
ELECTRIC LINEAR ACTUATORS ESL-03-



- for heat engineering and air conditioning systems
- requirements acc. to standard PN-92/M.-42011
- control type

THE ELECTRIC LINEAR ACTUATORS TYPE ESL-03- (CONSTANT SPEED) ARE DESIGNED FOR DRIVING OF CONTROL CLOSING COMPONENTS AND OTHER DEVICES IN CONTROL SYSTEM IN AIR CONDITIONING AND HEAT ENGINEERING.

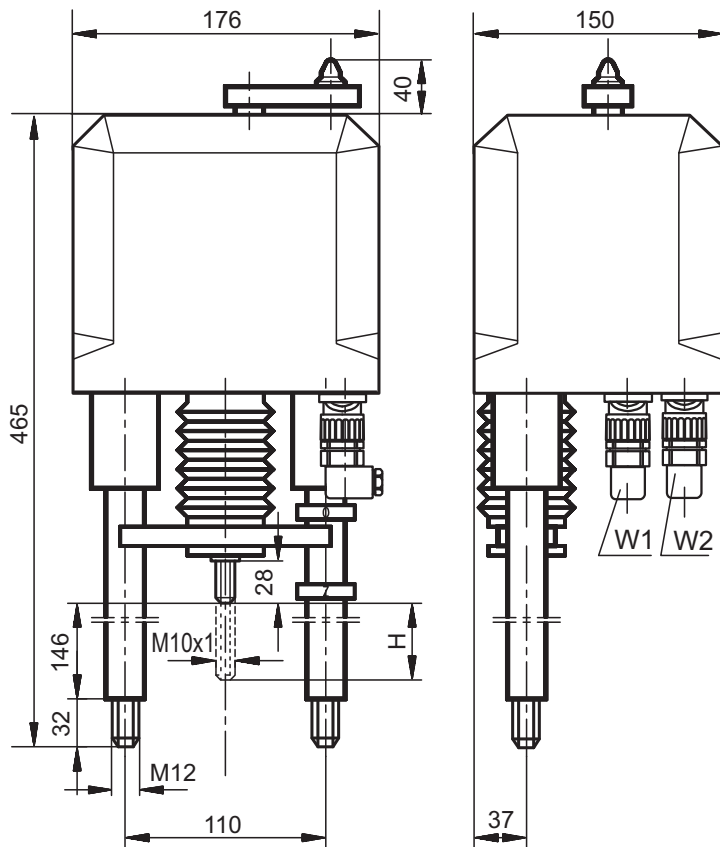
TECHNICAL DATA

- power supply	230V +10%, -15%, f=50Hz
- rated force	2...8kN
- linear velocity (positioning speed)	16; 25 or 40mm/min
- travel	20; 25 or 40mm
- ambient temperature during operation	-25°C...+55°C
- protection degree	IP54 acc. to PN-EN60259 : 2002(U)
- duty type	S2 - 15min and S4 - 25%, 630c/h acc. to PN-92/M-42011
- mass	~8kg

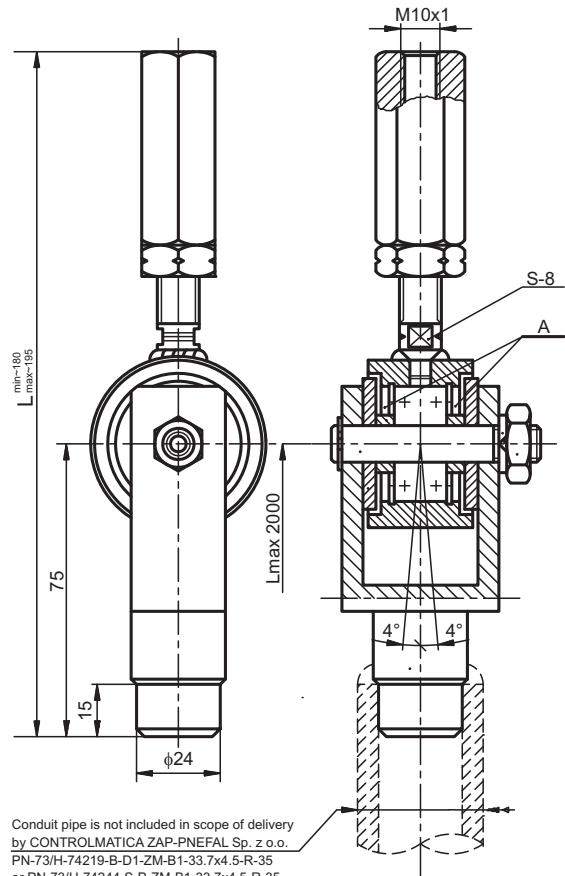
MICROSWITCHES:

	Type: 83.133. 54ER14.1
- rated power supply	250V, 50...60Hz or 30V DC
- rated switching current	2.5A
- rated thermal current	11A
- minimal switching voltage	10V
- minimal switching current	20mA

DIMENSIONED DRAWING



BALL-AND-SOCKET JOINT FOR ESL-03- ACTUATORS

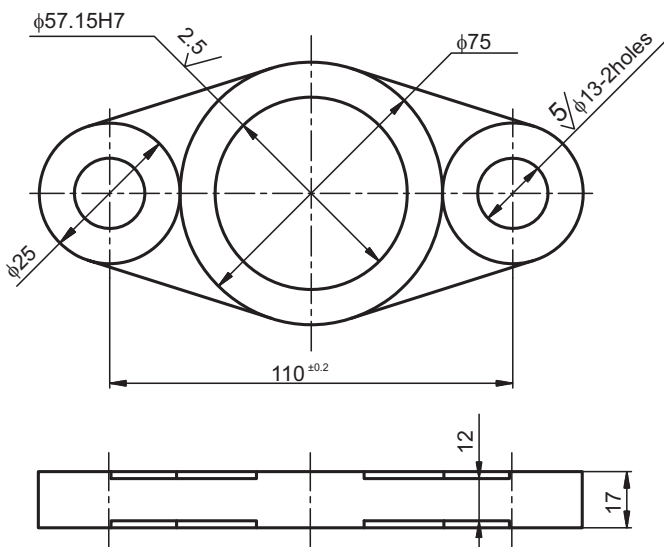


Conduit pipe is not included in scope of delivery by CONTROLMATICA ZAP-PNEFAL Sp. z o.o. PN-73/H-74219-B-D1-ZM-B1-33.7x4.5-R-35 or PN-73/H-74244-S-P-ZM-B1-33.7x4.5-R-35

