

VELUX®

KLF 100



VELUX, DK-2970 Hørsholm
www.velux.com



VAS 451719-0806

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Important information

Read instructions for interface KLF 100 carefully before installing and operating.

Please keep instructions for future reference and hand them over to any new user.


Safety

- If repair or adjustment work is needed, disconnect from mains supply and ensure that it cannot be reconnected unintentionally.
- The product and the mains cable are for indoor use only.
- The product must not be covered (maximum ambient temperature: 40°C).
- Installation in rooms with a high level of humidity must comply with relevant regulations (contact a qualified electrician if necessary).
- The product must not be put into operation until it has been fitted according to the instructions.

Function

- Check that the interface can operate the relevant products from the chosen position before final fixing.
- If a window has been opened manually, it cannot be activated via the interface.
- In case of snow and/or ice, the automatic operation of certain products may be blocked.
- The entries in the interface draw 5-10 mA at approx 10 V d.c. and must be connected to potential free contacts.
- Avoid frequent activation of the motors in the system from automatic systems (eg IBI systems) as this will reduce the service life of the motors.
- A Secured Configuration Device, SCD, may be integrated in the system. If installed, the security device must be activated prior to configuration of the interface.
- The interface can be used as a repeater that extends the operation range of remote controls in the system.

Product

- The interface is used when io-homecontrol® products are to be controlled with external control devices that are not io-homecontrol® compatible.
- Electrical products must be disposed of in conformity with national regulations for electronic waste and not with usual household waste.
- The packaging can be disposed of with usual household waste.
- This product is based on two-way RF (radio frequency) communication and marked with the symbol . This symbol can be found on the data label.
- Radio frequency band: 868 MHz.
- Radio frequency range: 300 m free field. Dependent on building construction, the indoor range is approx 30 m.

Maintenance and service

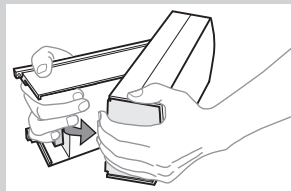
- Disconnect from mains supply before carrying out any maintenance or service work to the window and products connected to it and ensure that it cannot be reconnected unintentionally during this time.
- If installed and used correctly, the interface normally does not require maintenance.
- If mains cable is damaged, it must be replaced by qualified personnel in accordance with national regulations.
- If you have any technical questions, please contact VELUX.



io-homecontrol® provides advanced and secure radio technology that is easy to install. io-homecontrol® labelled products communicate with each other, improving comfort, security and energy savings.

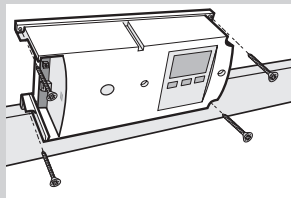
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- 1 Remove cover.

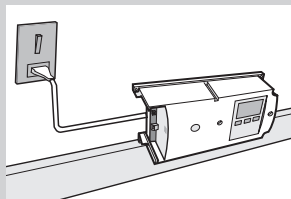


- 2 Decide position of interface.

Note: Check that the interface can operate the relevant products from the chosen position before final fixing.



- 3 Connect interface to mains supply. Do not replace cover until the entire installation process is completed.



The display appears automatically when the mains power is switched on. After a short time menu item **A** is displayed.

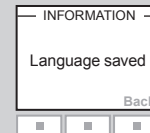


A Language

- 1 Press **▣** ▼ to highlight your language. Press **▣** "Enter" to confirm your choice.



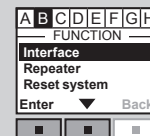
- 2 The display shows that the language has been saved. After a short time menu item **B** is displayed.



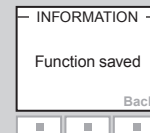
B Function

The interface is used when io-homecontrol® products are to be controlled with external control devices that are not io-homecontrol® compatible, eg intelligent building installations, sensors and standard wall switches.

- 1 Press **▣** ▼ to highlight "Interface". Press **▣** "Enter" to confirm your choice.



- 2 The display shows that the function has been saved. After a short time menu item **C** is displayed.



Note: "Repeater" is used for extending the operation range of remote controls in the system, see section Function as repeater.

"Reset system" is used for deleting all settings and resetting the interface to its factory setting.

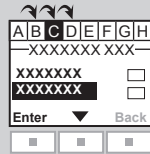
Menu items **A** to **H**

These instructions refer to the menu items **A** to **H**. These menu items are shown automatically and in alphabetical order in the display, as the interface is installed.

