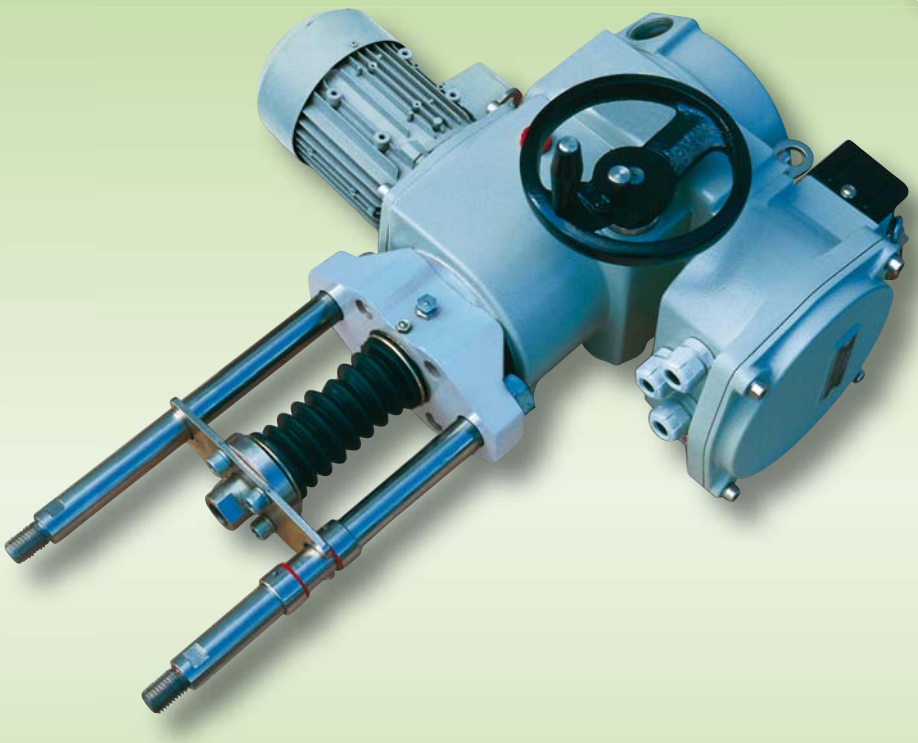
ZPA PEČKY, a.s.



Electric Linear
Thrust Actuators

MODACT MTNED, MTPED

CATALOGUE

Type numbers 52 442, 52 443

CERTIFICATE TÜV NORD

Management system as per
EN ISO 9001 : 2008

In accordance with TÜV NORD CERT procedures, it is hereby certified that

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

applies a management system in line with the above standard for the following scope

Development and production of electric actuators, switch boards and sheet metal working.

Certificate Registration No. 04 100 950161
Audit Report No. 624 362/300

Valid until 2012-09-24
Initial certification 1995-03-01

Certification Body
at TÜV NORD CERT GmbH

Praha, 2009-09-25

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen www.tuev-nord-cert.com

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APPLICATION

The actuators **MODACT MTNED, MTPED** are used for remote two-position or three-position control of valves by reciprocating linear motion.

The actuators can also be used for other devices for which they are appropriate due to their performance and parameters. Using in special cases should be discussed with the manufacturer.

OPERATING CONDITIONS, OPERATING POSITION

Operating conditions

The **MODACT MTNED, MTPED** actuators should withstand the effect of operating conditions and external influences, Classes AA7, AB7, AC1, AD5, AD7, AE5, AE6, AF2, AG2, AH2, AK2, AL2, AM2, AN2, AP3, BA4 and BC3, according to ČSN Standard 33 2000-3 *(mod. IEC 364-3:1993).*

When placed on an open area, the actuator is recommended to be fitted with a light shelter to protect it against direct action of atmospheric effects. The shelter should overhang the 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 °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.

Notes:

A sheltered location is considered a space where atmospheric precipitations are prevented from falling at an angle of up to 60° 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 in the 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 Standard 33 2000-3 *(mod. IEC 364-3:1993).*

1) AA7 – Simultaneous effect of ambient temperature with relative humidity from 10 % upwards
see Table 6 – Surrounding temperatures
2) AB7 – Ambient temperature to Point 1); minimum relative humidity 10 %, maximum relative humidity 100 % with condensation
3) AC1 – Altitude ≤ 2,000 m above sea level
4) AD5 – Spouting water; water can spout in any direction.
AD7 – Shallow dipping; possibility of occasional partial or complete covering *(for the type MTPED only)*
5) AE5 – Moderate dustiness; medium dust layers; fall-out of dust more than 35 and max. 350 mg/m^2 per day.
AE6 – Heavy dustiness; thick layers of dust; fall-out of dust more than 350 and max. 1000 mg/m^2 per day. *(for the type MTPED only)*
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 occurance of animals *(insects, birds, small animals)*
11) AM2 – Harmful effect of escaping vagabond currents
12) AN2 – Medium solar radiation with intensities > 500 W/m^2 and ≤ 700 W/m^2
13) AP3 – Medium seismic effects; acceleration > 300 Gal ≤ 600 Gal
14) BA4 – Personal abilities; instructed people
15) BC3 – Frequent contact with the earth potential; persons coming frequently into contat with „live“ parts or standing on a conducting base

Operating position

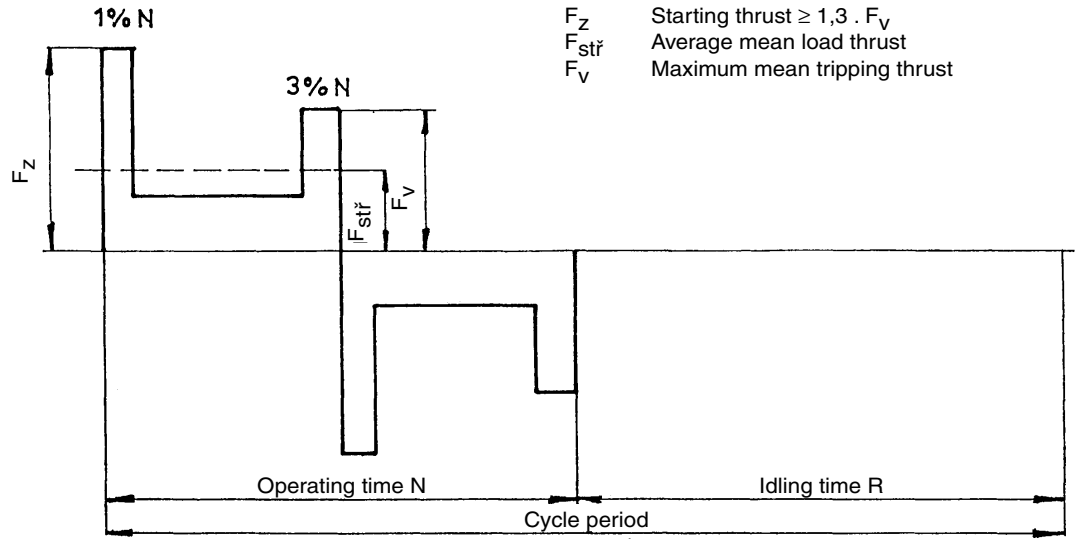
The actuators can be operated in any working position *(the position with the motor perpendicularly downwards is not recommended).*

OPERATION MODE, SERVICE LIFE OF ACTUATORS

Operation mode

According to ČSN EN 60 034-1, actuators can be operated in S2 load category *(the course of load is shown in the picture).* The operation time at +50 °C shall be 10 minutes, the average mean load thrust value shall be below or equal to 60 per cent of the maximum tripping thrust F_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 maximum number of switching actions in automatic control mode is 1200 actions per hour. The average mean load thrust at load factor of 25 per cent and 50 °C shall not exceed 40 per cent of the maximum tripping thrust F_V.

The maximum average mean of the load thrust equals the rated thrust of the actuator.



F_Z Starting thrust ≥ 1,3 . F_V
$F_{stř}$ Average mean load thrust
F_V Maximum mean tripping thrust

Course of working cycle

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

TECHNICAL DATA

Supply voltage

Supply voltage of electric motor: **MODACT MTNED, MTPED:** 3 x 230/400 V, +10 %, -15 %, 50 Hz ±2 %
3 x 220/380 V, +10 %, -15 %, 50 Hz +3 % - 5 %
(or as shown on the motor rating plate)

Actuators designed to operate at another voltage and frequency than those given above are available upon special request. For more details, refer to the Technical conditions.

Protective enclosure

Protective enclosure of actuators: **MODACT MTNED** – IP 55 according to ČSN EN 60 529
MODACT MTPED – IP 67 according to ČSN EN 60 529

Noise

Level of acoustic pressure A max. 85 dB *(A)*
Level of acoustic output A max. 95 dB *(A)*

Tripping thrust

At the factory, the tripping thrust has been adjusted within the min./max. range giving in Table 1, according to the customer's requirements. If no tripping thrust adjustment is required the actuator is adjusted to its maximum tripping thrust.

Starting thrust

The starting thrust of the actuator is a calculated value determined by the starting torque of the electric motor and the total gear ratio and efficiency of the actuator. After run reversation, the actuator can produce a starting thrust for the duration of 1 to 2 revolutions of the output shaft when torque-limit switching is locked. This can take place in either end position or in any intermediate position.

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.

Working stroke

The ranges of working stroke are given in Table No. 1.

Rising spindle

In the design variants with connecting dimensions, Shapes A and C, the actuators can be adapted for mounting to the valve with a rising spindle that projects over the upper end of the actuator output shaft in the end position of the valve. The space reserved for the rising spindle is clearly shown in the dimensional sketches. The user should mount a cylindrical guard of the rising spindle instead of the port cover at the control box top, if required. This guard has not been included in the delivery of the actuator.

Manual control

The actuators are controlled by the hand wheel directly *(without a clutch)* and they can be controlled even with the electric motor running. By rotating the hand wheel in the clockwise direction, the actuator output tie rod is shifted out *(closes).*

ACTUATOR OUTFIT

Position indicator

The actuator can be fitted with a local position indicator.

Anti-condensation heater

The actuators are fitted with an anti-condensation heater preventing condensation of water vapour. It is connected to the AC mains of voltage 230 V.

Local control

Local control serves for controlling the actuator from the site of its installation. It includes two change-over switches: one with positions „Remote control - Off - Local control", the other „Open - Stop - Close".

The former change-over switch can be built-in as two-pole or four-pole. The change-over switches are installed in a terminal-board box and the control elements on the lid of this terminal-board box.

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 form the control unit. Corresponding variant of the brake is chosen according to the electric motor output and the type of switching elements.

Corresponding variant is chosen according to the electric motor power:

BR2 550 output up to 550 W
BR 2,2 output up to 2.2 kW
If higher outputs are to be braked electric motors of special version with an electromagnetic brake should be used.

Switching of electric motor, contactor unit

The actuators in variants Control are fitted with built-in reversing contactor combinations. These are assembled of two contactors and an over-current relay. The combination also includes mechanical blocking that prevents both contactors from being closed at the same time. This could, for instance, happen in case of wrong connection of jumpers on the terminal board. The blocking is not dimensioned for long-term action. The over-current relays protects the electric motor against over-loading and is dimensioned with respect to its output. According to the actuator version, the contactors are controlled by the regulator, change-over switch of local control or external input. Control voltage is 230 V / 50 Hz as a standard; it is supplied via contacts of position and/or moment micro-switches. Thus, these micro-switches need not be led out of the actuator.

The contactors used have a long mechanical service life and great reserve in switching ability; consequently, the electric service life is also sufficient for particular use. The thermal relay is chosen so that it would reliably protect the electric motor against overload. Set-up and outfit of the actuators provide for simple connection to power-supply and control circuits.

