FAKRO®

ZWS12
ZWS230

Electric actuator
User Manual

www.fakro.com

Dear Sir/Madam! Thank you for purchasing the product from FAKRO Company. We do hope that it will meet your expectations. To ensure appropriate functioning of the product, please peruse this User Manual.

Contents

Safety requirements

When installing the ZWS12, ZWS230 actuator it is necessary to observe the following recommendations:

• Safety requirements should be particularly respected. The use of electric mechanical actuator installed in order to operate the window creates a risk of injury. Although the mechanism of the actuator is equipped with an overload switch, forces present there are strong enough to cause physical injuries. When closing the window, the actuator exerts the force of 250N (app. 25 kg)!

• If the actuator is easily available e.g. window's bottom edge is lower than 2.50m from the floor, special precautions should be taken in order not to allow rising of health risk.

• This equipment is not designed for use by people (including children) with limited physical, sensory or mental ability, or by people that do not have experience or knowledge of equipment, unless it is done under supervision or according to equipment usage instructions, which are provided by the person responsible for safety. Do not allow children to play with equipment.

• After unpacking, check the window elements for any signs of mechanical damage.

• Installation should be performed by a qualified person in accordance with the manufacturer instructions.

• Before connecting the window, make sure that the power voltage corresponds with voltage specified on the data plate.

• Plastic containers used for packing should be stored out of children reach as they may be a potential source of danger.

• Children are not allowed to play with actuator's controllers, controllers should be stored out of their reach.

• The window should be used according to its intended design. The FAKRO Company shall not be responsible for any consequences being the result of improper window use.

• Any activities relating to cleaning, adjustment or dismantling electric parts of the actuator should be preceded with disconnecting the power supply.

• Electric parts cannot be washed using solvent-based substances or open stream of water (do not immerse in water).

• Any repairs of the actuator should by carried out by service authorised by the manufacturer.
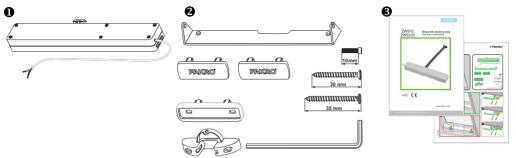
• Electric wires supplying electricity to the power source must have suitable area (2x1mm2). Permissible cable length for the mentioned area is 30m
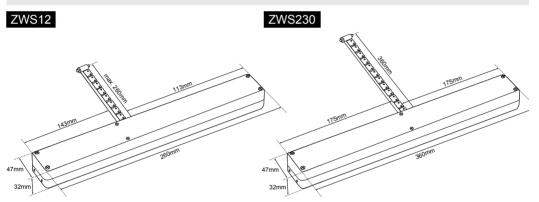
Package content

❶ Chain actuator
❷ Installation kit for mounting actuator in the window
❸ Product fitting and usage instructions

❶

❷

10mm

30 mm

35 mm

❸

Actuator dimensions

ZWS12

max. 260mm
113mm
143mm
260mm
47mm
32mm

ZWS230

360mm
175mm
175mm
360mm
47mm
32mm

Wiring diagram

15VDC

230VAC

⚠ ~230 V

Schemat elektryczny
Wiring diagram

ZWS12

230V~50Hz

N
L

CZARNY (BLACK) BIAŁY (WHITE)

BRĄZOWY (BROWN) NIEBIESKI (BLUE)

CZARNY (BLACK)

CZERWONY (RED)

Zasilacz impulsowy AC/DC
(Power supply AC/DC)
15VDC   230VAC

+
−

L
N

ZWS230

230V~50Hz

N
L
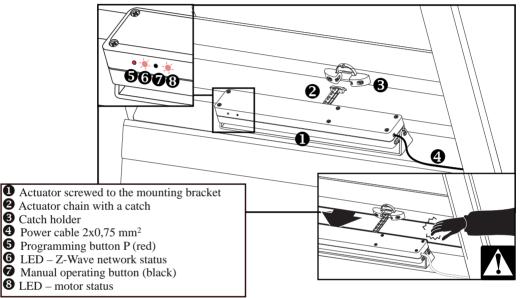
CZARNY (BLACK) BRĄZOWY (BROWN)