In many cases the interface factory settings are sufficient and the interface can be used without further settings being programmed. When using the factory settings, first confirm the settings in menu items **C**, **D**, **E**, **F** and **G** (described on pages 13-17).

Then continue in menu item **H**, submenu "Register products" (described on pages 18-21) and submenu "Select products" (described on pages 22-23). It is not necessary to go through the other submenus in menu item **H**.

The interface is now ready for use.



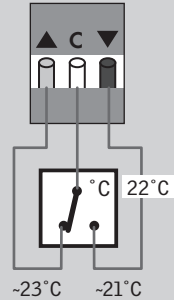
Thermostatic control of a VELUX roof window by a non io-homecontrol® compatible thermostat

A thermostat can be used to control automatic opening and closing of window(s) depending on the temperature. A typical thermostat works by means of a potential free change-over contact that switches between two positions depending on the ambient temperature.

The illustration shows how to connect the potential free change-over contact to the interface.

A thermostat set to 22°C will typically change position (ie open the window(s)) when the temperature rises above 23°C, and switch back (ie close the window(s)) when the temperature again has fallen below 21°C.

The window(s) can be operated with the remote control at any time.



Interface function and connection

The interface is used when io-homecontrol® products are to be controlled by external control devices that are not io-homecontrol® compatible.

Individual control of a product or a product group requires one interface per product or product group.

The entries in the interface must be connected to control devices with potential free contacts. When the potential free contact is activated, the interface sends an RF command to the io-homecontrol® products to be operated. It is possible to operate a single product or a group of products.

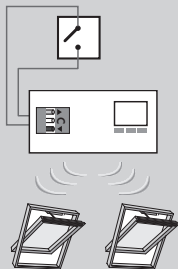
Function of entries

OPEN/UP/ON is controlled by connecting C and ▲ (2 core cable required).

CLOSE/DOWN/OFF is controlled by connecting C and ▼ (2 core cable required).

STOP is controlled by connecting C with both ▲ and ▼ (3 core cable required).

Note: Alternatively, a single contact can control both ▲, ▼ and STOP, see section Signal mode.

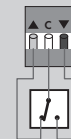
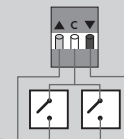
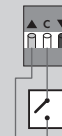


Connection to entries

A single contact can be used for running products either up or down.

A set of two contacts can be used for running products both up and down with variable stops.

A change-over contact can also be used for running products both up and down but stops are not possible.



Contact requirements

Potential free contacts with a maximum resistance of 100 Ω can be used. A current of 5-10 mA at approx 10 V d.c. runs through the contact.

Contacts with a pulse signal can also be used if the duration of the pulse is longer than 100 ms.

Note: The operation of the interface can only be stopped by switching off the mains power.

C Set channel

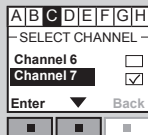
The io-homecontrol® system can send and receive commands on eight channels.

- 0 Personal safety
- 1 Product safety
- 2 Operation - high
- 3 Operation - normal
- 4 Automatic - 1
- 5 Automatic - 2
- 6 Automatic - 3
- 7 Automatic - 4

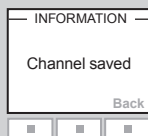
A VELUX two-way remote control sends on channel 3. Channels 4 to 7 are intended for automatic functions.

The interface can send on one channel only and it is recommended to choose channel 7.

- 1 Press to choose channel.
Press "Enter" to confirm your choice.



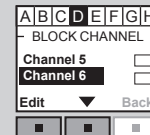
- 2 The display shows that the chosen channel has been saved.
After a short time menu item **D** is displayed.



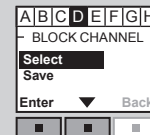
D Block channel

You can block commands from other interfaces or remote controls for 30 minutes from the time of sending the command from them. Each channel (3-7) must be blocked individually. In this way you can give some commands priority to others. See the example on page 15.

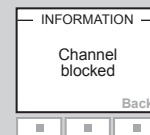
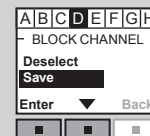
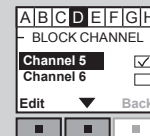
- 1 Press to highlight the channel to be blocked.
Press "Edit" to confirm that the channel in question is to be edited.
- 2 Press to highlight "Select".
Press "Enter" to confirm your choice.
- 3 The blocked channel has been ticked. Repeat items 1-2 to block additional channels if required.
Press "Edit" to undo or save the settings.



