

Electric Actuator

ACTELEC

Quarter-turn, EZ4 to EZ60
Quarter-turn, SQ80 and SQ120
BERNARD

Type Series Booklet



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Type Series Booklet ACTELEC

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Electric Actuators

Electric Quarter-turn Actuators, Make BERNARD

ACTELEC EZ4 to EZ60, SQ80 and SQ120



- Actuator/valve interface to ISO 5211
- They are suitable for all fields of application and all types of quarter-turn valves (centred-disc or offset-disc butterfly valves, ball valves, etc.).
- The actuators are equipped with removable adapters allowing them to be mounted on valves with different types of stem end (square or flat ends).
- The valves meet the requirements of the REACH 1907/2006 regulation. None of the substances listed in the candidate list and in Annex XIV of the regulation is present in a concentration above 0.1 % (w/w) (Article 33/REACH).
- The electric actuators are suitable for opening and closing valves in intermittent operation S4 - 25%.
- Electrical remote control
- Polyurethane coating, thickness 60 µm, colour: RAL 2010 orange
- Electrical motor protection by:
 - Integrated temperature switch
 - 2 electrical contacts for stopping the actuator in the limit position (1 contact for Open and 1 contact for Closed)
 - Torque limitation
- Heating resistor prevents condensation
- Manual override via handwheel
- Position indicator
- One or several adjustable travel stops
- Gear kinematics irreversible in any position

Main applications

- Water
- Waste water
- Energy
- Industry

Operating data

Operating properties

Characteristic	Value
ACTELEC	EZ4
	EZ6
	EZ10
	EZ15
	EZ25
	EZ60
	SQ80
SQ120	
Max. permissible temperature	-20 °C to +70 °C
Enclosure	IP 67
Motor protection	Thermal class F
Power supply	230 V single-phase AC current, 50 Hz 400 V three-phase current, 50 Hz (except for EZ4)

Variants

- Control function with integrated 4-20 mA positioner
- Additional electrical contacts, adjustable across the entire stroke, for remote position indication (limit and/or intermediate positions)
- Actual-position feedback via 1000-ohm potentiometer or 4-20 mA signal
- Communication interface - Intelligence - Field buses
- Other supply voltages

Design details

- ACTELEC electric quarter-turn actuator types EZ4 to EZ60, SQ80 and SQ120 cover torques of up to 1000 Nm.

Technical data

ACTELEC electric actuator types EZ and SQ are based on an electric quarter-turn actuator with actuator flange to ISO 5211. These actuators are suitable for on/off and control duties.

On/off duty

Type series

Valve top flange

ACTELEC	Top flange, standardised to ISO
EZ4	F05 / F07
EZ6	F05 / F07
EZ10	F05 / F07
EZ15	F05 / F07
EZ25	F07 / F10
EZ60	F07 / F10
SQ80	F12 / F14
SQ120	F12 / F14

Motor data

Single-phase AC current, 230 V, 50 Hz

ACTELEC	EZ4	EZ6	EZ10	EZ15	EZ25	EZ60	SQ80	SQ120
Nominal current [A]	0,8	0,6	1,2	0,6	0,6	1,2	2	1,2
Starting current [A]	0,9	0,9	1,7	0,9	0,9	1,7	3	1,7
Power [W]	30,0	30,0	60,0	30,0	30,0	60,0	0,15	60,0

Three-phase current, 400 V, 50 Hz

ACTELEC	EZ6	EZ10	EZ15	EZ25	EZ60	SQ80	SQ120
Nominal current [A]	0,3	0,6	0,3	0,3	0,3	0,3	0,3
Starting current [A]	0,5	1,1	0,5	0,5	0,8	0,8	0,8
Power [W]	30,0	100,0	30,0	30,0	60,0	60	60,0

