectively.



If the skylight does not react to the commands sent by remote from channel 1 (the mosquito screen is placed properly and the skylights is connected to the power source), please check other channels. By pressing the „SELECT” button change the channel to no 2 and press skylight „open” button. If the skylight does not work on channel 2, repeat the step for channels 3 and 4.

If the skylight still does not react, the remote needs to be reprogrammed. To reprogram the remote please go to chapter „Multiple skylights operation”.

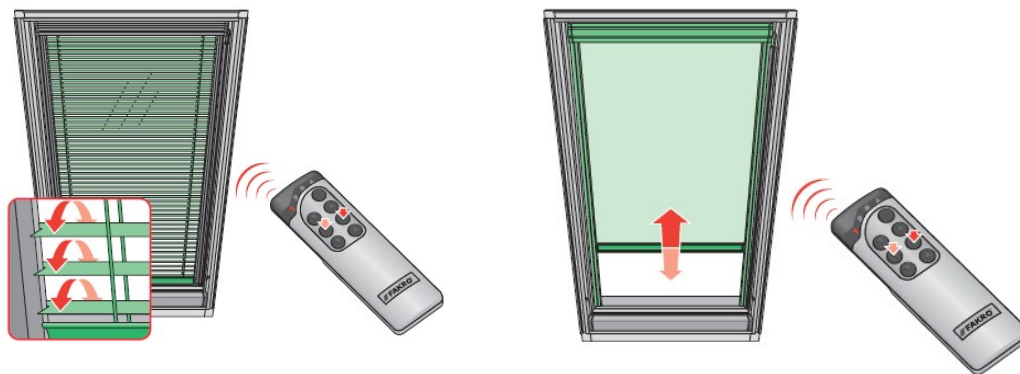
5. QUICK START UP - Internal blind operation of the FVE skylight with ZRC US remote control

In order to ensure smooth blind operation, the blind must be properly installed and connected to the power source, according to the installation instruction delivered with the blind.

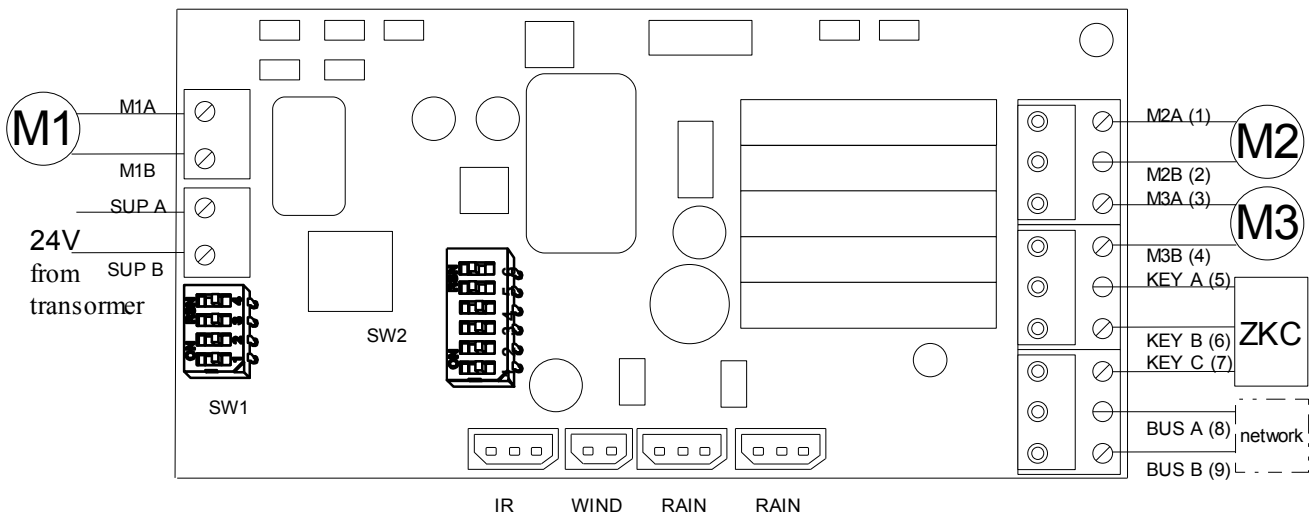
In order to operate the internal blind (black-out or venetian blind), make sure the channel #1 of the remote is selected.