- 4 Press to highlight "Save".
Press "Enter" to confirm your choice.



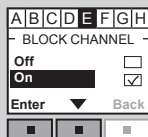
- 5 The display shows that the channel(s) has/have been blocked.
After a short time menu item **E** is displayed.



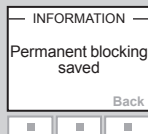
E Permanent blocking

The interface can keep blocking the chosen channels for longer than 30 minutes. In this way, both external control devices with a pulse signal and ordinary control devices such as a standard wall switch can be used for blocking other commands.

- 1 Press to highlight "On".
Press "Enter" to confirm your choice.

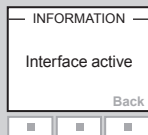


- 2 The display shows that the function has been saved.
After a short time menu item **F** is displayed.



Note: The blocking can be cancelled by simultaneously activating entry and entry from the external control device.

The blocking can also be cancelled temporarily by pressing "Menu" on the display of the interface. The next time the entries are activated, the chosen channels are blocked again.



Example of blocking channels

Blocking is used for blocking the commands of other control devices. For instance you may want to close the windows when leaving the house. In this case, you can use a key switch that transmits a signal when you turn the key.

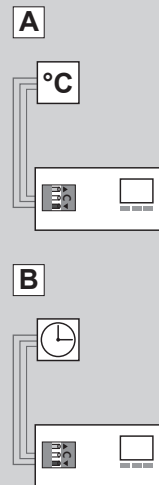
If you set the interface to send on channel 7 and permanently block all other channels (4-6), the windows will be closed when you lock the door.

Note: Many alarm systems with integrated locking signal in the keypad can be used for activating the entries in the interface and therefore for blocking the operation of the io-homecontrol® products in the system.

More interfaces in the same system

If you have more control devices, each control device must have its own interface. For instance if you want to regulate the temperature in a room by opening and closing the windows, you can use a thermostat **A**. (See the example on page 9 where the thermostat interface is set to transmit on channel 7).

Additionally, it can therefore often be advisable that this type of automatic installation does not run continuously, but is limited eg by a timer **B**. Such an external timer, connected to another interface, can block commands from the thermostat in certain periods, eg from 8:00 to 17:00 hours. In this period, the house is empty and the windows should stay closed. To ensure this, the timer interface must be set to transmit a signal during this time and this signal must be transmitted on a different channel than that of the thermostat interface, eg channel 6. During this time the transmitting channel 7 of the timer interface is blocked permanently.



Setting of position

F G Positions UP and DOWN

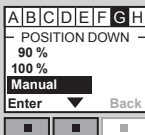
Setting of position is used to run io-homecontrol® products to a position between 0% and 100% at intervals of 10%. As default (factory setting) the products will travel to maximum top or bottom position.

Position table

Entry	▲	▼
Default	0%	100%
Roller shutter	Up	Down
Awning blind	Up	Down
Blind	Up	Down
Venetian blind	Up	Down
Light	On	Off
Window	Open	Closed

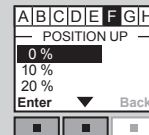
The position indication for VELUX products corresponds to the display information on a VELUX two-way remote control. This applies to all product types except Window and Light. You are therefore recommended to use the position table when setting the position. Always check the position settings when the installation of the interface has been completed.

Note: You can also choose manual operation. In this case, the products will only be activated as long as the external control device is active.

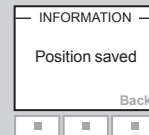


F Position UP

- 1 Press to choose the required position. Press "Enter" to confirm your choice.

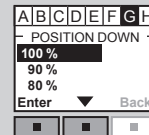


- 2 The display shows that the position has been saved. After a short time menu item **G** is displayed.



G Position DOWN

- 1 Press to choose the required position. Press "Enter" to confirm your choice.



- 2 The display shows that the position has been saved. After a short time menu item **H** is displayed.



Register products

io-homecontrol® products must be registered in the interface to be operational.


The interface can register:

- products from two-way control units (pages 18-19)
- products from one-way control units (page 20)
- directly from an io-homecontrol® product (page 21)

The registration takes place in 2 steps.

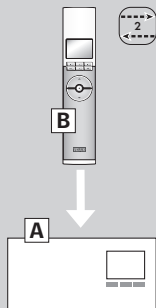
Step 2 must be completed within two minutes after implementing step 1, so please read steps 1-2 before proceeding.

Registration from a two-way remote control






If you have a VELUX two-way remote control (labelled with the symbol ) or other types of io-homecontrol® two-way control units, you can copy the registered products from the remote control to the interface.