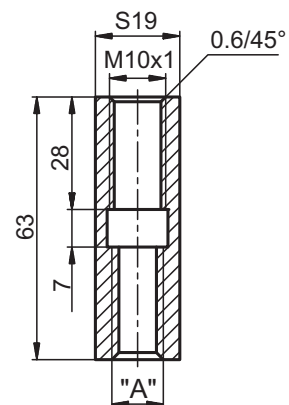
CODE5	Drawing no.	Connector
-06	ES3-0815	Ball-and-socket joint

CONNECTORS FOR ESL-03- ACTUATORS

CONNECTING PLATE

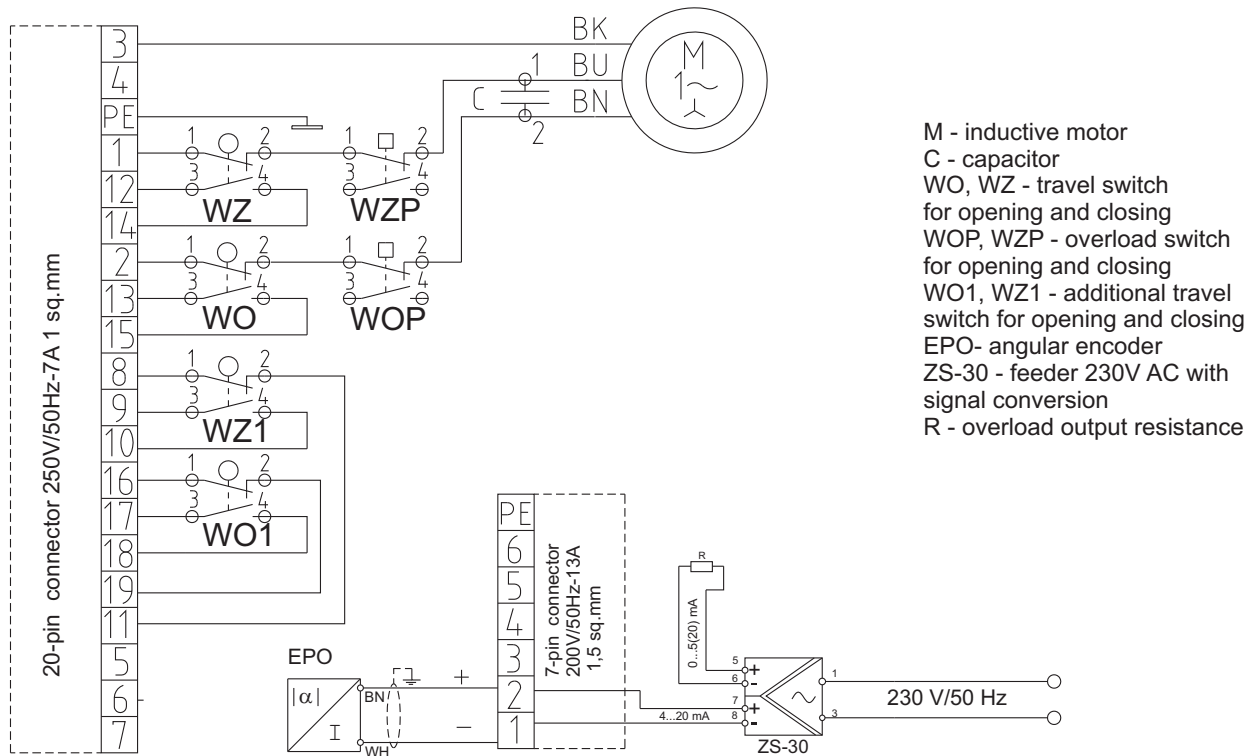


THREADED CONNECTOR



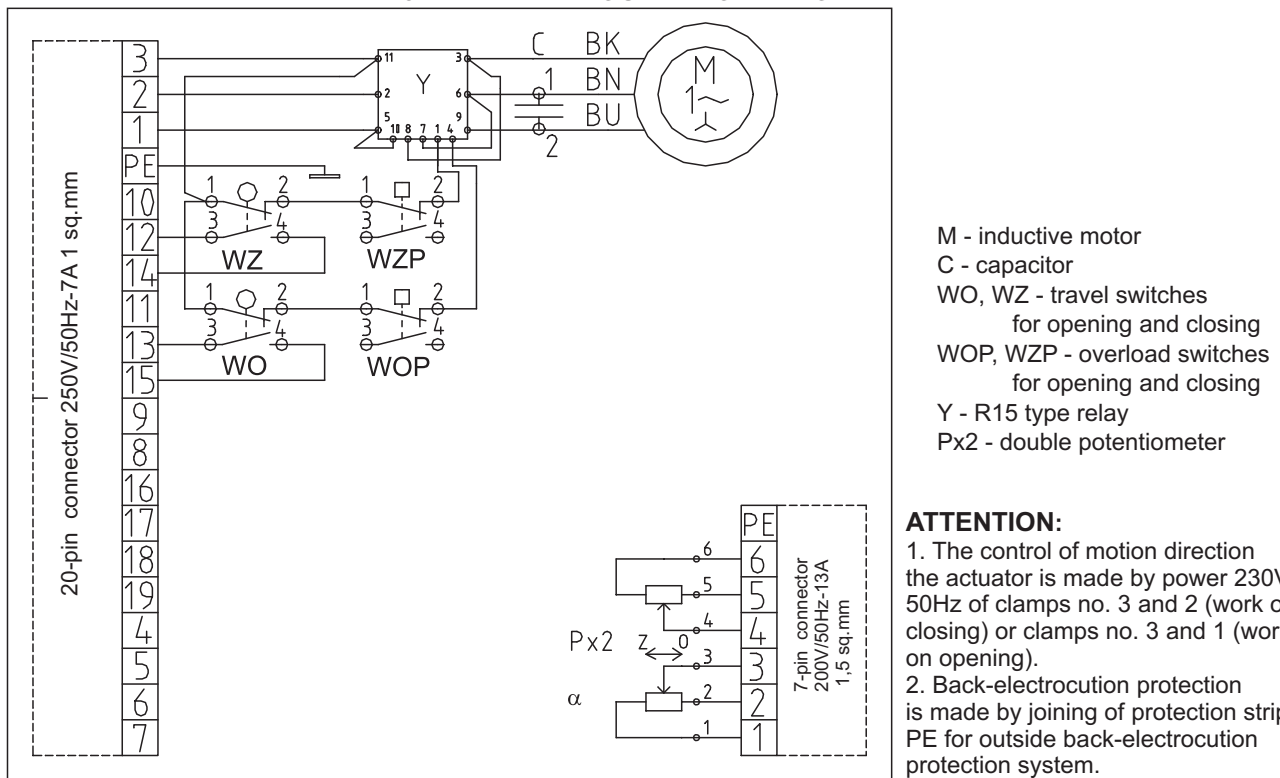
Drawing no.	CODE5	Ver-sion	"A" mm
ES1-0786-1	-03	-1	5/16" 24UNF3A
ES1-0786-2	-04	-2	3/8" 24UNF3A
ES1-0786-3	-05	-3	1/2" 20UNF3A
ES1-0786-4	-13	-4	M12 x1.25