Technical specification

Selection

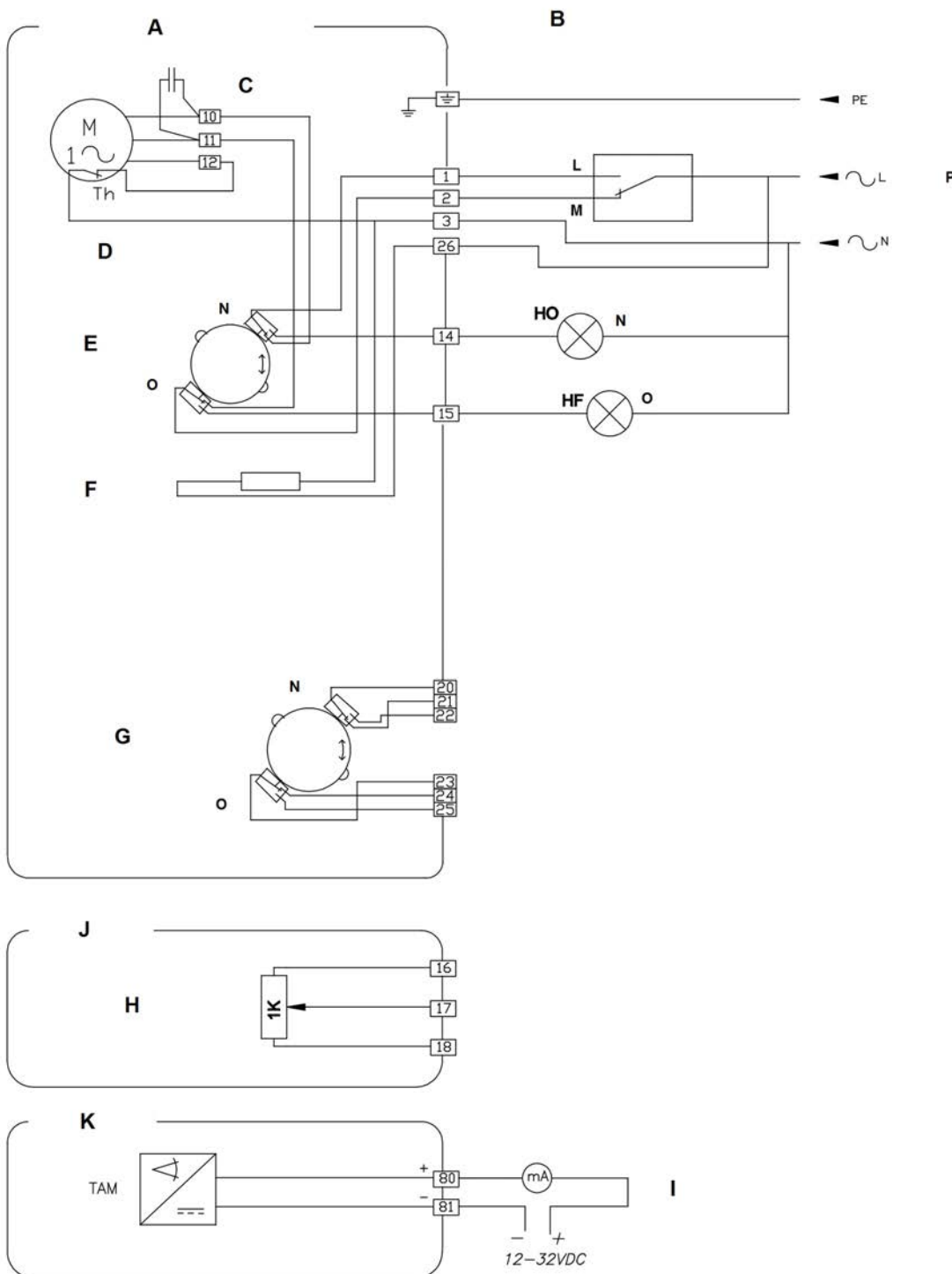
[mm]

ACTELEC		EZ4	EZ6	EZ10	EZ15	EZ25	EZ60	SQ80	SQ120
Nominal torque [Nm]		45	60	100	150	250	600	800	1200
Actuating time in seconds	230 V, single-phase	6	6	6	25	30	30	60	60
	400 V, three-phase	-	6	6	25	30	30	60	60
Electrical contacts for stopping the actuator		Standard							
Adjustable mechanical travel stops		Standard							
Torque switches for OPEN and CLOSED positions		Standard							
Heating resistor 6 W - 110-250 V AC/DC power supply		Standard							
Manual override - number of handwheel turns		Contact KSB.							
Power supply									
400 V, three-phase		Circuit diagram S50200/14.C				Circuit diagram 50210/06.D		Circuit diagram 50210/06.D	
230 V single-phase 400 V three-phase									
24 V direct current									
Other versions									
Continuous operation		Yes							
Integrated control system: INTEGRAL		Circuit diagram S50200/14.C				Circuit diagram 50210/06.D		Circuit diagram 50210/06.D	

