



Fakro

## Chain Drive for Pivot Windows (230V)

SKU: FAK\_ZWS230



### Quickstart

This is a **secure Window Control (endpoint aware)** for **Europe**. To run this device please connect it to your mains power supply.

Inclusion and Exclusion are confirmed by a single click on the programming button. If the Fakro Chain Drive is not included into any Z-Wave network, the LED is on continually.

### What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section. (For more information about frequency regulations please refer to [the frequency coverage overview at Sigma Designs Website](#)).

Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.



If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to [www.z-wave.info](http://www.z-wave.info).

## Product Description

The ZWS230 chain motor is thanks to its small dimensions and suitable force output ideal for roof window operating and is fully compatible with the Z-Wave system. The motor can be used to upgrade centre pivot and top hung and pivot roof windows of different manufacturers.

The maximum chain reach of the ZW230 is 36cm. The motor is equipped with built-in overload protection which acts as a sensor for correct window closing.

## Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state**. Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

## Safety Warning for Mains Powered Devices

**ATTENTION:** only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

## Installation

The Chain Drive for Pivot Windows (230V) is intended for operating centre pivot and top hung and pivot roof windows. The ZWS motors are equipped with a twoway "Z-Wave" communication radio module. ZWS motors are Security Enabled products. Security Enabled Z-Wave Controller must be used in order to fully utilize ZWS. The motor functionality is anyway identical when included as a secure and non-secure device.

The ZWS motors are equipped with two limits:

- limit switch at maximum chain travel position
- overload limit at folded chain position

Install the ZWS motor with your roof window according installation manual.

Please read carefully the instructions below before proceeding to the device installation so as to prevent electric shock or injury. When installing the mechanical

- Above all, follow the safety rules. The use of electric motors for roof window operating is connected with a risk of injury. Although, the motor is equipped with an overload switch, the forces which operate here are strong enough to cause injury.
- If the window equipped with an electric motor is easily accessible, e.g. the lower window edge is situated lower than 2.50m above the floor level, then special safety measures should be adopted so as to prevent health hazards.
- After unpacking, check the motor elements for any signs of mechanical damage.
- Installation should be performed by a qualified person in accordance with manufacturer instructions.
- Before connecting the motor, make sure that the power voltage corresponds with motor voltage specified on the data plate.
- Connect the motor and verify its correct functioning by performing one full working cycle without any load (two-core cable - 12V DC motor, three-core cable - 230V AC). Leave the chain protruding by approximately 5cm.
- Plastic containers used for packing should be stored out of children reach as they may be a potential source of danger.
- The motor should be used according to its intended design. The FAKRO Company shall not be responsible for any consequences being the result of improper motor use.
- Any activities relating to cleaning, adjustment or dismantling the motor should be preceded with disconnecting the power supply.
- The motor cannot be washed using solvent-based substances or open stream of water (do not immerse in water).
- Any repairs of the motor should be carried out by authorised service by the manufacturer.
- Electric wires supplying electricity to the power source must have suitable area (2x1mm<sup>2</sup>). Permissible cable length for the mentions area is 30m.
- The motor has been designed for installation inside the room.
- The motor cannot be used as a mechanism for operating the sashes of smoke ventilation windows.

**WARNING!!!** Danger of crashing. While closing, the motor exerts the force of 250N (app. 25kg).

## Inclusion/Exclusion

On factory default the device does not belong to any Z-Wave network. The device needs to be **added to an existing wireless network** to communicate with the devices of this network. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

### Inclusion

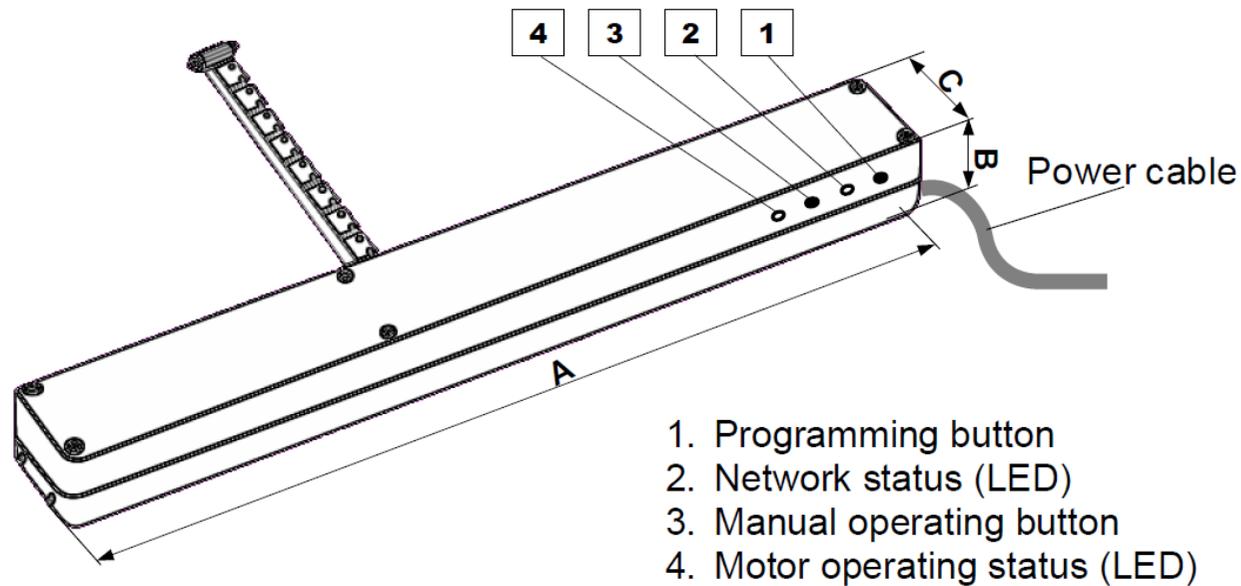
Make sure that your Z-Wave Controller is in the Inclusion-/Exclusion-Mode. Click the programming button one time to confirm the process.