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE TRAVEL SWITCHES AND ANGULAR ENCODER



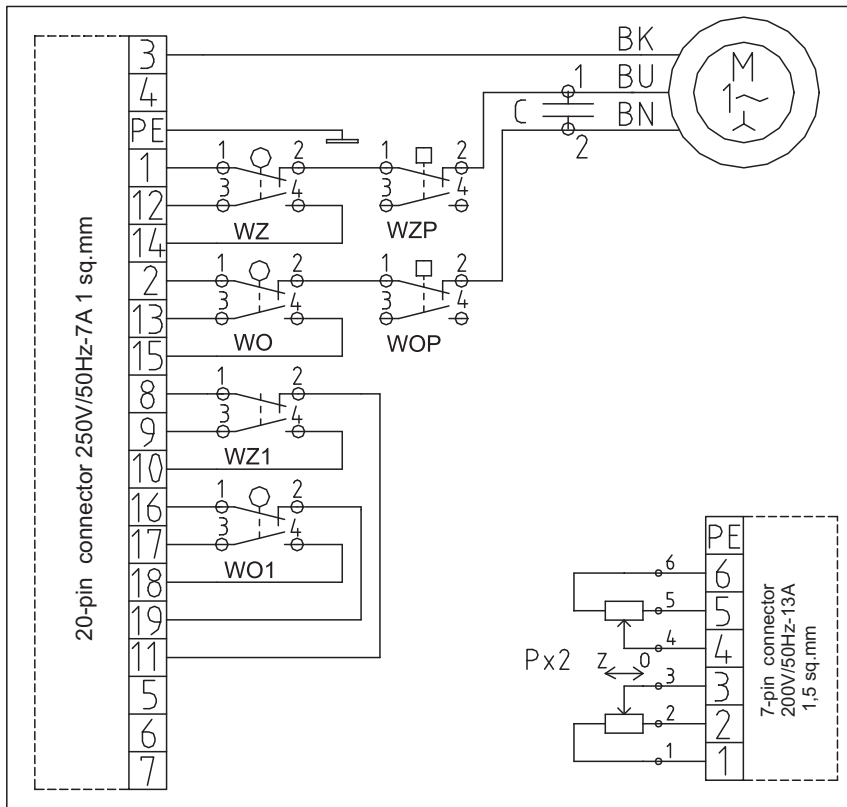
- ATTENTION:**
1. Power 230 V, 50 Hz of clamps no. 3 and 2 makes working of actuator for opening
 2. Power 230 V, 50 Hz of clamps no. 3 and 1 makes working of actuator for closing
 3. Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE TRAVEL SWITCHES, R15 RELAY AND DOUBLE POTENTIOMETER



- ATTENTION:**
1. The control of motion direction the actuator is made by power 230V, 50Hz of clamps no. 3 and 2 (work on closing) or clamps no. 3 and 1 (work on opening).
 2. Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE TRAVEL SWITCHES AND POSITION TRANSMITTER - DOUBLE POTENTIOMETER