Note: All products can be copied to the interface, but Groups, Zones and program functions cannot. The products to be operated through the interface are to be chosen in submenu "Select products".

The example shows how to copy from a VELUX two-way remote control **B** to interface **A**.






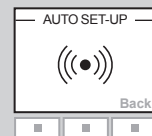
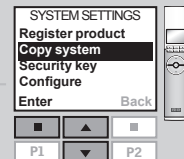
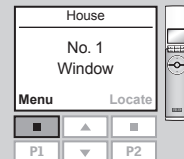
Step 1: Remote control B

- 1 Press  "Menu".
- 2 Scroll through the menus:
 → 
- 3 Press  to highlight "Copy system".
Press  "Enter" to confirm your choice.

Note: For other types of io-homecontrol® control units, please refer to the instructions provided with the product in question to execute step 1.


Step 2: Interface A

- 4 Menu item  is highlighted.
Press  to highlight "Register products".
Press  "Enter" to confirm your choice.
- 5 Automatic registration is running. Please wait. The registration can take up to one minute.
- 6 The display shows that the new product(s) has/have been registered.

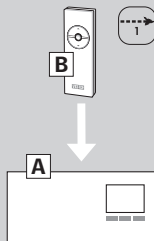


System settings

Registration from a one-way remote control

If you have products that are operated by one-way remote controls only (labelled with the symbol ) you can copy these products from the remote control to the interface.

The example shows how to register products from a VELUX one-way remote control **B** in the interface **A**.






Step 1: Remote control B

- 1 Activate the configuration mode by pressing the RESET button on the back of the remote control for at least 5 seconds.



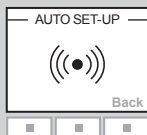
Note: For other types of io-homecontrol® control units, please refer to the instructions provided with the product in question to execute step 1.

Step 2: Interface A

- 2 Menu item **H** is highlighted.
Press   to highlight "Register products".
Press  "Enter" to confirm your choice.



- 3 Automatic registration is running. Please wait. The registration can take up to two minutes.



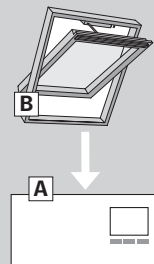
- 4 The display shows that the new product(s) has/have been registered.



Registration from a new io-homecontrol® product

New io-homecontrol® products can be registered directly in the interface.

The example shows how to prepare VELUX io-homecontrol® products for registration.






Step 1: Product B

- 1 Switch off mains power to the product for at least one minute and subsequently switch on again.

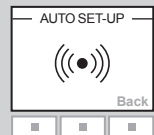
Note: For other types of io-homecontrol® products, please refer to the instructions provided with the product in question to execute step 1.

Step 2: Interface A

- 2 Menu item **H** is highlighted.
Press   to highlight "Register products".
Press  "Enter" to confirm your choice.



- 3 Automatic registration is running. Please wait. The registration can take up to two minutes.



- 4 The display shows that the new product(s) has/have been registered.



Select products

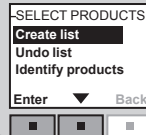
The products to be controlled via the interface must now be selected.

The example shows how to select products from a VELUX two-way remote control in which Rooms have been created.

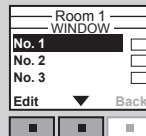
- 1 Press to highlight "Select products".
Press "Enter" to confirm your choice.



- 2 Press to highlight "Create list".
Press "Enter" to confirm your choice.



- 3 The display shows a list of all registered products.
Press to highlight the product to be edited.
Press "Edit" to confirm that the product in question is to be edited.

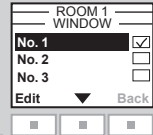


- 4 Press to highlight "Select product".
Press "Enter" to confirm your choice.

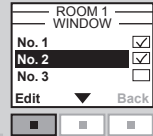


Note: The individual product can be identified by highlighting "Identify product".

- 5 The display shows the list of all registered products once again. The chosen product has been ticked.



- 6 Repeat items 3-6 to edit additional products if required. When the products to be edited have been ticked, the list must be saved.
Press "Edit".



- 7 Press to highlight "Save list".
Press "Enter" to confirm your choice.

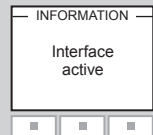


- 8 The display shows that the list has been saved.



Note: The individual products can be identified by highlighting "Identify products". Highlight "Undo list" to undo your choice.