The power-supply circuits can be common for the whole group of actuators, which will save the cabling.

ELECTRIC PARAMETERS

External electric connection

a) Actuator terminal board

The electric actuator is equipped with a terminal board for connection to external circuits. This terminal board uses screw terminals allowing conductors with a maximum cross-section 4 mm^2 to be connected. Access to the terminal board is obtained after removal of the terminal box cover. All control circuits of the electric actuator are brought out to the terminal board. The terminal box is fitted with cable bushings for connecting the electric actuator. The electric motor is fitted with an independent box with a terminal board and a bushing.

b) Connector

According to the customer's requirements the **MODACT MTNED, MTPED** actuators can be fitted with the connector to provide for connection of control circuits. This connector uses screw terminals allowing conductors with a maximum cross-section 4 mm^2 to be connected. ZPA Pečky, a.s. also supplies a counterpart for the cable. In order to connect the cable to this counterpart it is necessary to use special crimping pliers.

Actuator internal wiring

The internal wiring diagrams of the **MODACT MTNED, MTPED** actuators with terminal designation are shown in the Appendix.

Each actuator is provided with its internal wiring diagram on the inner side of the terminal box. The terminals are marked on a self-adhesive label attached to a carrying strip under the terminal block.

Isolation resistance

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

Electric strength

Circuits of anti-condensation heater		1 500 V, 50 Hz
Electric motor	Un = 3 x 230/400 V	1 800 V, 50 Hz

Deviations of basic parameters

Tripping thrust	±12 % of max. value of range
Adjusting speed	- 10 % of max. value of range
	+15 % of rated value *(idle run)*
Clearance of output part	max. 1 mm

Protection

The actuators are fitted with one internal and one external protection terminal for ensuring protection against electric shock injury according to ČSN 33 2000-4-41. One protection terminal is also installed on the electric motor. The protection terminals are marked according to ČSN EN 60 417-1 and 2 *(013760).*

DESCRIPTION

The **MTNED, MTPED** actuators are based on MODACT MONED actuator series. Moreover, they are designed with linear transmission unit for converting rotary motion into linear motion.

An asynchronous motor drives, via a geared countershaft, the sun gear of a epicyclic gear unit enclosed in the supporting actuator box *(power transmission).* In the mechanical power control mode, the crown gear of a planet epicyclic gear unit is held in steady position by a self-locking worm gear drive. Alternatively, the handwheel, connected with the worm allows manual control to be accomplished even during motor operation without any risk of operator's injury.

The output shaft is fix-connected with the planet gearing carrier and passes into the control box where all control elements of the actuator are installed.

The control elements are accessible after taking off the control box lid.

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 – for controlled by the signal 4 – 20 mA
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	2 – 1700 rev.
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 of electronic	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: **2 relays** for electric motor control; **Relay Ready** with change-over contact connected to the terminal board; **Signalling relays** 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 ***"Open", "Close", "Stop",*** selector switch ***"Local", "Remote", "Stop".***

Recommended outfit:

Electronic brake – the actuator can be fitted wit 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):*

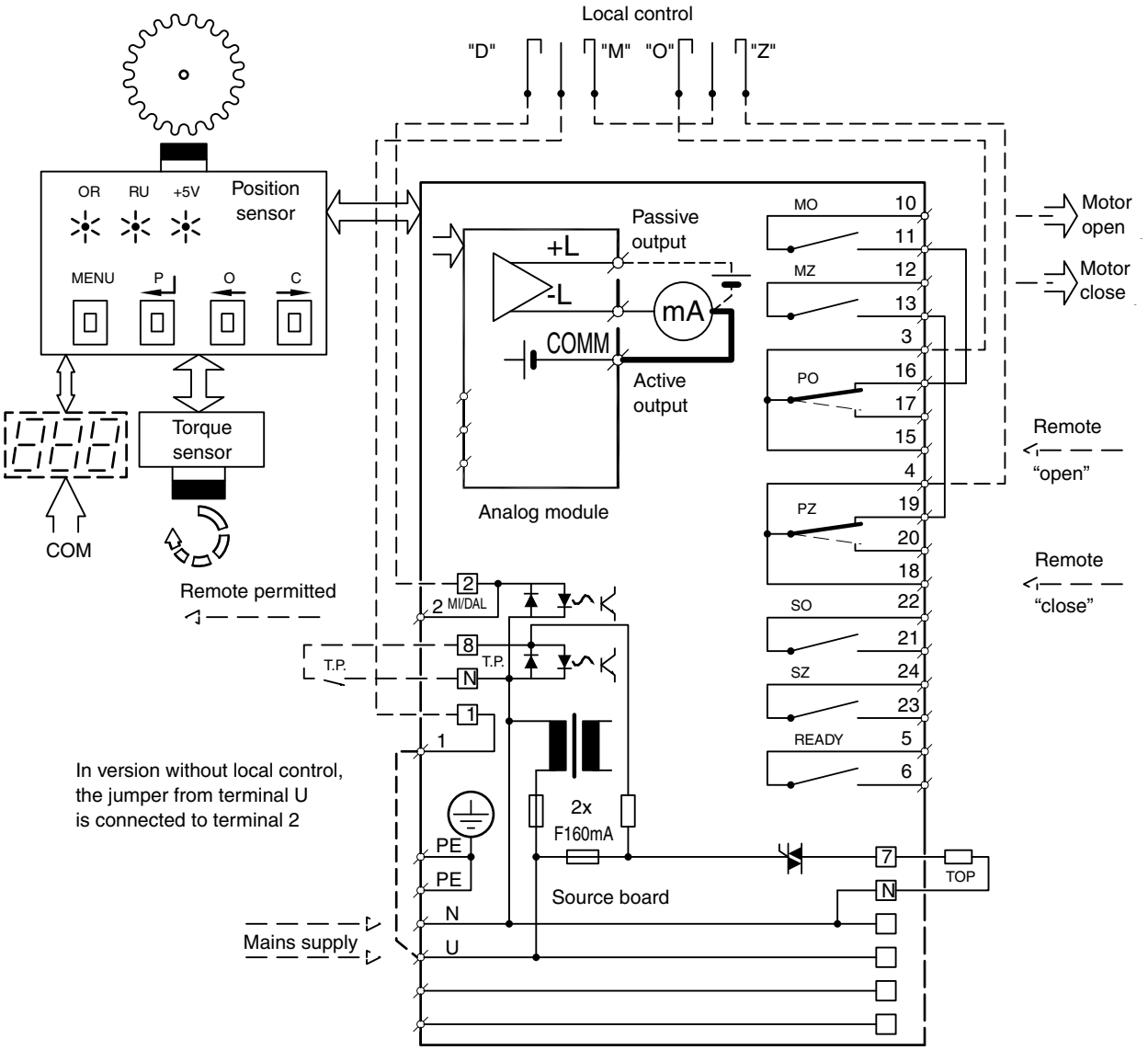
Unit of two- and three-position control – Control of the electric actuator by shifting to position "Open" and "Close" or by analog signal 0 *(4)* – 20 mA.

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.

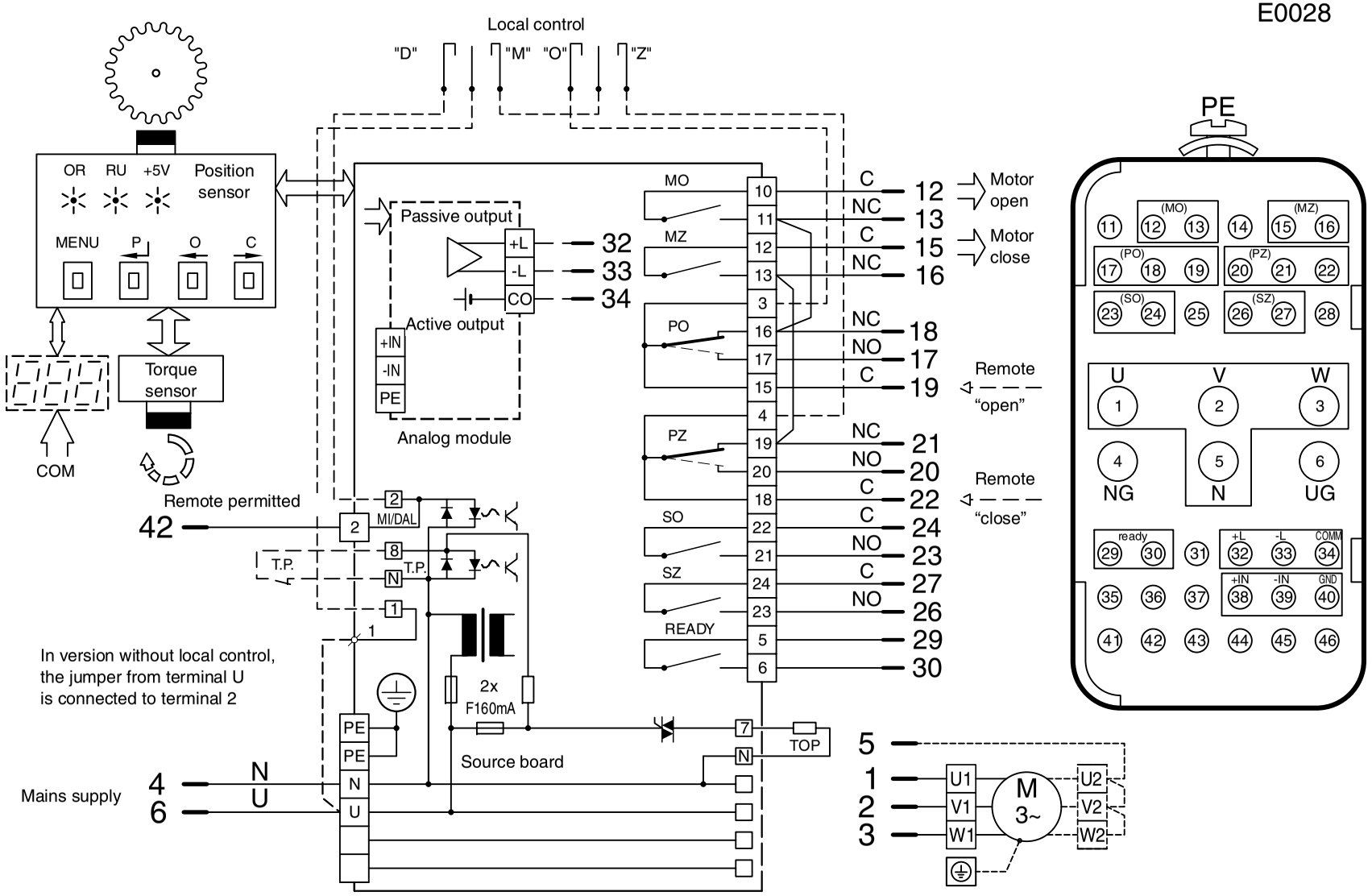
Example of wiring diagram of electronics **DMS2 ED** in version
Substitution of electro-mechanical board
(actuators MODACT MTNED, MTPED)

