

ZPA PEČKY, a.s.



Electric part - turn actuators
in non-explosive version, with constant velocity of changing-over
the output part - coverage IP67

MODACT MOKP EEx **MODACT MOKP EEx CONTROL**

Type No. 52 320 - 52 322



EN ISO 9001:2000
Certificate No. 041005161/000-E01



CERTIFICATE

The TÜV CERT Certification Body
for QM systems of RWTÜV Systems GmbH

hereby certifies in accordance with TÜV CERT
procedure that

ZPA Pečky, a.s.
Třída 5. května 166
289 11 Pečky
Czech republic

has established and applies a quality system for

**Development and production of electric actuators,
enclosures and sheet metal production**

An audit was performed, Report No. 624362

Proof has been furnished that the requirements according to

ISO 9001 : 2000 / EN ISO 9001 : 2000


are fulfilled. The certificate is valid until **11. November 2006**

Certificate Registration No. **041005161/000-E01**

The company has been certified since **1995**



Essen, 14.11.2003


TÜV CERT Certification Body
of RWTÜV Systems GmbH

USE

MODAC MOKP EEx electric actuators are designed for control and working applications in hazardous explosive environment in accordance with EN 50014 and EN 50018, zone 1 (former SNV2) and zone 2 (former SSNV1) in accordance with ČSN EN 60079-10 (ČSN 33 2320).

The actuators are used for control of fittings by reverse rotation movement in remote control and automatic control circuits. They can be used for other appropriate units as well. Special applications should be discussed with the manufacturer.

MODAC MOKP EEx Control electric actuators have electronic position control. They are used as terminal elements of physical value control circuits.

The actuators are mounted on control units. Connection values comply with ISO 5211 or DIN 3337 specifications.

DESCRIPTION AND FUNCTION

The actuators consist of power and control systems.

The power system includes electric engine, spur epicyclic gearbox and worm gear unit for manual control.

Control unit configuration depends on actuator design. It includes:

- A) MODAC MOKP EEx type: - positioning and signalization switches with position transmitter
- moment switch unit
- B) MODAC MOKP EEx Control type: - positioning and signalization switches
- moment switches
- ZP 2.RE electronic controller

The actuator has a heating resistor for microclimate control of the control system. The connection to external circuits is made via terminal board. The actuator output section movement is transmitted to position and signalization switches and position transmitter. The worm movement depending on the actuator load is transmitted to moment switches.

OPERATING CONDITIONS

In standard design the actuators should withstand the effect of operating conditions and external influences, classes AA7, AB7, AC1, AD5, AE5, AF2, AG2, AH2, AK2, AL2, AM2, AN2, AP3, BA4 and BC3, according to ČSN Standard 33 2000-3 (mod. IEC 364-3:1993).

Classes of external influences

Basic characteristics - as extracted from ČSN Standard 33 2000-3 (mod. IEC 364-3:1993).

- 1) AA7 - Simultaneous effect of ambient temperature of - 25 °C to + 55 °C with relative humidity from 10 % upwards
- 2) AB7 - Ambient temperature to Point 1); minimum relative humidity 10%, maximum relative humidity 100% with condensation
- 3) AC1 - Altitude \leq 2,000 m above sea level
- 4) AD5 - Splashing water in all directions
- 5) AE5 - Small dust content of air; mean layers of dust; daily dust fall more than 35 mg/m², but not exceeding 350 mg/m²
- 6) AF2 - Corroding atmosphere and pollutants; the presence of corroding pollutants is significant.
- 7) AG2 - Average mechanical stress; in current industrial plants
- 8) AH2 - Medium vibrations; in current industrial plants
- 9) AK2 - Serious risk of growth of vegetation and moulds
- 10) AL2 - Serious danger of the occurrence of animals (insects, birds, small animals)
- 11) AM2 - Harmful effect of escaping vagabond currents
- 12) AN2 - Medium solar radiation with intensities $>$ 500 W/m² and \leq 700 W/m²
- 13) AP3 - Medium seismic effects; acceleration $>$ 300 Gal \leq 600 Gal
- 14) BA4 - Personal abilities; instructed people
- 15) BC3 - Frequent contact with the earth potential; persons coming frequently into contact with „live“ parts or standing on a conducting base

If the actuator is used at a location with an ambient temperature under - 10 °C and/or relative humidity above 80%, at a sheltered location, or in the tropical atmosphere, the anti-condensation heater which has been built in all actuators, should be always used. One or two heater elements should be connected, as required.

Installation of the actuators at a location with incombustible and non-conducting dust is possible only if this has no adverse effect on their function. It is advisable to remove dust whenever the layer of dust becomes as thick as about 1 mm.

TECHNICAL REQUIREMENTS

Supply voltage

- nominal value of alternating voltage is 1x230 V and 3x400 V (depending on type)
- supply voltage tolerance ranges -10% and +6% of the nominal value
- nominal supply voltage frequency is ± 2 % of the nominal value

Nominal values of all parameters are maintained over the supply voltage range, except of drive torque, which is changing proportionally to the square of supply voltage deviation from the nominal value. The dependency is proportional to the supply voltage change. Higher supply voltage deviations are not accepted.

Working position

The actuators can operate in any working position..

Switch of moment

The switch off moment will be set by the manufacturer upon customer requirement within the specification range (see chart). If special moment setting not required, the maximum switch off moment of the relevant actuator type will be set.

Operating mode

Actuator can work at nominal load being 50% of the maximum switch off load, S2 load. The operation time at this load is 10 minutes at the temperature ranging from the environmental value to +55°C. Actuator can work at nominal load and interrupted operation with S4 start up run in compliance with ČSN EN 600034-1 (35 0000). The load factor is 20%, maximum switching frequency - 1,200/h. The longest operation cycle is determined by the full actuator travel running time. If moment switching is used, the load after reversion must not be applied in the direction of the output shaft movement.

Self - locking capacity

Actuator self-locking capacity is provided by mechanical electric motor brake, at actuator type no. 52 320 by mechanic gearbox brake.

Manual operating

actuators are controlled manually (steering wheel), no transmission. The control can be made during the operation as well. By turning the wheel clockwise, the output shaft rotates clockwise at viewing the position indicator (closing direction). Steering wheel rotation direction is indicated at the wheel table.

Switches

The actuators have six microswitches, two of them for switching off at reaching preset actuator output shaft position. These on/off switches control actuators working travel (each for one end position).

Another two signal on/off microswitches are intended for output shaft position indication and two on/off switches are intended for actuator switching off after reaching preset moment value. Each of them is intended for one working direction of the actuator output shaft (no locking).

Heating element

Every actuator has one heating element to prevent moisture condensation. It is switched to 230V AC/DC.

