FAK_ZWS230

Chain Drive for Pivot Windows (230V)

Firmware Version : 3.10

Quick Start

A This is a Z-Wave actuator.

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.

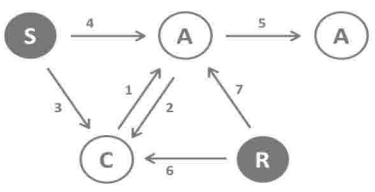
Please refer to the chapters below for detailed information about all aspects of the products usage.

What is Z-Wave?

This device is equipped with wireless communication complying to the Z-Wave standard. Z-Wave is the **international standard for wireless communication** in smart homes and buildings. It is using the **frequency of 868.42 MHz** to realize a very stable and secure communication. Each message is reconfirmed (**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.

Z-Wave differentiates between Controllers and Slaves. Slaves are either sensors **(S)** transmitting metered or measured data or actuators **(A)** capable to execute an action. Controllers are either static mains powered controllers **(C)** also referred to as gateways or mobile battery operated remote controls **(R)**. This results in a number of possible communication patterns within a Z-Wave network that are partly or completely supported by a specific device.

1. Controllers control actuators
2. Actuators report change of status back to controller
3. Sensors report change of status of measured values to controller
4. Sensors directly control actuators
5. Actuators control other actuators
6. Remote controls send signals to static controllers to trigger scenes or other actions
7. Remote controls control other actuators.



There are two different role a controller can have. There is always one single primary controller that is managing the network and including/excluding devices. The controller may have other functions - like control buttons - as well. All other controllers don't manage the network itself but can control other devices. They are called secondary controllers. The image also shows that its not possible to operate a sensor just from a remote control. Sensors only communicate with static controllers.

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.

Before Device is installed

Please read carefully the enclosed user manual before installation of the radio-actuator, in order to ensure an error-free functioning.

ATTENTION: only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with 230 Volt mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

The product is permitted only for proper use as specified in the user manual. Any kind of guarantee claim has to be forfeited if changes, modifications or painting are undertaken. The product must be checked for damages immediately after unpacking. In the case of damages, the product must not be operated in any case. If a danger-free operation of the equipment cannot be assured, the voltage supply has to be interrupted immediately and the equipment has to be protected from unintended operation.

Installation Guidelines

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 to the picture installation manual within the link.

FAK_ZWS230 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 motor, it is necessary to observe the following recommendations:

- 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 (2x1mm2). 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).

Behavior within the Z-Wave network

I On factory default the device does not belong to any Z-Wave network. The device needs to join an existing wireless network to communicate with the devices of this network. This process is called **Inclusion**. Devices can also leave a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller will be turned into exclusion respective inclusion mode. Please refer to your primary controllers manual on how to turn your controller into inclusion or exclusion mode. Only if the primary controller is in inclusion or exclusion mode, this device can join or leave the network. Leaving the network - i.e. being excluded - sets the device back to factory default.

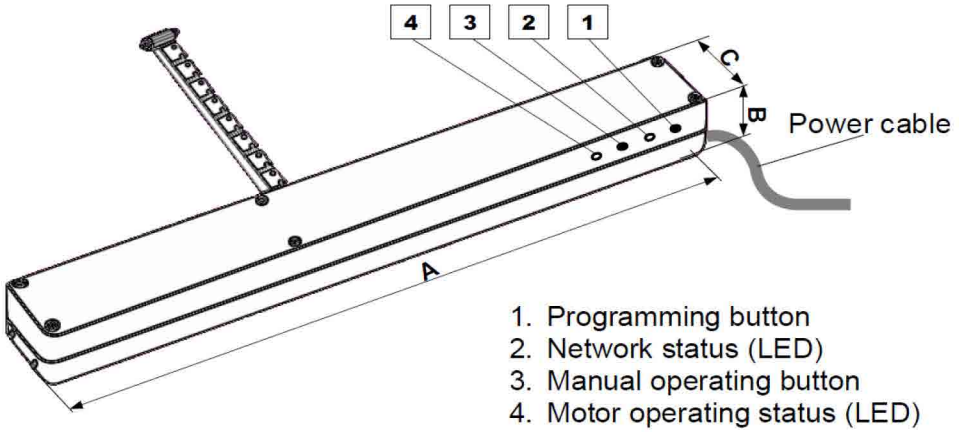
If the device already belongs to a network, follow the exclusion process before including it in your network. Otherwise inclusion of this device will fail. If the controller being included was a primary controller, it has to be reset first.

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

Operating the device

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

- 1. Ad 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.

Note: The description for activation and deactivation of the protection function is described in the user manual of the controllers supporting this function.

"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

NI The Node Information Frame 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.

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

Associations

A 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 a common wireless command.

Association Groups:

1	Basic notification group (max. nodes in group: 5)

Set and unset associations to actuators

Associations can be assigned and remove either via Z-Wave commands or using the device itself.

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

Command Classes

Supported Command Classes

- All Switch (version 1)
- Association (version 2)
- Basic (version 1)
- Binary Switch (version 1)
- Manufacturer Specific (version 1)
- Multilevel Switch (version 3)
- Powerlevel (version 1)
- Protection (version 1)
- Security (version 1)
- Version (version 1)

Controlled Command Classes

- Basic (version 1)
- Security (version 1)

Technical Data

Explorer Frame Support	Yes
SDK	4.51
Device Type	Slave with routing capabilities
Generic Device Class	Multilevel Switch
Specific Device Class	Motor Control Class B
Routing	Yes
FLiRS	No
Firmware Version	3.10

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 bringing 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 annonces that is is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z_Wave device to announce its capabilities and functions.

Disposal Guidelines

The product does not contain hazardous chemicals.

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information

regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

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