E0001



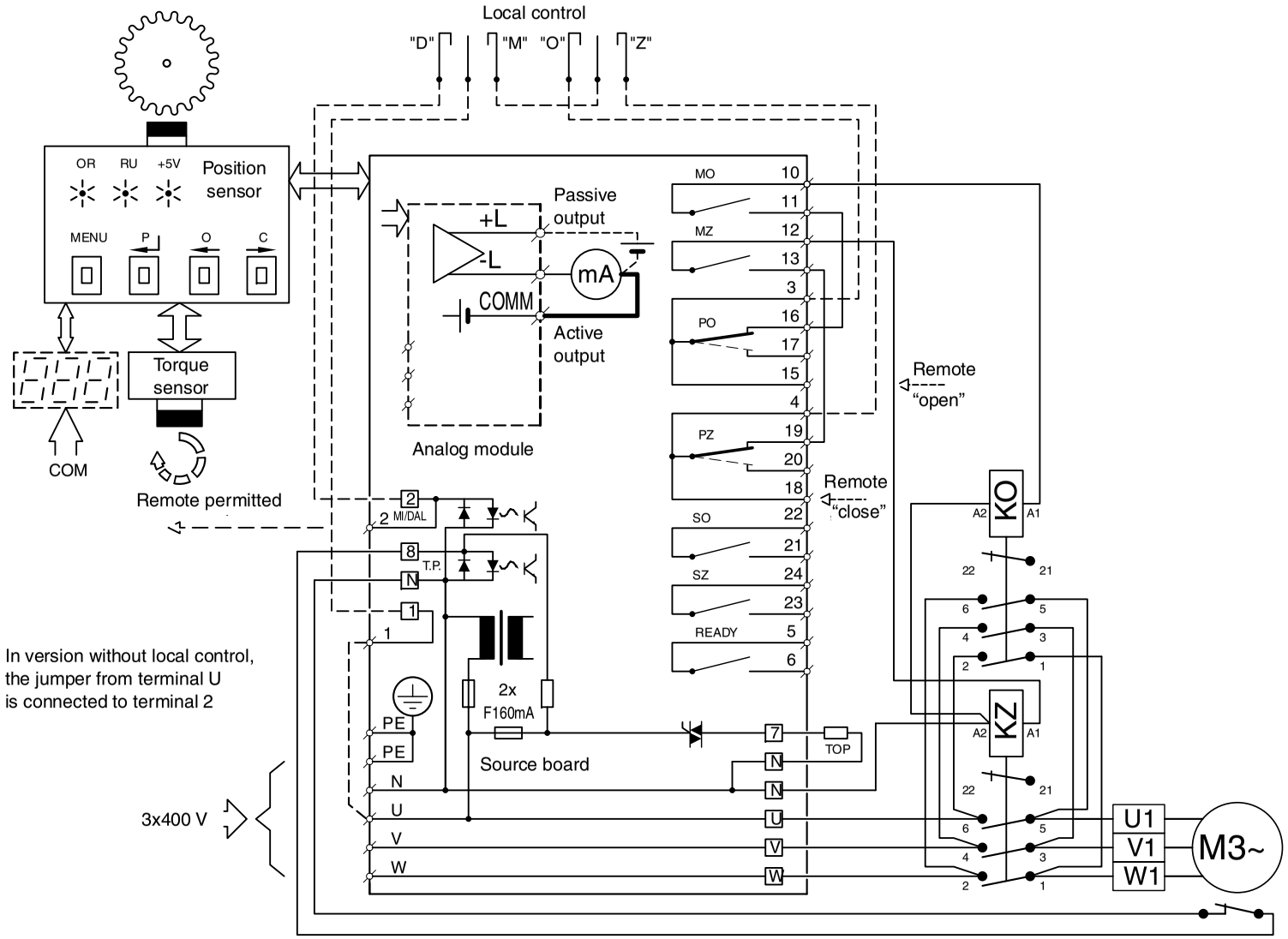
Note: *Here, contacts of relays MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched off contacts PO, PZ are shifted to the position drawn in dashed line.*

Example of wiring diagram of electronics **DMS2 ED** in version **Substitution of electro-mechanical board with connector connection (actuators MODACT MTNED, MTPED)**

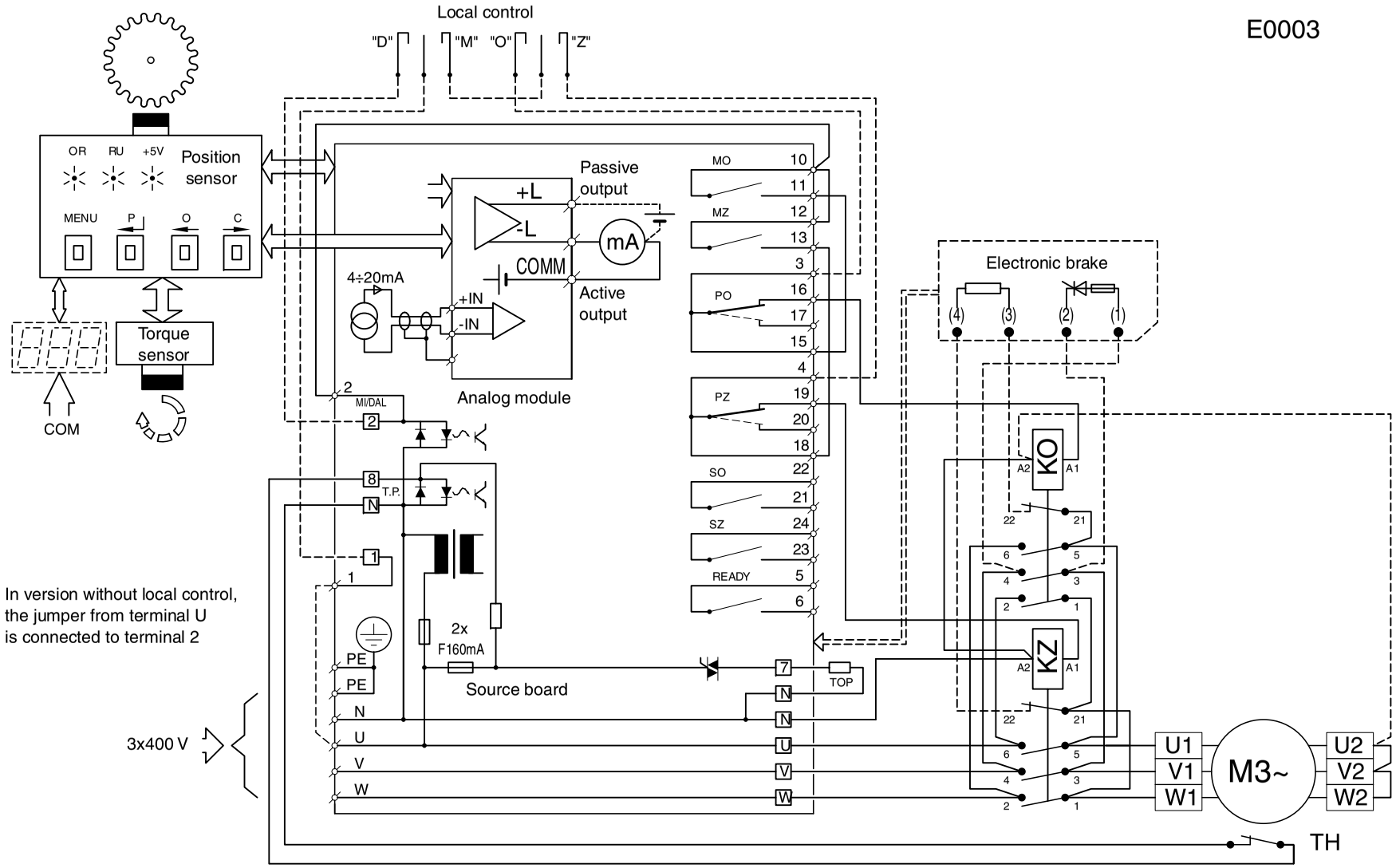


Example of wiring diagram **Substitution of electro-mechanical board with contactors and thermal relay (actuators MODACT MTNED, MTPED)**

E0002



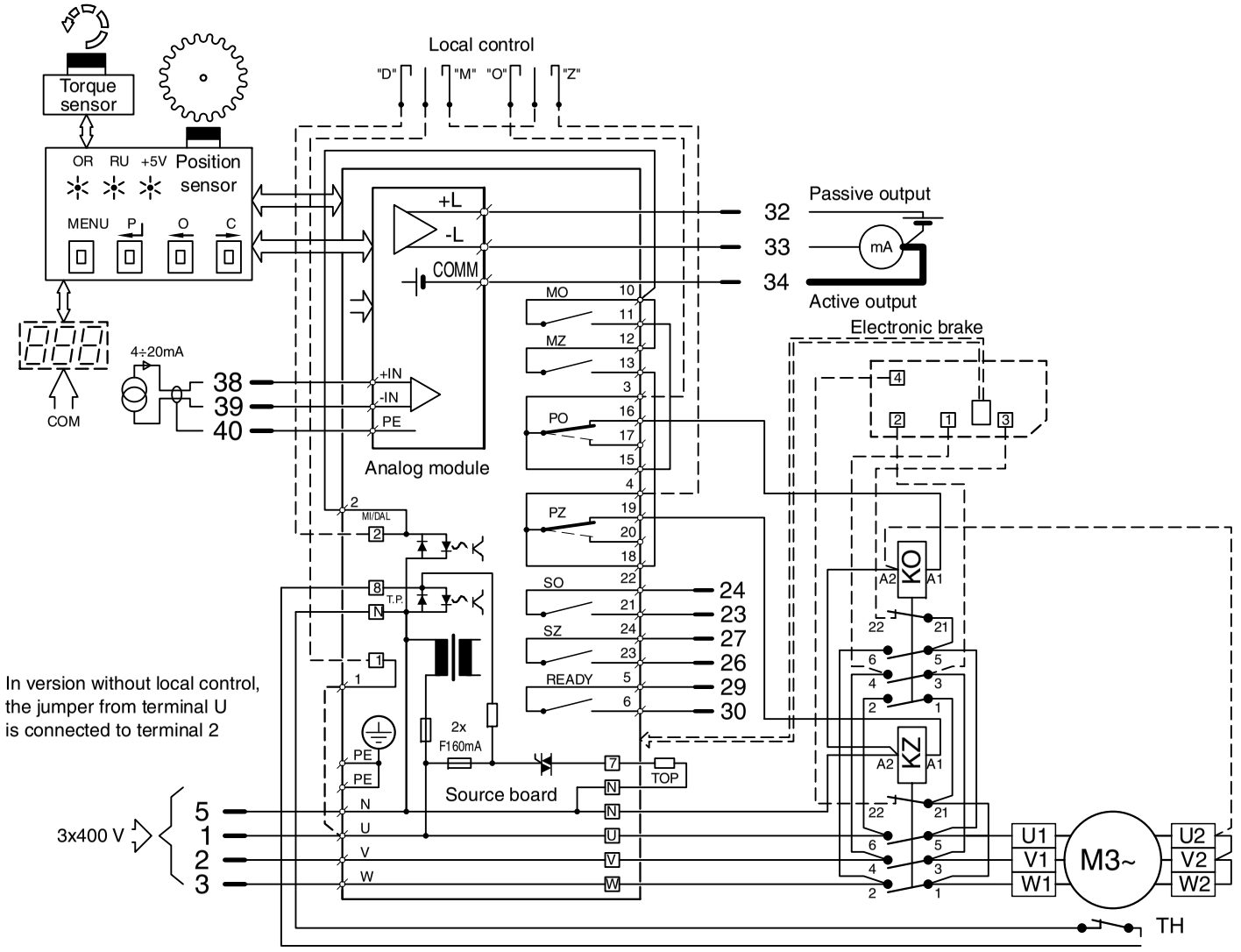
Example of wiring diagram of electronics **DMS2 ED** in version **Control (actuators MODACT MTNED, MTPED)**



