

## APPLICATION

The **MODACT MPSED** electric lever actuators are used for remote and automatic control of flaps and louver locks, brush shifting of electric motors and actuation of control elements of heating and air-conditioning systems and other equipment for which they are in respect of their properties suitable. The **MODACT MPSED Control** actuators are designed for use in automatic control systems employing a continuous control signal.

## OPERATING CONDITIONS

The **MODACT MPSED (MODACT MPSED Control)** 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).

When installed on a free area, the electric actuator should be fitted with a light shelter against direct action of atmospheric effects. The roofing should overlap the electric actuator contour by at least 10 cm at the height of 20 – 30 cm.

If the actuator is used at a location with an ambient temperature under  $-10\text{ }^{\circ}\text{C}$  and/or relative humidity above 80%, at a sheltered location, or in the tropical atmosphere, the anti-condensation heater built-in in all actuators, should always be 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. Herewith, the standard ČSN 34 3205 should strictly be adhered to. It is advisable to remove dust whenever its layer becomes about 1 mm thick.

### Notes:

*A sheltered location is considered a space where atmospheric precipitations are prevented from falling at an angle of up to  $60^{\circ}$  from the vertical.*

*The location of the electric motor should be such that cooling air has free access to the motor and no heated-up blown-out air is drawn into motor again. For air inlet, the minimum distance from the wall is 40 mm. Therefore, the space in which the motor is located should be sufficiently large, clean and ventilated.*

### Classes of external influences

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

- 1) AA7 – Simultaneous effect of ambient temperature of  $-25\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$  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  $35\text{ mg/m}^2$ , but not exceeding  $350\text{ mg/m}^2$
- 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  $> 500\text{ W/m}^2$  and  $\leq 700\text{ W/m}^2$
- 13) AP3 – Medium seismic effects; acceleration  $> 300\text{ Gal}$   $\leq 600\text{ Gal}$
- 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

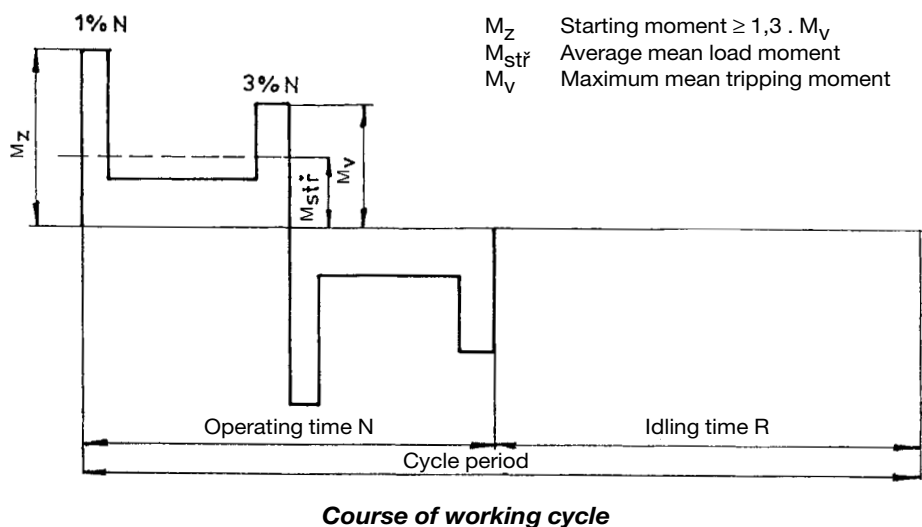
### Operating position

Operating position of the actuators MODACT® MPSED is arbitrary.

## WORKING REGIME

According to ČSN EN 60 034-1, actuators can be operated in S2 load category. The operation time at  $+50\text{ }^{\circ}\text{C}$  shall be 10 minutes, the mean load moment value shall be below or equal to 60 per cent of the

maximum switch off moment ( $M_V$ ). According to ČSN EN 60 034-1, the actuators can also be operated in the S4 mode (interrupted operation with acceleration intervals). The load factor  $N/N+R$  shall be maximum 25 per cent, the longest operation cycle  $N + R$  is 10 minutes (the course of load is shown in the picture). The maximum number of switching actions in automatic control mode is 1200 actions per hour. The average mean load moment at load factor of 25 per cent and 50 °C shall not exceed 40 per cent of the maximum tripping moment ( $M_V$ ). The average mean load moment shall not exceed the nominal moment of the actuator.



## Service life of actuators

Service life of actuators is 6 years, at the least.

The actuator intended for shut-off valves must be able to perform at least 10,000 operating cycles (C - O - C).

The actuator intended for regulating purposes must be able to perform at least 1 million cycles with operation time (during which the output shaft is moving) at least 250 hours. Service life in operating hours (h) depends on load and number of switching. Not always, high frequency of switching influences positively accuracy of regulation. For attaining the longest possible faultless period and service life, frequency of switching is recommended to be set to the lowest number of switching necessary for the given process. Orientation data of service life derived from the set regulation parameters are shown in the following table.

Service life of actuators for 1 million starts

Service life [h]	830	1 000	2 000	4 000
Number of starts [1/h]	Max. number of starts 1200	1 000	500	250

## DESCRIPTION AND FUNCTION

The lever actuators **MODACT MPSED** and **MODACT MPSED Control** are assembled of electric motor, countershaft box, power gearing, control box, and lever mechanism. The actuators include three-phase asynchronous motors attached to the countershaft box. The actuators, Type No. 52 260, include single-phase electric motors of 20 W and 60 W.

The countershaft box reduces the number of revolutions of the electric motor, self-locking of the whole actuator being provided by means of a self-locking worm gear drive. An advantage of this solution is that electric motors with an electromagnetic brake are not required.

The gears are centrally fitted on the output shaft, thus constituting an independent assembly group. The epicyclic gearing consists of a sun gear and three satellite gears in mesh with the internal gear ring of a double gear set. In its upper part, this double gear set has external teeth for the manual control worm. The worm shaft is spring-loaded, the axial force induced by the torque of the actuator output shaft moves the worm axially against the spring tension. The magnitude of torque is directly proportional to the length of worm advance motion.

The torque sensor acts depending on the length of worm stroke. The magnitude of torque is transmitted to the control box by means of a lever and a pin. The handwheel does not limit the axial motion of the worm and allows the actuator to be controlled in any operating condition, even if the motor is running.

Situated in the upper part of the actuator, the control box forms an independent assembly group. At its upper end, the output shaft of the actuator is extended to the control box.

# TECHNICAL REQUIREMENTS

## Basic technical parameters

They are given in Tables 1, 2, 3.

## Supply voltage

Supply voltage of electric motor: 1 x 230 V, +10 %, -15 %, 50 Hz  $\pm$ 2 %  
3 x 230/400 V, +10 %, -15 %, 50 Hz  $\pm$ 2 %  
(or according to data on the rating plate)

## Electric connection

Electric connection of the actuator can be made either on the terminal boards or with a connector. In the actuators without switching elements or with switching of a single-phase motor, the power supply cable is connected to the terminals PE, N, U only. The terminals V, W remain unconnected.

## Protective enclosure

Protective enclosure of actuators MODACT MPSED is IP 55 according to ČSN EN 60 529.

## Noise

Average level of acoustic pressure A of electric actuators according to ČSN ISO 3746 (01 1606) must not exceed the value 85 dB (A).

Level of acoustic output A must not exceed 95 dB (A).

## Tripping torque

Tripping torque is set at the manufacturer according to the customer's requirements within the range given in Table no.1. If setting of tripping torque is not required maximum tripping torque of the required type number of the electric actuator is set.

## Isolation resistance

Isolation resistance of electric control circuits against the frame and against each other is min. 20 Mohm. Isolation resistance of the electric motor is min. 1.9 Mohm. After a dump test, isolation resistance of control circuits is min. 2 Mohm.

## Electric strength of electric circuit isolation

Control circuits and circuit of anti-condensation heater	1 500 V, 50 Hz
Electric motor $U_n = 1 \times 230 \text{ V}$	1 500 V, 50 Hz
$U_n = 3 \times 400 \text{ V}$	1 800 V, 50 Hz

## Self-locking

The actuator is self-locking provided that the load only acts in the direction against motion of the actuator output shaft. Self-locking is ensured by a roller arrest immobilizing the electric motor rotor even in the case of manual control.

In order to observe safety regulations, the actuators cannot be used for driving transportation lifting devices with possible transport of persons or for installations where persons can stand under the lifted load.

## Manual control

Manual control is performed by a hand wheel directly (without a clutch) and is also possible when the electric motor is running (resulting motion of the output shaft is given by the differential gear function). By rotating the hand wheel in the clock-wise direction the actuator output shaft rotates also in the clock-wise direction (when viewing the shaft into the control box). Provided that the valve nut has a left thread, the electric actuator closes the valve.

## Anti-condensation heater

The actuators are fitted with an anti-condensation heater preventing condensation of water vapour.

## Dynamic brake

The brake is an optional accessory to the actuators fitted with electronics DMS2 and DMS2-ED Control. After opening the switching element (contactor or SSR), it induces dynamic braking moment in the motor for several tenths of second. When the actuator is in a standstill no braking moment is exerted. The brake reduces dramatically time of the actuator run-down and regulation is thus more precise. The used brakes BR2 are controlled, impulse for action comes from the control unit. Corresponding variant of the brake is chosen according to the electric motor output and the type of switching elements.

Output up to 550 W:	<b>BR2 550</b>	(contactor switching)
	<b>BR2 BK 550</b>	(SSR switching)
Output up to 2.2 kW, with external braking resistance:	<b>BR 2.2</b>	(contactor switching)
	<b>BR2 BK 2.2</b>	(SSR switching)

If higher outputs are to be braked electric motors of special version with an electromagnetic brake should be used.

## Protection

The electric actuators are fitted with external and internal protecting terminal for securing protection against dangerous shock voltage.

The protecting terminals are marked according to ČSN IEC 417 (34 5550).

## Deviations of basic parameters

Tripping torque	±12 % of max. tripping torque
Shifting speed	- 10 % to +15 % of rated value (idle run)

## ELECTRONIC OUTFIT

Electro-mechanical control board is replaced with the electronic system **DMS2** or **DMS2 ED**. Both systems scan position of the output shaft and torque of the electric actuator by contact-free magnetic sensors. The sensor of the output shaft position is absolute and does not require any backup power supply in case supply voltage is disconnected during operation of the electric actuator. Both systems can be set and monitored by a computer with controlling programme or manually without a computer.

The more simple system **DMS2 ED** substitutes electromechanical parts and/or provides for controlling the electric actuator by input analog signal as in the version Control.

The system **DMS2** enables the electric actuator to be used for two-position and three-position regulation or to be connected to the industrial bus bar Profibus.

## DMS2 ED

### Basic outfit:

Control unit It also contains the sensor of position of the output shaft, 4 push-buttons and 3 signal LEDs for setting and checking the actuator.

Torque-limit unit

Source unit Contacts of seven relays (MO, MZ, PO, PZ, SO, SZ, Ready) are connected to the terminal board; state of each relay is signalized by LED. The unit enables the heating resistor to be connected and controlled by the thermostat.

### Optional outfit:

Feedback signal 4 – 20 mA

Analog regulator

Position indicator - LED display

Local control

Contactors or block of contact-less control - for version Control

Electronic brake

### Main merits:

Absolute scanning of position independent of backup power supply.

Simple setting by 4 push-buttons, computer PC or PDA.

Possibility of back-up making of set parameters on PC.

Intended for direct substitution of electromechanical components of the electric actuator.

**Parameters:**

Scanning of position	Contact-less magnetic
Scanning of torque	Contact-less, magnetic
Working stroke	60 – 160°
Blocking of torque	0 – 20 s at reversing in limit positions
Input signal	0/4 – 20 mA with switched on regulator function Local/Remote control, Local open/close
Output signal	7 x relay 250 V AC, 3 A (MO, MZ, PO, PZ, SO, SZ, READY) Position signal 4 – 20 mA max. 500 ohm, active/passive, galvanic-isolated (optional), LED display (optional) Electronic brake (optional)
Power supply	230 V AC, 50 Hz, 4 W, over-voltage category II

**DMS2****Basic outfit:**

Control unit	It also includes a sensor of the output shaft position, 2 signal LED.
Torque-limit unit	
Source unit	It includes: <b>2 relays</b> for electric motor control; <b>Relay Ready</b> with change-over contact connected to the terminal board; <b>Signalling relays</b> 1 – 4 with one pole of the switching contact connected to the terminal board; Second poles of the switching contacts of relays 1 – 4 are interconnected and brought out to the terminal COM. Heating resistor switched by a thermostat is connected to the unit. The unit controls power switches of the electric motor (contactors or contact-less switching). The electronic brake can be connected to the unit.
Unit of display	Two-row display, 2 x 12 alpha-numeric characters.
Unit of push-buttons	Push-buttons " <b>Open</b> ", " <b>Close</b> ", " <b>Stop</b> ", selector switch " <b>Local</b> ", " <b>Remote</b> ", " <b>Stop</b> ".