When items 1-8 have been executed and the list with products has been saved, the interface is ready for use. The interface is activated by pressing "Back" for more than 3 seconds or by waiting 2 minutes. After this the display shows that the interface is active.



Security key

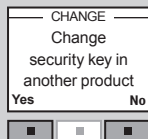
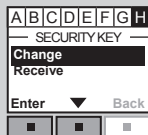
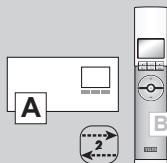
Each io-homecontrol® product has a security key ensuring that external control devices cannot communicate with your system. A common security key is created automatically during the registration process ensuring that all products in the system share the same security key.

The example shows how to change the security key in interface **A** and in the products registered in interface **A** (step 1). If you have remote controls or additional interfaces, the new security key must also be transferred to these (step 2).

The example in step 2 shows how to transfer the security key to a VELUX two-way remote control.

Step 1: Interface A

- 1 Press to highlight "Security key". Press "Enter" to confirm your choice.
- 2 Press to highlight "Change". Press "Enter" to confirm your choice. The display now indicates that the security key has been changed.
- 3 The display asks whether the security key of other products is to be changed. Press "No" to finish if this is the only interface. Press "Yes" if there are other products. Execute step 2 for these.



Step 2: Remote control B (and other products)

- 4 Press "Menu".

- 5 Scroll through the menus:

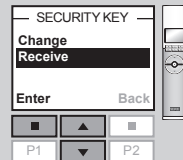
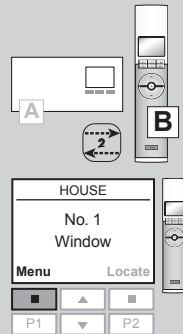
Settings → System settings → Security key

- 6 Press to highlight "Receive". Press "Enter" to confirm your choice.

The display indicates that the security key is being transferred from interface **A** to remote control **B**.

Note: An interface can also receive a new security key from eg a remote control or another interface by highlighting "Receive" in item 2 above.

Note: For other types of io-homecontrol® control units, please refer to the instructions provided with the product in question to execute step 2.



■ Copy system

If io-homecontrol® products have been registered directly in the interface as shown on page 21, they can be copied to other interfaces or to remote controls.

The copying takes place in 2 steps.

Step 2 must be completed within two minutes after implementing step 1, so please read steps 1-2 before proceeding.

The example shows how to copy the registered products from the interface to a VELUX two-way remote control not yet in operation.

Step 1: Interface A

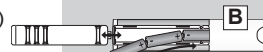
- 1 Menu item **H** is highlighted.

Press to highlight "Copy system".
Press "Enter" to confirm your choice.



Step 2: Remote control B

- 2 Insert the three batteries supplied (type AA, 1.5 volt) into the remote control as shown.

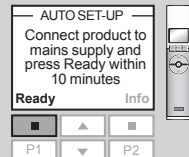


- 3 Choose language:

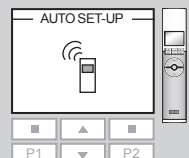
Press to highlight your language.
Press "Enter" to confirm your choice.



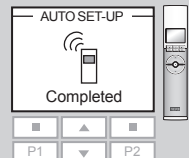
- 4 Press "Ready" to start automatic registration of each product. **NB:** Please disregard the instructions indicated in the display.



- 5 Automatic registration is running. Please wait.



- 6 The display shows "Completed" when all products have been registered.



Note: For other types of io-homecontrol® control units, please refer to the instructions provided with the product in question to execute step 2.

Signal mode

The entries can be used in two ways:

Control of the functions ▲ / ▼ through signals on their respective entries.

Control of the functions ▲ / ▼ through signals on one and the same entry.

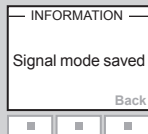
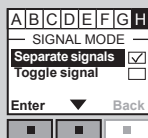
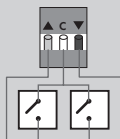
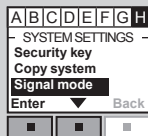
Use of more than one entry

The functions ▲ / ▼ are controlled by their respective entries.

OPEN/UP/ON is controlled by connecting C and ▲.

CLOSE/DOWN/OFF is controlled by connecting C and ▼.

STOP is controlled by connecting C with both ▲ and ▼.



- 1 Press ▼ to highlight "Separate signals". Press "Enter" to confirm your choice.

- 2 The display shows that the signal mode has been saved.

Note: This mode can also be used when you want to use one of the functions ▲ / ▼ only, eg a rain sensor that only closes the window.