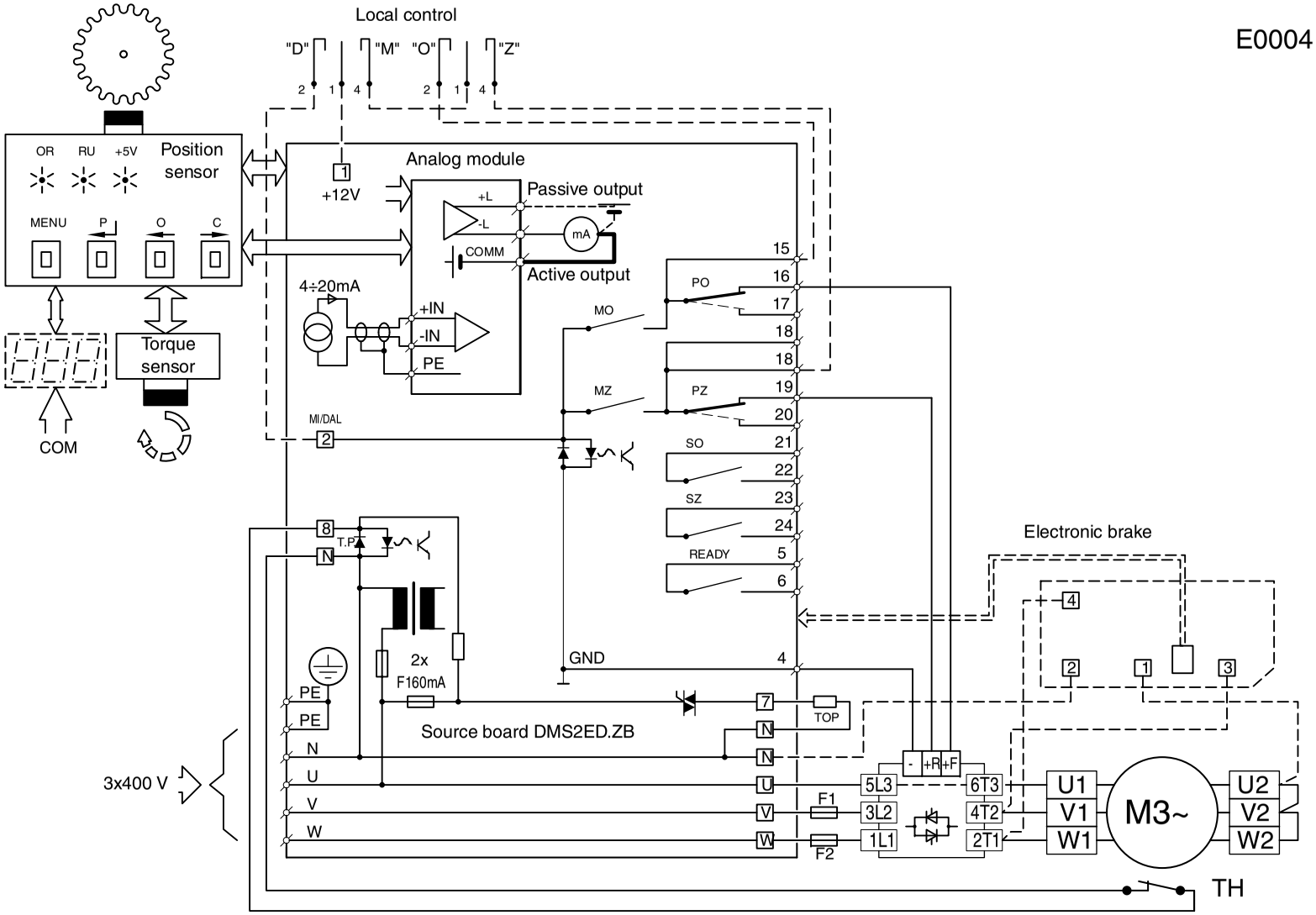
Note: *Here, contacts of relays MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched off contacts PO, PZ are shifted to the position drawn in dashed line.*

Example of wiring diagram of electronics **DMS2 ED** in version **Control with connector connection (actuators MODACT MTNED, MTPED)**

E0027



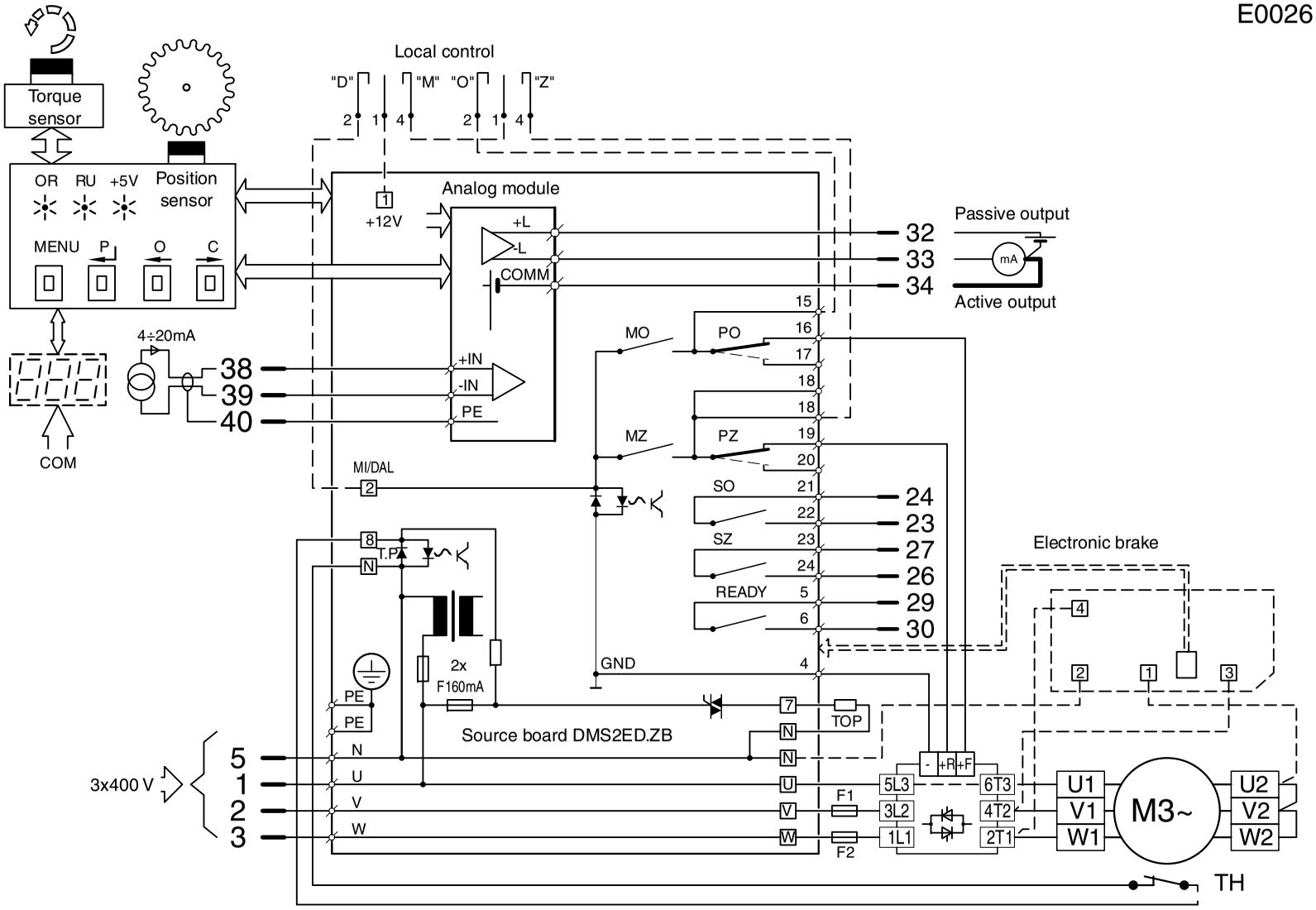
Example of wiring diagram of electronics **DMS2 ED** in version **Control** with contact-less switching of electric motor



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.*

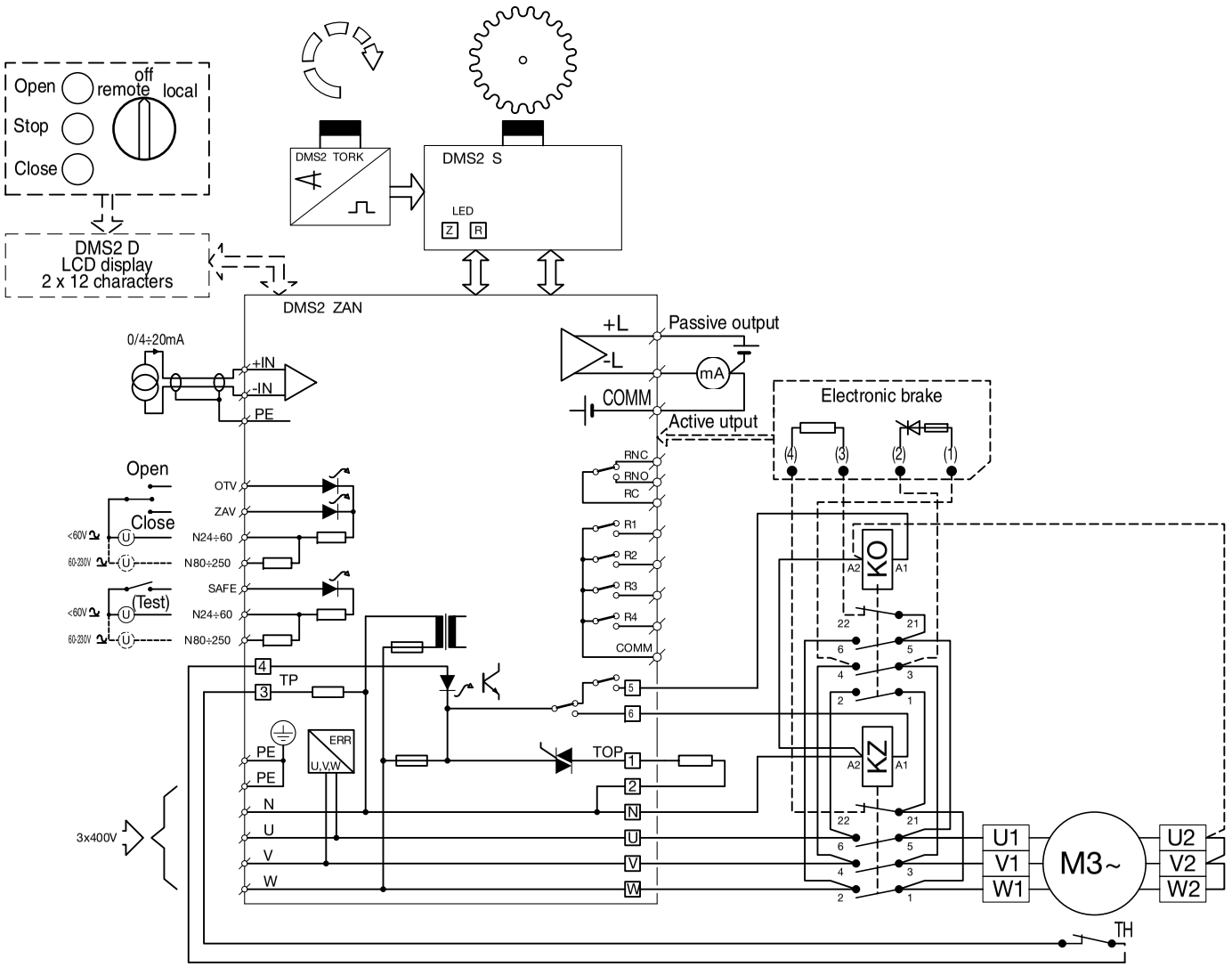
Example of wiring diagram of electronics **DMS2 ED** in version **Control** with contact-less switching of electric motor, with connector connection