Circuit diagram

Circuit diagram, single-phase, ready-to-connect, for EZ4, EZ6, EZ10 and EZ15

Circuit diagram S50200/14.C



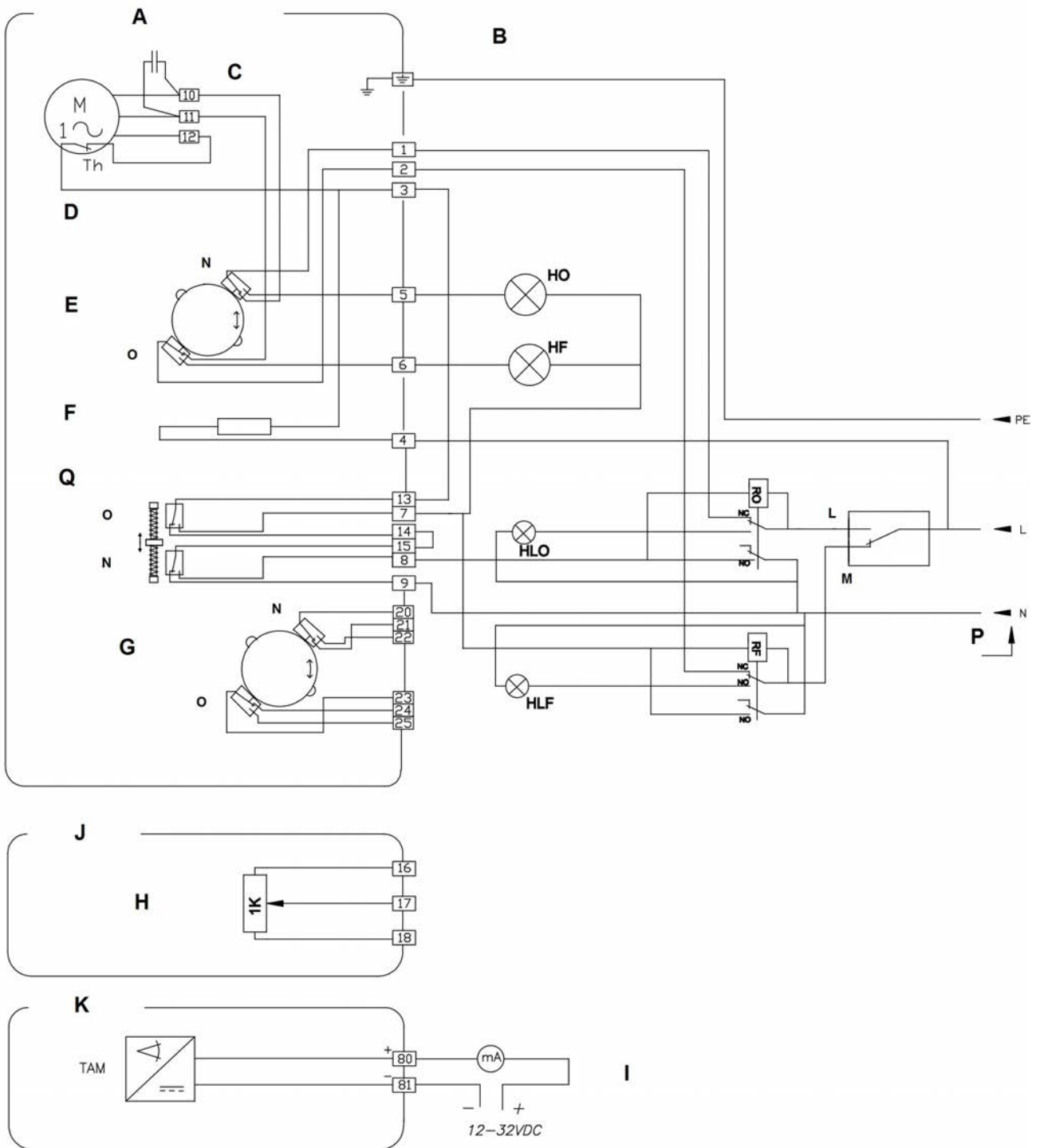
Key to circuit diagram, single-phase, ready-to-connect, for EZ4, EZ6, EZ10 and EZ15