To open or close the blind, point the remote control towards the skylight and using second pair of the buttons, press the „open” button to open and „close” button to close the blind.

Please, remember the blinds will also work in AUTOMATIC mode.



6. ADVANCED – Circuit board wiring diagram



Outputs: M1 – Skylight's motor, M2 – internal blind motor, M3 – external blind motor (recommended also for SJP-EV venetian blind).

Inputs: 24V – power input of 24VDC, ZKC-US – control keyboard, NETWORK – network connection of multiple skylights

SW1 – bits panel

SW2 – bits panel

Power cable consists of 3 wires: brown, blue and yellow/green. The yellow/green color wire is grounding. The other two wires can be connected to power source in either way.

7. ADVANCED - Multiple skylight operation (use of channels # 2, # 3,# 4)

ZRC Remote infrared control unit allows to control separately up to 4 skylights with installed blinds. As mentioned in chapter „Operation of the FVE skylight with ZRC US remote control”, ZRC US remote control is delivered with a skylight and is programmed to operate only the skylight on channel #1. In order to operate additional skylights with the same remote, it is required to program (channel #2, #3,#4 respectively) the ZRC US remote control and the FVE skylights we want to add. The number of ZRC US remote control channels needed to be programmed equals the number of extra skylights to be operated with the one ZRC US remote control.

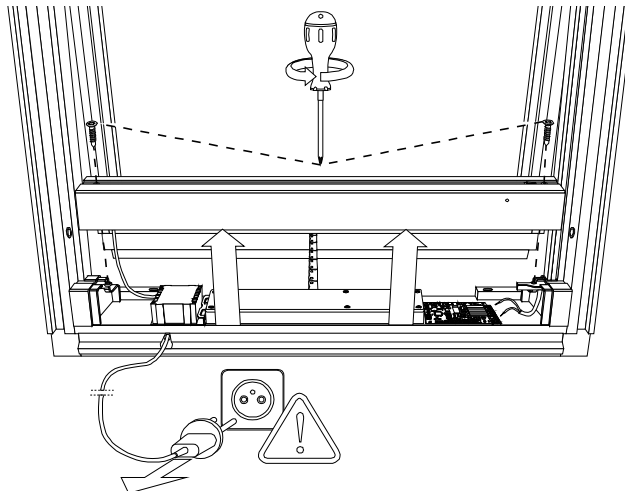
If you want to add just one extra skylight you need to program one extra channel (#2 on the remote). If two extra FVE skylights are to be added, channels #2 and #3 need to be programmed. In case of 4 skylights, all four channels must be programmed, as each channel works with one skylight only.

Once all of the additional (max three) skylights are installed and working (each skylight to be checked with the ZRC US remote control, the skylights have been delivered with), as a first step, you have to set up for the new skylight(s) an individual „address(es)”.

!Important!: Below programming procedure refers also to the situation when old remote control or a new one needs to be programmed to operate the FVE skylight on channel#1.

To set the address of each skylight(s) you need to (does not refer to FVE skylight, you use the ZRC US remote control from. No programming required here, as the remote is factory programmed to work with that skylight on channel #1):

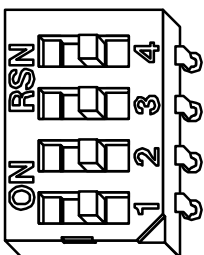
1. Switch off the power supply of the skylight(s)
2. Remove the mosquito screen(s) and cover(s) at the bottom of the new skylight(s)



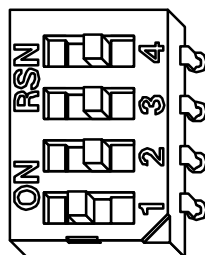
3. Set the proper combination of the bits panel (SW1) on circuit board on each skylight(s) individually.

Below pictures show required configuration of bits on each of the FVE skylight(s) to individually operate with one remote control unit. All of the FVE skylights have factory settings as presented in Skylight #1. Settings of Skylight #1, remains unchanged (presented here for reference purposes only). The bits panel (SW1) is located in the left part of the circuit board of the skylight (see point 6 - “Circuit board wiring diagram”).