E0026



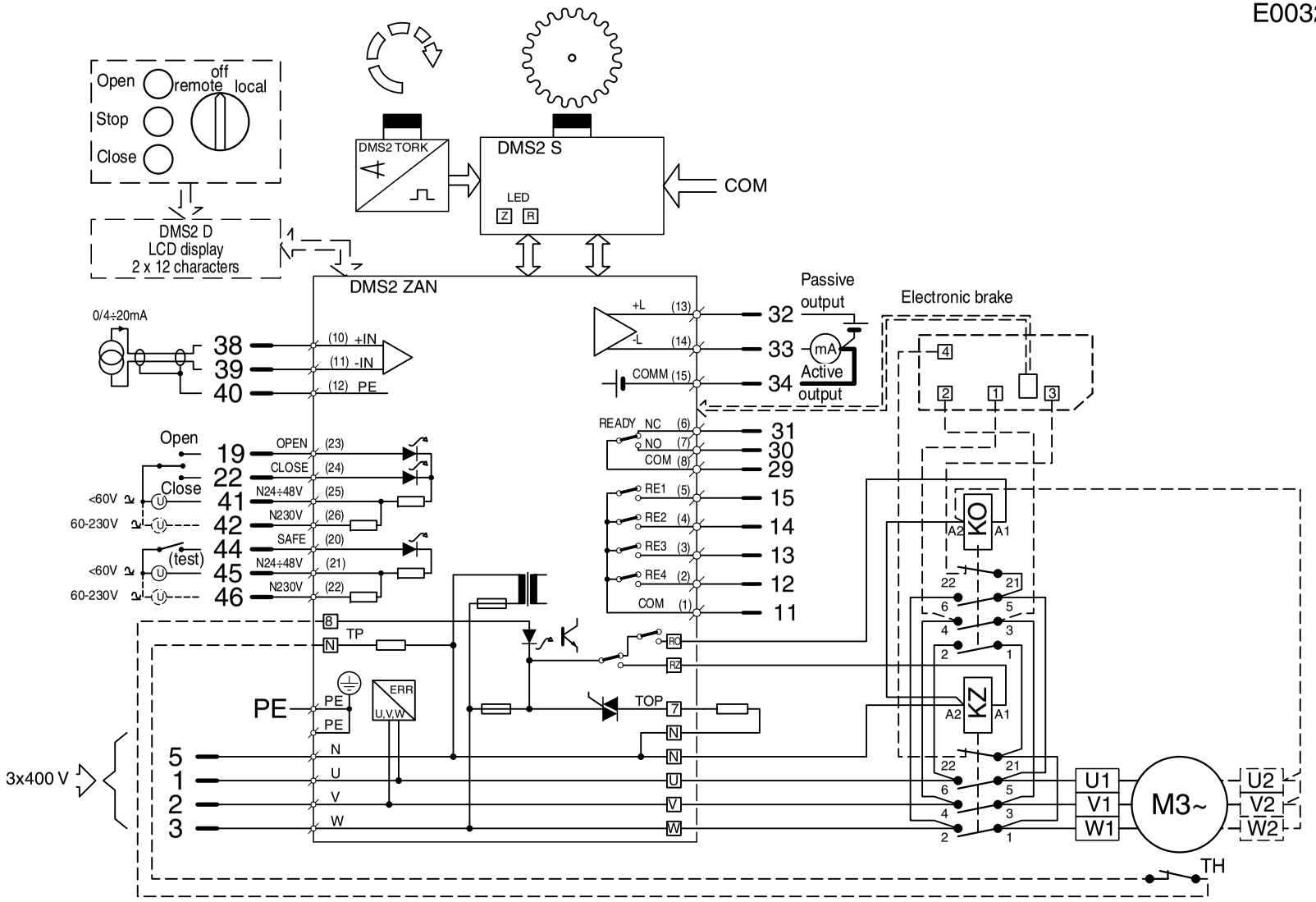
Example of wiring diagram of electronics **DMS2 Analog** in version **Control (actuators MODACT MTNED, MTPED)**

E0006



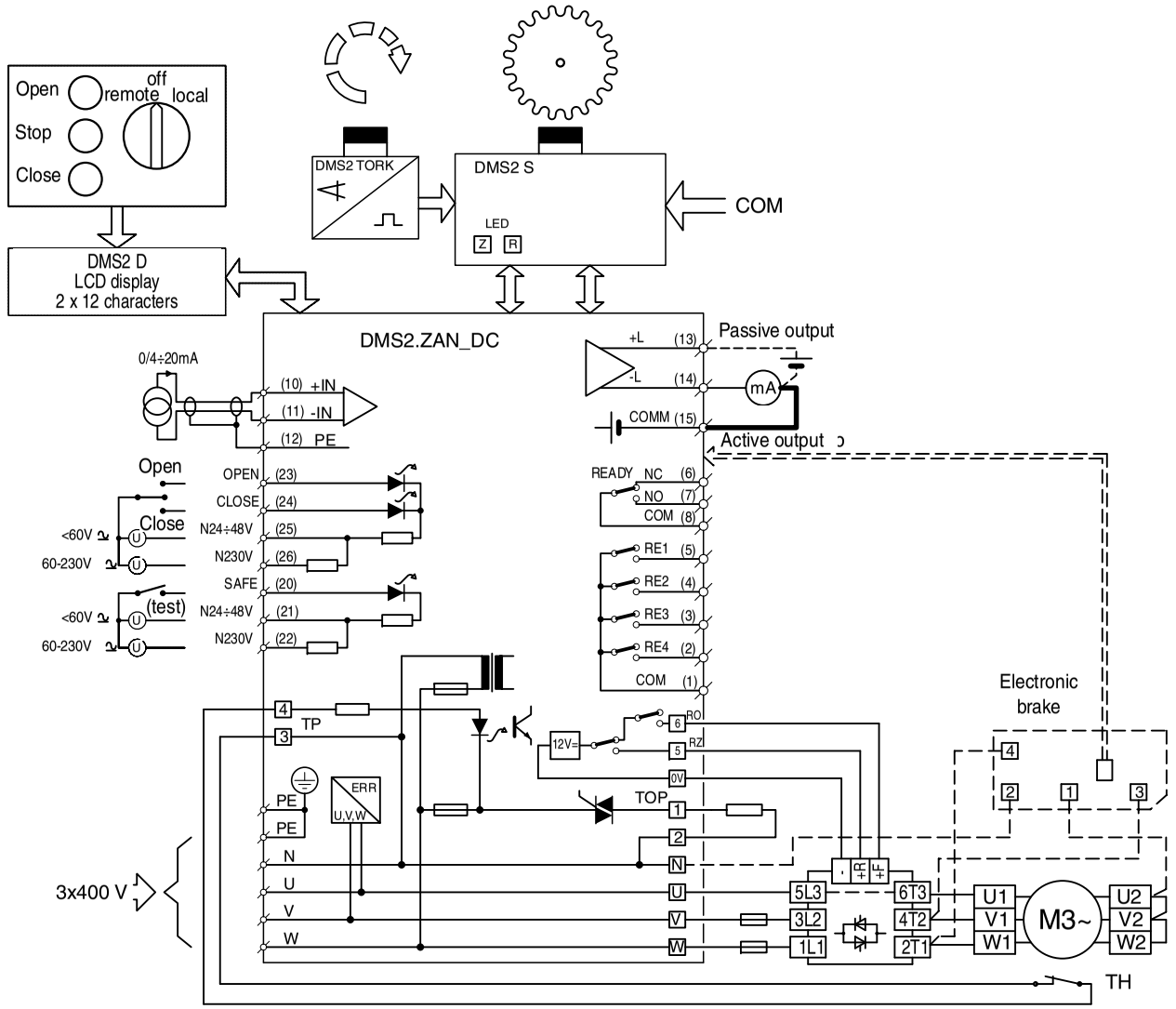
Example of wiring diagram of electronics **DMS2 Analog** in version **Control** with connector connection
(actuators MODACT MTNED, MTPED)

E0032

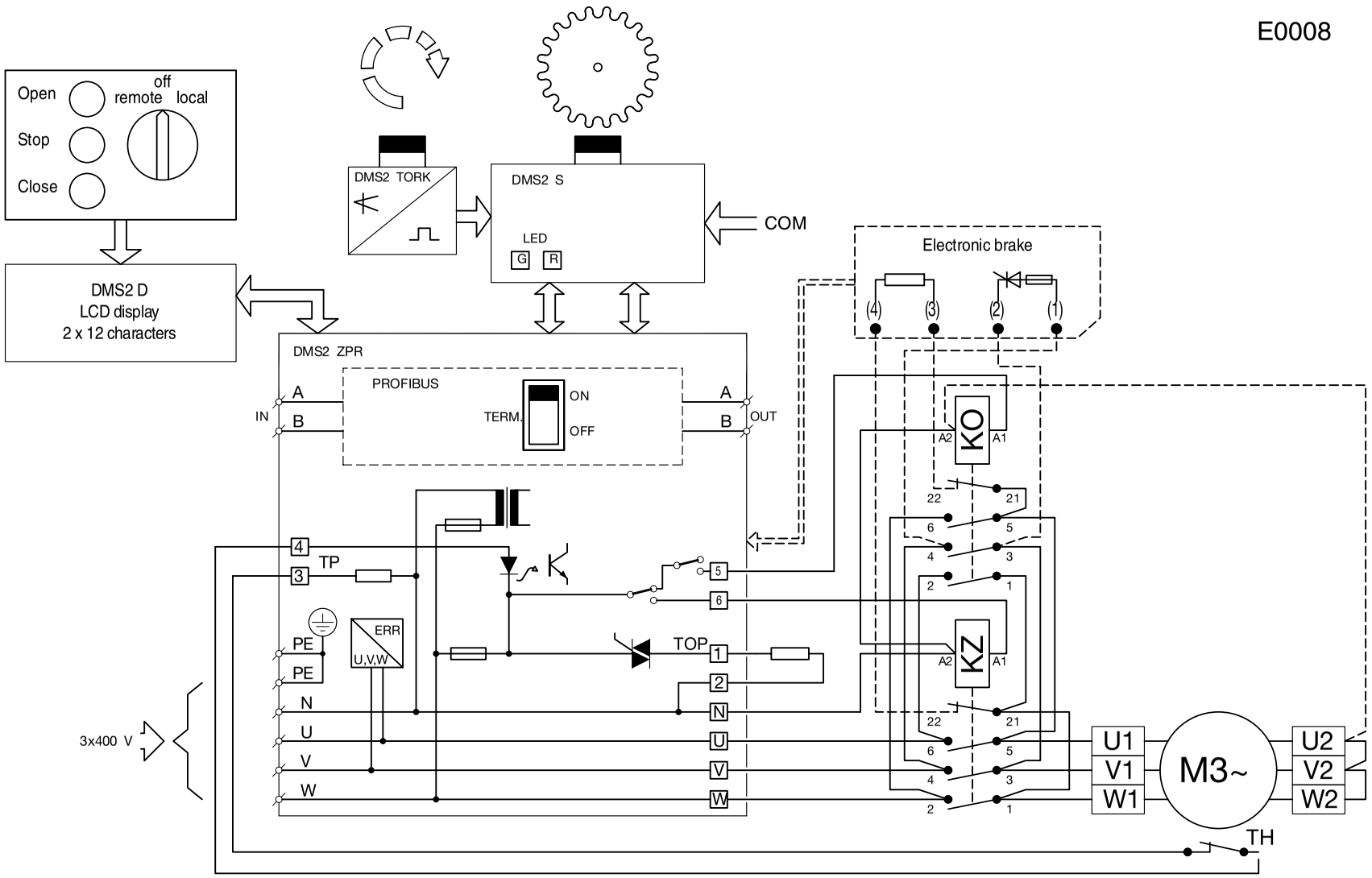


Example of wiring diagram of electronics **DMS2 Analog** with contact-less switching of electric motor
(actuators MODACT MTNED, MTPED)