Position transmitter

Resistance position transmitter

- double 2 x 100 Ω + max. 12 Ω

CPT 1/A current position transmitter

with unified signal

Nominal working travel

Non-linearity incl. gears

4 - 20 mA (I: 0,1 mA)

0°-40° to 0°-120° (stepless adjustment)

$\pm 2,5$ % (for maximum travel 120°)

Hysteresis incl. gears	max. 2,5 % (for maximum travel 120°)
Non-linearity and hysteresis are related to a 20 mA signal.	
Loading resistor R_z	0 Ω to 500 Ω
Supply voltage for R_z 0÷100 Ω	10 - 20 V_{SS}
for R_z 400÷500 Ω	18 - 28 V_{SS}
Maximum supply voltage ripple effect	5 %
Maximum transmitter power output	560 mW
Insulation resistance	200 M Ω at 50 V_{SS}
Electric insulation strength	50 V_{SS}
Ambient temperature	-25°C - to +60°C
Extended range	-25°C - to +70°C

For the extended range, the R_z value has to be increased to 500 Ω , supply voltage not exceeding 25 V. The supply voltage limit for ambient temperature range -25°C to +60°C is 30 V. Exceeding these limits may cause transmitter failure. The transmitter case/signal conductor resistance must not exceed 50 Ω . The transmitter is connected using two wires (transmitter, power supply and the load being in serial connection). The user shall be liable for connection of the two-wire circuit of the transmitter to earth connector of the subsequent control device, PC etc. The connection shall be made only in one point of the circuit, outside the actuator.

Actuator terminal board

The actuators have terminal boards for external connection. The terminal board has terminals for connection of one 1,5 mm² conductor or two conductors with the same cross-section 0,5 mm² each..

Protection

Actuator protection is IP 67 in accordance with ČSN EN 60 529 (33 0330).

Insulation resistance

The minimum insulation resistance of electric control circuits to mass and to each other is 20 M Ω . The minimum electric motor insulation resistance is 1,9 M Ω . The minimum insulation resistance of control circuits after the moisture test is 2 M Ω . The CPT 1/A transmitter resistance at 50 VDC (dry state) is 20 M Ω při 50 V_{SS} .

Electric insulation strength of electric circuit

Resistance position transmitterý	2 x100 Ω	500 V, 50 Hz
Microswitch and heating element circuits		1 500 V, 50 Hz
Electric motor	$U_n = 1x230$ V	1 500 V, 50 Hz
	$U_n = 3x400$ V	1 800 V, 50 Hz
CPT 1/A transmitter		50 V_{DC}

Actuator service life

The mean service life is minimum 6 years. During this time, the actuator must be able to perform minimum 1×10^6 switching actions in S4 operation mode, the total working time of these cycles (periods at which the output shaft is in motion) shall be minimum 500 hours. The number of working cycles at which moment or position switches are off shall be minimum 1×10^6 .

Protection

The actuators have external and internal protection terminal against electric shock voltage.

The terminals are identified in compliance with ČSN IEC 417 (34 5555).

Noise

The acoustic noise level A in accordance with ČSN ISO 3745 (01 1606) shall not exceed 85 dB (A).

The acoustic power A shall not exceed 95 dB (A).

Standard parameter tolerances

Switch off moment	± 15 % of the maximum switch off moment
Output shaft changing time	+10% of the nominal value - 15% of the nominal value
Position and signal switch hysteresis	$\leq 4^\circ$
Setting position and signal switch (working travel)	$\pm 1^\circ$
Transmitter linearity incl. transmission	$\pm 2,5$ % of the nominal value of the transmitter output signal

Position transmitter hysteresis	≤ 2.5% of the transmitter output signal nominal value
Repeatability of moment switch actions (for guidance only)	±15 % of the maximum switch off moment value
Output part clearance	max. 1,5°

Working travel

Actuator nominal working travel is 90°, 60°, 120° and 160° are optional.

POSITION CONTROLLER

A built-in position regulator allows automatic positioning of the actuator output shaft to be performed, depending on the analog input signal. At the regulator input, the input control signal is compared with the feedback signal of the position transmitter. The resulting control deviation, if any, is used for actuator run control, the actuator output shaft being brought into the position corresponding to the input control signal value.

This regulator uses the high performance of the RISC processors MICROCHIP for performing all its functions, while at the same time enabling continuous system self-diagnosis to be effected and error messages to be displayed whenever a failure occurs. Due to this facility, the user need not make complicated adjustment as in the case of a current analog regulator. For this purpose, it is sufficient to start the initializing program to make the regulator perform all necessary functions.

REGULATOR SOFTWARE

1) The regulator can be programmed to perform the required functions in the following two ways:

- By a PC after the RS 232 interface.
- By means of the functional keys and LEDs on the regulator.

The following parameters can be programmed:

- Control signal
- Regulator response to the TEST signal and the error state (depending on the programmed requirements)
- Mirroring (ascending or descending characteristic of the control signal)
- Regulator insensitivity
- Way of Regulation narrow to a moment narrow to a position wide to a moment wide to a position

2) All operating states of the regulator can be monitored by a PC after the RS 232 interface. In this case, the regulator issues error messages by means of LEDs or PC.

- Presence of the TEST signal
- Control signal is missing
- Limit switches (faulty connection)
- Failure of position sensor
- Failure of thermal protection

TECHNICAL PARAMETERS OF REGULATOR

Alternative supply voltages:	A. 230 V +10%, -15%	50 - 60 Hz
	B. 120 V +10%, -15%	50 - 60 Hz
	C. 24 V +10%, -15%	50 - 60 Hz
Control signal	0 to 20 mA, 4 to 20 mA, 0 to 10 V	
Position sensor	Potentiometer of 100 to 10,000 Ω	
	Current transmitter of 4 to 20 mA	
Regulator linearity	0.5%	
Regulator insensitivity	1 to 10% (adjustable)	
Operating temperature range	- 25 °C to + 75 °C	
LED error messages	- TEST mode	
	- Control signal is missing	
	- Reversed position switches	
	- Failure of position sensor	
	- Failure of thermal protection	

Response to failure:	Failure of sensor	- Actuator in the TEST position	- LED error message
	Control signal is missing	- Actuator in the TEST position	- LED error message
	TEST mode	- Actuator in the TEST position	- LED error message
Output signal:	Power outputs	- 2x relay of 5 A, 230 V	
	Central failure	- Switching contact of 24 V, 2 W	
	5x LED (power supply, failure, adjustment, opens, closes)		
	Brake - Control signal of 2 mA (signal for additional module)		
	Actuator position - I2C bus (signal for additional module)		
Adjusting devices:		- 2x calibrating and parameter adjusting push-button	
		- Communication connector	
Dimensions:		- 75 x 75 x 25 mm	

Ordering data

Following data must be given in purchasing orders:

- quantity of units
- actuator designation
- full type number in accordance with chart no. 1 (9 digits, 10 digits for electronic design)
- required switch off value (if no indication will be made, the maximum travel, i.e. 90° will be preset by the manufacturer)

Product data

Every actuator bears a rating plate with following data:

1. Explosion-protection plate:

- manufacturer and its registered trade mark
- full actuator type designation
- serial number
- type of explosion protection
- testing laboratory number (symbol)
- certificate (type certificate no.)
- electric protection

2. Rating plate:

- nominal electric motor power output (W)
 - electric motor voltage (V), frequency (Hz)
 - nominal electric motor current (A)
 - maximum allowed microswitch voltage (V)
 - maximum allowed microswitch current (A)
 - nominal transmitter resistance 1 x 100 (2 x 200) Ω
 - maximum position transmitter voltage (V)
- nominal electric motor power output (W)
 - electric motor voltage (V), frequency (Hz)
 - nominal electric motor current (A)
 - maximum allowed microswitch voltage (V)
 - maximum allowed microswitch current (A)
 - transmitter output signal (mA)

3. Product identification plate:

- manufacturer and its registered trade mark
- full actuator type designation
- year of manufacture
- serial number
- actuator weight (kg)
- nominal output (Nm)
- actuator protection
- resetting time (s/90°)
- working travel (st.)