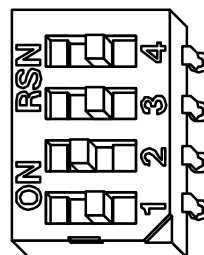
Skylight #1



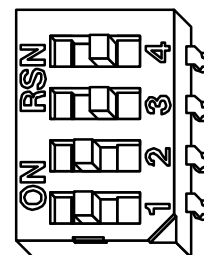
Skylight #2



Skylight #3

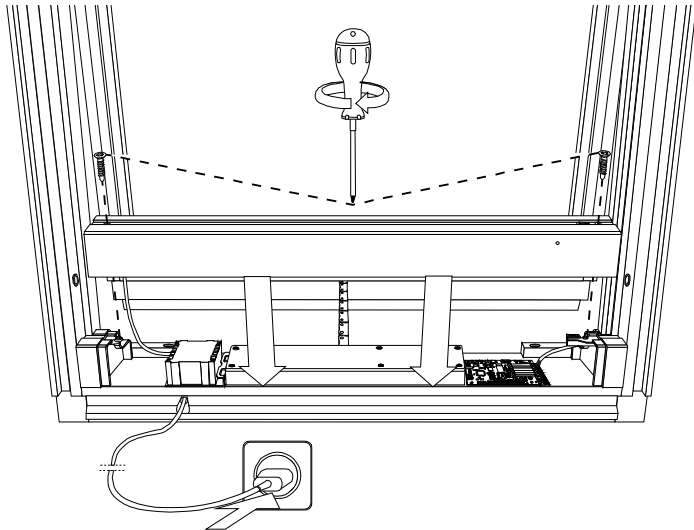


Skylight #4



Bits configuration	
Skylight #1	Standard factory settings. Bit 1 and 2 in OFF position
Skylight #2	Bit 1 goes to ON position
Skylight #3	Bit 2 goes to ON position
Skylight #4	Bit 1 and 2 go to ON positions

– 4. After changing the bits configurations on required skylight(s) No 2, No 3 and No 4 put back the cover(s) and mosquito screen(s).

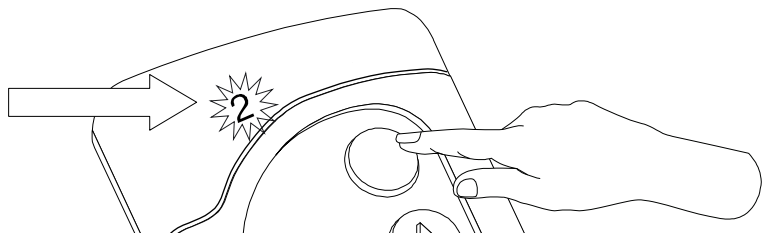


5. Restore the power supply of the skylight(s)

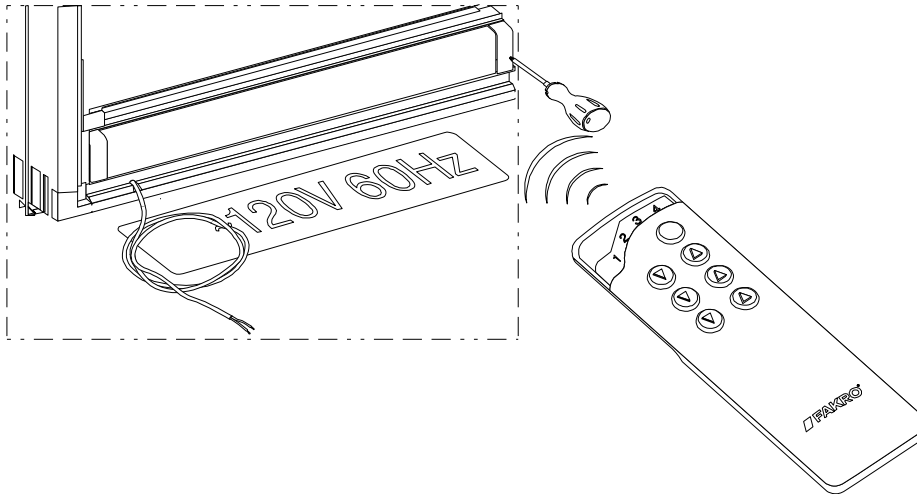
6. Assign the remote to each of the new skylight(s):