E0031

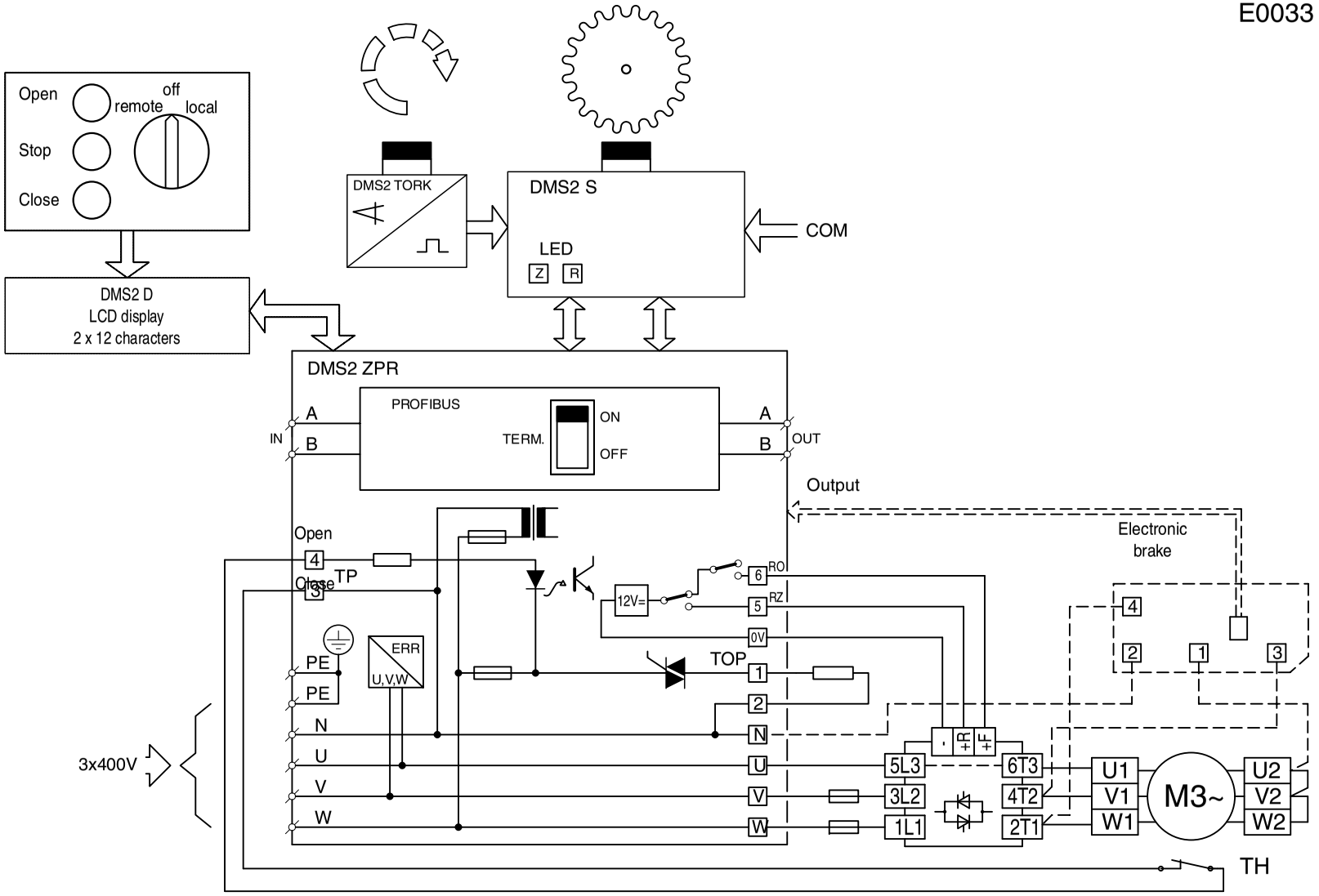


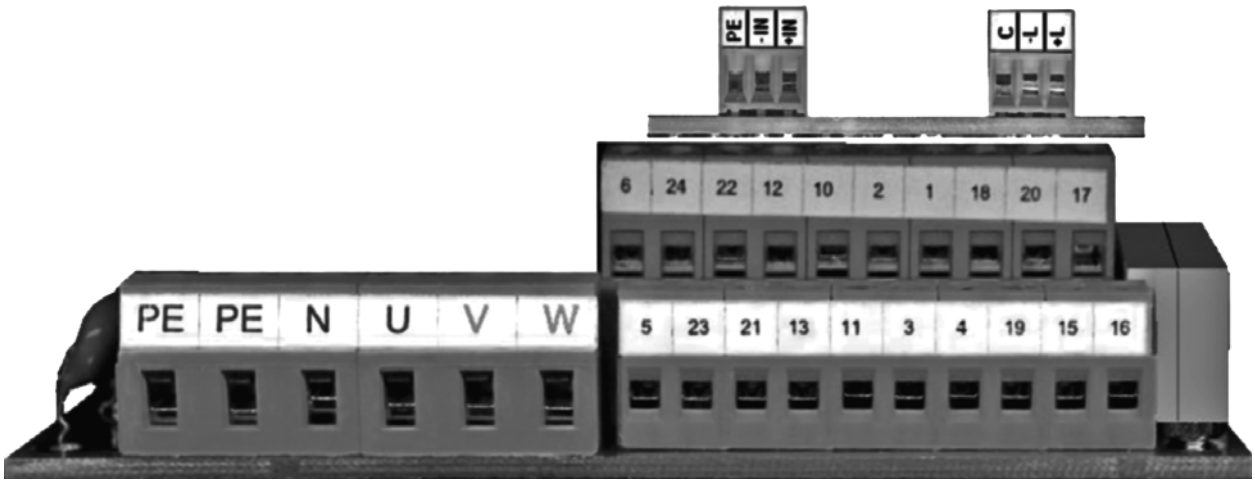
Example of wiring diagram of electronics **DMS2 Profibus** in version **Control (actuators MODACT MTNED, MTPED)**



Example of wiring diagram of electronics **DMS2 Profibus** with contact-less switching of electric motor
(actuators MODACT MTNED, MTPED)

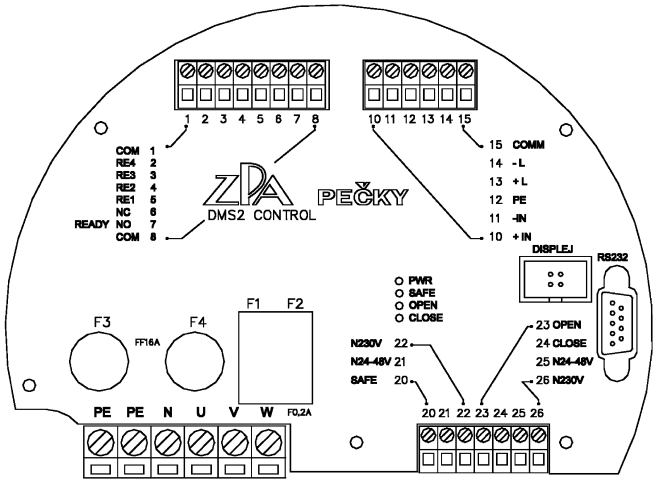
E0033



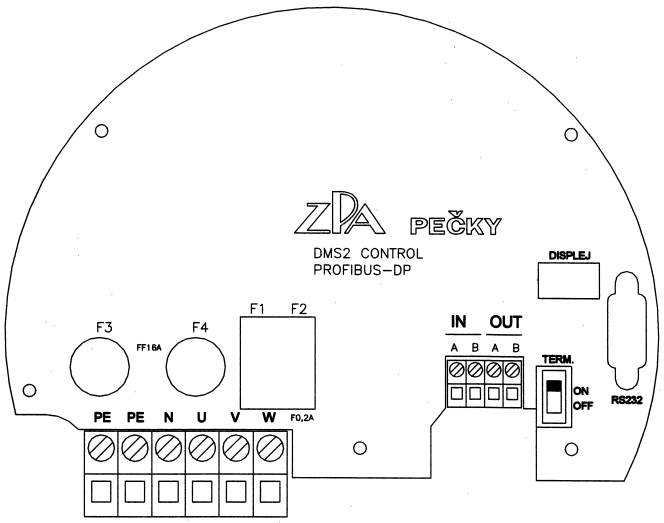


Terminal board of actuator with electronics DMS2 ED

If the actuator is of the version Replacement of electro-mechanical board without contactors the power supply is only connected to terminals PE, N U. Terminals V, W shall remain unconnected.



Terminal board DMS2 Analog



Terminal board DMS2 Profibus

Table 1 – MODACT MTNED, MTPED electric actuators

– basic technical parameters

Basic technical parameters:												
Type	**Adjustment range of tripping thrust [kN]**	**Starting thrust [kN]**	**Speed [mm/min]**	**Working stroke [mm]**	**Electric motor**					**Weight [kg]**	**Type Number**	
					Type	**Power [W]**	**Revolutions per minute [1/min]**	**I_n (400 V) [A]**	**$\frac{I_Z}{I_n}$**		**basic**	**additional**
											12 345	**6 7 8 9 10 11**
MTNED 15 MTPED 15	11,5 – 15	17	50	10 – 100	1xx7070-6AA	180	850	0,74	2,3	33	52442	x x 0 x xED x
			80		1xx7070-6AA	180	850	0,74	2,3			x x 1 x xED x
			125		1xx 7070-4AB	250	1350	0,77	3,0			x x 3 x xED x
			36		1xx7073-8AB	120	645	0,51	2,2			x x 2 x xED x
			27		1xx7073-8AB	120	645	0,51	2,2			x x A x xED x
MTNED 25 MTPED 25	15 – 25	32,5	50		1xx7070-6AA	180	835	0,74	2,3			x x 4 x xED x
			80		1xx7070-6AA	180	835	0,74	2,3			x x 5 x xED x
			125		1xx7070-4AB	250	1350	0,77	3,0			x x 6 x xED x
			36		1xx7073-8AB	120	645	0,51	2,2			x x 7 x xED x
			27		1xx7073-8AB	120	645	0,51	2,2			x x 8 x xED x
MTNED 40 MTPED 40 [1)]	25 – 40	52	80	20 – 120	1xx7083-6AA	550	910	1,6	3,4	60	52443	x x 1 x xED x
			125		1xx7080-4AA	550	1395	1,45	3,9			x x 2 x xED x
MTNED 63 MTPED 63	40 – 63	82	80		1xx7090-6AA	750	915	2,1	3,7			x x 4 x xED x
			125		1xx7090-4AA	1100	1415	2,55	4,6	63		x x 5 x xED x

Notes: *1) Design with clutch internal threads and a flange (non-standard) is available only in the design variants, Type No. 52 443.x21xNED and 52 443.x22xNED (Type MTNED, MTPED 40)..*

Electric actuators MODACT MTNED, MTPED

– Specification of meaning of the 6th to 11th place of the type number

Table 2 – Specification of respective positions in the type number

6th place	Electronics connection *(terminal board/connector),* electronics type		Table No. 3
7th place	Connecting dimensions	for type 52 442	Table No. 4
		for type 52 443 according to Fig. 3, 4	1
		for type 52 443 according to Fig. 5	2
8th place	Tripping thrust, Shifting speed		Table No. 1
9th place	Type of electronic	DMS2	R – Analog, P – Profibus
		DMS2 ED	Table No. 5
10th place	Protective enclosure	IP 55	MTNED
		IP 67	MTPED
11 - 13th place	Surrounding temperatures		Table No. 6

6th place of Type No.