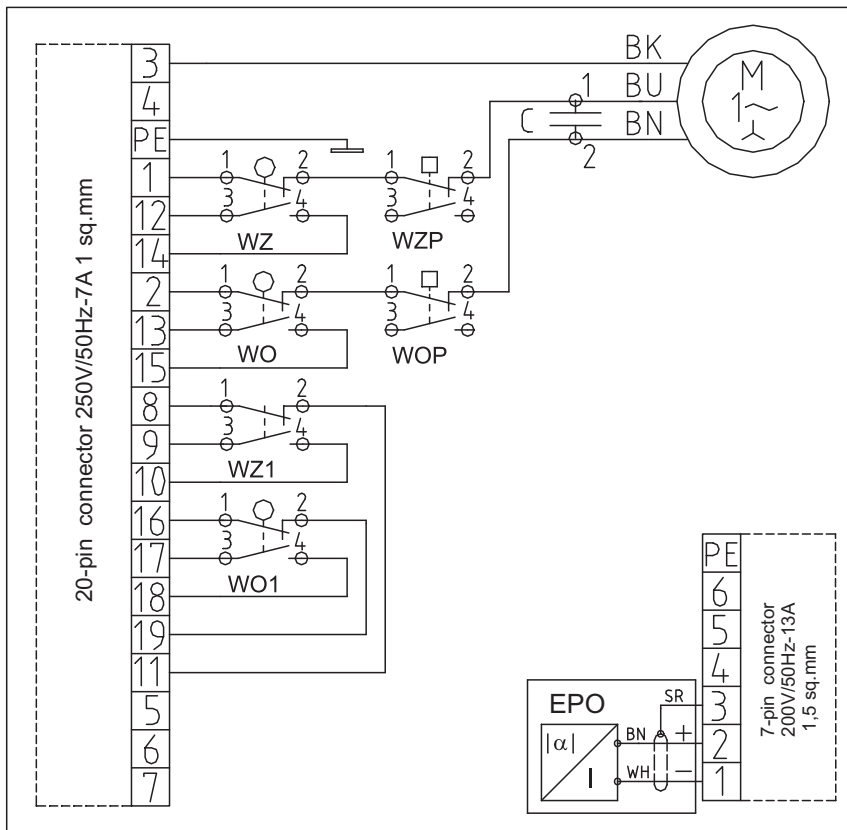


M - inductive motor
 C - capacitor
 WO, WZ - travel switches
 for opening and closing
 WOP, WZP - overload switches
 for opening and closing
 Px2 - double potentiometer
 WO1, WZ1 - additional travel
 switches for opening
 and closing

ATTENTION:

1. Power 230V, 50Hz of clamps no. 3 and 2 makes working of actuator for opening.
2. Power 230V, 50Hz of clamps no. 3 and 1 makes working of actuator for closing.
3. Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE TRAVEL SWITCHES AND 2-WIRE ANGULAR ENCODER

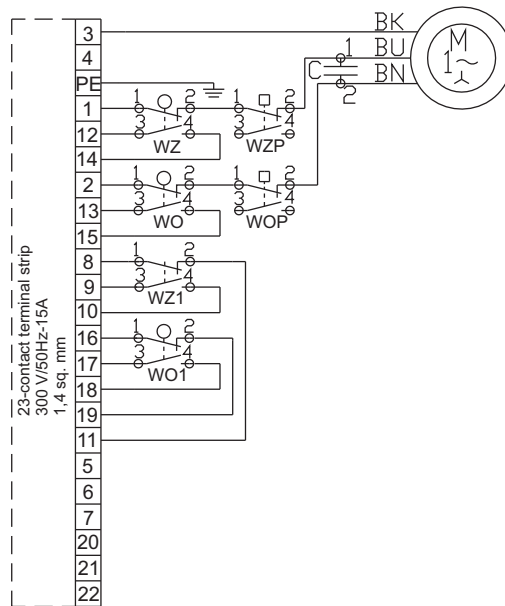


M - inductive motor
 C - capacitor
 WO, WZ - travel switch
 for opening and closing
 WOP, WZP - overload switch
 for opening and closing
 WO1, WZ1 - additional travel
 switch for opening
 and closing
 EPO - angular encoder

ATTENTION:

1. Power 230V, 50Hz of clamps no. 3 and 2 makes working of actuator for opening.
2. Power 230V, 50Hz of clamps no. 3 and 1 makes working of actuator for closing.
3. Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH TERMINAL STRIP



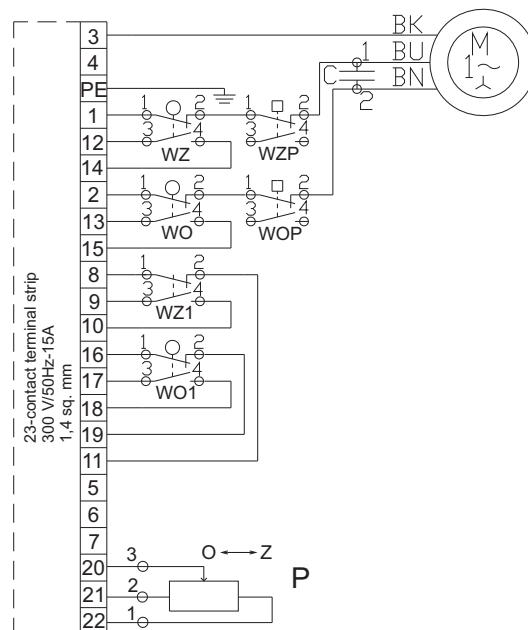
M-inductive motor
C-condenser

WO,WZ-travel switches for opening and closing
WOP,WZP-overload switches for opening and closing
WO1,WZ1-additional travel switches

ATTENTION:

- 1.Power 230 V, 50 Hz of clamps no. 3 and 2 makes working of actuator for opening
- 2.Power 230 V, 50 Hz of clamps no. 3 and 1 makes working of actuator for closing
- 3.Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH TERMINAL STRIP AND POTENTIOMER



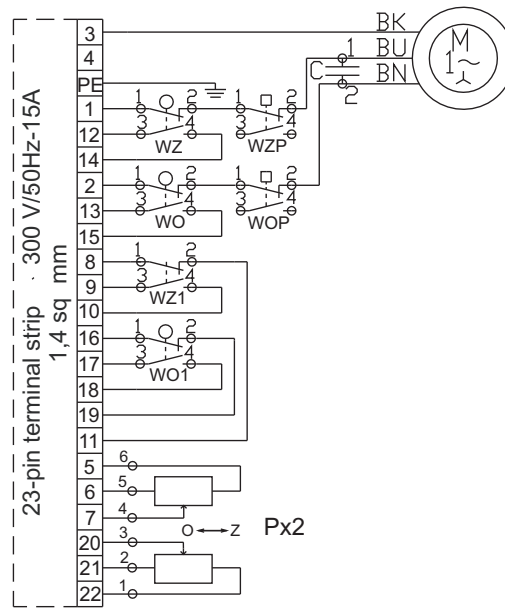
M-inductive motor
C-condenser
P - potentiometer

WO,WZ-travel switches for opening and closing
WOP,WZP-overload switches for opening and closing
WO1,WZ1-additional travel switches

ATTENTION:

- 1.Power 230 V, 50 Hz of clamps no. 3 and 2 makes working of actuator for opening
- 2.Power 230 V, 50 Hz of clamps no. 3 and 1 makes working of actuator for closing
- 3.Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.
- 4.Potentiometer P is used to position mapping of output actuator component.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH TERMINAL STRIP AND TWO POTENTIOMETERS