6.1 Pressing the preselection button of the remote, choose the right channel corresponding to the given number of the skylight (red light flashing)

Diode indicating channel #2 to operate skylight #2

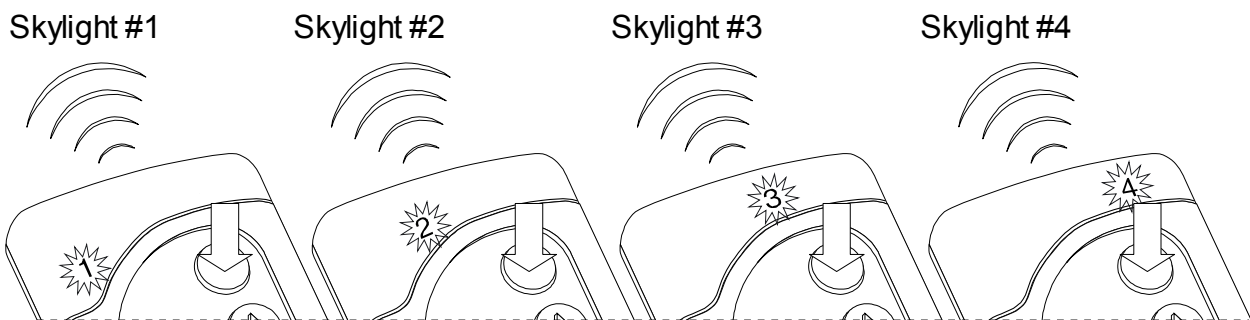


6.2 Using small screwdriver press and hold the programming switch through the hole in the skylight's operator side plastic. Simultaneously, point the remote towards the skylight and press one of the skylight operating buttons (▲▼). Once it's done, the remote control code is stored in the skylights control unit memory.



6.3 Repeat the steps 6.1-6.2 for each of the added skylights. Please remember to select the right channel number on the remote.

7. After the programming is done correctly, you will be able to operate up to four skylights with the same remote, by changing the channel on the remote. Operation of the internal blinds installed on each of the FVE skylights is always done by the second set of buttons on the ZRC US remote.

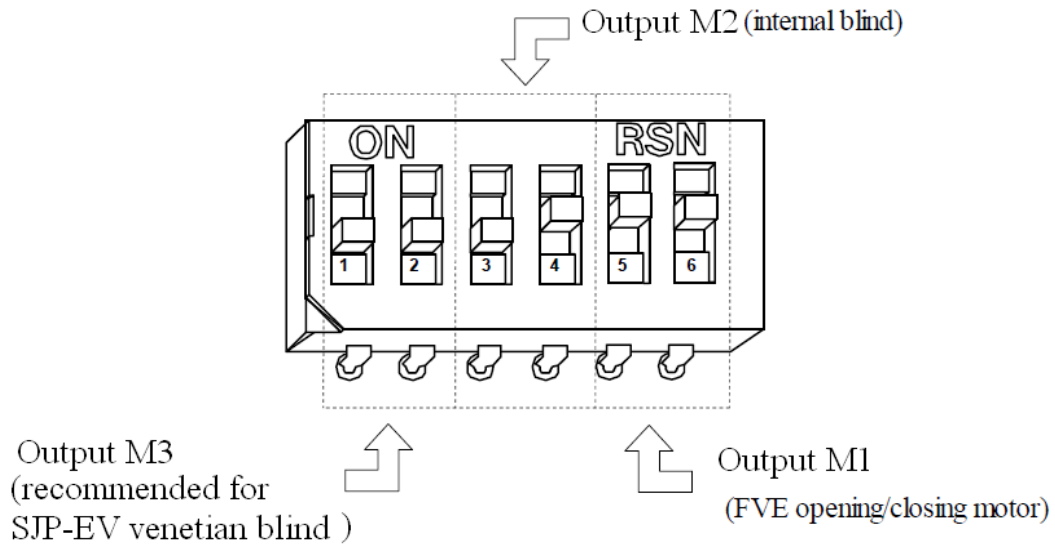


8. ADVANCED - AUTOMATIC/MANUAL bits configuration for skylight and accessories operation.

Each FVE skylight (output M1) and accessory if installed (output M2) are factory set to work in AUTOMATIC mode. Accessory (output M3) is set to work in MANUAL mode.