**Recommended outfit:**

Electronic brake - the actuator can be fitted with the electronic brake – this reduces the actuator run-down after switching-off.

**Optional outfit** *(the electric actuator must be fitted with one of these units):*

Unit of two- and three-position control	Control of the electric actuator by shifting to position "Open" and "Close" or by analog signal 0 (4) – 20 mA.
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Unit of connection Profibus – control of the electric actuator by industrial bus bar Profibus.

The electronic control DMS2 checks, within its function, sequence and fall-out of phases of supply voltage.

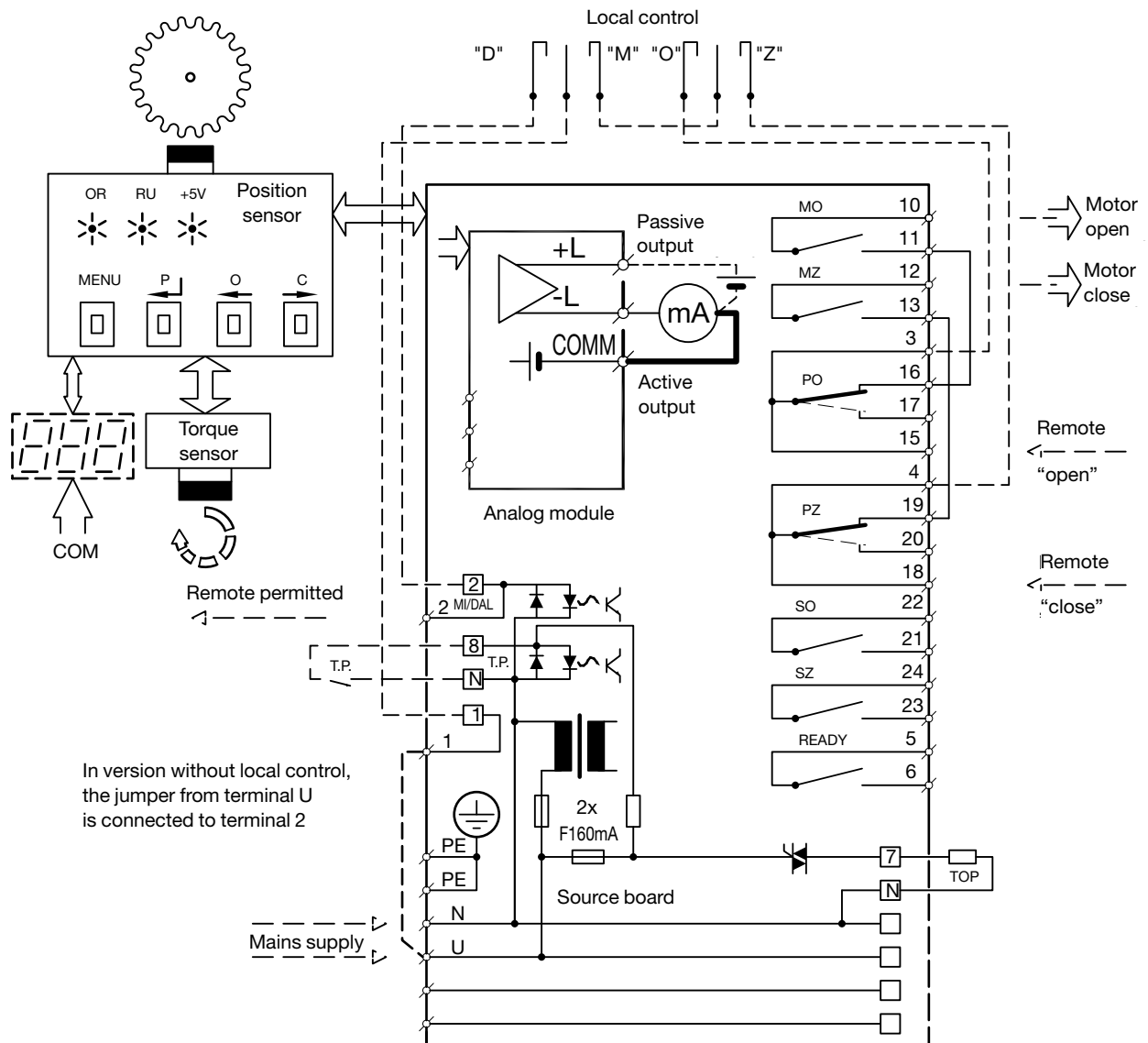
**ORDERING INFORMATION**

*When ordering, please specify the following:*

- Number of actuators required
- Actuator designation
- Type number
- Working stroke (maximum angle of lever displacement)
- Adjusting time of the output section in seconds
- Supply voltage of electric motor
- Special requirements

Example of wiring diagram of electronics **DMS2 ED** in version  
**Substitution of electro-mechanical board (actuators MODACT MPSED)**

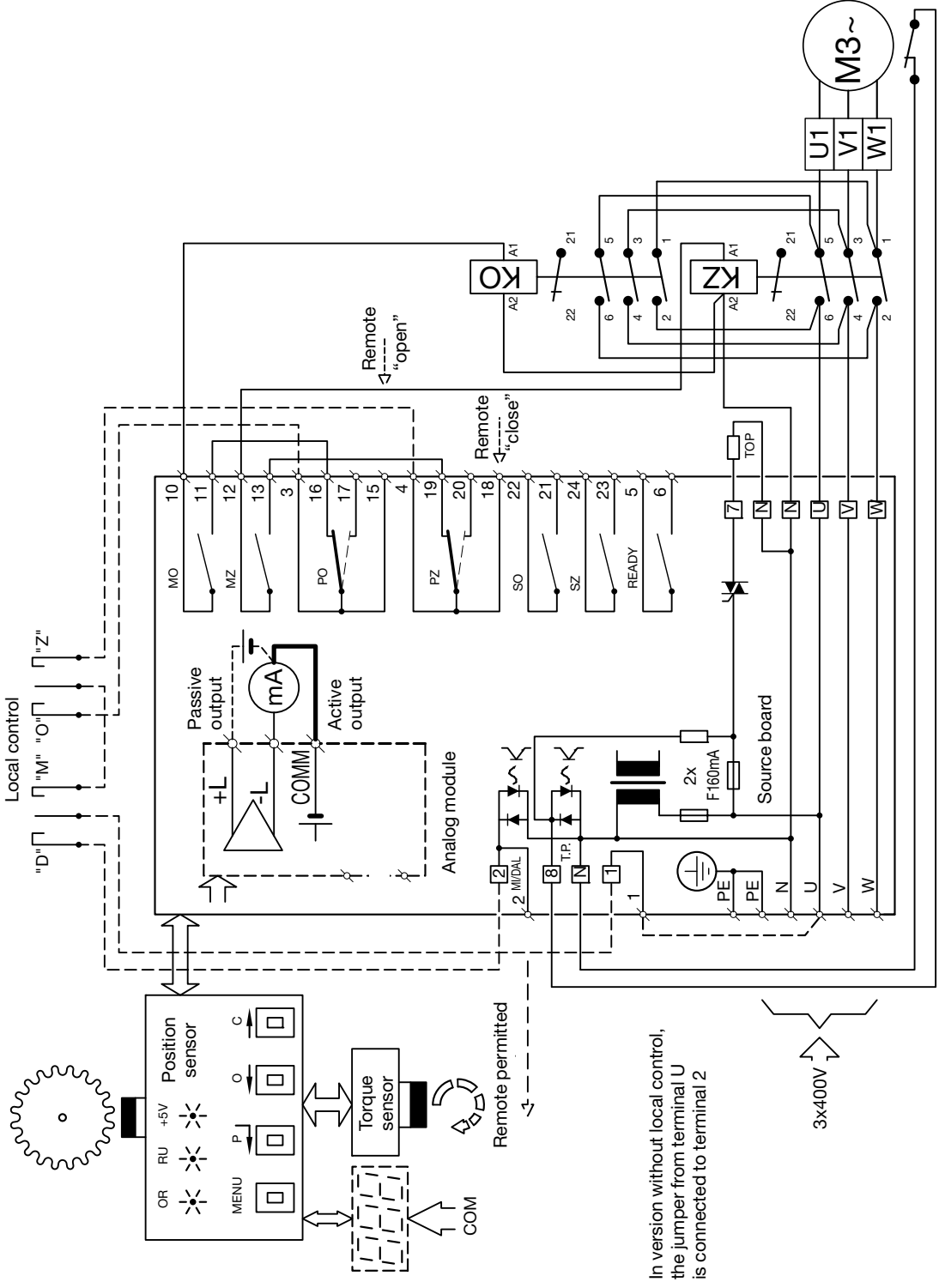
E-0001



**Note:** Here, contacts of relays MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched off contacts PO, PZ are shifted to the position drawn in dashed line.

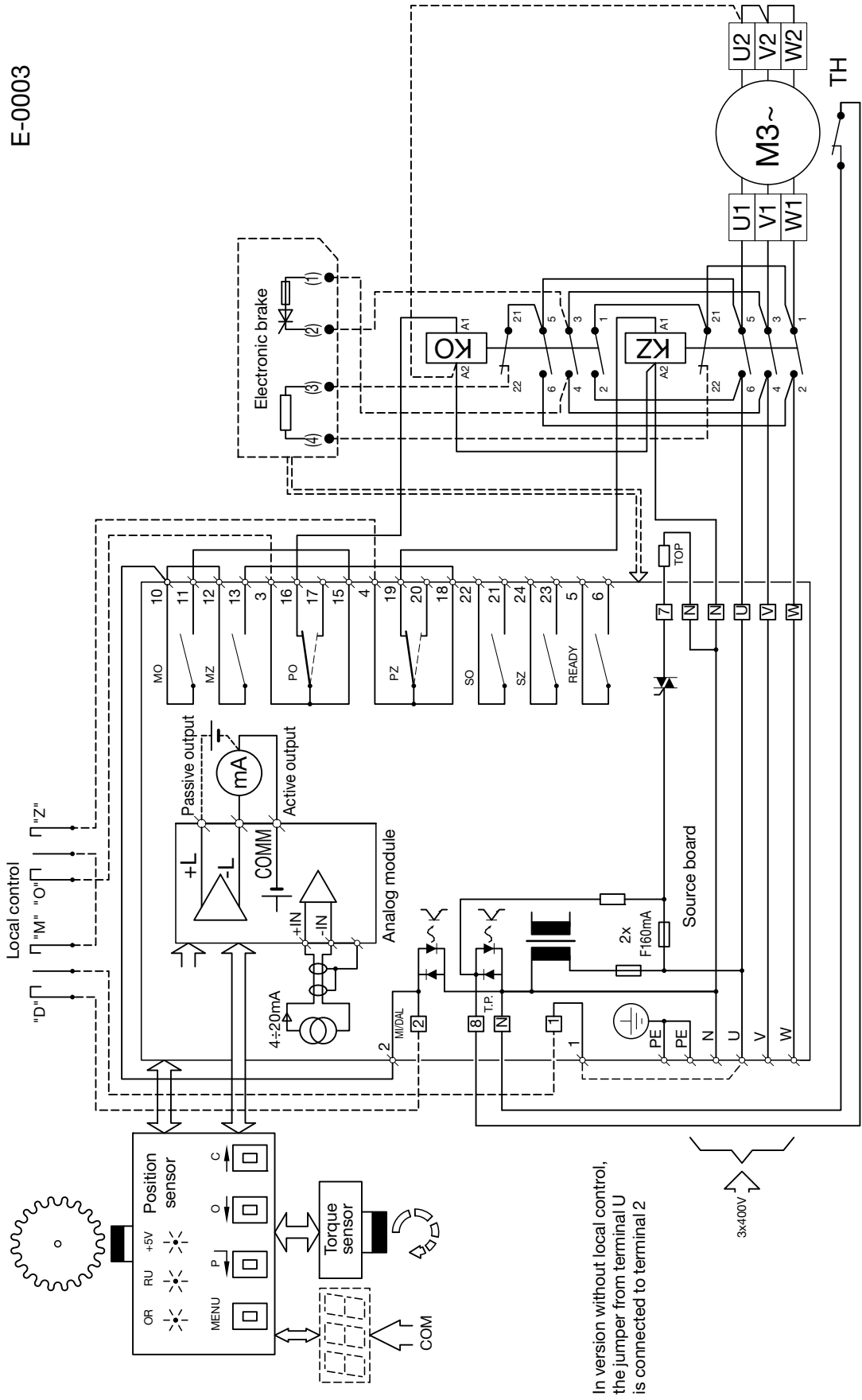
Example of wiring diagram **Substitution of electro-mechanical board with contactors and three-phase electric motor (actuators MODACT MPSED)**