Another three plates are attached on the actuator cover:

4. Warning : WARING! DISCONNECT POWER SUPPLY PRIOR TO DISMANTLE!

5. Indication table: – EExdIICT6

6. Manufacturer: ZPA Pečky, a.s., MADE IN CZECH REPUBLIC

Table no. 1: Basic technical parameters
Electric actuators MODACT MOKP EEx

Type	Type number	Operating time s/90°	Tripping torque range Nm	Elektric motor						Weight kg	
				Power W	Type	Rpm 1.min ⁻¹	Voltage V	Current A	Capacity μF		
MOKP 100 EEx	52 320	.x=1+	10	25-100	80	ES 7150-2AL	2750	1 x 230	0,7	7	9,7
		.x=2+	20		80	ES 7150-2AL	2750	1 x 230	0,7	7	
		.x=3+	40	25-85	15	FCJ2B52D	2780	1 x 230	0,37	3,5	
		.x=4+	80	25-100	17	ES 7130-4AY	1300	1 x 230	0,27	3,5	
		.x=5+	10	16-32	15	FT2B52D	2680	3 x 400	0,10	-	
		.x=6+	20	25-80	15	FT2B52D	2680	3 x 400	0,10	-	
		.x=7+	40	25-100	15	FT2B52D	2680	3 x 400	0,10	-	
		.x=8+	80	not delivered							
MOKP 250 EEx	52 321	.x=1+	10	63-125	90	EAMRB56N02	2780	1 x 230	0,9	8	18,5
		.x=2+	20	100-250	90	EAMRB56N02	2780	1 x 230	0,9	8	
		.x=3+	40		40	EAMRB56N04A	1380	1 x 230	0,55	5	
		.x=4+	80		40	EAMRB56N04A	1380	1 x 230	0,55	5	
		.x=5+	10	63-200	90	EAMR56N02L	2790	3 x 400	0,25	-	
		.x=6+	20	100-250	90	EAMR56N02L	2790	3 x 400	0,25	-	
		.x=7+	40		20	EAMR56N04A	1440	3 x 400	0,20	-	
		.x=8+	80		20	EAMR56N04A	1440	3 x 400	0,20	-	
MOKP 600 EEx	52 322	.x=1+	10	250-510	180	EAMR63N04	1370	3 x 400	0,6	-	31
		.x=2+	20	250-600	120	EAMR63N04L	1390	3 x 400	0,45	-	
		.x=3+	40		60	EAMR63L02A	2790	3 x 400	0,20	-	
		.x=4+	80		20	EAMR63L04A	1440	3 x 400	0,20	-	
		.x=5+	160		20	EAMR63L04A	1440	3 x 400	0,20	-	
		.x=6+	20	250-450	180	EAMRB63N04	1320	1 x 230	1,35	10	
		.x=7+	40	250-550	90	EAMRB63L02	2780	1 x 230	0,90	8	
		.x=8+	80	250-600	40	EAMRB63L04A	1380	1 x 230	0,55	5	
		.x=9+	160		40	EAMRB63L04A	1380	1 x 230	0,55	5	

Place x:

STROKE 90°	STROKE 60°	STROKE 120°	STROKE 160°	using transmitter
6	-	-	-	with resistance transmitter 2x100 Ω
7	B	F	J	with CPT 4-20 mA without built-in feeding source
8	C	G	K	without transmitter
9	D	H	L	with CPT 4-20 mA with built-in feeding source

Place =:

- 0 version without built-in controller of position and without local control
- 1 version with built-in controller of position and without local control Note 1)
- 2 version without built-in controller of position and with local control
- 3 version with built-in controller of position and with local control Note 1)
- 4 version with built-in contactors, without controller of position and without local control Note 2)
- 5 version with built-in contactors, with controller of position and without local control Note 2)
- 6 version with built-in contactors, without controller of position and with local control
- 7 version with built-in contactors, with controller of position and with local control Note 2)

Place +:

number or letter is written according to table 2

Note:

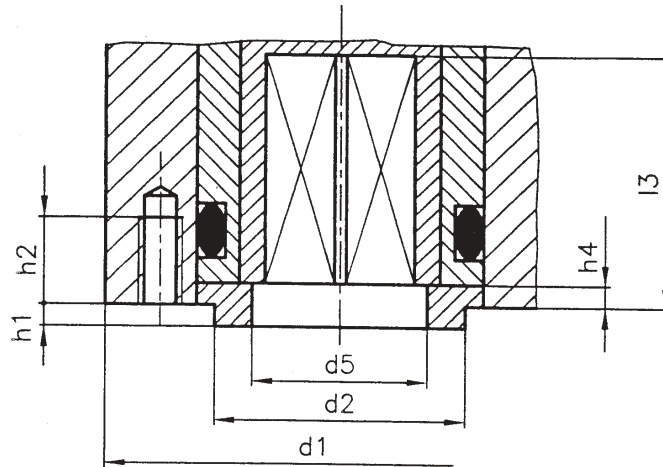
- 1 This version is delivered with single-phase electric motor only
- 2 This version is delivered with three-phase electric motor only
- 3 Electric actuators type no. 52 320 are not delivered in version with built-in contactors for three-phase type
- 4 Resistance transmitter for stroke 90° only.

**Table 2: Way of connecting electric actuators MODACT MOKP EEx
- way of specifying the 4th place in additional type number (place +)**