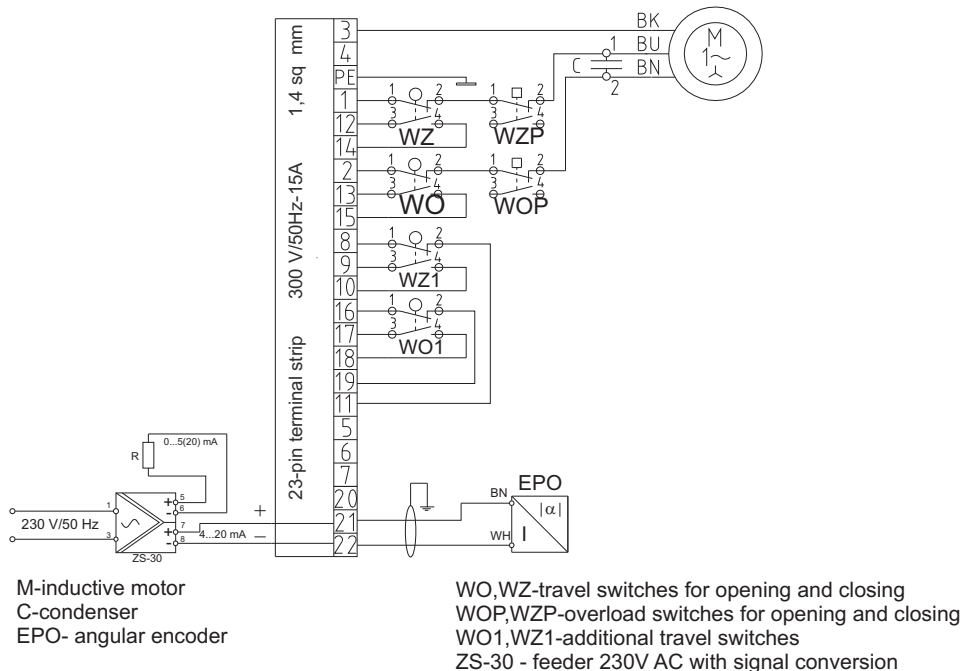


M-inductive motor
 C-condenser
 Px2 - double potentiometer
 WO,WZ-travel switches for opening and closing
 WOP,WWP-overload switches for opening and closing
 WO1,WZ1-additional travel switches

ATTENTION:

- 1.Power 230V, 50Hz of clamps no. 3 and 2 makes working of actuator for opening.
- 2.Power 230V, 50Hz of clamps no. 3 and 1 makes working of actuator for closing.
- 3.Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.
- 4.Potentiometer Px2 is used to position mapping of output actuator component.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH TERMINAL STRIP AND 4-WIRE ANGULAR ENCODER

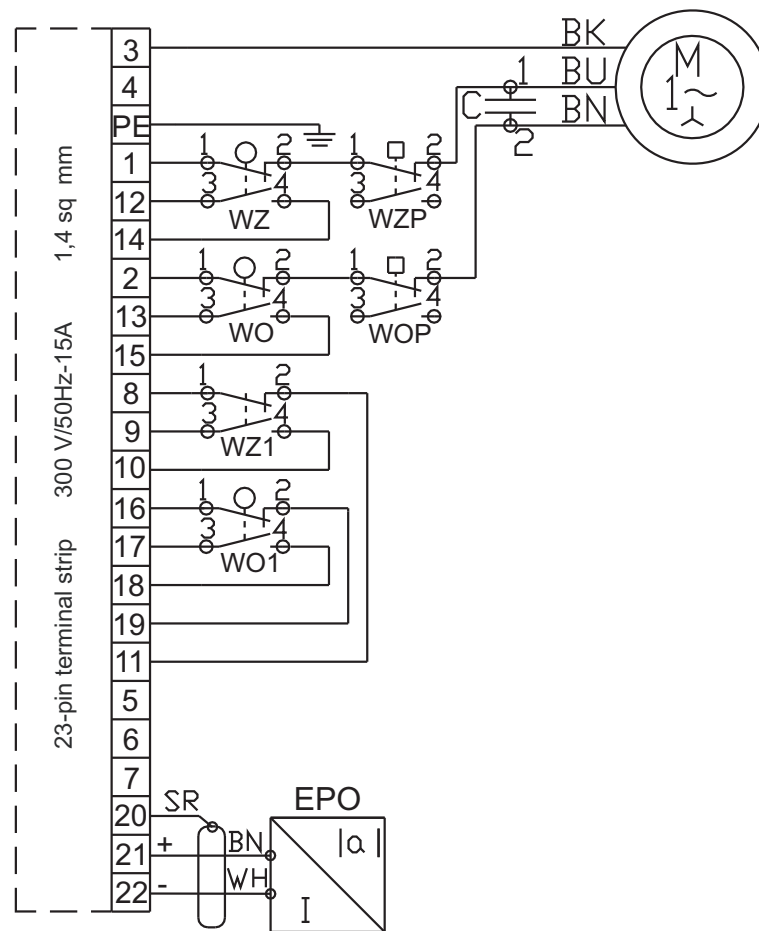


M-inductive motor
 C-condenser
 EPO- angular encoder
 WO,WZ-travel switches for opening and closing
 WOP,WWP-overload switches for opening and closing
 WO1,WZ1-additional travel switches
 ZS-30 - feeder 230V AC with signal conversion

ATTENTION:

- 1.Power 230V, 50Hz of clamps no. 3 and 2 makes working of actuator for opening.
- 2.Power 230V, 50Hz of clamps no. 3 and 1 makes working of actuator for closing.
- 3.Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.
- 4.Angular encoder EPO is used to position mapping of output actuator component.

ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH TERMINAL STRIP
AND 2-WIRE ANGULAR ENCODER

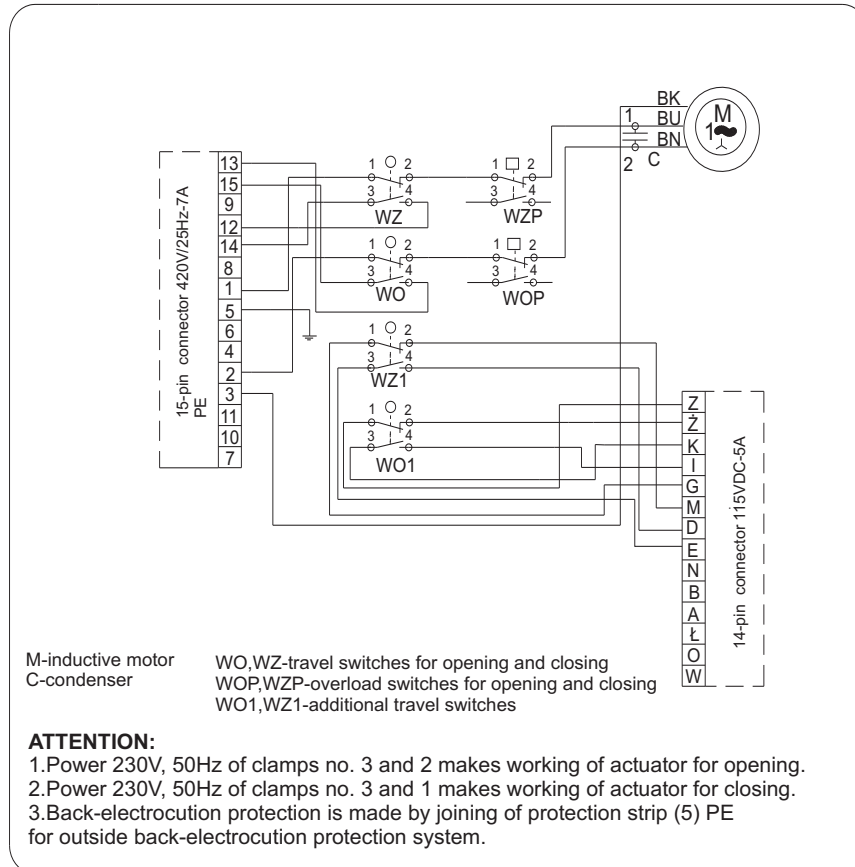


M - inductive motor
 C - capacitor
 WO, WZ - travel switch for opening and closing
 WO1, WZ1 - additional travel switch for opening and closing
 WOP, WZP - overload switch for opening and closing
 EPO - angular encoder

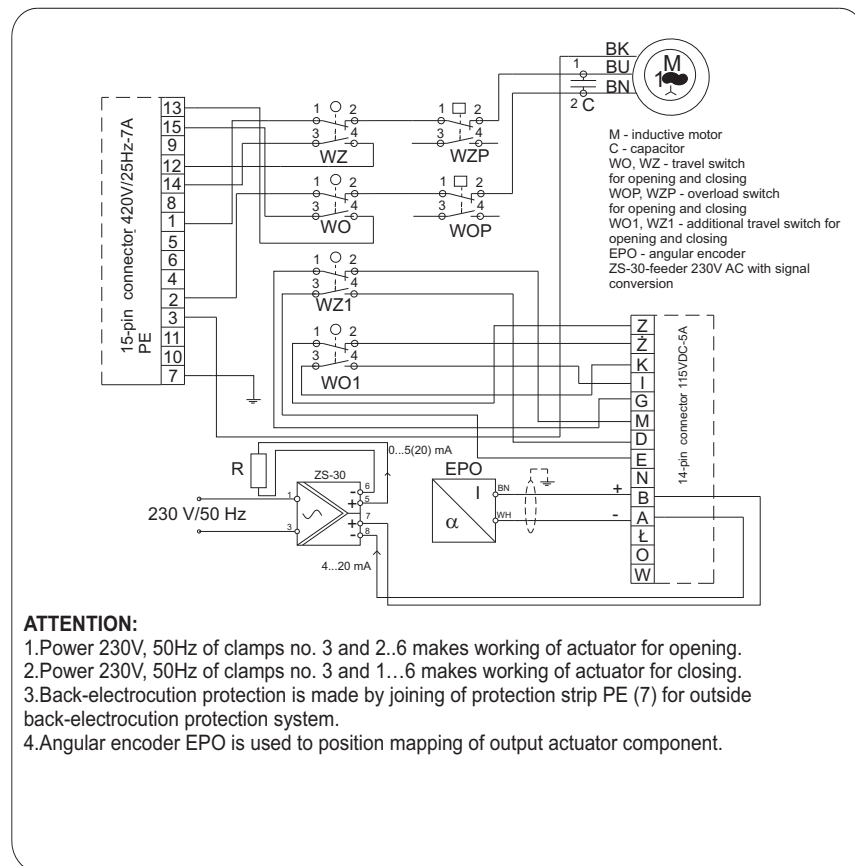
ATTENTION:

1. Power 230V, 50Hz of clamps no. 3 and 2 makes working of actuator for opening.
2. Power 230V, 50Hz of clamps no. 3 and 1 makes working of actuator for closing.
3. Back-electrocution protection is made by joining of protection strip PE for outside back-electrocution protection system.
4. Angular encoder EPO is used to position mapping of output actuator component.