A	Actuator
B	Recommended customer-supplied wiring
C	Capacitor
D	Thermal motor protection (Th)
E	Limit position
F	Heating resistor
G	Additional limit switch
H	Potentiometer
I	Actual-position feedback via 0/4-20 mA signal
J	Option 1*
K	Option 2*
L	Open (switching contact Open)
M	Close (switching contact Close)
N	Open
O	Closed
P	Single-phase voltage
HO	Open-position signalling
HF	Closed-position signalling

* All options are compatible

Circuit diagram, single-phase, ready-to-connect, for EZ25 and EZ60

Circuit diagram 50210/06.D



Key to circuit diagram, single-phase, ready-to-connect, for EZ25 and EZ60

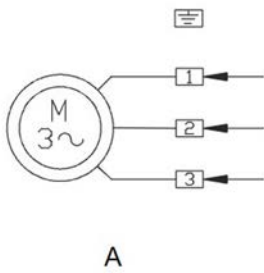
A	Actuator
B	Recommended customer-supplied wiring
C	Capacitor
D	Thermal motor protection (Th)
E	Limit position
F	Heating resistor
G	Additional limit switch
H	Potentiometer
I	Actual-position feedback via 0/4-20 mA signal
J	Option 1*
K	Option 2*
L	Open (switching contact Open)
M	Close (switching contact Close)
N	Open
O	Closed
P	Single-phase voltage
Q	Torque switch
HLO	Torque switch signalling - Open
HLF	Torque switch signalling - Close
HO	Open-position signalling
HF	Closed-position signalling
RO	Latching relay Open
RF	Latching relay Closed

Circuit diagram, single-phase, ready-to-connect, for SQ80 and SQ120

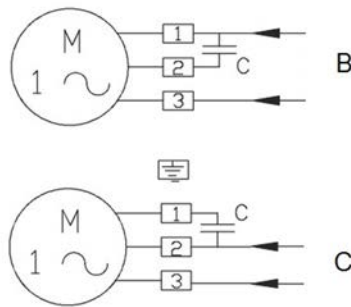
Circuit diagram S50000/38 Rev. A

Standard design

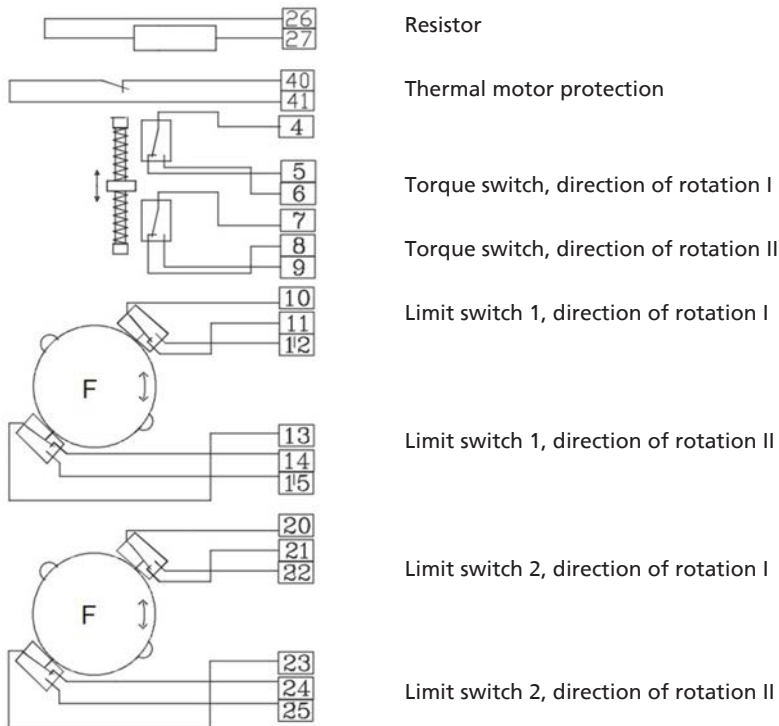
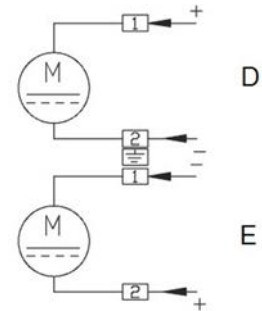
Three-phase version