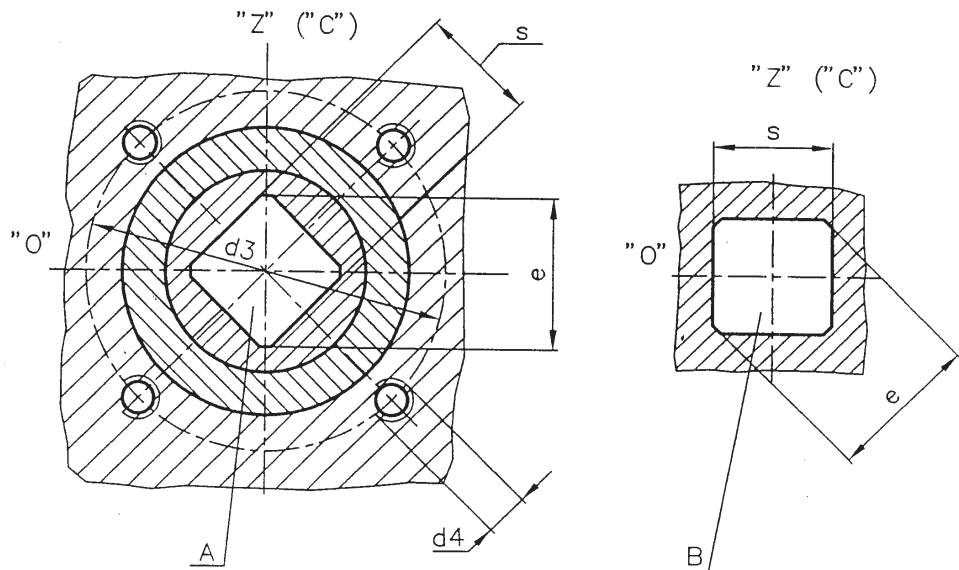
Flange size	Connection	Square size s [mm]	Square position	Marking of the 4 th position in the supplementary type number	Structural design of output
Type number 52 320					
F05	keyway			0	collar
F05	square	14	basic	1	Exchangeable inserts
F04	keyway			2	
F04	square	11	basic	3	
F05		14	positioned at a 45°	4	
F04		11	positioned at a 45°	5	
F04		12	basic	6	
F04		12	positioned at a 45°	7	
F05		16	basic	8	
F05		16	positioned at a 45°	9	
Type number 52 321					
F10	keyway			0	collar
F10	square	22	basic	1	Exchangeable inserts
F07	keyway			2	
F07	square	17	basic	3	
F10		22	positioned at a 45°	4	
F07		17	positioned at a 45°	5	
F07		19	basic	6	
F07		19	positioned at a 45°	7	
F10		24	basic	8	
F10		24	positioned at a 45°	9	
F10		27	basic	A	
F10		27	positioned at a 45°	B	
Type number 52 322					
F12	keyway			0	collar
F12	square	27	basic	1	Exchangeable inserts
F10	keyway			2	
F10	square	22	basic	3	
F12		27	positioned at a 45°	4	
F10		22	positioned at a 45°	5	
F10		24	basic	6	
F10		24	positioned at a 45°	7	
F10		27	basic	8	
F10		27	positioned at a 45°	9	
F12		32	basic	A	
F12		32	positioned at a 45°	B	
<p>Servo-actuator output shaft (when viewing towards the local position indicator). The handwheel tallies with the CLOSED position</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Keyway joint</p> </div> <div style="text-align: center;"> <p>Square</p> <p>basic position (to DIN 3337)</p> </div> <div style="text-align: center;"> <p>angular position (to ISO 5211)</p> </div> </div>					

Another connection of electric actuators on demand.

Connecting dimensions of MODACT MOKP EEx and MOKPE EEx electric actuators for piping fittings and control elements with spindles fitted with squares



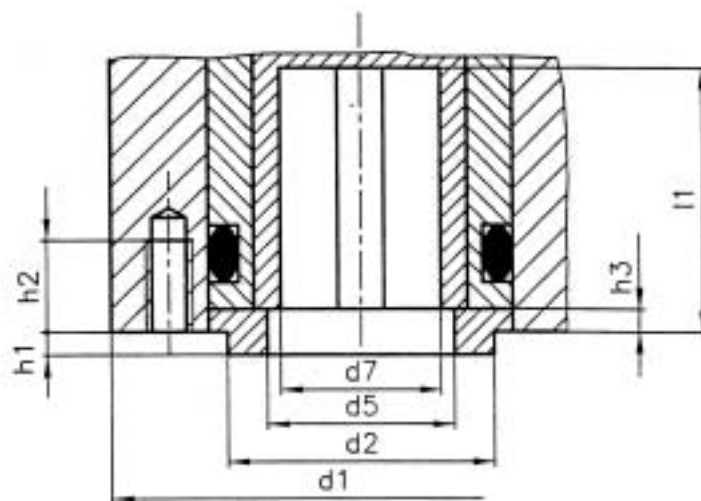
The position of the square hole in end position of electric actuator. The position "Opened" is to the left of the position "Closed" when viewing in the direction to the local indicator of position. The square hole is according to NIN 79. Connecting dimensions are according to DIN 3337 or ISO 5211. The position "Z" ("C") of the square hole for spindle is identical with the position "Z" ("C") on the local indicator of position.



A - connection by square in basic position
B - connection by square turned by 45 °

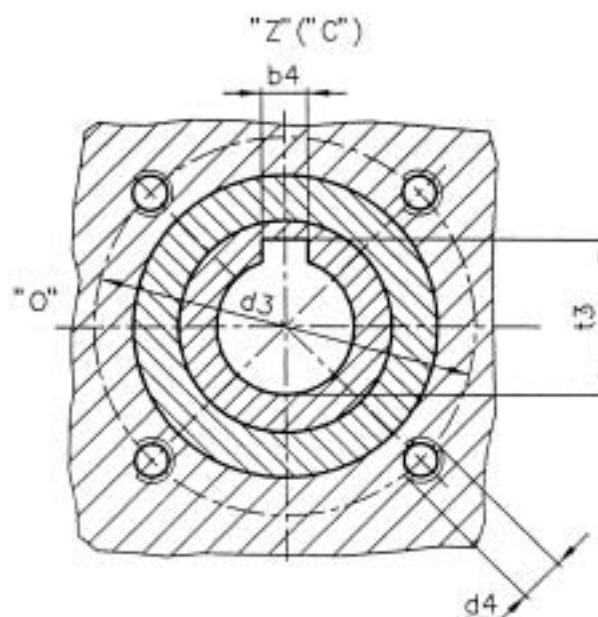
Flange	d1	d2 f8	d3	d4	h4		h2 min.	h1 max.	l3 min.	s H11	e min.	d5
					min.	max.						
F04	65	30	42	M6	1,5	0,5	12	3	15,1	11	14,1	25
									16,1	12	16,1	
F05	65	35	50	M6	3	0,5	12	3	19,1	14	18,1	28
									22,1	16	21,2	
F07	90	55	70	M8	3	0,5	13	3	23,1	17	22,2	40
									26,1	19	25,2	
F10	125	70	102	M10	3	1	16	3	30,1	22	28,2	50
									33,1	24	32,2	
									37,1	27	36,2	
F12	150	85	125	M12	3	1	20	3	37,1	27	36,2	70
									44,1	32	42,2	

Connecting dimensions of MODACT MOKP EEx and MOKPE EEx electric actuators for piping fittings and control elements with spindles fitted with tight spring