BRĄZOWY (BROWN)

NIEBIESKI (BLUE)

Description of ZWS12, ZWS230 actuator

ZWS12 (ZWS230) actuators ❶ are equipped with two-way Z-Wave radio communication module. The Z-Wave protocol exploits radio frequency of EU 868,42 MHz for communication. Actuators are equipped with a chain ❷ featuring maximum extension at the level of 24cm (ZWS12) and 36cm (ZWS230). The actuator chain is finished with a special tip that allows to block it in the holder ❸ of the installation kit. The power cable 2x0.75mm^2 ❹ is located on the right side of installed actuator. For the remote control of the Z-Wave actuator controllers are used e.g. the ZWP10 remote control. In addition, the actuator is equipped with two buttons:

1. Programming button P (red) ❺ - configuration of the actuator in the Z-Wave network;
2. Manual operating button (black) ❼ - manual run of the actuator: open – stop – close...

❶ Actuator screwed to the mounting bracket
❷ Actuator chain with a catch
❸ Catch holder
❹ Power cable 2x0,75 mm^2
❺ Programming button P (red)
❻ LED – Z-Wave network status
❼ Manual operating button (black)
❽ LED – motor status

Signalling description

	LED – motor status	LED – Z-Wave network status
LED is off	-	The device is part of the Z-Wave network. the device is assigned to the controller's memory.
Triple flash	Overload occurs. Force > 20kg. Such situation also takes place when shutting the window for its tight closure.	-
Flashing	-	Special function is active – PROTECTION. Both functions: PROTECTED BY SEQUENCE and NO OPERATION POSSIBLE are indicated in the same way.
LED is continuously on	-	The device is not part of any Z-Wave network. LED goes off after adding the actuator to the Z-Wave network.

⚠ **CAUTION! Danger of crushing. When closing the window, the actuator exerts the force of 250N (app. 25 kg)!**
⚠ **CAUTION! If the rain sensor detects water, the actuator automatically closes the window!**
⚠ **CAUTION! Danger of electric shock (ZWS230)!**

Actuator programming

I. Cooperation of devices offered by different manufacturers in the Z-Wave network.

The Z-Wave allows to integrate devices of different manufacturers which can work in different groups: lighting, heating, domestic automatic control, etc. The Z-Wave devices operate as repeaters in the network, thus increasing reach of radio communication. The more devices in the network, the more reliable and more resistant to interference is performance of devices within the network.

II. Adding the ZWS12 (ZWS230) actuator to network operated by FAKRO controller (or Z-Wave controller of other manufacturer).

In case of FAKRO controllers, programming button IN/EX is used for this purpose (INCLUDE function).

1. Connect the ZWS12 actuator to 15VDC power supply or the ZWS230 actuator to 230VAC power supply. Network status LED on the actuator is on. In case LED is off, RESET the actuator.

2. Set mode of adding device to the Z-Wave network on a selected controller (see user manual of FAKRO controller or Z-Wave controller of other manufacturer).

3. Press programming button P (red) on the ZWS12 (ZWS230) actuator.

4. The controller detects the actuator and adds it to the Z-Wave network (network status LED on the actuator goes off).

III. Adding ZWS 12 (ZWS 230) actuator to buttons of movement of FAKRO controller (or Z-Wave controller of other manufacturer).

In case of FAKRO controllers IN/EX programming button is used for this purpose (ASSOCIATE function). In most cases, direct adding of the device to the Z-Wave network allows its operation directly from a given controller. In other cases, it may be necessary to add module additionally to the group of controlling buttons.

1. Set adding the device to the group of buttons of movement mode in selected controller (see user manual of FAKRO controller or Z-Wave controller of other manufacturer).

2. Press programming button P (red) on the ZWS12 (ZWS230) actuator.

3. The controller saves the number of the device in the network and assigns it to the group of buttons of movement specified during the procedure.

IV. Reset (restoring factory settings).

Sometimes it may be necessary to reset the ZWS12 (ZWS230) actuator to factory settings and delete all information concerning the network in which it has operated. To do this, primary controller is necessary. In case of FAKRO controllers, IN/EX button is used for this purpose, while RESET function is synonymous with EXCLUDE function.