Motor
Single-phase version



Direct-current version



Resistor

Thermal motor protection

Torque switch, direction of rotation I

Torque switch, direction of rotation II

Limit switch 1, direction of rotation I

Limit switch 1, direction of rotation II

Limit switch 2, direction of rotation I

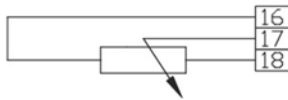
Limit switch 2, direction of rotation II

Key to the symbols

A	Three-phase direct = direction II
B	Direction I
C	Direction II
D	Direction II
E	Direction I
F	Limit switch

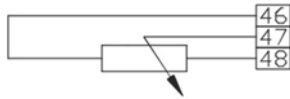
Options

Option 1



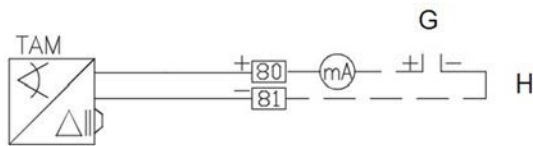
Potentiometer 1 1000 Ohm

Option 2



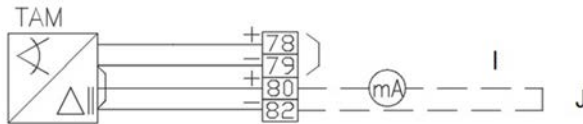
Potentiometer 2 1000 Ohm

Option 3

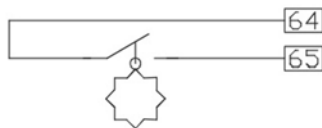


Electronic position transmitter TAM 4-20 mA

or



Option 4



Flashing contact (actuator running)

Key to the symbols

G	12 to 32 V DC
H	Two-wire design
I	Transmitter power supply 12 to 32 V DC
J	Three to four-wire design

All options are compatible

Contact functions

Direction of rotation

I - anti-clockwise (usual opening direction)

II - clockwise (usual closing direction)

Standard direction of rotation, viewed from the side opposite the actuator's mounting flange

Actual-position feedback

Type series

Valve top flange

ACTELEC	Top flange, standardised to ISO
EZ10 Minigam	F05 / F07
EZ15 Minigam	F05 / F07
EZ25 Monogame	F07 / F10
EZ60 Minigam	F07 / F10
SQ80 Minigam	F12 / F14
SQ120 Minigam	F12 / F14

Motor data

Single-phase AC current, 230 V, 50 Hz

ACTELEC	EZ10	EZ15	EZ25	EZ60	SQ80	SQ120
Nominal current [A]	1,2	0,6	0,6	1,2	2	1,2
Starting current [A]	1,7	0,9	0,9	1,7	3	1,7
Power [W]	60,0	30,0	30,0	60,0	0,15	60,0

Three-phase current, 400 V, 50 Hz

ACTELEC	EZ10	EZ15	EZ25	EZ60	SQ80	SQ120
Nominal current [A]	0,6	0,3	0,3	0,3	0,3	0,3
Starting current [A]	1,1	0,5	0,5	0,8	0,8	0,8
Power [W]	100,0	30,0	30,0	60,0	60	60,0