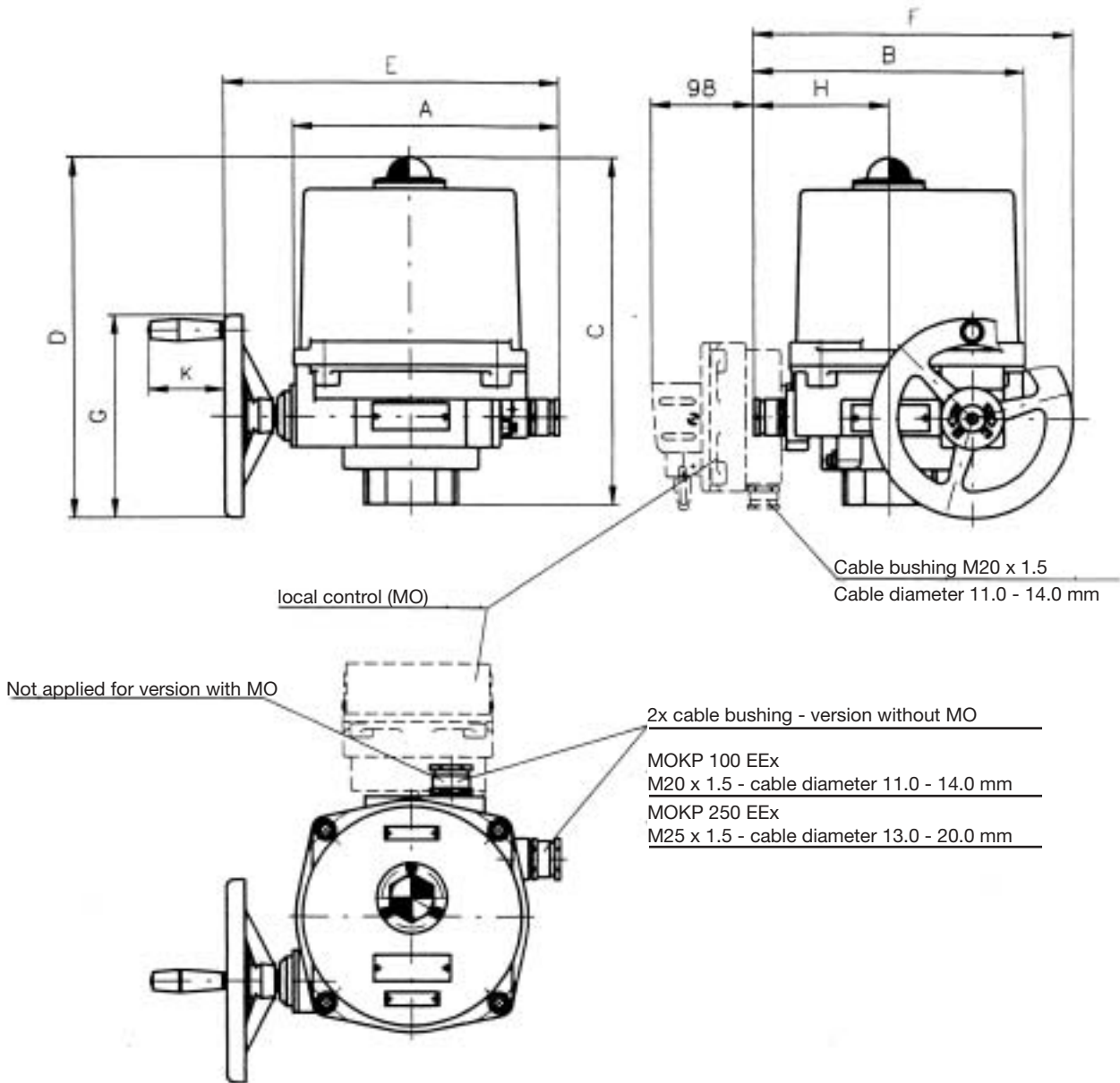
The position of groove for spring according to ISO 5211 and DIN 3337 is in the position "Closed". The position "Opened" is to the left of the position "Closed" when viewing in the direction to the local indicator of position.

The position "Z" ("C") of the groove for spring is identical with the position "Z" ("C") on the local indicator of position.



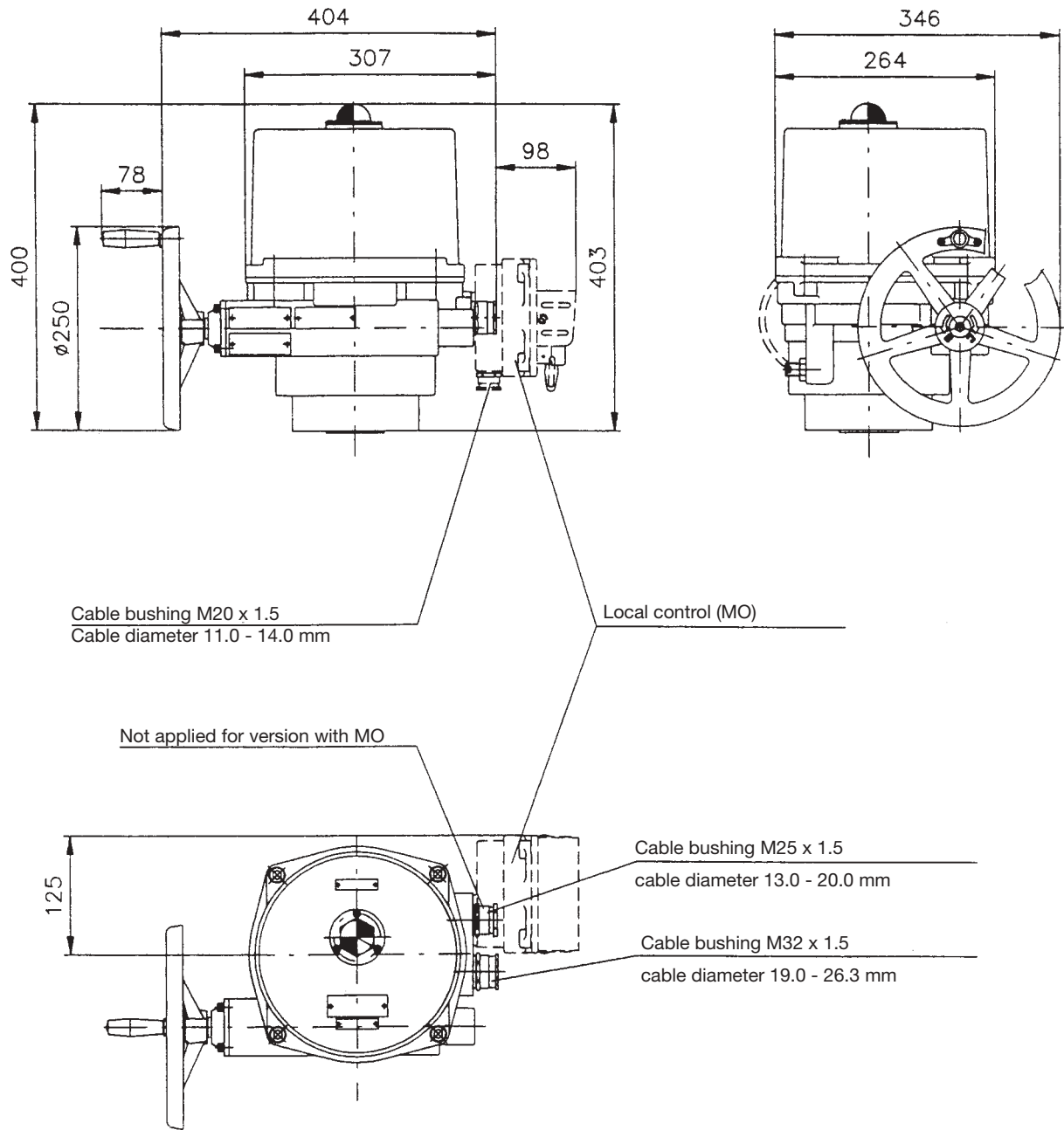
Flange	d1	d2 f8	d3	d4	d7 H9	h3 max.	h2 min.	h1 max.	l1 min.	b4 Js 9	+0,4 t3 +0,2	d5
F04	65	30	42	M6	18	3	12	3	26	6	20,5	25
F05	65	35	50	M6	22	3	12	3	30	6	24,5	28
F07	90	55	70	M8	28	3	13	3	35	8	30,9	40
F10	125	70	102	M10	42	3	16	3	45	12	45,1	50
F12	150	85	125	M12	50	3	20	3	55	14	53,5	70