E-0002



# Example of wiring diagram of electronics DMS2 ED in version Control (actuators MODACT MPSED)

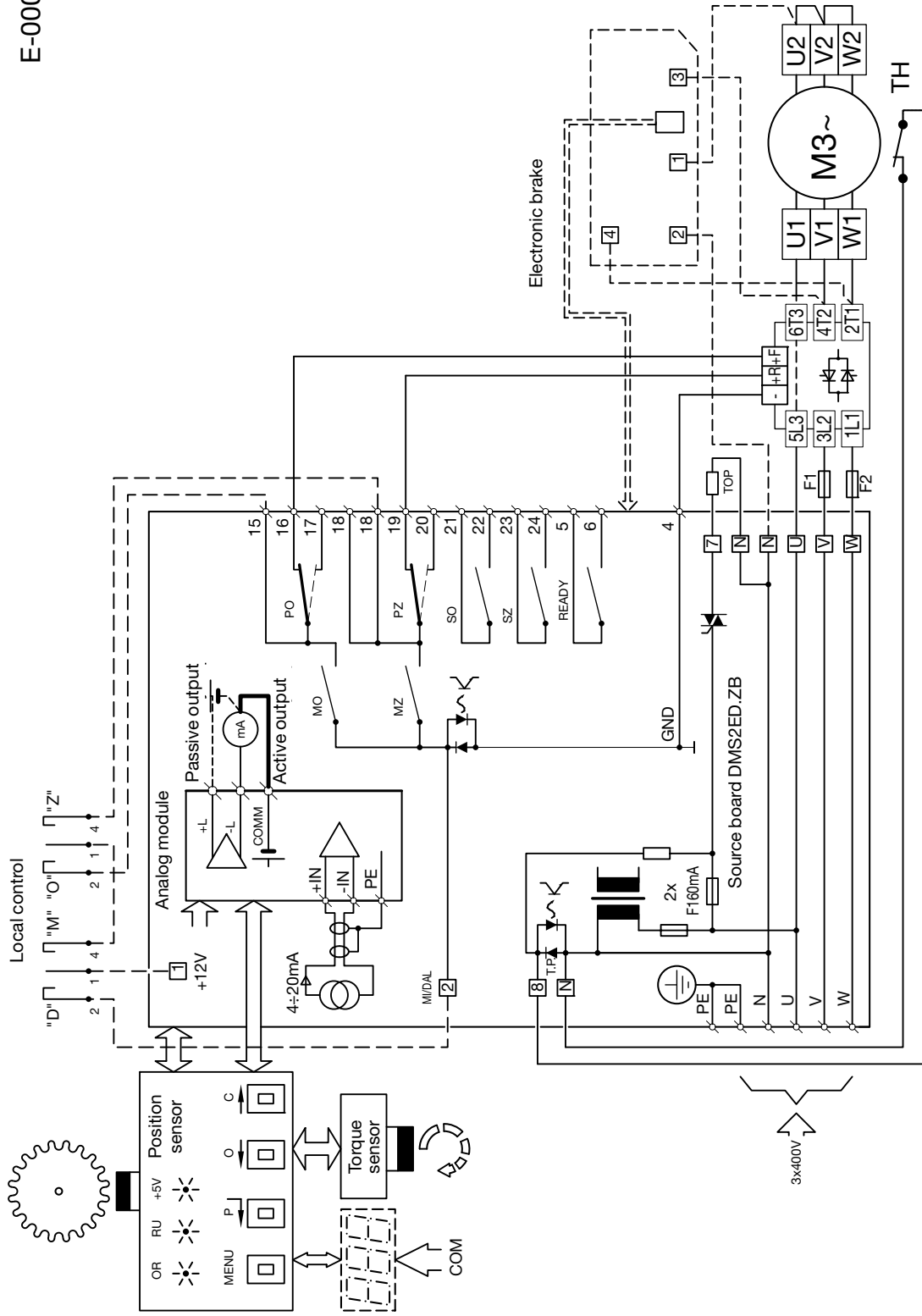
E-0003





# Example of wiring diagram of electronics DMS2 ED in version Control with contact-less switching of electric motor

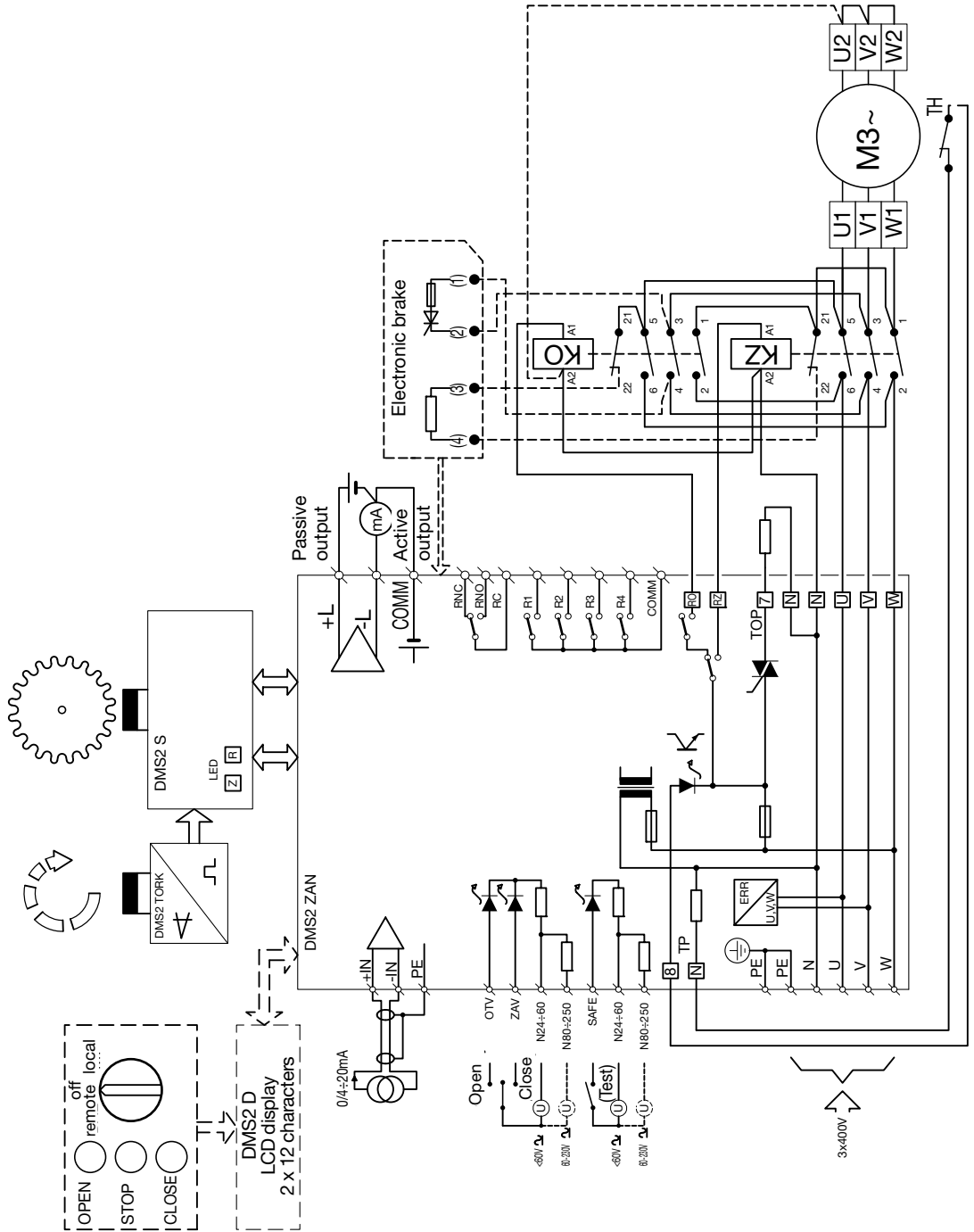
E-0004



**Note:** Here, contacts of relays MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched on, contacts PO, PZ are shifted to the position drawn in dashed line.

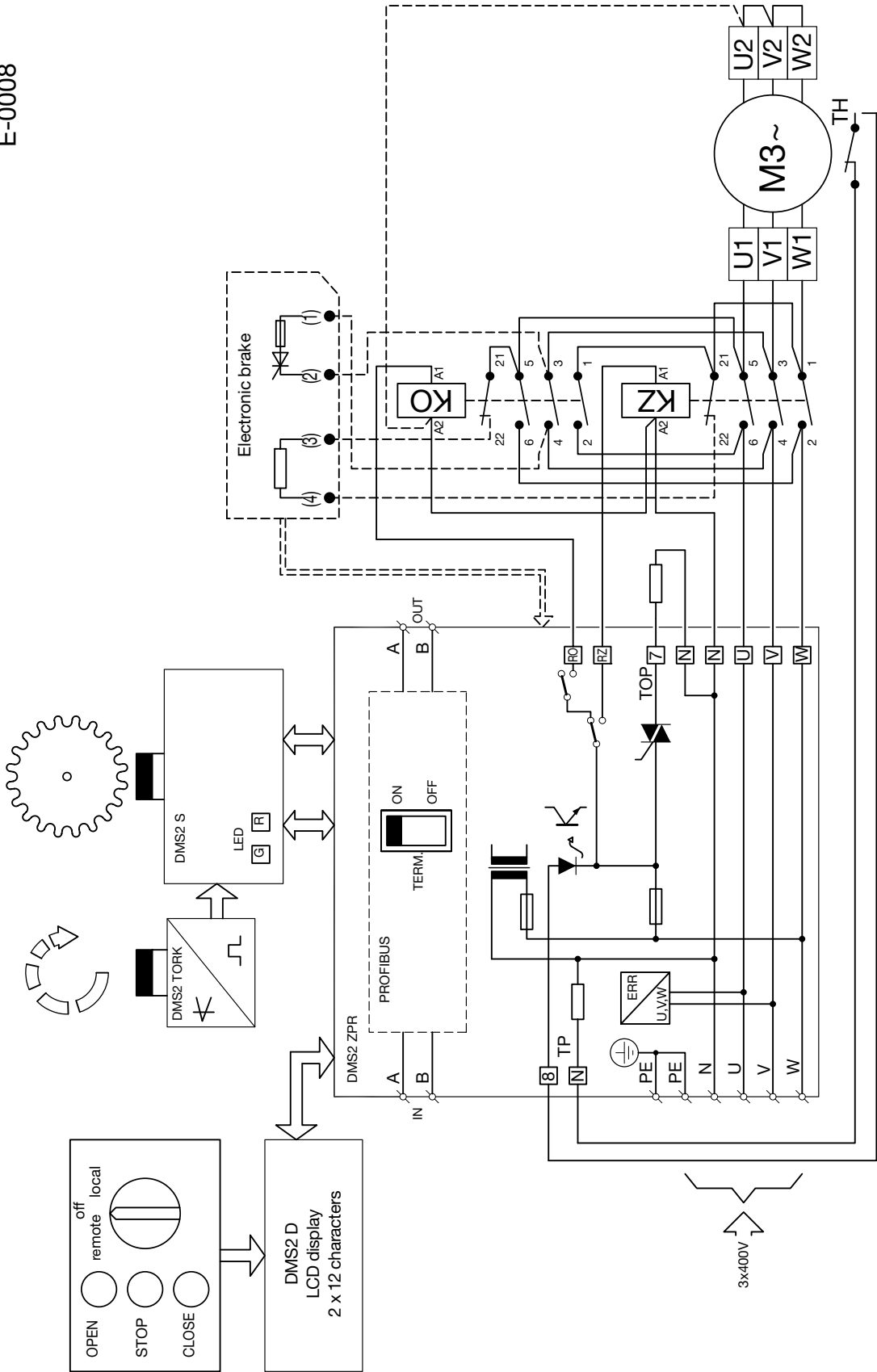
Example of wiring diagram of electronics **DMS2 Analog (actuators MODACT MPSED)**