Technical specification

Selection

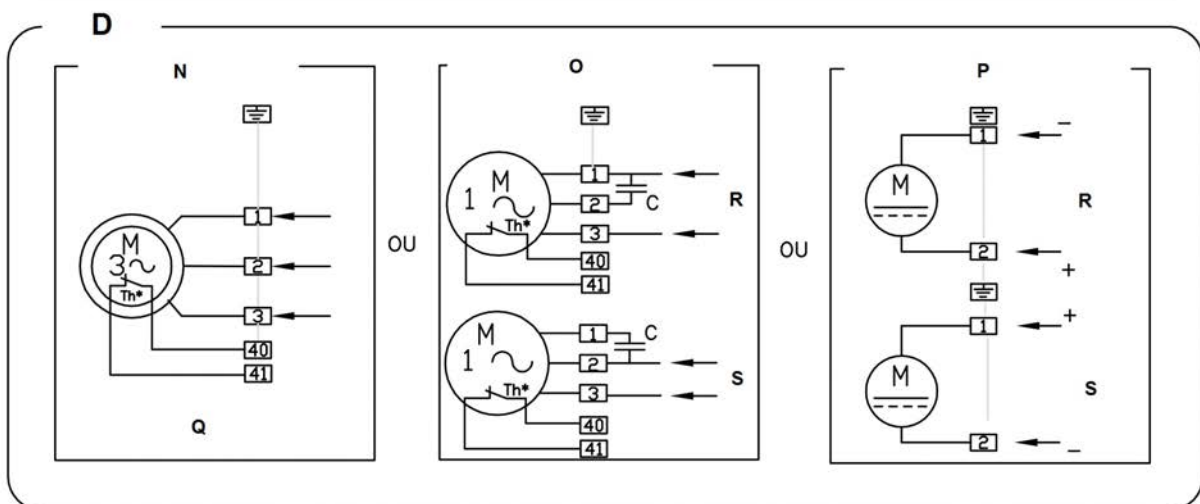
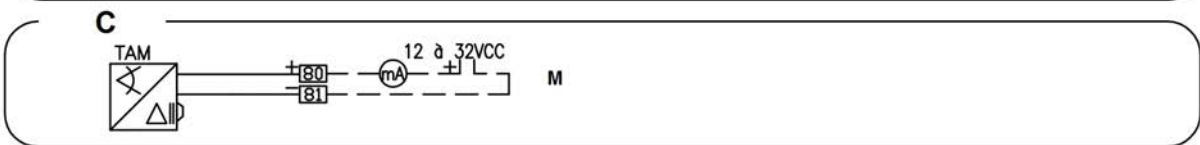
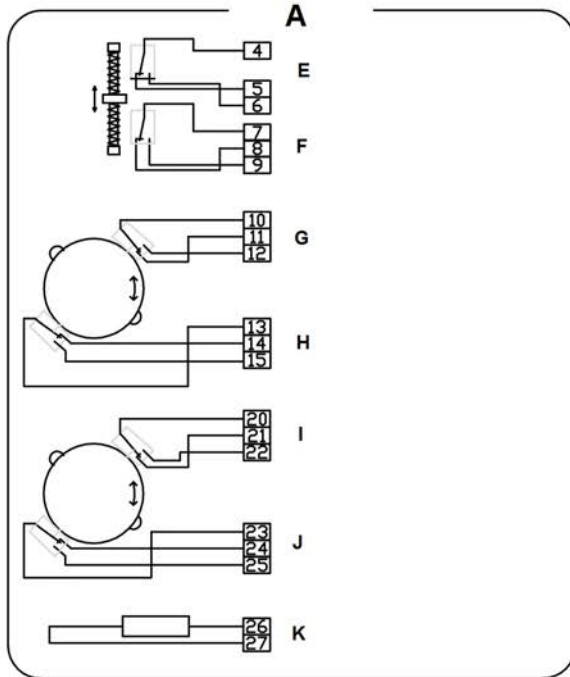
[mm]

ACTELEC		EZ10	EZ15	EZ25	EZ60	SQ80	SQ120
Nominal torque [Nm]		100	150	250	600	800	1200
Actuating time in seconds	230 V, single-phase	6	25	30	30	60	60
	400 V, three-phase	6	25	25	30	60	60
Electrical contacts for stopping the actuator		Standard					
Adjustable mechanical travel stops		Standard					
Torque switches for OPEN and CLOSED positions		Standard					
Heating resistor 6 W - 110-250 V AC/DC power supply		Standard					
Manual override - number of handwheel turns		Contact KSB.					
Power supply							
400 V, three-phase		Circuit diagram S50999/00.D				Circuit diagram 50210/06.D	
230 V single-phase 400 V three-phase							
24 V direct current							
Other versions							
Continuous operation		Yes					
Integrated control system: INTEGRAL		Circuit diagram S50999/00.D				Circuit diagram 50210/06.D	
		Circuit diagram S56710/03.C					