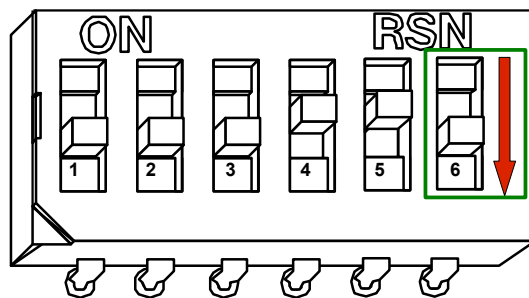
Depending on the individual preferences, there might be a need for changing the outputs configuration on skylight's circuit board. Panel outputs can work depending on the configuration in AUTOMATIC (once the button is pressed, the motor runs the whole cycle of opening or closing) or MANUAL mode (motor works only when a button is pressed).

Each FVE skylight has standard factory bits setting (bits panel SW 2) as follows (to see the bits, disconnect the skylight from the power source, remove the mosquito screen and the bottom cover):

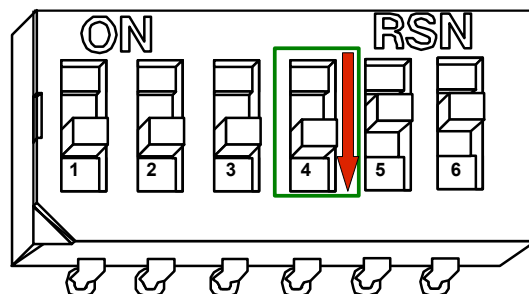


Above drawing shows bits configuration (bits panel SW2) for all outputs. Output M1 and M2 work in AUTOMATIC mode (BIT 4 and 6 are in ON position). Such bits configuration, depicts standard setting for operation skylights motor (M1), and internal blind (M2).

In order to change the skylights opening from AUTOMATIC to MANUAL mode, change the position of BIT 6 to OFF position, however we do not recommend this option for skylights operation.



In order to change the internal blind operation (output M2) mode from AUTOMATIC to MANUAL mode, change the position of BIT 4 to OFF position. MANUAL mode is recommended for electric venetian blinds (SJP-EV), as it allows to set the slats inclination more precisely. As standar output M3 is set in MANUAL mode, so you can also use this output to connect the venetian blind to the circuit board.



Explanation of all possible bits configuration on bits panel SW2:*(Setting the configuration of the operation by changing the bits positions.)*

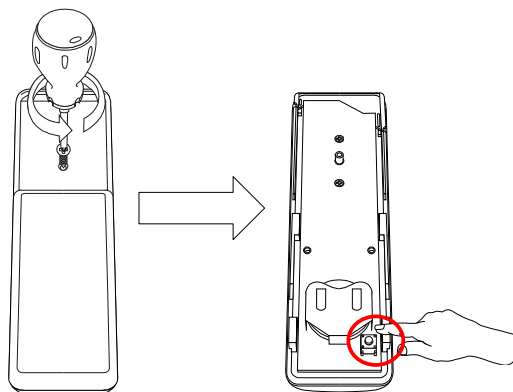
Bit number		Bit position		
		ON	OFF	Terminal nr
OUTPUT 1	BIT 5	Activated rain and wind sensors for channel #1 – closes the skylight	Deactivated rain and wind sensors for channel #1	M1
	BIT 6	Automatic operation for channel #1 Full opening or closing after single button press No. 1	Manual operation for channel #1 Opening/ closing process activated when button is pressed	
OUTPUT 2	BIT 3	Activated rain and wind sensors for channel #2	Deactivated rain and wind sensors for channel #3	M2
	BIT 4	Automatic operation for channel #2 Full opening or closing after single button press	Manual operation for channel #2 Opening/ closing process activated when button is pressed	
OUTPUT 3	BIT 1	Activated rain and wind sensors for channel #3	Deactivated rain and wind sensors for channel #3	M3
	BIT 2	Automatic operation for channel #3 Full opening or closing after single button press	Manual operation for channel #3 Opening/ closing process activated when button is pressed	