E-0006



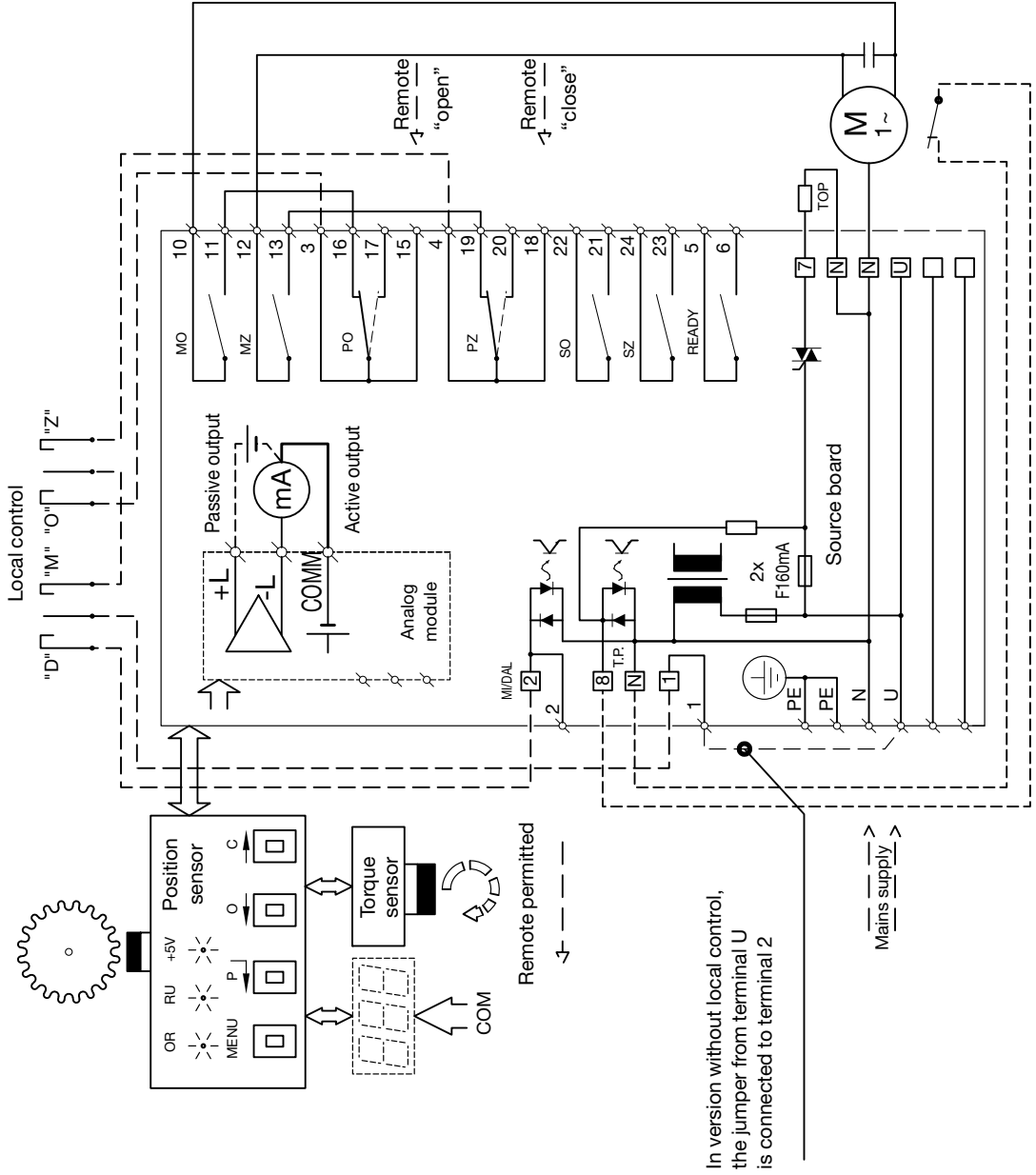
Example of wiring diagram of electronics DMS2 Profibus (actuators MODACT MPSED)

E-0008



Example of wiring diagram of electronics **DMS2 ED** in version **Substitution of electrical board**  
**(actuators MODACT MPSED 52 260 with one-phase electric motor)**

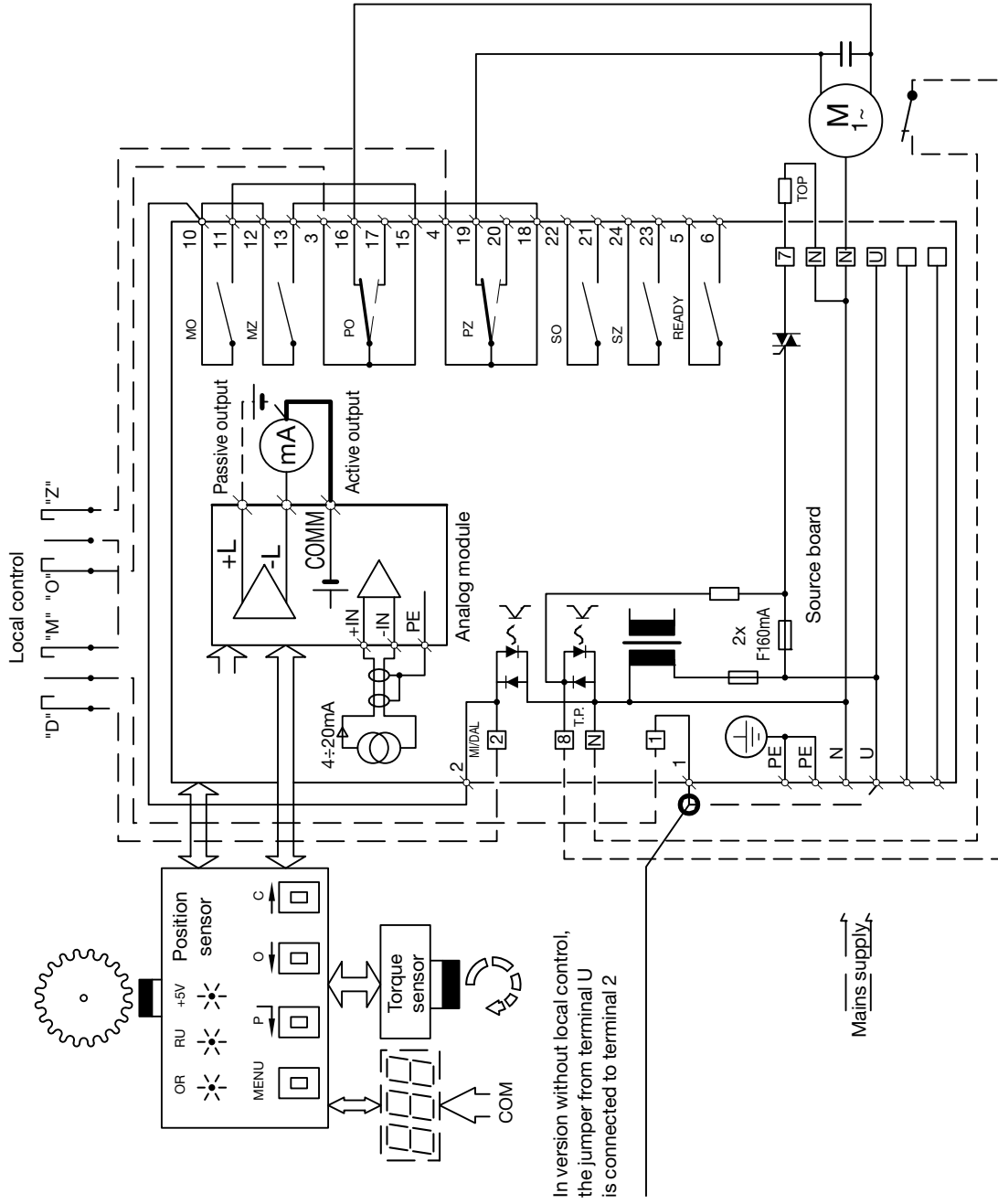
E-0010



**Note:** Here, contacts of relay MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched on, PO, PZ are shifted to the position drawn in dashed line.

Example of wiring diagram of electrical actuators MODACT MPSED 52 260  
with one-phase electric motor in version DMS2 ED Control

E-0012

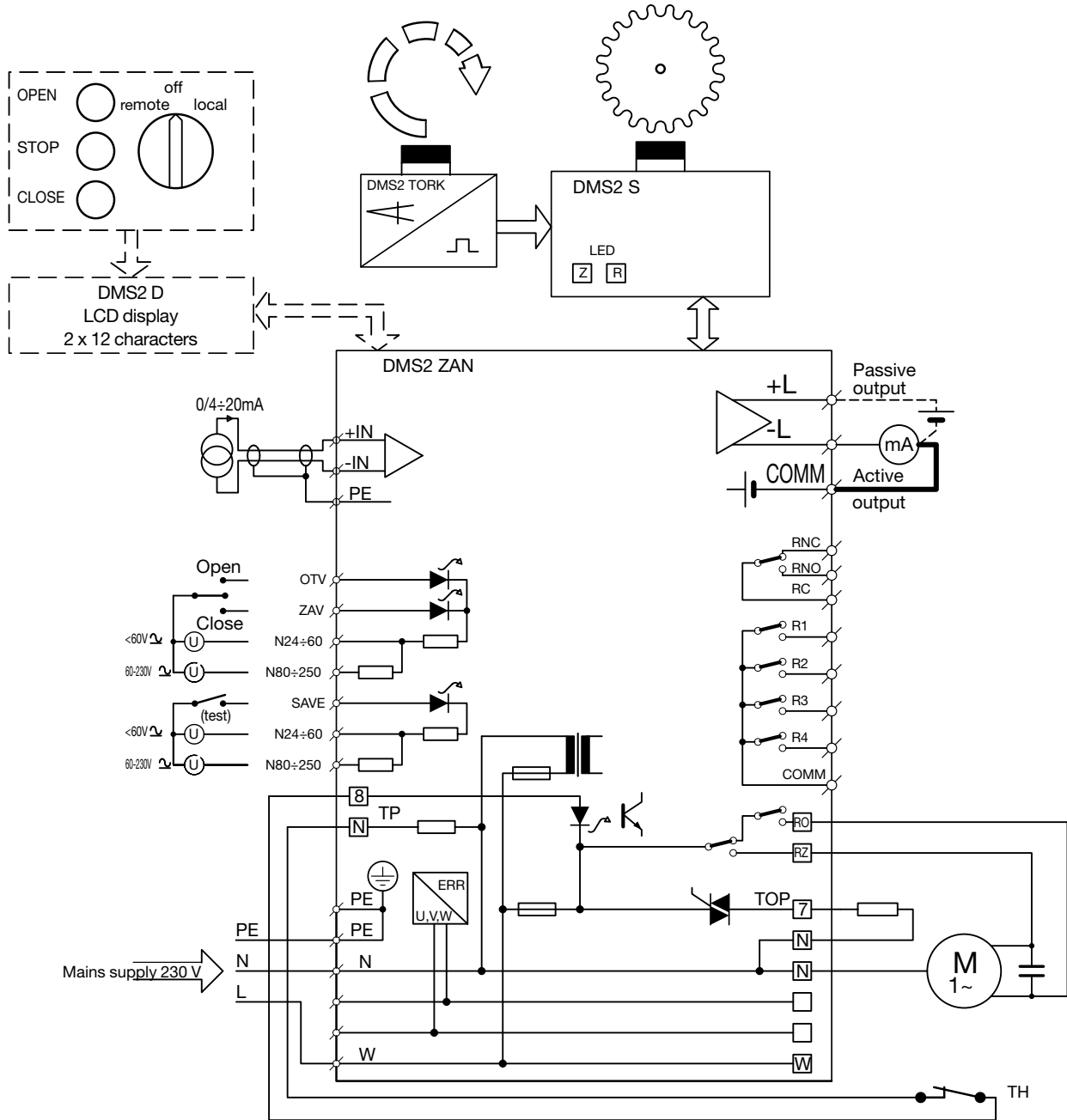


In version without local control,  
the jumper from terminal U  
is connected to terminal 2

**Note:** Here, contacts of relay MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched on, PO, PZ are shifted to the position drawn in dashed line.