Circuit diagram

Circuit diagram for EZ10, EZ15, EZ25 and EZ60 MINIGAM+

Circuit diagram S50999/00.D



Key to circuit diagram for EZ10, EZ15, EZ25 and EZ60 MINIGAM+

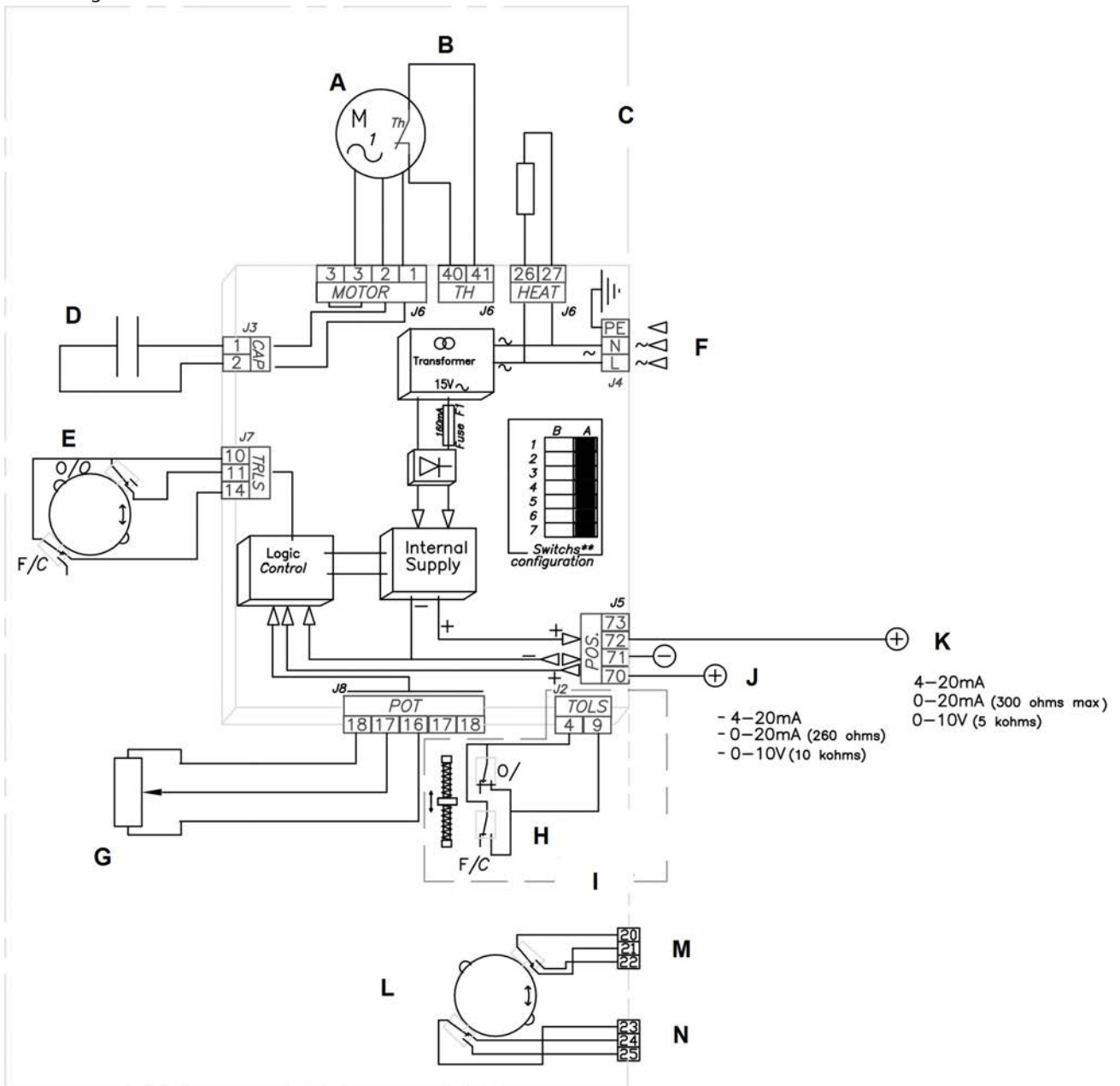
A	Standard
B	Option 1**
C	Option 2**
D	Motor
E	Torque switch Open*
F	Torque switch available*
G	Limit switch Open
H	Limit switch Closed
I	Additional limit switch Open
J	Additional limit switch Closed
K	Heating resistor
L	Potentiometer
M	Actual-position feedback via 0/4-20 mA signal
N	Three-phase motor
O	Single-phase motor
P	Direct-current motor
Q	Three-phase direct = closing
R	Opening
S	Closing
Th*	Thermal motor protection

* The torque switch contacts are of the momentary type.