Table 3 – Type of electronic, electric connection, brake

Electronics	**Terminal board**	**Connector**	**Terminal board, brake**	**Connector, brake**
DMS2 ED *(version see Table No. 5)*	E	F	H	K
DMS2 ED, contact-less switches	A	B	C	D
DMS2, Profibus, contactors	P	T	U	Y
DMS2, Profibus, contact-less switches	I	J	L	M
DMS2 two- or three-position control*), contactors	R	V	W	1
DMS2 two- or three-position control*), contact-less switches	N	S	2	Z

) The two or three-position control of the actuator will be installed at the manufacturers plant. Unless otherwise specified in the purchasing order, the* ***three-position control* *will be installed (4 – 20 mA signal control)*

7th place of Type No.

Table 4 – Connecting dimensions (Type No. 52 442)

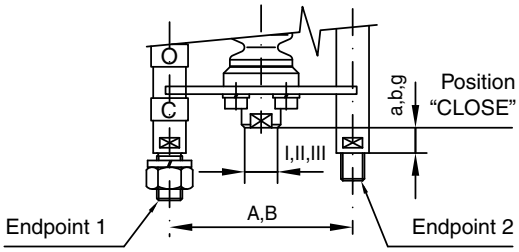
Design spacing of columns A (160 mm)	Character on 7th place
Aa1I	0
Aa1II	1
Aa1III	2
Aa2I	3
Aa2II	4
Aa2III	5
Ab1I	6
Ab1II	7
Ab1III	8
Ab2I	9
Ab2II	A
Ab2III	B

Design spacing of columns B (160 mm)	Character on 7th place
Ba1I	C
Ba1II	D
Ba1III	E
Ba2I	F
Ba2II	G
Ba2III	H
Bb1I	I
Bb1II	J
Bb1III	K
Bb2I	L
Bb2II	M
Bb2III	P
Bg2I	R

Deliveries in design III with coupling M 10 x 1 upon special request only.

Spacing of columns
Thread of coupling
Ending of columns
Position „Closed“

Spacing of columns	A	160 mm		
	B	150 mm		
Position „Closed“	a	30 mm	Long columns c	see table
	b	74 mm	Long columns d	„Design variants“
	g	130 mm	Long columns h	Fig. 1 and 2
Thread of coupling	I	M20 x 1,5		
	II	M16 x 1,5		
	III	M10 x 1		



9th place of Type No.

Table 5 – Outfit of electronics DMS2 ED

Outfit DMS2 ED		Character on 9th place																						
		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 switch						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

Note: *If the electric motor used is not fitted with a built-in temperature sensor the contactors include a thermal relay. If the actuator has DMS2 ED electronic system in configuration Electromechanics board replacement, the electronic brake will not be delivered.*

11th place of Type No.

Table 6 – Surrounding temperatures

Type of actuator				Temperature [°C]	Code
MTNED		MTPED			
DMS2 ED	DMS2	DMS2 ED	DMS2		
✓	✓	✓	✓	-25 +60	–
✓	✓	✓	✓	-40 +60	F1
✓	✓	✓	✓	-50 +60	F
✓	×	×	×	-60 +60	FF
✓*	×	✓*	×	-25 +80	T
✓*	×	✓*	×	-40 +80	F1T
✓*	×	✓*	×	-50 +80	FT

Note: ✓ – *available version*
× – *not available*
✓* – *except for the version with current transducer of position, with analog control module, and/or with built-in display*

Dimensional sketch of **MODACT MTNED, MTPED 15, MTNED, MTPED 25,** electric actuators,
Type No. 52 442.xxxxNED, 52 442.xxxxPED

– with connector

Design 1	
A	160
B	150
a	30
b	74
g	130
c (a)	323
d (b)	367
h (g)	423
e (a)	648
f (b)	692
ch (g)	748

Design 2	
A	160
B	150
a	30
b	74
g	130
c (a)	308
d (b)	352
h (g)	408
e (a)	633
f (b)	677
ch (g)	733

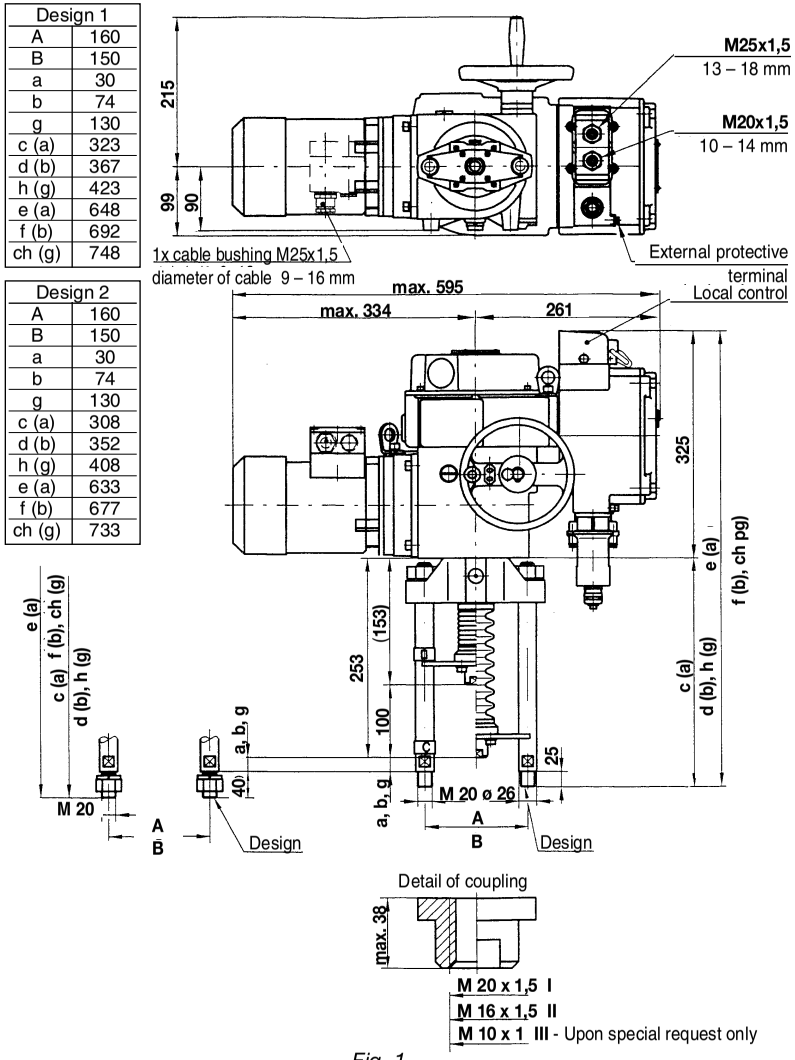


Fig. 1

Dimensional sketch of **MODACT MTNED, MTPED 15, MTNED, MTPED 25** electric actuators,
Type No. 52 442.xxxxNED, Type No. 52 442.xxxxPED

– with block of terminals

Design 1	
A	160
B	150
a	30
b	74
g	130
c (a)	323
d (b)	367
h (g)	423
e (a)	648
f (b)	692
ch (g)	748

Design 2	
A	160
B	150
a	30
b	74
g	130
c (a)	308
d (b)	352
h (g)	408
e (a)	633
f (b)	677
ch (g)	733

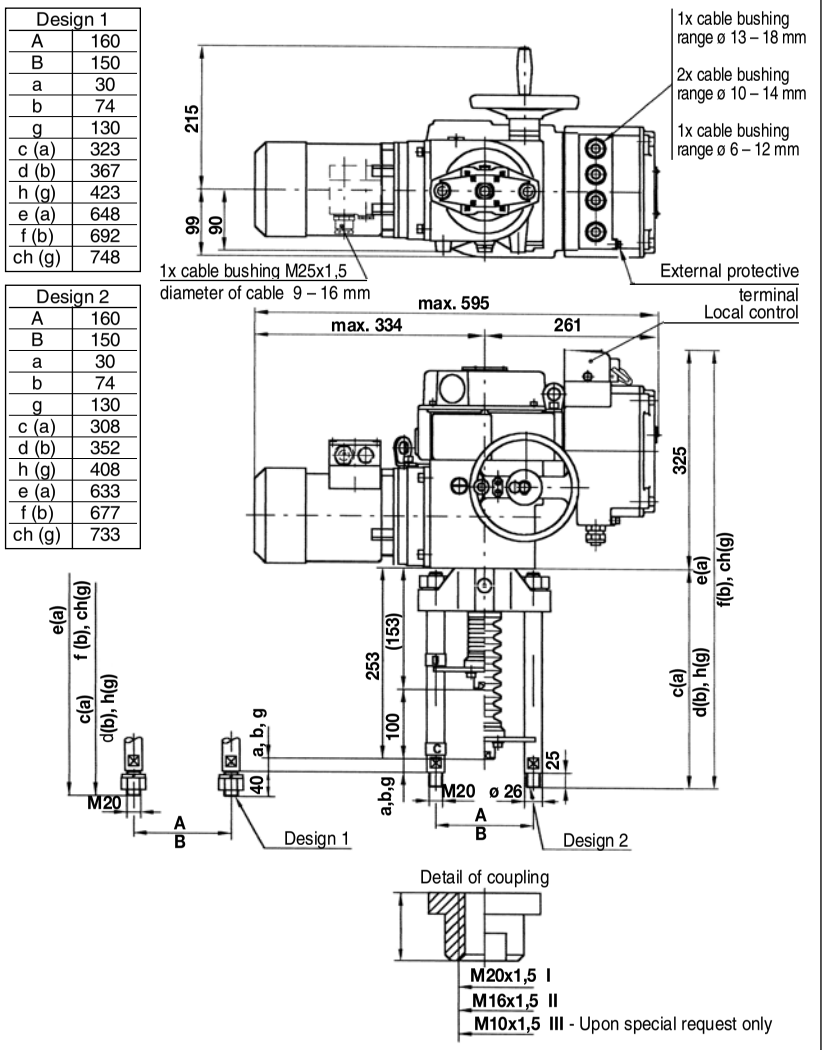


Fig. 2

Note: *For actuators MODACT MTNED, the switchboard box has threads for bushings: 3 x M20 x 1.5; 1 x M25 x 1.5. For actuators MODACT MTPED, the switchboard box has bushings: 1 x M25 x 1.5, range of ø 13 – 18 mm; 2 x M20 x 15 range of ø 10 – 14 mm; 1 x M20 x 1.5 range of ø 6 – 12 mm.*
The electric motor (except for the actuator version with the motor interconnected with the switchboard box) is always delivered with cable bushing. Connector Harting is always fitted with cable bushings.