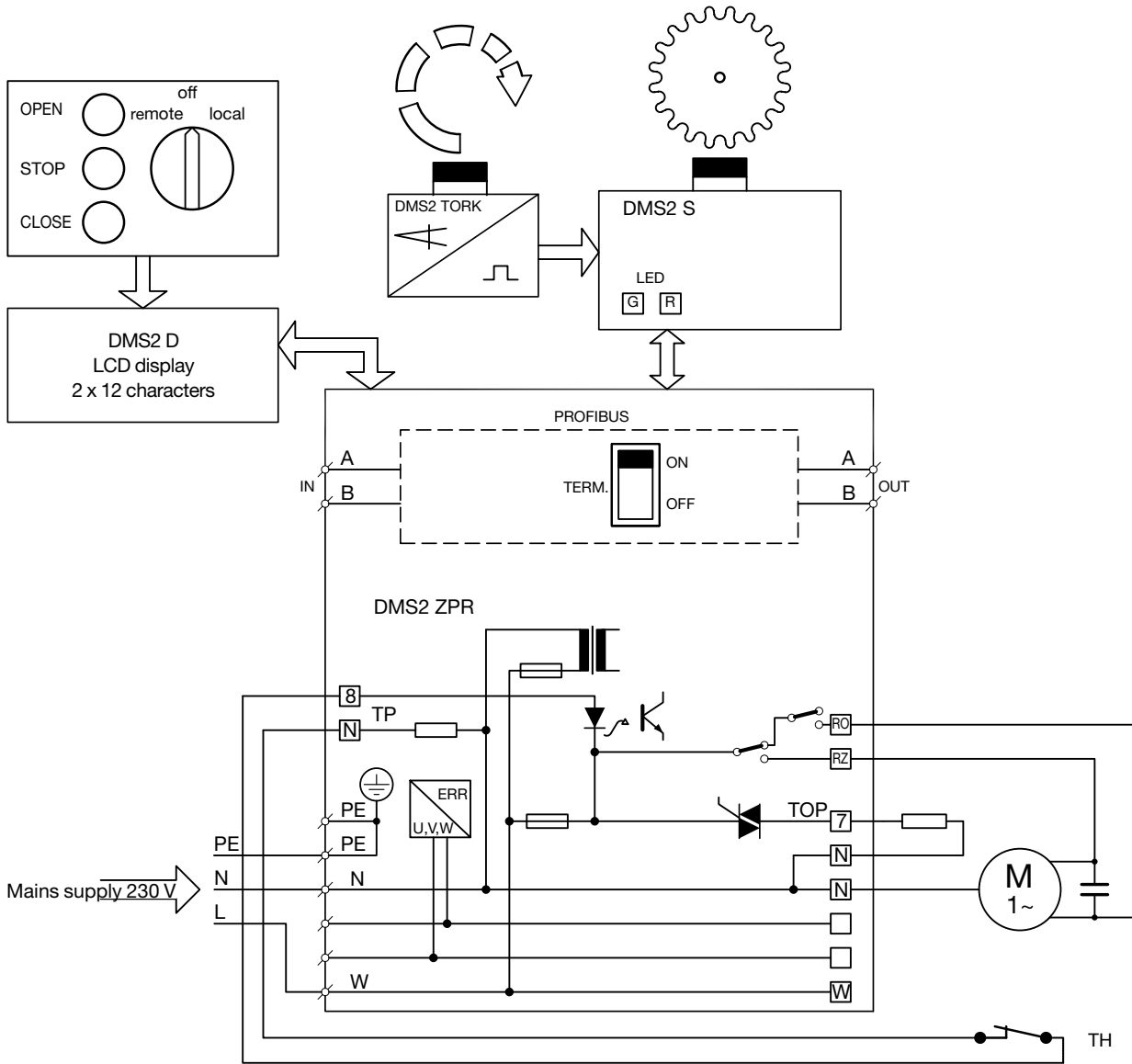
**Wiring diagram of electrical actuators MODACT MPSED 52 260  
with one-phase electric motor in version DMS2 Analog**

E-0018



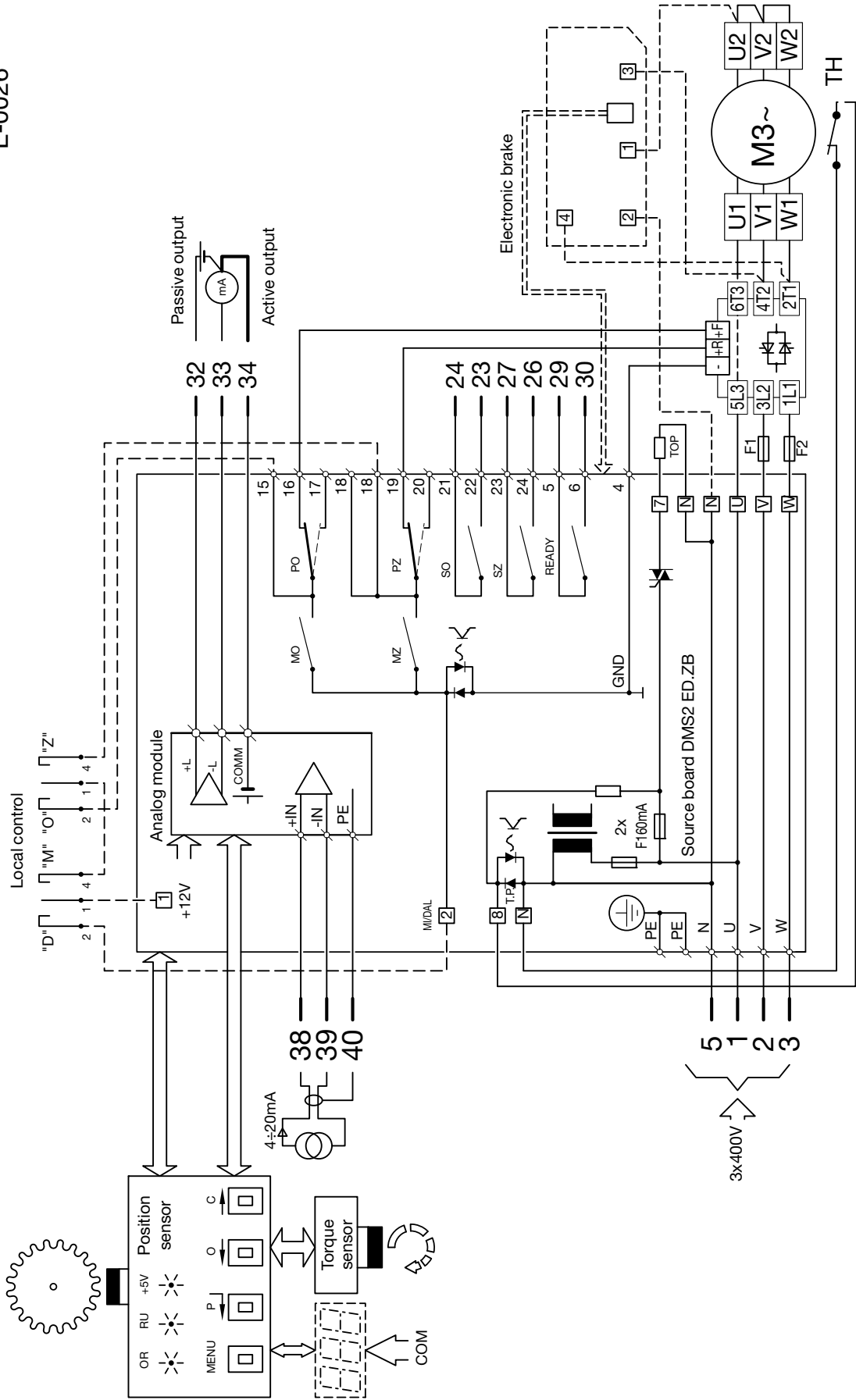
Wiring diagram of electrical actuators **MODACT MPSED 52 260**  
with one-phase electric motor in version **DMS2 Profibus**

E-0019



Wiring diagram of electrical actuators **MODACT MPSED 52 261 - 52 266** in version **DMS2 ED Control**  
**with contact-less switching and connector**