** All options are compatible

Circuit diagram EZ < 300W

Circuit diagram S56710/03.C



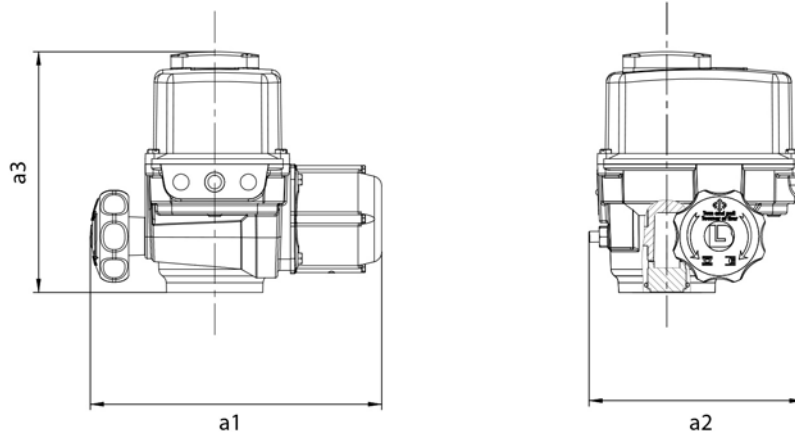
Key to circuit diagram EZ < 300 W

A	Actuator
B	Thermal motor protection
C	Heating resistor
D	Capacitor
E	Limit position
F	Single-phase voltage
G	Potentiometer
H	Torque switch
I	Option*
J	Input signal
K	Output signal
L	Additional limit switch
M	Additional limit switch Open
N	Additional limit switch Closed

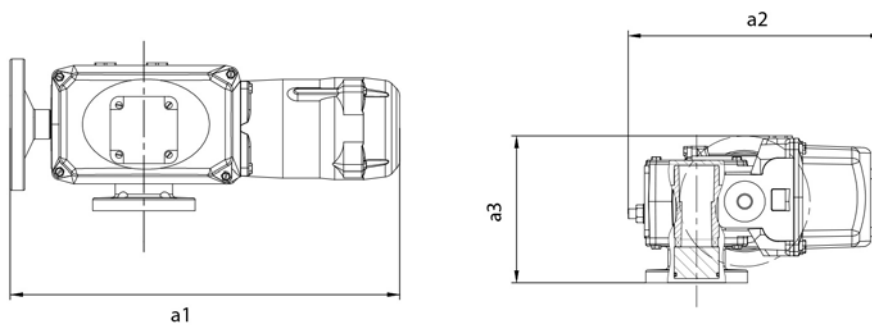
* Compatible with actuators with torque switch only

Dimensions

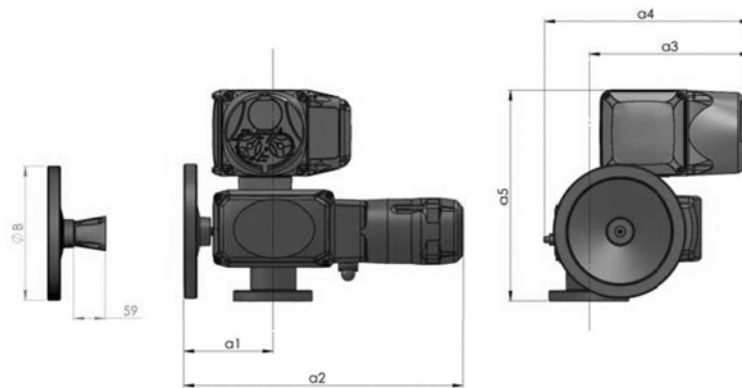
ACTELEC EZ4-EZ15



ACTELEC EZ25-EZ60



ACTELEC SQ80-SQ120



Table

[mm]

ACTELEC	a1	a2	a3	a4	a5	Ø B	Actuator flange to ISO 5211			Weight [kg]
							Ref.	Ø d1	Ø d2	
EZ4	273	200	225	-	-	-	F05	50	M6	6
							F07	70	M8	
EZ6	319	200	225	-	-	-	F05	50	M6	7
							F07	70	M8	
EZ10	362	200	225	-	-	-	F05	50	M6	7
							F07	70	M8	
EZ15	362	200	225	-	-	-	F05	50	M6	7
							F07	70	M8	
EZ25	479	313	180	-	-	-	F07	70	M8	18
							F10	102	M10	
EZ60	528	313	180	-	-	-	F07	70	M8	20
							F10	102	M10	
SQ80	168	528	305	389	366	250	F12	125	M12	28
							F14	140	M16	
SQ120	171	583	385	525	356	250	F12	125	M12	37
							F14	140	M16	



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19.05.2015

8521.12/6-EN