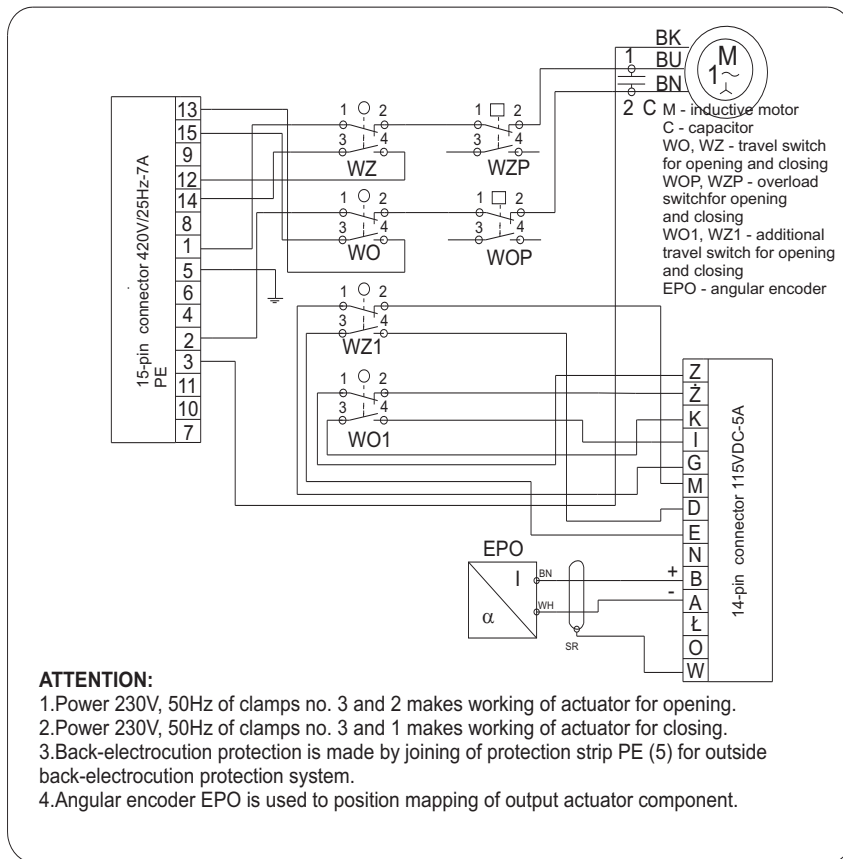
ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH MULTI-CONTACT CONNECTOR TYPE Ssz



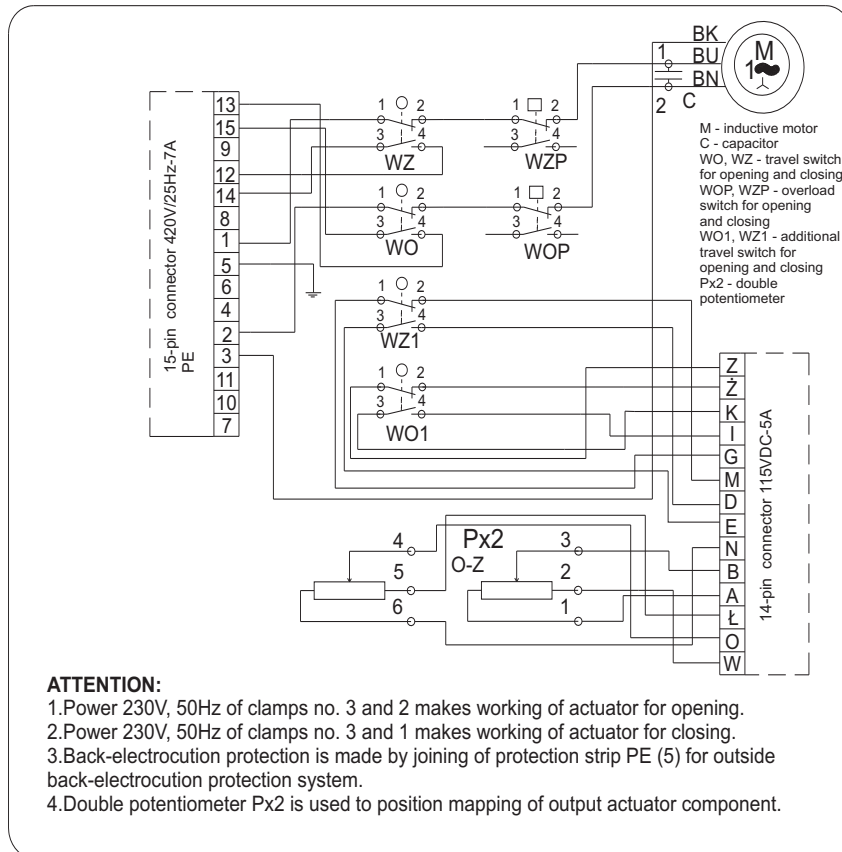
ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE MICROWITCHES, 4-WIRE ANGULAR ENCODER AND MULTI-CONTACT CONNECTOR TYPE SSZ



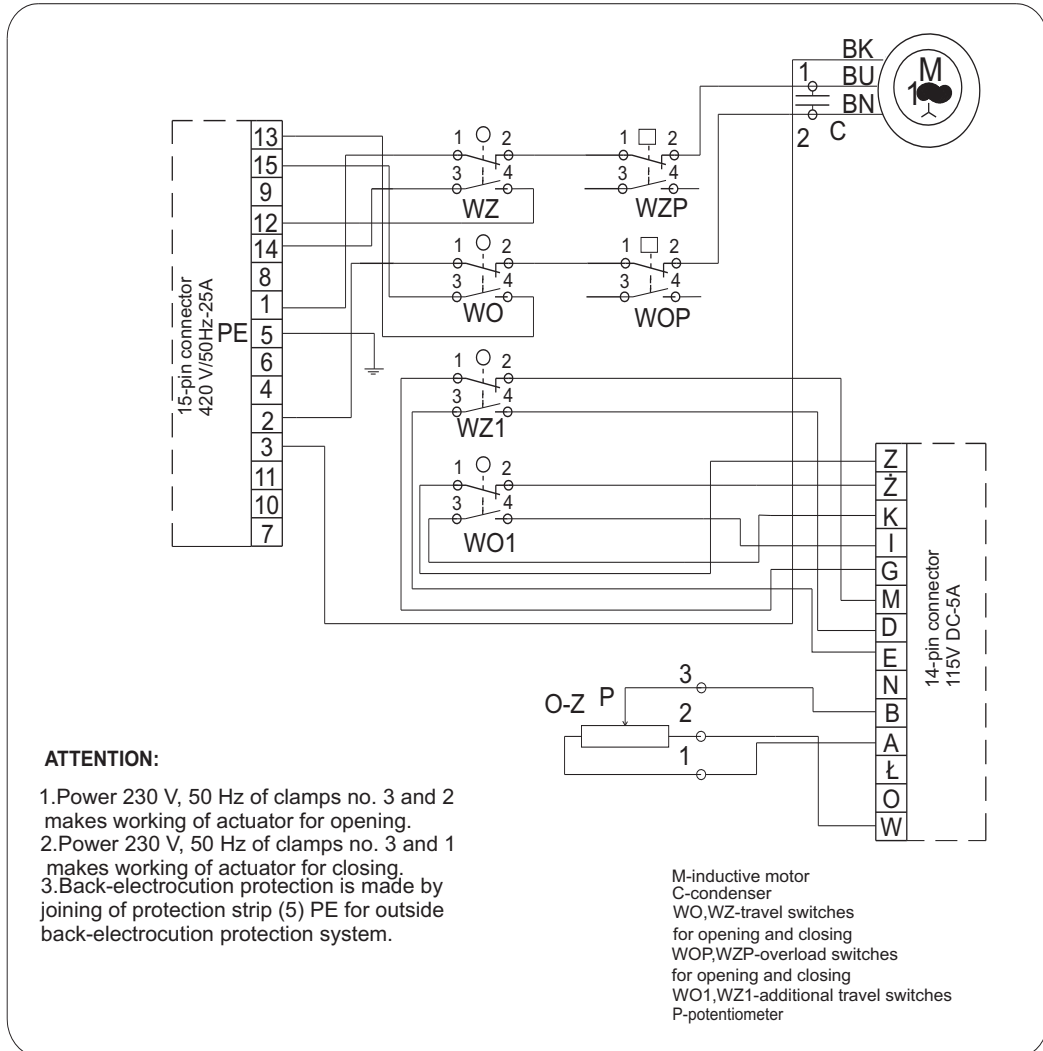
ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE MICROSWITCHES AND 2-WIRE ANGULAR ENCODER WITH MULTI-CONTACT CONNECTOR TYPE Ssz



ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE MICROSWITCHES AND DOUBLE POTENTIOMETER WITH MULTI-CONTACT CONNECTOR TYPE Ssz



ELECTRIC CIRCUIT DIAGRAM OF ACTUATOR WITH DOUBLE MICROSWITCHES AND POTENTIOMETER WITH MULTI-CONTACT CONNECTOR TYPE Ssz



ORDERING

TYPE	Force	Linear positioning speed	Travel "H"
ESL-03-00	4kN	25mm/min	25mm
ESL-03-01	4kN	25mm/min	40mm
ESL-03-02	2kN	25mm/min	25mm
ESL-03-03	2kN	40mm/min	40mm
ESL-03-04	3.2kN	40mm/min	40mm
ESL-03-05	6.3kN	16mm/min	20mm
ESL-03-06	6.3kN	16mm/min	25mm
ESL-03-07	6.3kN	16mm/min	40mm
ESL-03-08	6.3kN	25mm/min	20mm
ESL-03-09	6.3kN	25mm/min	25mm
ESL-03-10	6.3kN	25mm/min	40mm
ESL-03-11	8kN	16mm/min	20mm
ESL-03-12	8kN	16mm/min	25mm
ESL-03-13	8kN	16mm/min	40mm
ESL-03-14	8kN	25mm/min	20mm
ESL-03-15	8kN	25mm/min	25mm
ESL-03-16	8kN	25mm/min	40mm

Meaning of symbols the ESL-03-00-00-0-5-1-09-1:

- ESL-03-00 - small-sized electric linear actuator of rated lifting force F=4kN, travel h=25mm, linear positioning speed V=25 mm/min
- 00 - standard version
 - 01 - climatic version - for moderate climate
 - 5 - with 100Ω potentiometric transmitter
 - 1 - with single travel switches
 - 09 - with connector including: plate + connector
 - 1 - with amphenol connector

CODE1	PROTECTION TYPE
- 00	standard version

CODE2	CLIMATIC VERSION
-01	version N/2 acc. to PN-68/H-04650 (for moderate climate zone, on land, for outdoor under roof operation)

CODE3	EQUIPMENT
-0	Angular encoder type EPO-02 4...20Ma digital un-contacting (2-wire)
-1	Without angular encoder
-2	Angular encoder type EPO-01 0...5Ma analog potentiometric (4-wire)*
-3	Angular encoder type EPO-01 0...20Ma analog potentiometric (4-wire)*
-4	Angular encoder type EPO-01 4...20Ma analog potentiometric (4-wire)*
-5	Potentiometer 100 Ω
-6	Relay type R15
-7	Potentiometer 100Ω, Relay type R15
-8	Potentiometer 2x100Ω, Relay type R15
-9	Potentiometer 2x100Ω
-10	Angular encoder type EPO-03 4...20mA digital un-contacting (2-wire)
-11	Angular encoder type EPO-01 4...20mA analog potentiometric (2-wire)

CODE4	TRAVEL ADJUSTMENT
-1	single travel-dependent switches
-2	double travel-dependent switches (version - recommended)**

CODE5	CONNECTORS
-00	without connecting elements
-02	plate R 110 mm
-03	threaded connector 5/16" - 24UNF3A
-04	threaded connector 3/8" - 24UNF3A
-05	threaded connector 1/2" - 20UNF3A
-06	ball-and-socket joint
-07	plate + threaded connector 5/16" - 24UNF3A
-08	plate + threaded connector 3/8" - 24UNF3A
-09	plate + threaded connector 1/2" - 20UNF3A
-10	plate + threaded connector 5/16"-24UNF3A+ball-and-socket joint
-11	plate + threaded connector 3/8"-24UNF3A+ball-and-socket joint
-12	plate + threaded connector 1/2"-20UNF3A+ball-and-socket joint
-13	M12 x 1.25 connector
-14	M12 x 1.25 connector + plate R 110 mm

CODE6	ELECTRIC CONNECTORS
-1	Amphenol connector
-2	Terminal strip
-3	Multi-contact type Ssz

ESL-03-00 - 00 - 01 - 5 - 1 - 09 - 1 EXAMPLE OF ACTUATOR TYPE DENOTATION

* 2-wire angular encoder + feeder with signal conversion; the feeder - the feeder type ZS-30 or other similar for assembly outside the actuator

** - for double travel switches one can use the equipment having type symbol from "-0" to "-5" as well as "-9" and "-11" (CODE 3)

The right of introducing design changes in the product, without deteriorating of its operation parameters, is reserved.