1. Set EXCLUDE mode in selected controller to remove the device from the Z-Wave network (see user manual of FAKRO controller or Z-Wave controller of other manufacturer).

2. Press programming button P (red) on the ZWS12 (ZWS230) actuator.

3. The controller detects the actuator and removes it from the Z-Wave network (network status LED on the actuator is on).

V. Special function – PROTECTION

Function used to protect the ZWS12 (ZWS230) actuator against accidental start e.g. by children. Three levels of protection can be defined by the controller that supports this function.

• Unprotected – the actuator can be controlled manually as well as via radio.

• Protection by sequence – after pressing programming button P manual control is possible for 30 seconds. Status is signalled by flashing of the network status LED. Radio control is possible.

• No operation possible – actuator control is locally blocked until the protection status change. Status is signalled by flashing of the network status LED. Radio control is possible.

Note! Information how to define levels in PROTECTION function is to be found in user manuals of these controllers.

VI. Special function – Connecting Devices – ASSIGN A ROUTE.

This function allows the user to configure devices that are in one Z-Wave network so that the controlled device runs another device which is in the Z-Wave network. Example: The actuator features the so called Associative Group corresponding to buttons of movement of the controller. This means that it can initiate the transmission of commands to other (up to 5) devices. In case of the ZWS actuator mounted in the FTP-V Z-Wave window it is used to send command "close" initiated by the rain sensor directly connected to the actuator. To activate this function, the user by means of "ASSIGN A ROUTE" function indicates devices and their location in the network to the actuator.

1. Set ASSIGN A ROUTE mode in selected controller (see user manual of FAKRO controller or Z-Wave controller of other manufacturer).

2. Press programming button P (red) on the ZWS12 (ZWS230) actuator which you want to control from another device.

3. Press programming button P (red) on the ZWS12 actuator which is aimed to control another device.

NOTE! This procedure can be used for up to 5 controlled devices. Devices must be in one Z-Wave network.

NOTE! The actuator added to the network as SECURE (encrypted transmission) in case of rain can send command "close" both to other SECURE and NON-SECURE devices.

VII. Special function – ALL ON or ALL OFF

It is possible to define whether the actuator has to respect "Close all" or "Open all" commands.

Instructions how to define respecting functions "Close all" and "Open all" are to be found in user manuals of the respective devices.

VIII. SECURITY

The ZWS12 (ZWS230) actuator ensures encrypted transmission of commands. Encryption provides additional security for transmission between devices in the network.
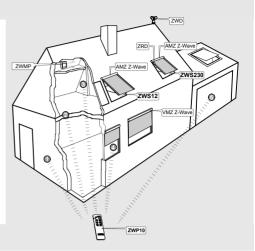
Note! To take advantage of encrypted transmission in the network other devices (primarily controllers) with such function are necessary. The actuator added to the network as SECURE cannot be controlled by another controller if it will not be able to handle secure transmission.

Reach of Z-Wave devices

Radio signal range depends on the type of construction, materials used and the Z-Wave devices location. Operation reach in the open area is up to 40m. Penetration of the radio signal in different materials is as follows:

1. Brick wall - 60-90%
2. Reinforced concrete - 20-60%
3. Wooden structures of gypsum cardboard - 80-95%
4. Glass - 80-90%
5. Metal walls - 0-10%

Sample configuration

The ZWP10 remote control runs individually or simultaneously the ZWS12 and ZWS230 actuators (channel no. [1]), two AMZ Z-Wave awning blinds (channel no. [2]) and two vertical VMZ Z-Wave awning blinds (channel no. [3]). The ZWMP weather module in cooperation with the rain sensor and the wind detector closes roof windows in case of rain or wind exceeding speed of 40km/h.