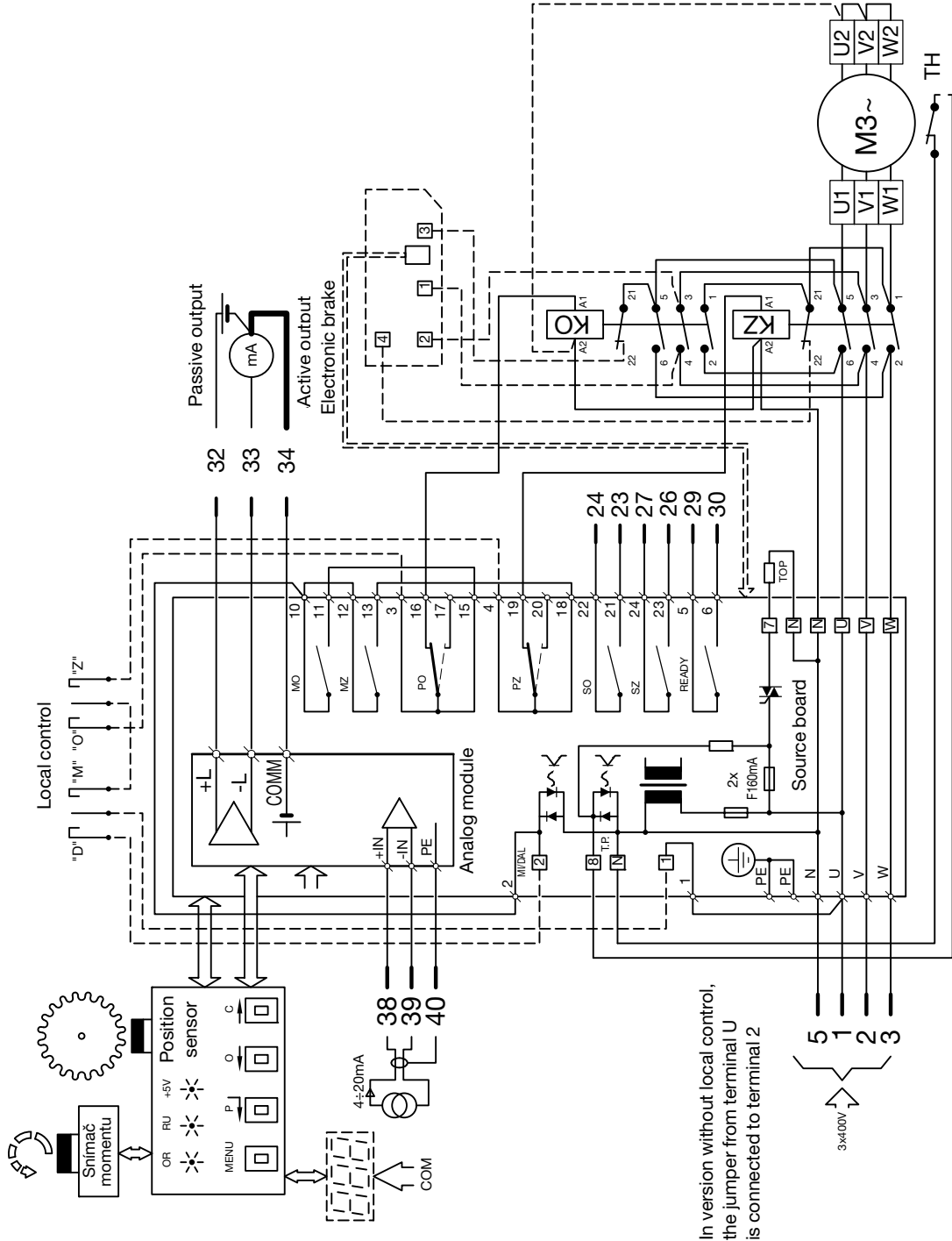
E-0026





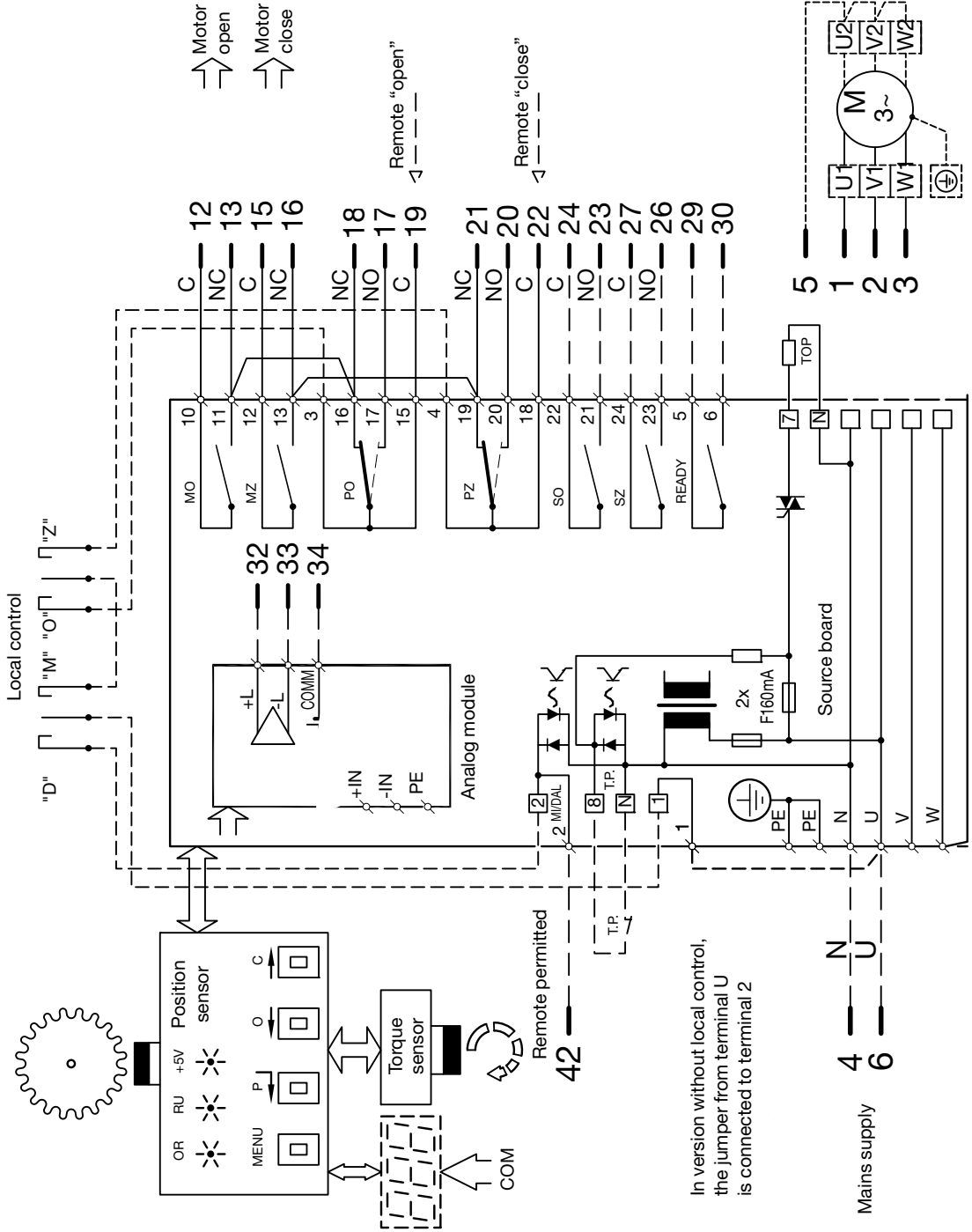
Wiring diagram of electrical actuators **MODACT MPSED 52 261 - 52 266**  
in version **DMS2 ED Control with connector**

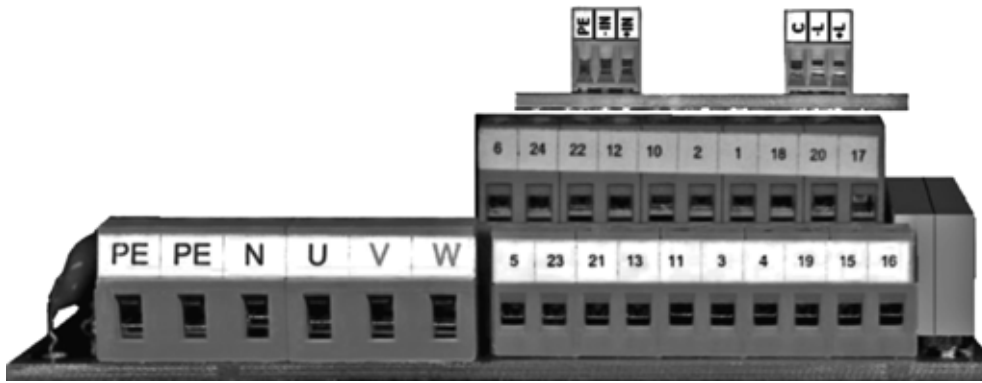
E-0027



Wiring diagram of electrical actuators **MODACT MPSED 52 261 - 52 266**  
in version **DMS2 ED** - Substitution of electro-mechanical board with connector

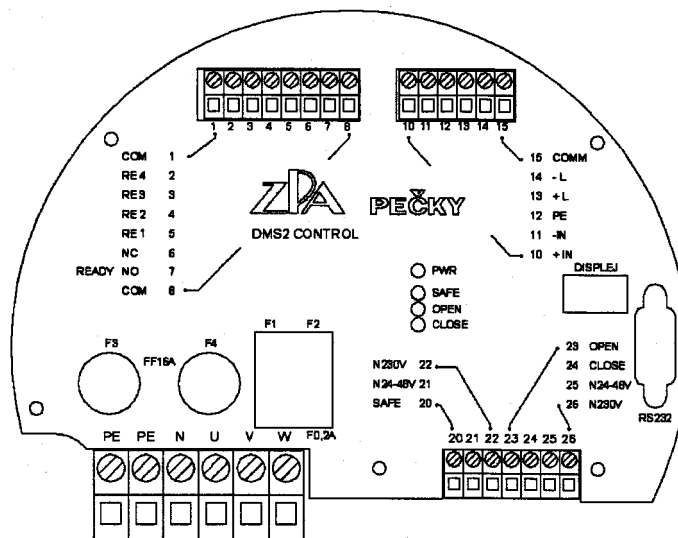
E-0028



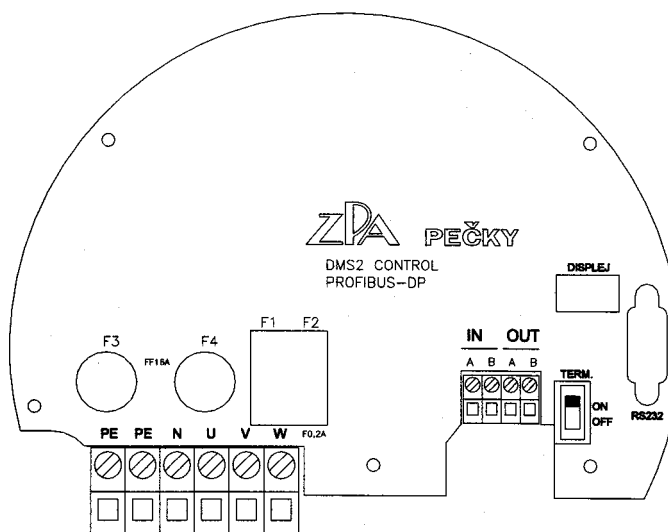


**The terminal board of the actuator with electronics DMS2 ED.**

**Note:** If the actuator is of one-phase version the supply mains inlet is only connected to the terminals **PE, N U**. The terminals **V, W** will remain unconnected.



**Terminal board DMS2 Analog**



**Terminal board DMS2 Profibus**

**Note:** In the case of MODACT MPSED actuators with one-phase motor, the inlet is connected to the terminal **N** (middle conductor) and **W** (phase conductor). The terminals **U, V** will remain unconnected.

**Table 1 – MODACT MPSED, MODACT MPSED Control electric actuators**  
– basic technical parameters

Type designation	Tripping torque range [Nm]	Operating time [s/90°]	Motor power [W]	Voltage [V]	Motor current I <sub>n</sub> [A]	Starting motor current [A]	Volume of oil [l]	Weight [kg]	Type Number	
									basic	additional
MPSED 8/8	20 – 80	8	90	400	0,34	1	2	26	5 2 2 6 0	x x 1 x x ED
MPSED 8/16		16								x x 2 x x ED
MPSED 8/32		32	60	230	0,53	1,15				x x 3 x x ED
MPSED 8/63		63	20	230	0,4	1,63				x x 4 x x ED
MPSED 12,5/8	60 – 125	8	90	400	0,34	1	3,4	70	5 2 2 6 1	x x 5 x x ED
MPSED 12,5/16		16								x x 6 x x ED
MPSED 12,5/32		32	60	230	0,53	1,15				x x 7 x x ED
MPSED 12,5/63		63	20	230	0,4	0,63				x x 8 x x ED
MPSED 16/16	100 – 160	16	120	400	0,45	1,44	3,4	70	5 2 2 6 1	x x 1 x x ED
MPSED 16/32		32								x x 2 x x ED
MPSED 16/63		63								x x 3 x x ED
MPSED 16/120		120								x x 4 x x ED
MPSED 32/16	160 – 320	16	180	400	0,57	1,82	3,4	70	5 2 2 6 2	x x 1 x x ED
MPSED 32/32		32								x x 2 x x ED
MPSED 32/63		63								x x 3 x x ED
MPSED 32/120		120								x x 4 x x ED
MPSED 63/16	320 – 630	16	370	400	1,05	3,25	10	120	5 2 2 6 3	x x 1 x x ED
MPSED 63/32		32								x x 2 x x ED
MPSED 63/63		63	180	400	0,57	1,82				x x 3 x x ED
MPSED 63/120		120	x x 4 x x ED							
MPSED 125/16	630 – 1250	16	370	400	1,05	3,25	10	120	5 2 2 6 4	x x 1 x x ED
MPSED 125/32		32								x x 2 x x ED
MPSED 125/63		63	x x 3 x x ED							
MPSED 125/120		120	180	400	0,57	1,82				x x 4 x x ED
MPSED 200/45	1250 – 2000	45	370	400	1,05	3,25	10	267	5 2 2 6 5	x x 0 x x ED
MPSED 400/45	2500 – 4000								5 2 2 6 6	x x 0 x x ED

**Note:**

Currents of electric motors apply to  $U_n = 3 \times 230/400 \text{ V}, 50 \text{ Hz}$ ,  $U_n = 1 \times 230 \text{ V}, 50 \text{ Hz}$ .

The values of parameters apply to working conditions according to ČSN 186330 Cl. 4.1 through 4.5.

Permitted deviation of the shifting time according to ČSN 186330 Cl. 4.19 is -15 % to +10 % of the rated value.

## Electric actuators MODACT MPSED

– Specification of meaning of the 6th to 10th place of the type number:

Place in the type number: ... 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> 8<sup>th</sup> 9<sup>th</sup> 10<sup>th</sup>  
**Type number..... 5 2 2 6 x . x x x x x E D**

**Table 2 – Basic parameters**

6th place	Connecting dimensions, electric connection		6 - terminal board
			7 - connector
7th place	output shaft end, working stroke <i>Version 5 - 8 is not available for type no. 52 265 and 52 266</i>	1 – lever, 60°	5 - without lever, 60°
		2 – lever, 90°	6 - without lever, 90°
		3 – lever, 120°	7 - without lever, 120°
		4 – lever, 160°	8 - without lever, 160°
8th place	shifting time 90°		<b>Table 1</b>
9th place	fitting of electronics	at 10th place: 1, 3, 5, 7, 9	<b>Table 3</b>
		at 10th place: 2, 4, 6, 8	<b>Table 4</b>
10th place	type of electronics, power switches		<b>Table 5</b>

**Table 3 – Actuator fitted with electronics DMS2 ED**

Outfit	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	H	J	K	L	M	N	V	W
Local control		x		x		x		x		x		x		x		x		x		x		x		x
Display			x	x			x	x			x	x			x	x			x	x			x	x
Contactors or contact-less control					x	x	x	x					x	x	x	x					x	x	x	x
Analog module	transmitter								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	regulator																x	x	x	x	x	x	x	x

In case the actuator is equipped with electronics DMS2ED in configuration Replacement of Electro-mechanical Board (it does not include regulator) it is not fitted with electronic brake.