Use of one entry

The functions ▲ / ▼ / STOP are controlled by one and the same entry. Each time the entry is activated, the function will change.

For instance, ordinary electric light in buildings is controlled from a wall switch that turns the light both on and off. By choosing "Toggle signal", the interface is set to change between ▲ -> STOP -> ▼ -> STOP -> ▲ -> STOP -> ▼ etc each time the entry is activated.

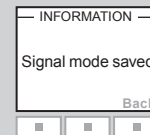
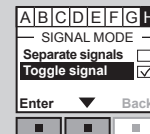
▲ -> STOP -> ▼ -> STOP -> ▲ -> STOP -> ▼ etc is controlled by connecting C and ▲ :



- 1 Press ▼ to highlight "Toggle signal". Press "Enter" to confirm your choice.

- 2 The display shows that the signal mode has been saved.

Note: The products will travel in the reverse direction to the latest activation no matter the control device. The products will always travel to maximum top or bottom position.



B Repeater

The repeater function extends the operation range of remote controls in the system by transmitting received RF commands. When used as a repeater, the interface should therefore be placed approximately halfway between the remote controls and the io-homecontrol® products to be operated.

The repeater function must be registered in two-way remote controls as if it were a product in the same way as other io-homecontrol® products, see section Register products.

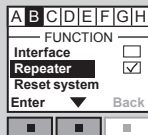
Note: The repeater function cannot be used with one-way remote controls.

Steps 1 and 2 must be completed within ten minutes, so please read items 1-7 before proceeding.

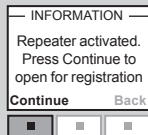
The example shows how to activate the repeater function in the interface and register the function in a VELUX two-way remote control.

Step 1:

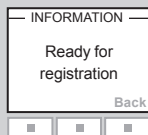
- 1 Press to highlight "Repeater".
Press "Enter" to confirm your choice.



- 2 The display shows that the repeater function has been activated.
Press "Continue" to open for registration.



- 3 The display shows that the repeater function is ready to be registered in the remote control.



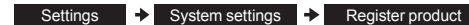
Note: Up to three interfaces in a system can be set to repeater function.

The operation range of remote controls cannot be extended further in the same direction by placing more repeaters after each other as commands can only be sent via one repeater.

Step 2:

- 4 Press "Menu".

- 5 Scroll through the menus:



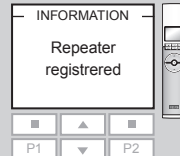
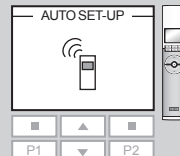
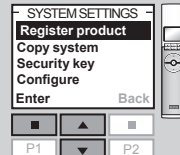
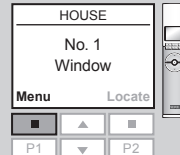
Press "Enter" to confirm your choice.

- 6 Automatic registration is running.

- 7 The display shows that the repeater function has been registered. The repeater function is only displayed in the remote control during the registration process. When registration has been completed, the function is "invisible" to the user.

Repeat step 1 and step 2 for all remote controls for which the operation range is to be extended.

Note: For other types of io-homecontrol® control units, please refer to the instructions provided with the product in question to execute step 2.



io-homecontrol® products can be combined with most intelligent building installations (IBI). The IBI system must include an output module with one or more programmable outputs. When the outputs have been connected to the entries in the interface, the relevant io-homecontrol® products can be controlled via the interface. With two outputs it is possible to control both of the functions ▲ and ▼ in an io-homecontrol® product or a group of io-homecontrol® products.

You can control up to 200 products or groups of products individually. However, individual control of a product or a product group requires one interface per product or product group. If eg a group of windows facing south and another group of windows facing north are to be controlled individually by thermostats, the two groups must have an interface each.

**Declaration of Conformity
In accordance with the Council Directives
89/336/EEC (2004/108/EEC), 73/23/EEC and 1999/5/EEC**

- We herewith declare that the VELUX interface KLF 100 (3LF D01)
- is in conformity with the provisions of EMC Directive 89/336/EEC (2004/108/EEC), Low Voltage Directive 73/23/EEC and R&TTE Directive 1999/5/EEC as amended and
 - has been manufactured in accordance with the harmonised standards EN 300220-1, EN 300220-3, EN 301489-1, EN 301489-3, EN 55022, EN 55024, EN 60335-1, EN 61558-1 and EN 61558-2-6.

VELUX A/S:..... *Steen Lindby*

(Steen Lindby, Product Approval)

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