Dimensional sketch of **MODACT MTNED, MTPED 40, MTNED, MTPED 63** electric actuators,
Type No. 52 443.x1xxNED, 52 443.x1xxPED

– with Harting connector

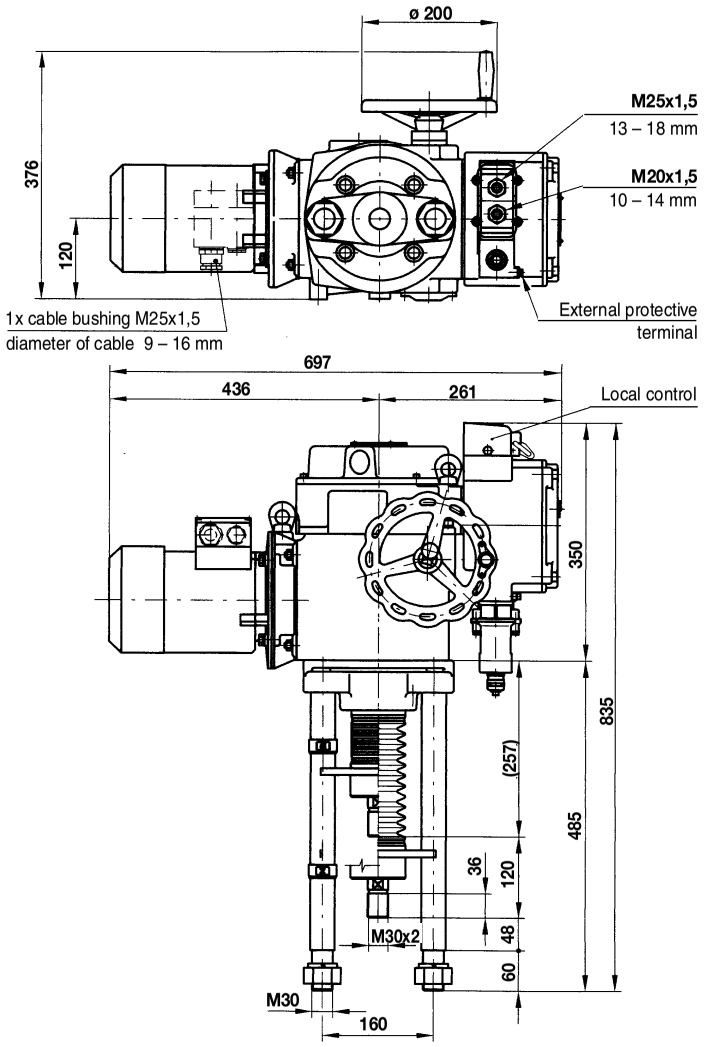


Fig. 3

Dimensional sketch of **MODACT MTNED, MTPED 40, MTNED, MTPED 63** electric actuators,
Type No. 52 443.x1xxNED, 52 443.x1xxPED

– with block of terminals

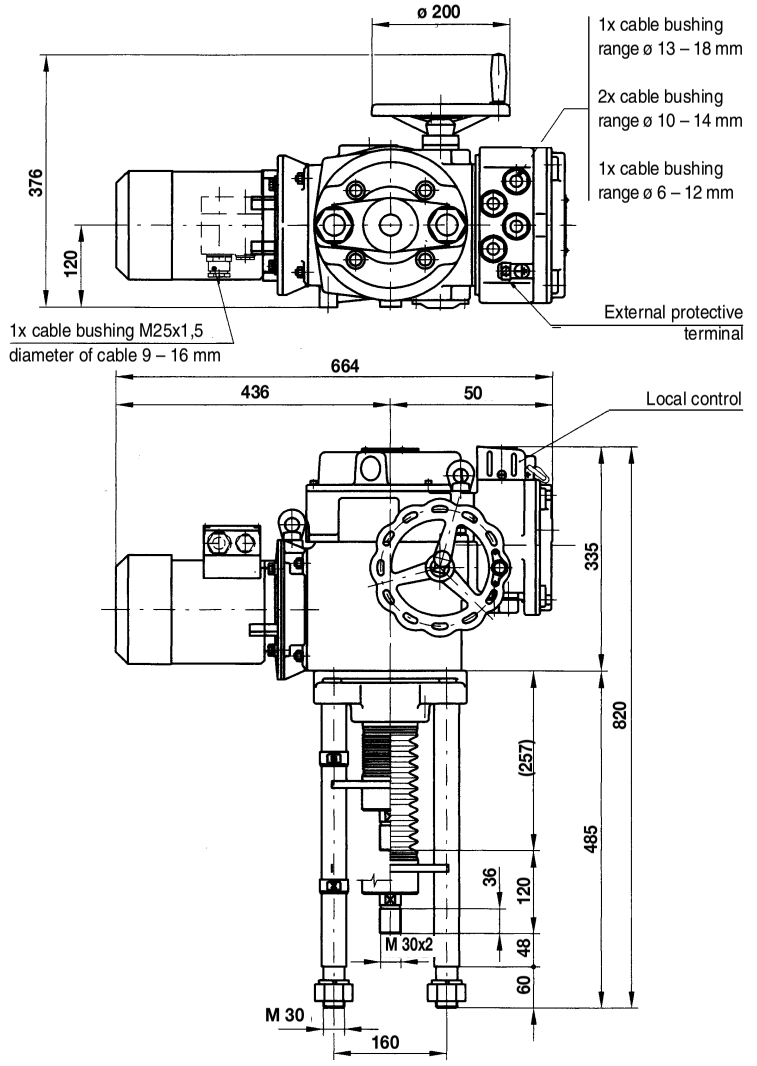
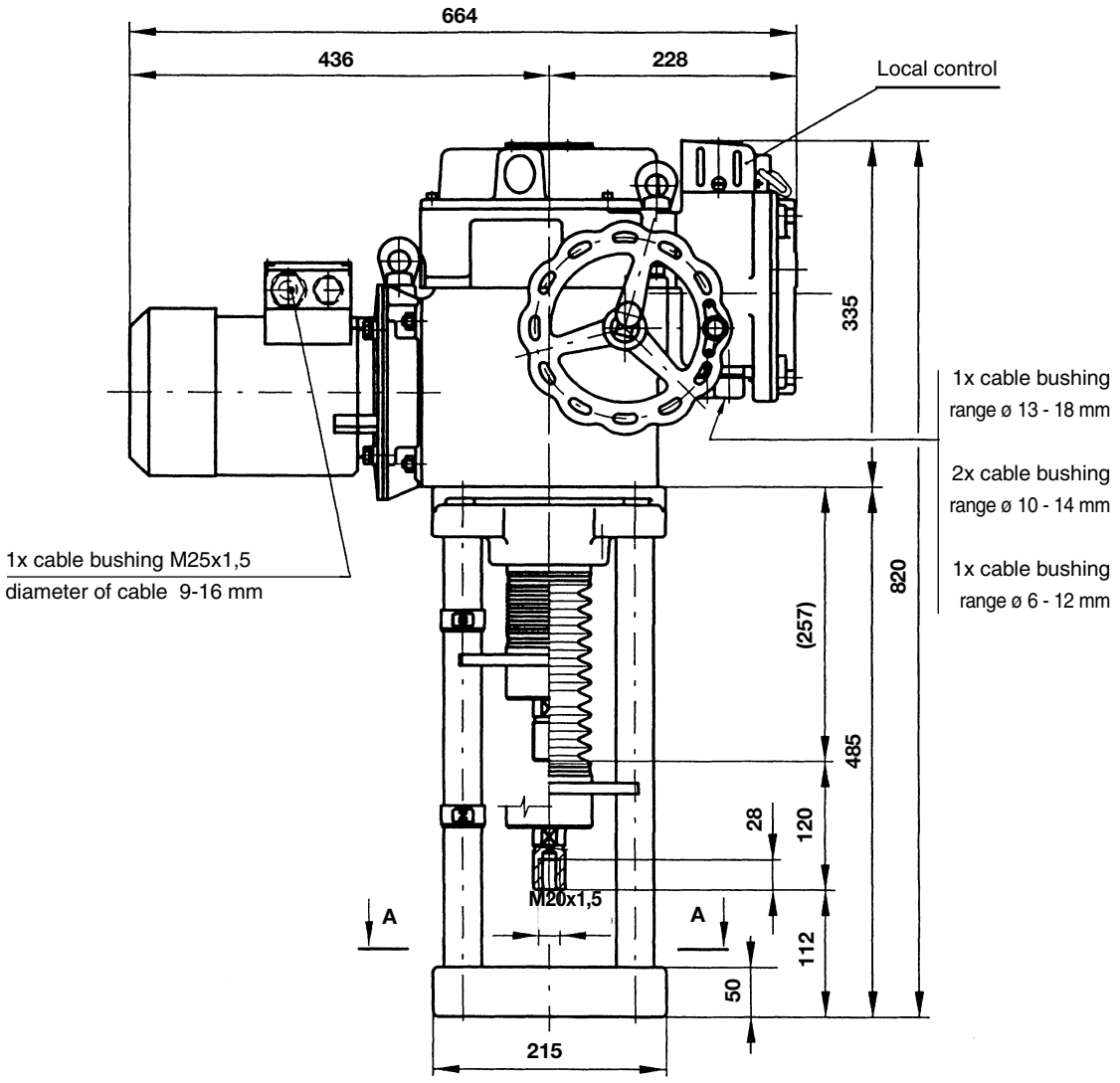


Fig. 4

Dimensional sketch of **MODACT MTNED 40, MTPED 40** electric actuators,
Type No. 52 443.x2xxNED, 52 443.x2xxPED
– design with flange – non standard

– with block of terminals



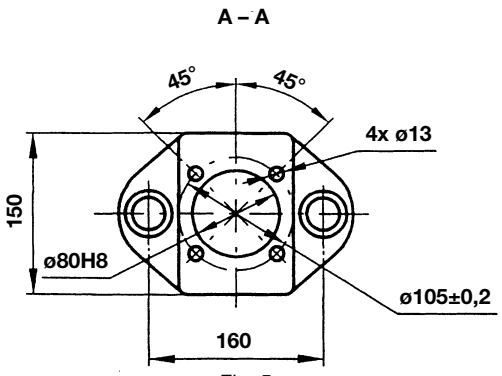


Fig. 5

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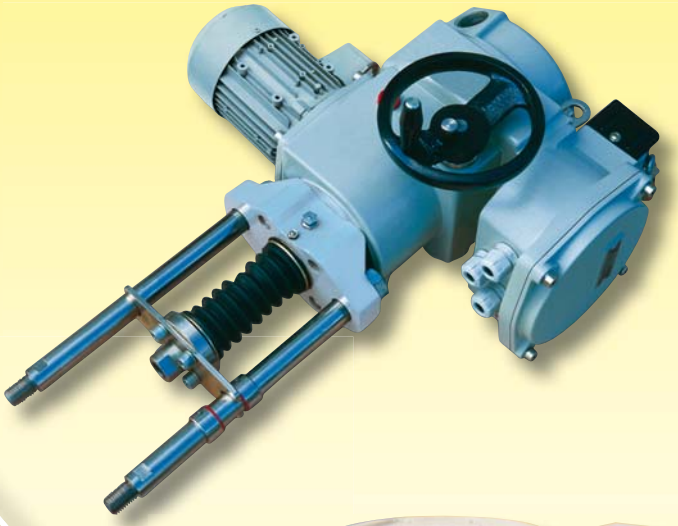

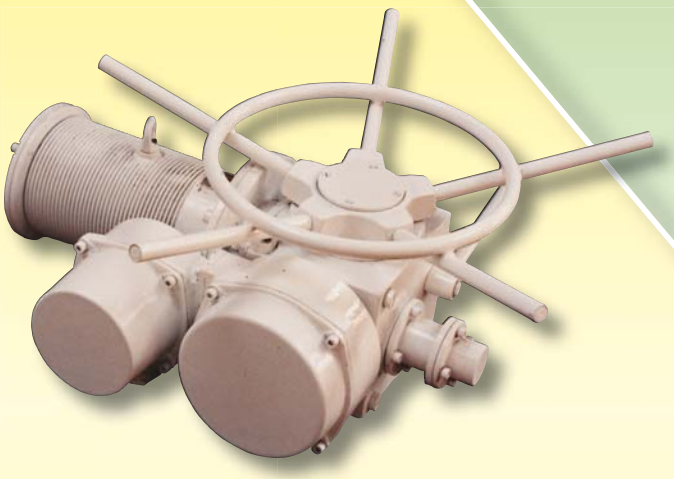

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