9. ADVANCED - Change of the security code (optional)

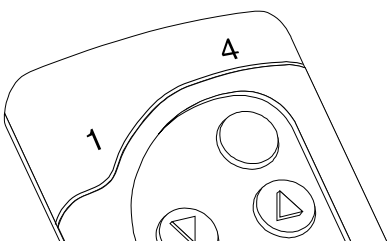
To obtain maximum security it is recommended to frequently change the security code. Setting your personal code, will give an assurance that the skylight(s) can be operated only from your own remote control unit. To change the security code it is necessary to uncover the back of the remote control exposing programming button „P” below the battery and follow the steps.

Important: After the security code change, YOU MUST repeat programming procedure from Chapter #7 with every skylight that will be operated with the remote.

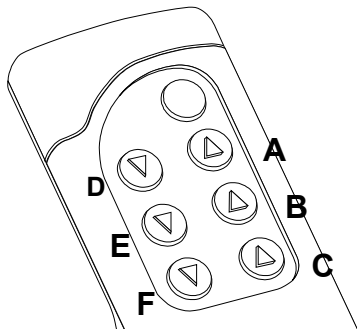
1. Remove the back cover of the remote and press the programming button “P”



2. Two external diodes turn on. From that moment you have 10 seconds to change the code.



3. Choose any combination of the security code by pressing any of the buttons from A to F on the remote.



4. Default the security code is set in following combination: 0-0-0-0-0-0.

By pressing any of the A-F remote buttons you change the status from 0 to 1. If you press A, C, E buttons the code will change into 1-0-1-0-1-0.

Your new personal code (if you press A button write 1, if you do not press B button write 0 under it. Do the same for the remaining letters):

A	B	C	D	E	F

5. Accept the code by pressing programming button „P” again. Two internal diodes will light on, indicating that the code is now stored.
6. Replace the back cover of the remote.
7. Using small screwdriver press and hold the programming switch through the hole in the side plastic of the skylight's operator cover. Simultaneously, point the remote towards the skylight and press one of the skylight operating buttons (▲▼). Once it's done, the remote control security code is stored in the skylights control unit memory.

Important: After the security code change, repeat step No 7 with every skylight that will be operated with the remote.

10. Manual emergency closing of the skylight.

In case of power failure, the skylight (if opened), can be closed manually. To close the skylight, remove the mosquito screen, and using the screwdriver unscrew the screw locking the motor chain in the chain socket. Holding the sash, align the chain along the cover, and close the window.

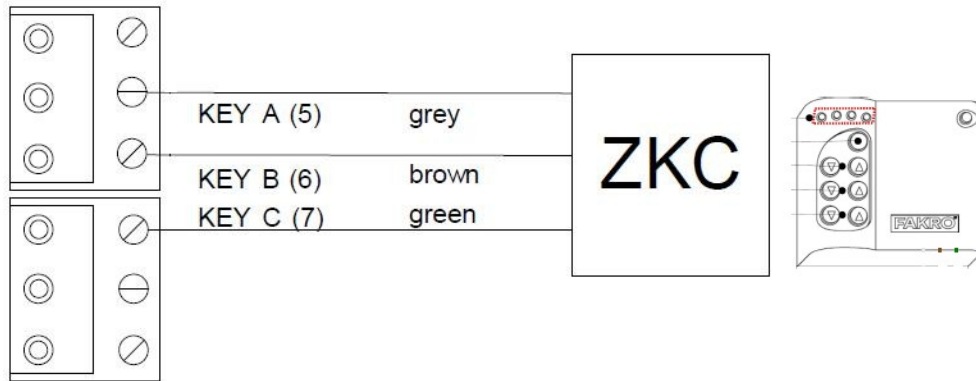
Important: This is only emergency solution. Do not leave the house unattended, as the skylight is possible to be opened from outside. As soon as the power is restored, put the chain to it's original position as well as the mosquito screen. As the power can be restored at any time during unlocking the chain, and the closing procedure of the skylight can be activated by rain sensors (when raining), to avoid personal injuries make sure the skylight is disconnected from the power main.