Technical specification

	ZW S12	ZW S230
Power voltage	15VDC	230VAC ~ 50Hz
Rated power	9W	15W
Rated current	0,72A	0,26A
Standby current	0,03A	
Operating range (in the open area)	up to 40m	
Radio protocol	Z-Wave	
Working frequency	EU-868,42MHz	
Limit switch	overload switch when closing, reed relay switch when opening	
Current limiting	yes	
Double electric insulation	yes	yes
Chain extension speed	4,25mm/s	9,7mm/s
Chain pushing force	250N	
Closing force	250N	
Chain outreach	240mm	360mm
Working temperature	$(-10^{o}C)$ do $(65^{o}C)$	
Power cable	$2x0.75mm^{2}$	$3x0.75mm^{2}$
Housing protection class IP30*	IP30	

* Housing protection class IP30 – the first digit "3" means protection against solid objects larger than 2.5mm
  (e.g. accidental touch with a wire or screwdriver), the second digit "0" means no protection against penetration of water.

FAKRO	**Deklaracja zgodności WE** *(EC Declaration of Conformity)*	Nr (No.) E001/10	C€	Rok wprowadzenia *Year of issue* **10**

Producent,
(Producer)

FAKRO Sp. z o.o.
ul. Węgierska 144 a
33-300 Nowy Sącz, Polska /*Poland*

Zakład produkcyjny:
(Production factory)

Fakro PP Sp. z o.o.
ul. Węgierska 144 a
33-300 Nowy Sącz, Polska /*Poland*

Zaświadcza, że następujące urządzenie elektryczne
Declares that the electric device

Opis wyrobu: **Siłowniki elektryczne ZWS12, ZWS230**
(Product description):   *(Electric chain actuators ZWS12, ZWS230).*

TYP: **ZWS**   MODEL: **ZWS12, ZWS230**

Numer seryjny: umieszczony na tabliczce znamionowej
Serial No. See rating plate

Zaprojektowany w **2010r.**
Year of construction: 2010r

Jest zgodny z wymaganiami następujących dyrektyw:
Complies with the requirements of the following directives:
1999/5/EC art. 3.1a
(ochrona zdrowia i bezpieczeństwo użytkowania)
(protection of the health and the safety of user)
1999/5/EC art. 3.1b
(EMC: zgodność elektromagnetyczna)
(EMC: electromagnetic compatibility)
1999/5/EC art. 3.2
(efektywne wykorzystanie zasobów częstotliwości)
(effective use of radio frequency spectrum)
i deklaruje że następujące normy zharmonizowane zostały zastosowane:
and declares that the following harmonized standards have been applied:
PN-EN 60335-1:2004
PN-EN 60335-2-103:2005
PN-EN 60950-1:2007
ETSI EN301 489-1 V1.6.1
ETSI EN301 489-1 V1.4.1
ETSI EN300 220-1 V2.1.1
ETSI EN300 220-1 V2.1.2

Nazwa i adres
notyfikowanego
laboratorium:
(The name and the address of the
notified laboratory):

Laboratorium Badań Urządzeń Telekomunikacyjnych Instytutu
Łączności, ul.Szachowa 1, 04-894 Warszawa,
Nr. Akredytacji AB012

Kierownik Jednostki Biznesowej
Buisness Unit Manager

Tomasz Sporek

Nowy Sącz, 20.09.2010 r.

Warranty

The manufacturer guarantees correct device functioning. It also undertakes to repair or replace faulty device if damage is a result of material or structural faults. The warranty period is 24 months from the date of purchase, fulfilling the following conditions:

• Installation has been performed by an authorised individual, as per manufacturer recommendations.

• Seals remain intact and no authorised structural changes have been made.

• The device has been used in accordance with its intended use as per user manual.

• Damage is not a result of improperly made electrical system or atmospheric phenomena.

• The manufacturer is not liable for damage which occurred as a result of improper use or mechanical damage.

In case of failure, the device must be submitted for repair with a Warranty Card. Defects revealed within the warranty period will be removed free of charge no longer than 14 days after accepting the product for repair. Warranty and post-warranty repairs are performed by the manufacturer i.e. FAKRO PP. Sp. z o.o.

Quality certificate
Device

Model ....
Serial Number ....
Seller ....
Address ....
Purchase Date ....
....
Signature (stamp) of installing person

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