**Table 4 – Actuator fitted with electronics DMS2**

Two-position or three-position control *)	<b>R</b>
Profibus	<b>P</b>
Two- or three-position control, without display and local control *)	<b>T</b>

\*) Two- or three-position regulation of the actuator is set at the manufacturer. Unless otherwise specified in the order, the actuator will be set for three-position regulation (control by signal 4 – 20 mA).

**Table 5 – Type of electronics, power switches, brake**

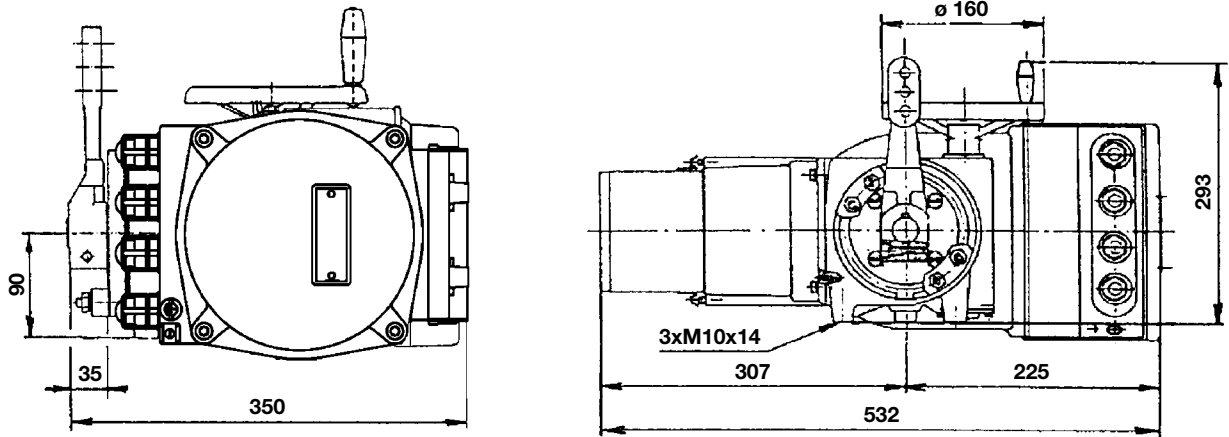
Electronics DMS2 ED - without power switches	<b>1ED</b>
Electronics DMS2 - with contactors	<b>2ED</b>
Electronics DMS2 ED - with contact-less switches	<b>3ED</b>
Electronics DMS2 - with contact-less switches	<b>4ED</b>
Electronics DMS2 ED - with contactors and brake	<b>5ED</b>
Electronics DMS2 - with contactors and brake	<b>6ED</b>
Electronics DMS2 ED - with contact-less switches and brake	<b>7ED</b>
Electronics DMS2 - with contact-less switches and brake	<b>8ED</b>
Electronics DMS2 ED - with contactors	<b>9ED</b>

### Notes:

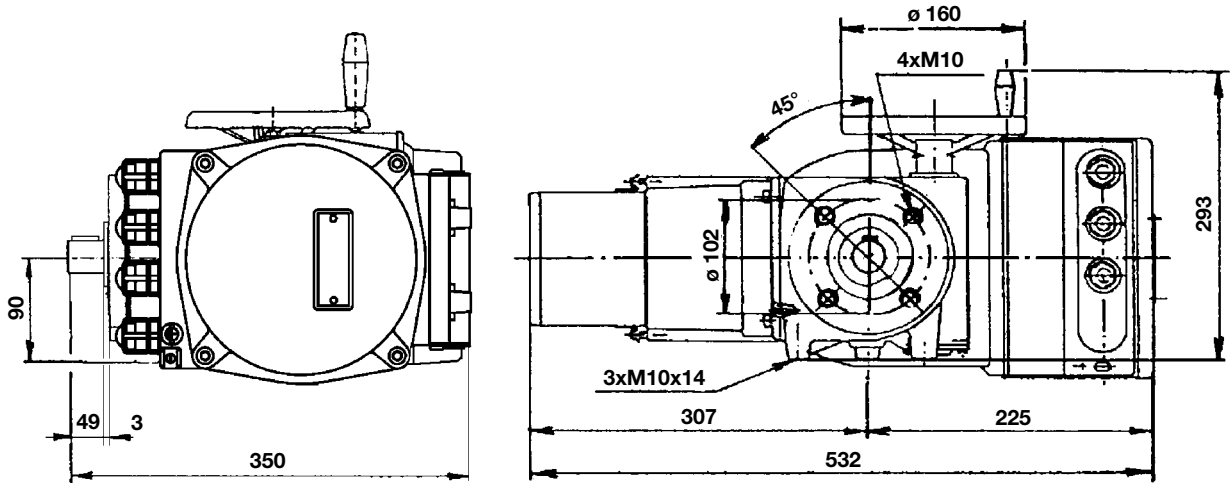
The actuators with one-phase electric motors are available in the versions 52 26x.xxx1ED, 52 26x.xxx2ED or 52 26x.xxx9ED. In case the actuator is equipped with electronics DMS2 (character P, R or T at the 9th place) and the character 2 is at the 10th place the actuator with three-phase electric motor is fitted with contactors; the actuator type no. 52 260 with one-phase electric motor is not fitted with contactors.

# MODACT MPSED electric part-turn actuator, Type No. 52 260

- Design with terminal board

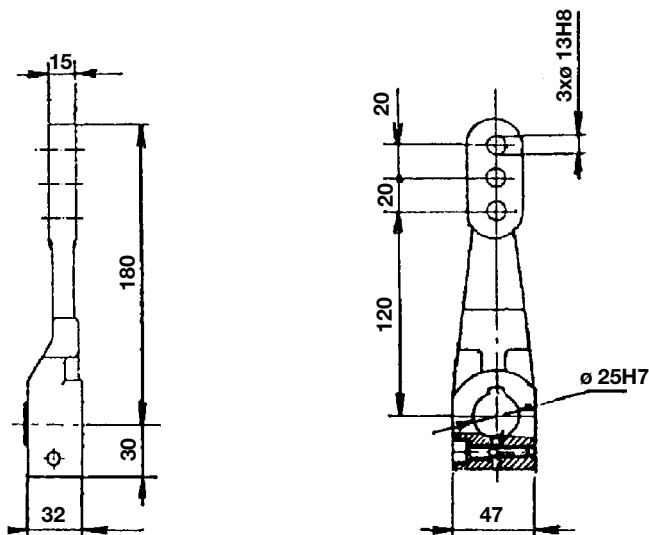


- Flanged design with terminal board

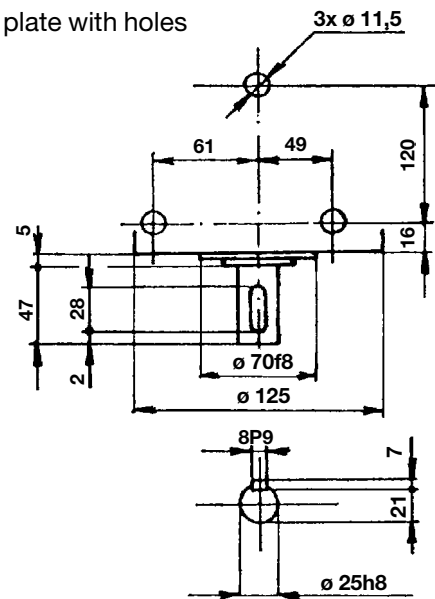


**Note:** Threads for bushings in terminal box: 1 x M25 x 1.5, 3 x M20 x 1.5 (the bushings are included in the delivery - wrapped-together part).

Lever

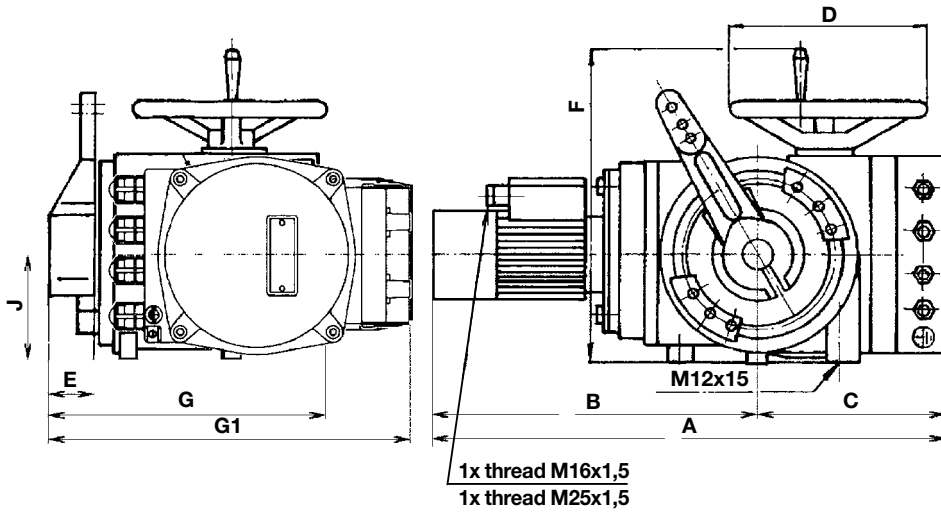


Mounting plate with holes



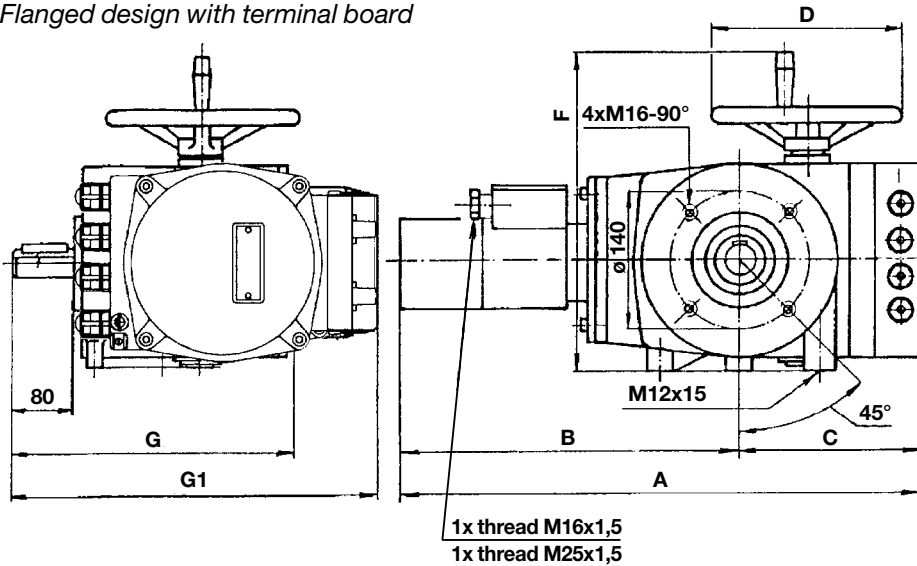
# MODACT MPSED electric part-turn actuators, Type No. 52 261, 52 262

- Design with terminal board



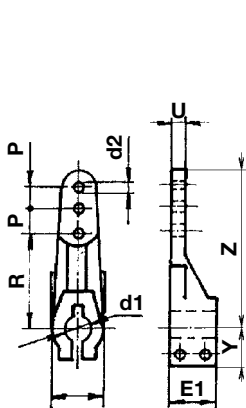
A	620
B	386
C	234
D	ø 200
E	62
E <sub>1</sub>	60
F	346
G	340
G <sub>1</sub>	456
J	120
K	70
L	90
M	140
N	41
O	ø 14
P	40
R	170
S	56
T	4
U	25
X	65
Y	41
Z	273
d	ø 40 h 8
d <sub>1</sub>	ø 40 H 7
d <sub>2</sub>	3 x ø 20 H 8
b	12 P9
h	8
e	35

- Flanged design with terminal board

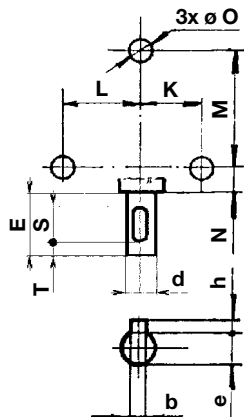


**Note:** Threads for bushings in terminal box: 1 x M25 x 1.5, 3 x M20 x 1.5 (the bushings are included in the delivery - wrapped-together part).