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## Product Usage

To be able to operate the ZWS230 motor by means with a Z-Wave controller it is necessary to:

- 1. Add the device (using "INCLUDE" function) to the selected Controller.
- 2. Associate the device with the selected pair of buttons on the Controller (using "ASSOCIATE" function).



There are different modes in which the device can be used:

**"PROTECTION"** - used to protect a device against unintentionally control by e.g. a child. Three levels can be set by any controller supporting this functionality.

- Unprotected - motor can be operated manually and remote as well
- Protection by sequence - motor can be only operated manually by means of local button (see Figure 1.) with sequence (three short hit the button)
- No operation possible - both control (manual, remote) locked.

**"RETURN ROUTE ASSIGNING"** - depending on version actuator can be equipped with rain sensor input. In such case it is possible to link this actuator with other actuators which have not rain sensor functionality. In this case it is necessary to initiate "ASSIGN" function by Controller. Standard procedure which can vary for different controllers is:

Start "ASSIGN" function - press (1 sec) programming button on actuator without rain sensor - press (1 sec) programming button on actuator with rain sensor.

**Note:** For information on handling or initiation the assign function of products of another manufacturers, please read the documents of the respective manufacturer.

**"All ON or All OFF"** - it is possible to define if device should respect All close (OFF) or All Open (ON) command.

**Note:** The description for the "All ON or All OFF" function is described in the user manual of the devices supporting this function.

**"SECURITY"** ZWS motors are Security Enabled products. The security provides confidential communication between nodes in network.

**Note:** Security Enabled Z-Wave Controller must be used in order to fully utilize ZWS.

**"MANUAL OPERATING"** The "Manual operating" button makes it possible to operate the motor right after connecting the power supply. Manual operating works in sequential mode, i.e. start, stop, start in opposite direction, stop - etc.

- First pressing of the button after connecting the power supply will cause the motor chain to unfold.
- Second pressing the button, stops the motor.
- Third pressing the button starts the motor in the opposite direction.

**Note:** Watch the LED showing the status of devices on the network. Blinking LED indicates the status of protection state and may mean that the control of the device is not possible.

## Node Information Frame

The Node Information Frame (NIF) is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this it may be needed for certain network operations to send out a Node Information Frame. To issue a NIF execute the following action:

A single click on programming button sends a Node Information Frame.

## Quick trouble shooting

Here are a few hints for network installation if things don't work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.

- 5. Dont poll FLIRS devices.
- 6. Make sure to have enough mains powered device to benefit from the meshing

## Association - one device controls an other device

Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called association. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called association groups and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive the same wireless command wireless command, typically a 'Basic Set' Command.

### Association Groups:

Group Number	Maximum Nodes	Description
1	5	

### Technical Data

<b>Dimensions</b>	0.0650000x0.0500000x0.3600000 mm
<b>Weight</b>	1130 gr
<b>EAN</b>	5900988500378
<b>Device Type</b>	Window Covering Endpoint Aware
<b>Generic Device Class</b>	Multilevel Switch
<b>Specific Device Class</b>	Motor Control Device (B)
<b>Firmware Version</b>	03.0a
<b>Z-Wave Version</b>	02.61
<b>Certification ID</b>	ZC08-11020009
<b>Z-Wave Product Id</b>	0085.0003.0001

- Switch All
- Association
- Basic
- Switch Binary
- Manufacturer Specific
- Switch Multilevel
- Powerlevel
- Protection
- Security
- Version

## Controlled Command Classes

- Basic
- Security

## Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of adding new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **WakeUp Notification** — is a special wireless message issued by a Z-Wave device to announce that it is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.

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