**Dimensional sketch of MODACT MOKP 100 EEx and 250 EEx
and MODACT MOKPE 100 EEx and 250 EEx electric actuators**



Type	A	B	C	D	E	F	G	H	K
MOKP 100 EEx	218	217	266	272	261	260	160	112	72
MOKP 250 EEx	256	258	338	350	325	305	200	129	73

**Dimensional sketch of MODACT MOKP 100 EEx and 250 EEx
and MODACT MOKPE 100 EEx and 250 EEx electric actuators**



Type	A	B	C	D	E	F	G	H	K
MOKP 100 EEx	218	217	266	272	261	260	160	112	72
MOKP 250 EEx	256	258	338	350	325	305	200	129	73

Wiring diagrams of MODACT MOKP EEx electric actuators, Type no. 52 320 - 52 323

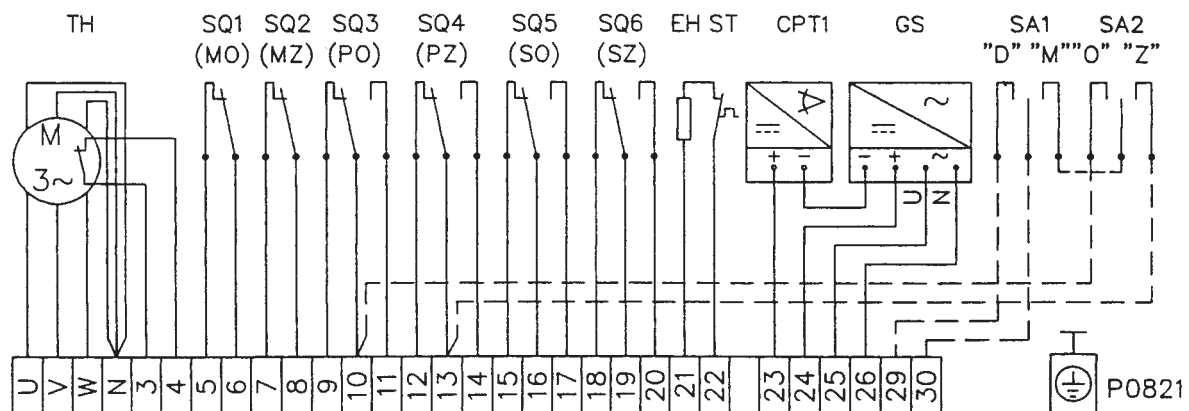
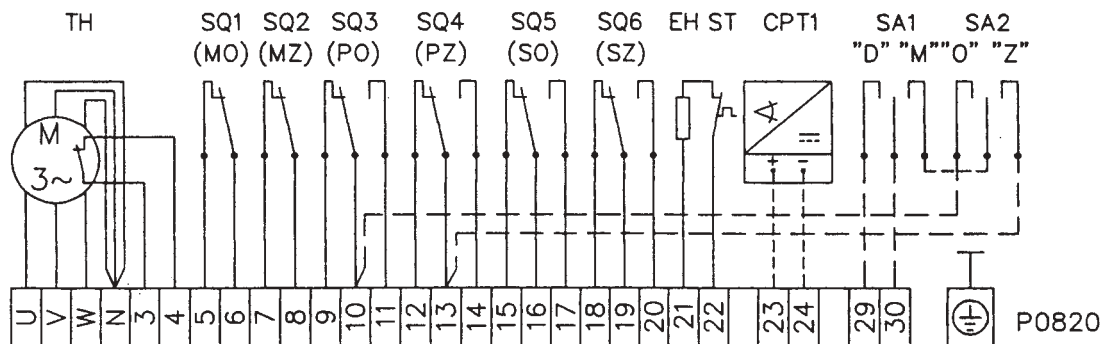
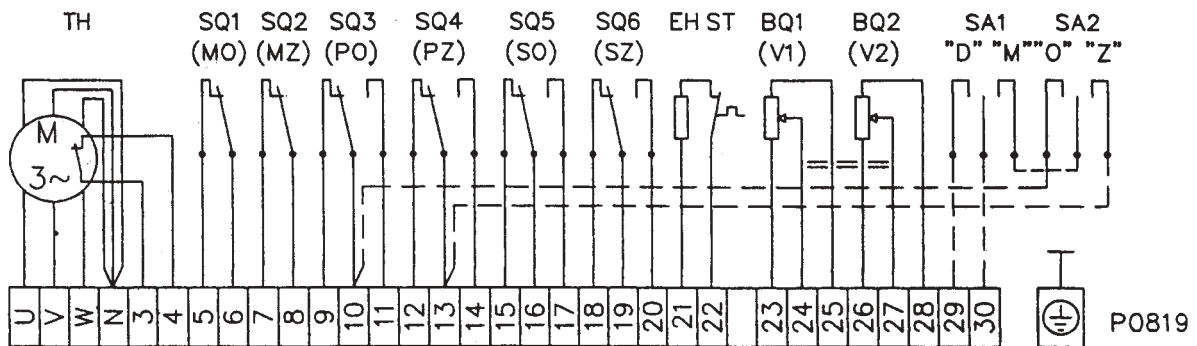
Legend:

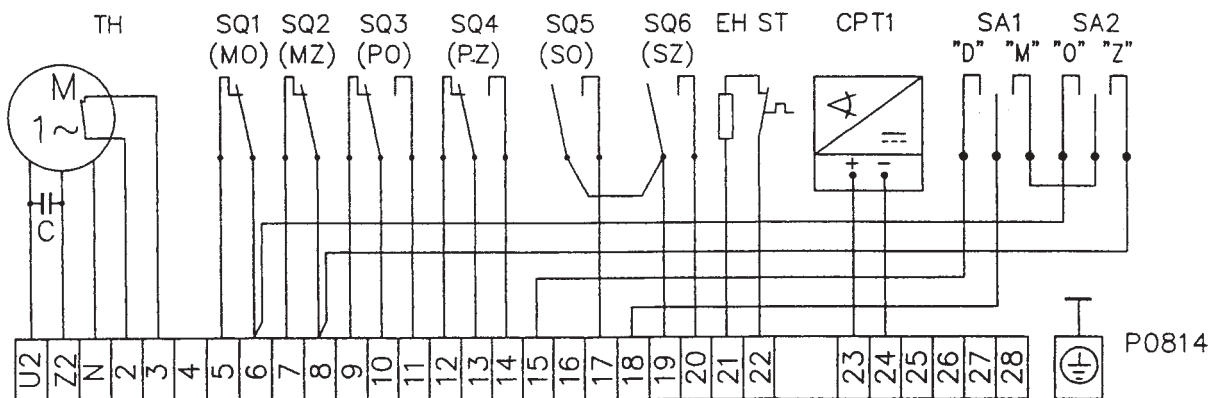
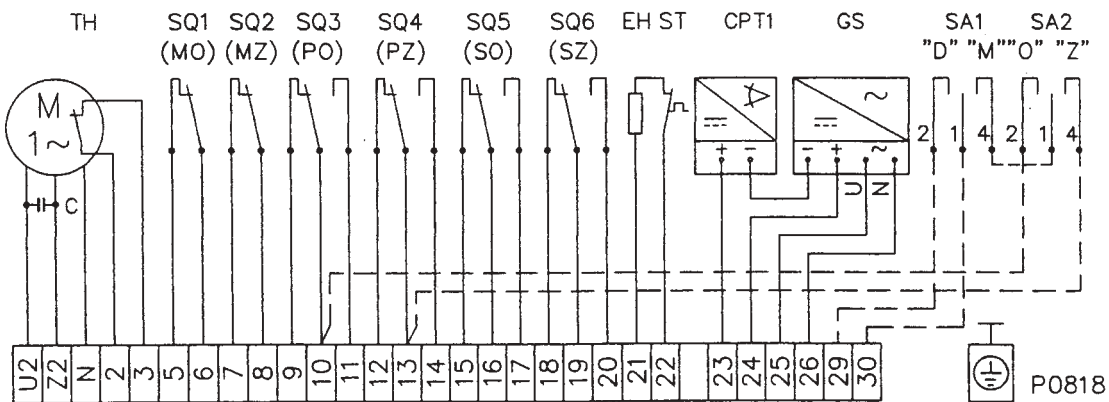
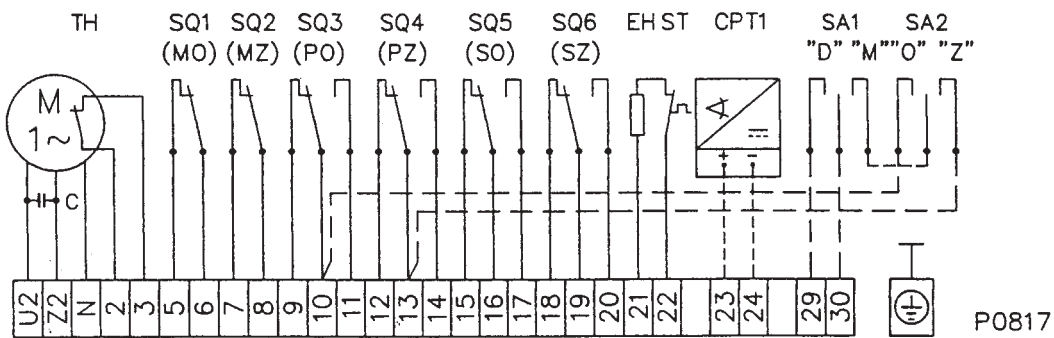
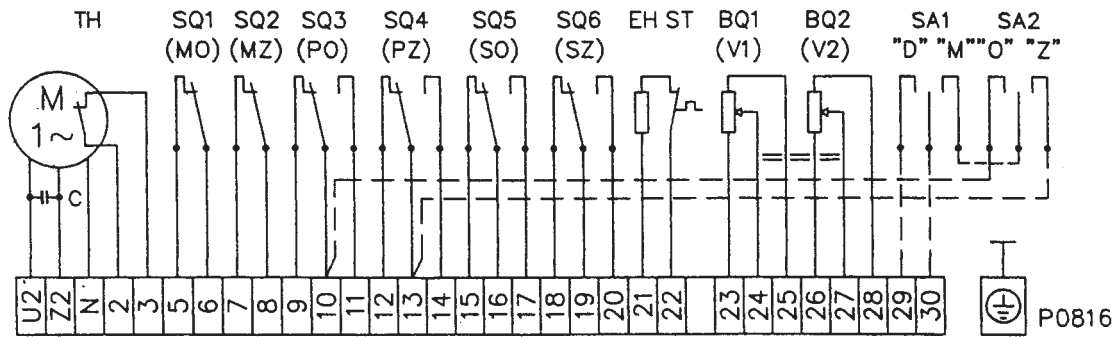
SQ1(MO) -	moment switch for direction "opens"	M1 ~, TH -	electric motor, single-phase, with thermal protection
SQ2(MZ) -	moment switch for direction "closes"	C -	motor capacitor
SQ3(PO) -	position switch for direction "opens"	M3~, TH -	electric motor, three-phase, with thermal protection
SQ4(PZ) -	position switch for direction "closes"	SA1 -	change-over switch "local" - "remote"
SQ5(SO) -	signalling switch for direction "opens"	SA2 -	change-over switch "opens" - "closes"
SQ6(SZ) -	signalling switch for direction "closes"	ZP2 -	electronic position controller
EH, ST -	heating element with thermal switch	KO -	power relay for direction "opens"
BQ1, BQ2 -	double resistance transmitter of position 2 x 100 Ω	KZ -	power relay for direction "closes"
CPT1 -	current transmitter of position CPT1 / A	F -	thermal relay
GS -	feeding source for current transmitter of position		

Note:

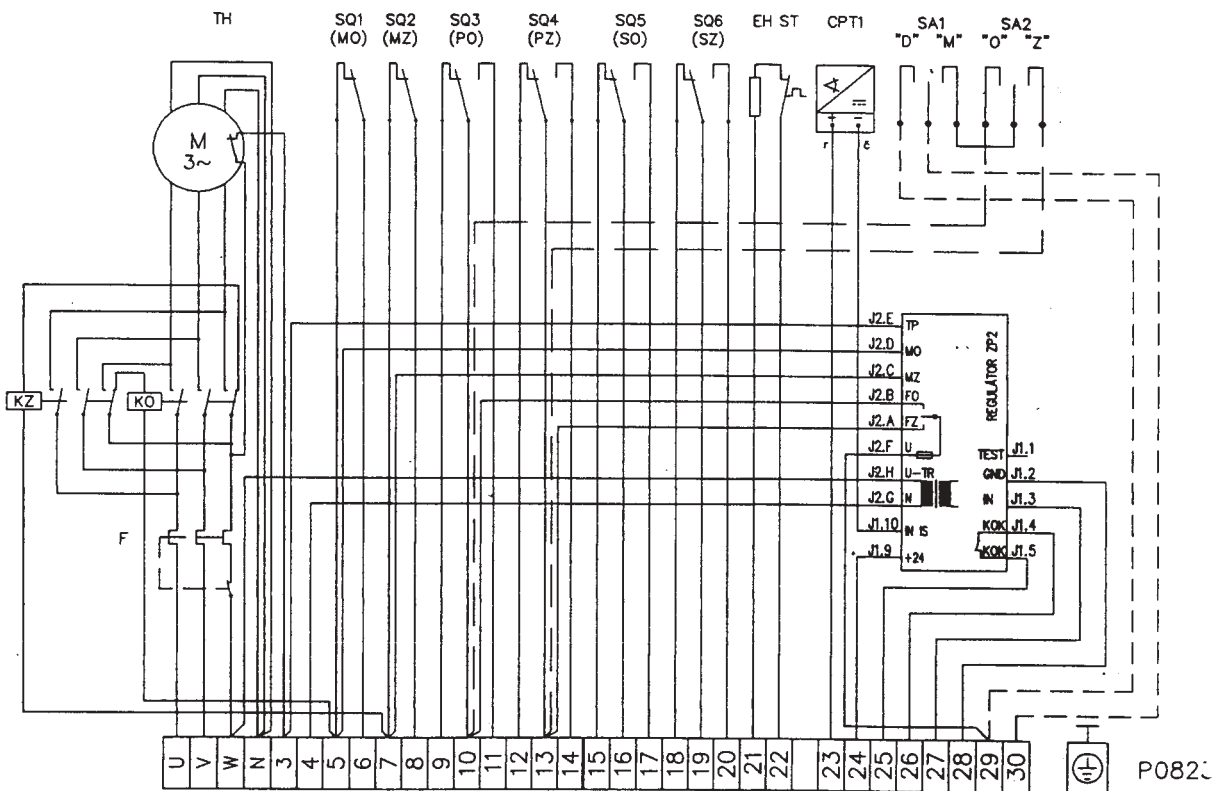
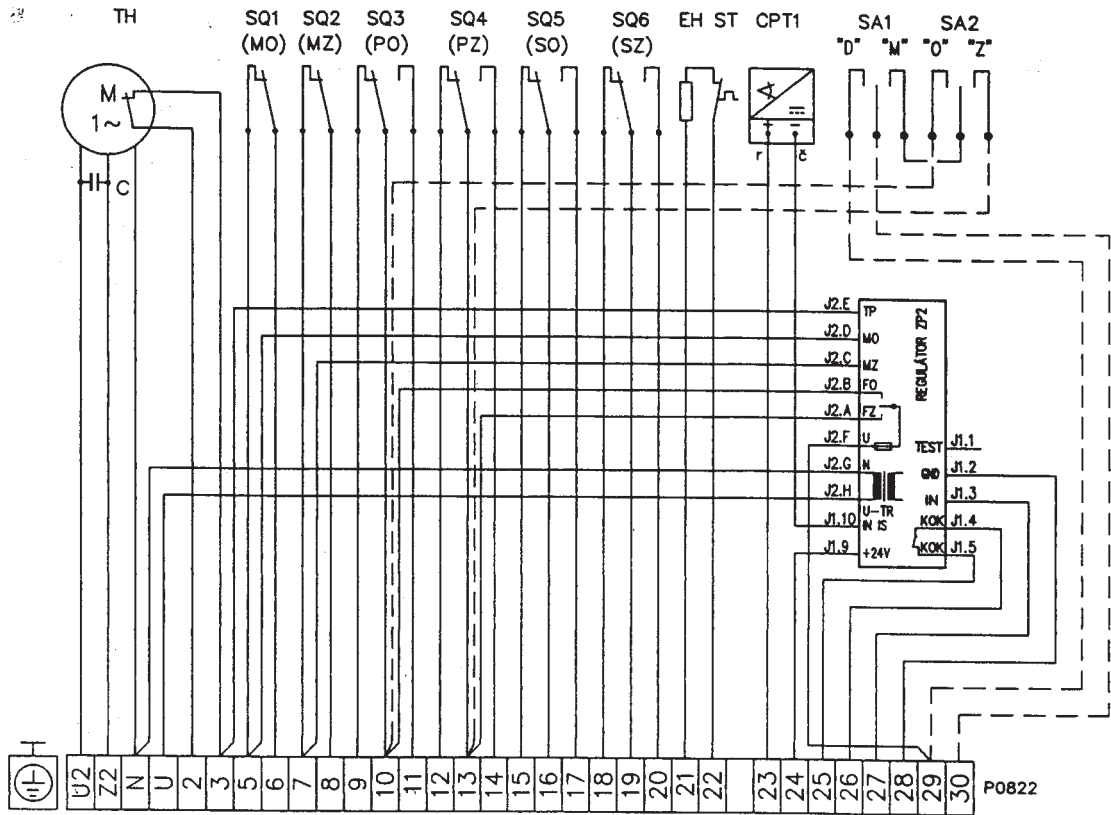
The position and signalling switches can work as a single-circuit type. State of contacts in the scheme is valid for the intermediate position.

In the version with the current transmitter CPT1 the user shall ensure connection of the double-wire circuit of the current transmitter to electric earth of the linked-up controller, computer, etc. The connection should only be realized at one point in any part of the circuit outside of the electric actuator. The voltage between the electronics and the transmitter case must not exceed 50 V DC.





Wiring diagrams of MODACT MOKP EEx Control electric actuators, Type no. 52 320 - 52 323





Electric actuators and switchboards
Development, production, sales, services

SURVEY OF PRODUCED ACTUATORS

KP Mini

Electric part-turn actuators (up to 30 Nm)

Modact MOK, MOK-P, MOK-P EEx

Electric part-turn actuators for ball valves and flaps

Modact MON

Electric multi-turn actuators

Modact MO EEx

Explosion proof electric multi-turn actuators

Modact MOA

Electric part-turn actuators for nuclear power stations
application outside containment

Modact MOA OC

Electric multi-turn actuators for nuclear power stations
application inside containment

Modact Variant MPR

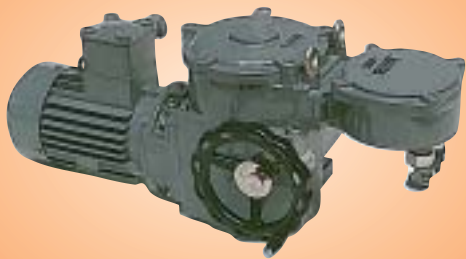
Electric part-turn lever actuators with a variable output speed

Modact Konstant MPS

Electric part-turn lever actuators with a constant output speed

Modact MTN

Electric linear thrust actuators with a constant output speed



ZPA PEČKY, a.s.



tř. 5. května 166
289 11 PEČKY, Czech Republic
e-mail: zpa@zpa-pecky.cz
www.zpa-pecky.cz

**TÜV
CERT**
EN ISO 9001:2000
Certificate No. 041005161/000-E01

tel.: +420 321 785 141-9
fax: +420 321 785 165
+420 321 785 167