11. Rain sensors

Rain sensors are pre-installed at the factory. The rain sensors ensure that the skylight automatically closes if it rains through the skylight. Do not paint or varnish the rain sensors. When the skylight is wide open, it takes about 30 seconds before the skylight is completely closed. Therefore, during heavy rain, water may enter the room before the skylight is closed fully. Please pay particular attention if furniture is placed below the skylight. The rain sensors does not react to very fine/weak rain, fog or dew. Dirt on the rain sensors may cause operating problems. Therefore, it is recommended to clean the rain sensor with a soft damp cloth when needed. Remember to switch off the power before cleaning! If the skylight is fully closed due to rain and you will open it afterwards (during the closing initiated by the rain sensor, you can not stop the skylight from closing), the rain sensors will remain inactive for next 10 minutes. During that time the skylight can be closed only with the use of the ZRC US remote control.

12. Connection of the ZKC US controller.

As an option each of the FVE skylight can be additionally operated by ZKC US keyboard. In order to connect the ZKC US keyboard to a FVE skylight, you must switch off the power, remove the mosquito screen and the bottom cover. Wiring requires also to drill a hole in bottom part of the frame to feed through the cable, so it is recommended to plan the use of ZKC US keyboard before any plastering will take place. Below drawing shows wiring diagram between the FVE circuit boards and ZKC US keyboard. ZKC US keyboard works in similar way as ZRC US remote control, but does not require any programming.

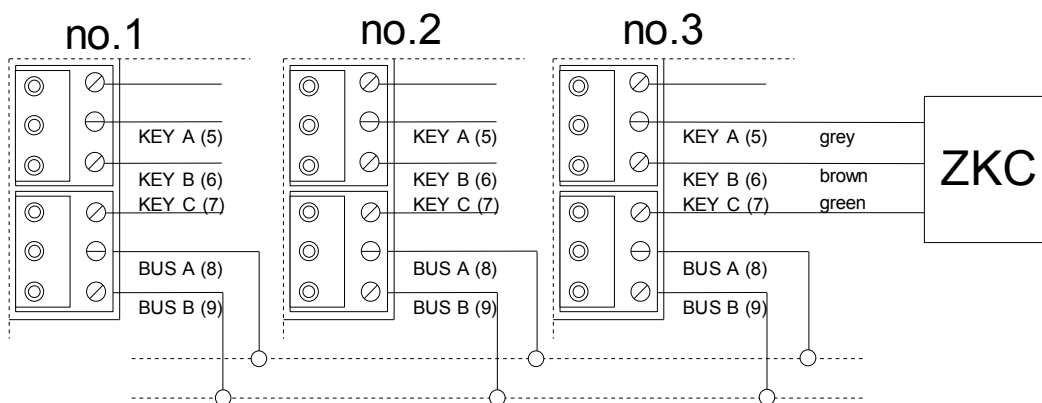


For detailed information how to install and operate the ZKC US please refer to ZKC US manual delivered with the controller.

13. Network connection of the FVE skylights

In situation when you have few FVE skylights installed in a block of skylights, you can connect them into a network to make the operation easier and to be able to operate the skylights with one remote.

In order to connect the skylights in a network, you need to connect the BUS A and BUS B sockets of each skylight together. To feed the cable inside of the skylight, drilling in the skylight's frame is required.



Once the network is established, it is necessary to set on which channel of the remote control given skylight will be operated. In order to do that, you must change the bits configuration on the circuit board of each skylight (see chapter „Multiple skylight operation”).

For ease of use, it is also recommended to use one ZKC US controller connected to one of the FVE skylights.

14. Trouble shooting

If you are facing any problems with the operation of FVE skylight, please visit our website for your country in service tab where you will find service tips. If you still will not be able to find the proper information on the website, feel free to contact our sales office in your country.