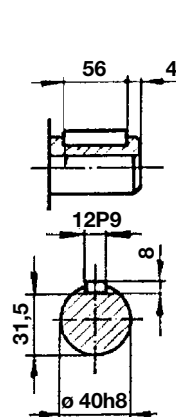
Lever



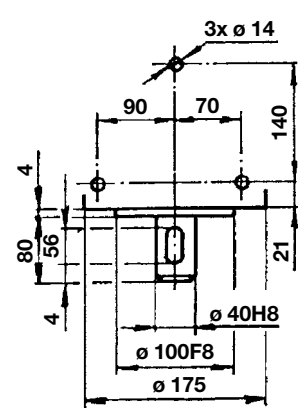
Mounting plate with holes



Output shaft

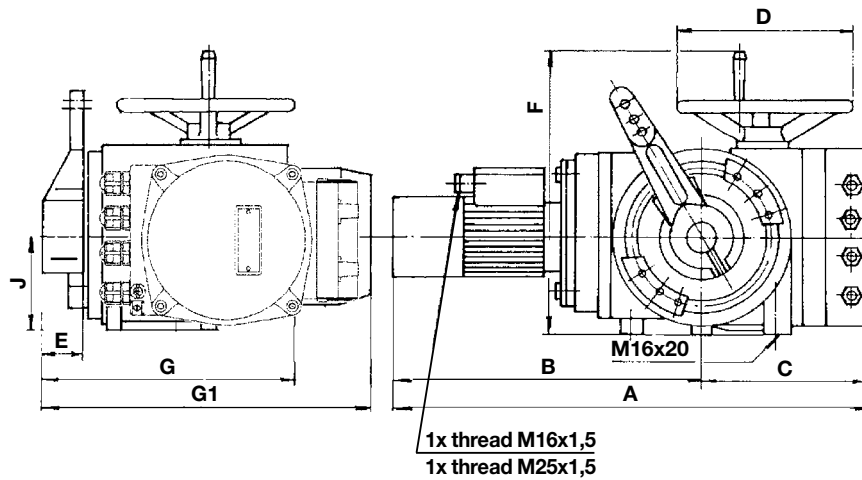


Mounting plate with holes



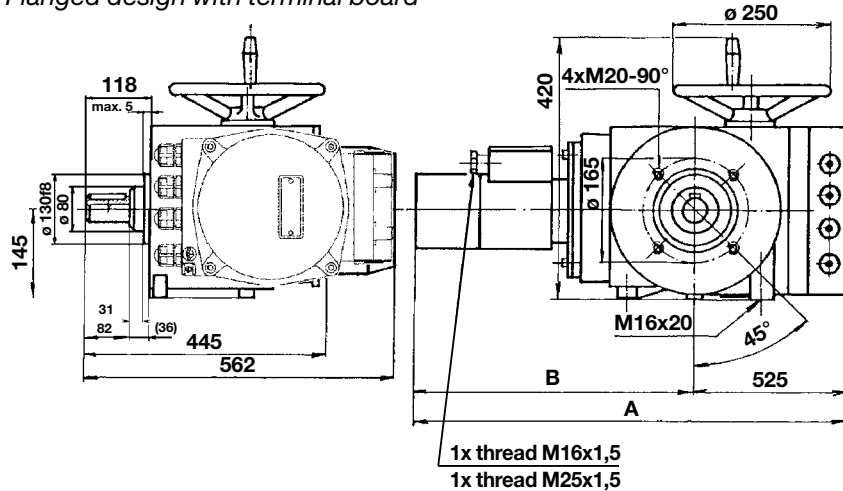
# MODACT MPSED electric part-turn actuators, Type No. 52 263, 52 264

- Design with terminal board



	Design	
	52 263	52 264
A	712	731
B	460	479
C	252	
D	ø 250	
E	82	
E <sub>1</sub>	80	
F	420	
G	445	
G <sub>1</sub>	562	
J	145	
K	100	
L	110	
M	200	
N	60	
O	ø 18	
P	40	
R	170	
S	70	
T	7	
U	30	
X	80	
Y	55	
Z	278	
d	ø 50 h 8	
d <sub>1</sub>	ø 50 H 7	
d <sub>2</sub>	3 x ø 25 H 8	
b	16 P9	
h	10	
e	43,8	

- Flanged design with terminal board



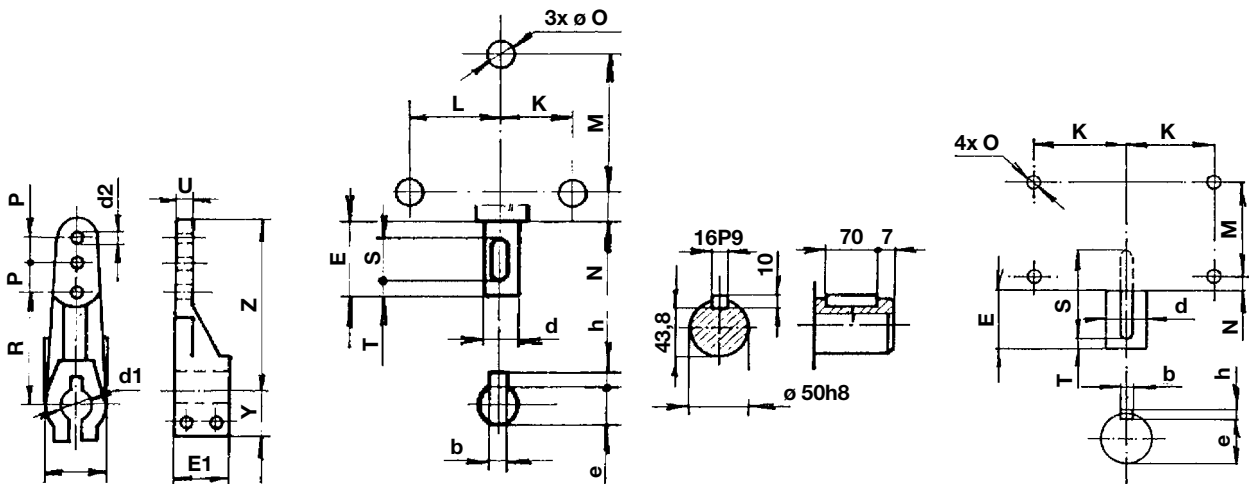
**Note:** Threads for bushings in terminal box: 1 x M25 x 1.5, 3 x M20 x 1.5 (the bushings are included in the delivery - wrapped-together part).

Lever

Mounting plate with holes

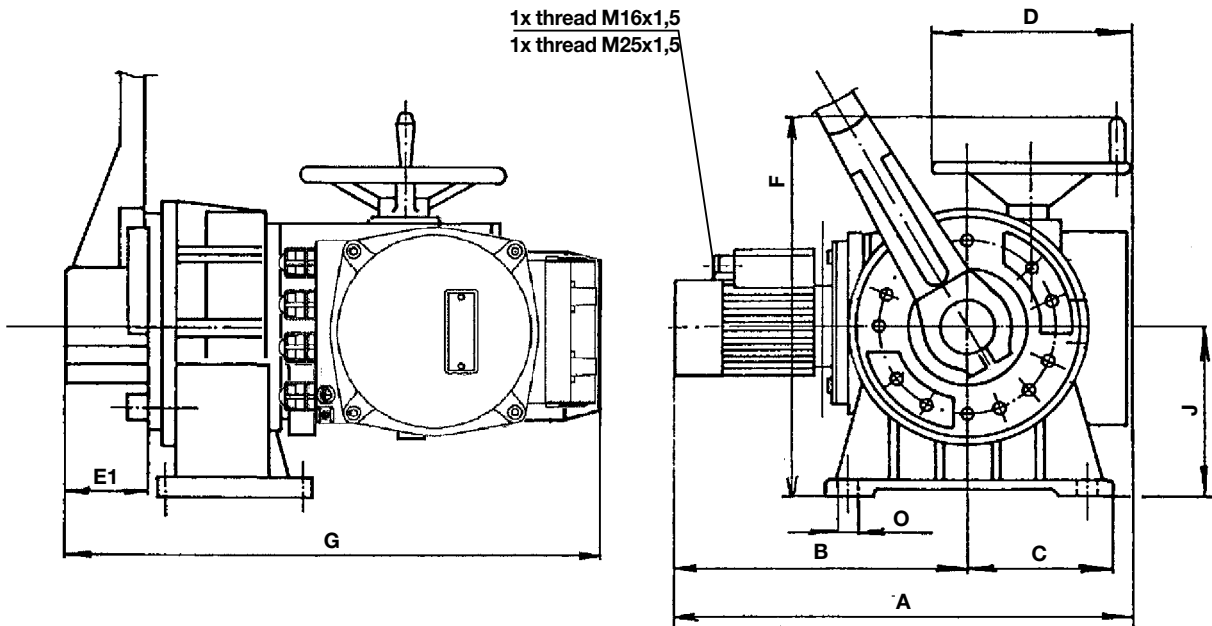
Output shaft

Mounting plate with holes



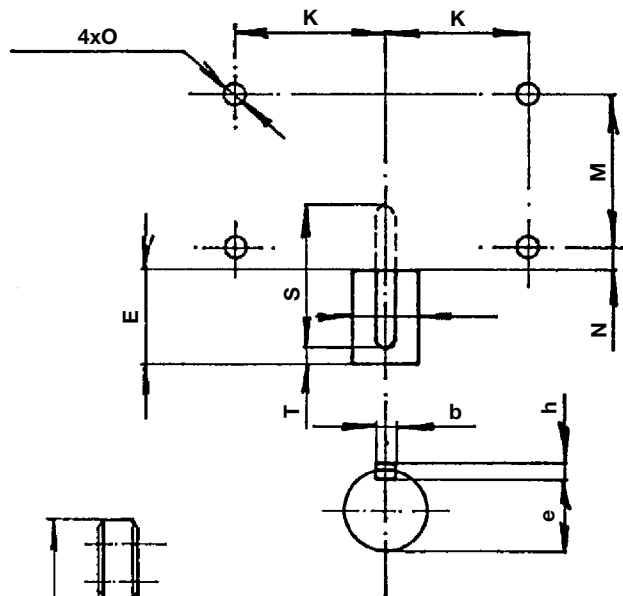


**MODACT MPSED** electric part-turn actuators, Type No. 52 265, 52 266

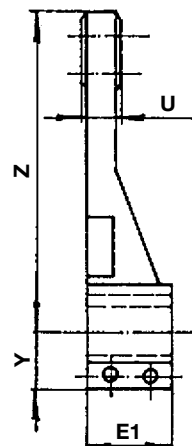
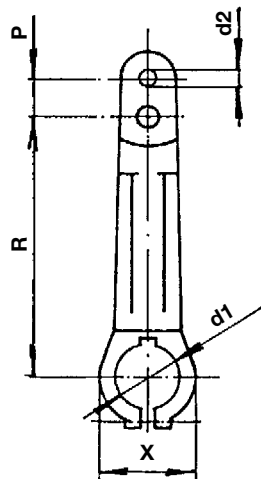


**Note:** Threads for bushings in terminal box: 1 x M25 x 1.5, 3 x M20 x 1.5 (the bushings are included in the delivery - wrapped-together part).

Mounting plate with holes



Lever



A	743
B	498
C	220
D	ø 300
E	123
E <sub>1</sub>	120
F	560
G	760
J	260
K	185
M	200
N	33
O	ø 22
P	55
R	400
S	180
T	11
U	36
X	130
Y	80
Z	490
d	ø 90 h8
d <sub>1</sub>	ø 90 H7
d <sub>2</sub>	ø 40 H8
b	25 P9
h	14
e	81,3



