



Manufacturer of shut-off and control valves

TECHNICAL DATA SHEET

Electric quarter-turn actuator ELEPHANT QT-N-xEM-O1-x-U1



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1. GENERAL PRODUCT INFORMATION

1.1. Product name: electric quarter-turn actuator ELEPHANT QT-N-xEM-O1-x-U1.

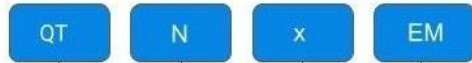
1.2 Purpose: electric quarter-turn actuators are designed for remote and local control of shut-off pipeline valves having a quarter-turn shut-off valve. They are used in various branches

national economy: in gas, oil, metallurgical, food industry, housing and communal services, etc.

1.3 Principle of operation: electric actuators are installed directly on pipeline valves. The mounting dimensions comply with the international standard ISO 5211. Four microswitches are used to limit the output shaft travel to the end positions of the valve actuator. The actuators are designed for operation in repeated-short-time mode S2 with a switching time of 10 minutes.



1.4. Deciphering of the designation:



Product Type:

QT - electric quarter-turn drive

Electric drive design:

N - normal design, without explosion protection

Torque, Nm (e.g. 003 - 30 Nm; 060 - 600 Nm)

The presence of a torque clutch:

EM - missing



Control signal:

O - missing

The understudy:

1 - Hex key

Supply voltage:

220VAC : ~220V AC voltage

380VAC : ~380V AC voltage

24VDC : = 24B constant voltage

Climatic version according :

U - climate zone: from -45°C + +40°C; temperate climate

1 - Placement category: outdoor



2. BASIC TECHNICAL DATA AND CHARACTERISTICS

Table 1: Basic parameters

Power supply voltage	220 VAC, 380 VAC, 24 VDC
Motor type	asynchronous
Limit switches	2-Open/Closed 250V 10A
Additional limit switches	2-Open/Closed 250V 10A
Swivel angle, °	90±5
Internal thermal protection	Switching off at 110° C ± 5° C, switching on at 97° C ± 5° C
Visual position indicator	is
Ambient temperature, ° C	-20 to +65
Manual override	hexagon (included)
Self-locking device	self-locking worm and worm gear transmission
Mechanical limiter	2 external adjustable stops
Cable entry	2xM18
Enclosure protection class	IP67
Lubrication	aluminum-based (type EP)
Enclosure material	aluminum alloy with epoxy powder coating
Average life, closing/opening cycles	30 000

Table 2. Connection dimensions, torque and weight

Drive model	Maximum reinforcement square size, mm	ISO flange type	Torque , Nm	Weight, kg
QT-N-003EM-O1-x-U1	11x11	F03/ F05	30	2,35
QT-N-005EM-O1-x-U1	14x14	F05/ F07	50	3,26
QT-N-008EM-O1-x-U1	17x17	F05/ F07	80	4,6
QT-N-010EM-O1-x-U1	17x17	F05/ F07	100	4,6
QT-N-015EM-O1-x-U1	17x17	F05/ F07	150	4,6
QT-N-020EM-O1-x-U1	27x27	F10/ F12	200	10
QT-N-030EM-O1-x-U1	27x27	F10/ F12	300	10
QT-N-040EM-O1-x-U1	27x27	F10/ F12	400	10
QT-N-060EM-O1-x-U1	27x27	F10/ F12	600	10
QT-N-080EM-O1-x-U1	27x27	F10/ F12	800	11
QT-N-100EM-O1-x-U1	27x27	F10/ F12	1000	11
QT-N-200EM-O1-x-U1	36x36	F14/ F16	2000	11
QT-N-300EM-O1-x-U1	36x36	F14/ F16	3000	н/д



3. MAIN DETAILS

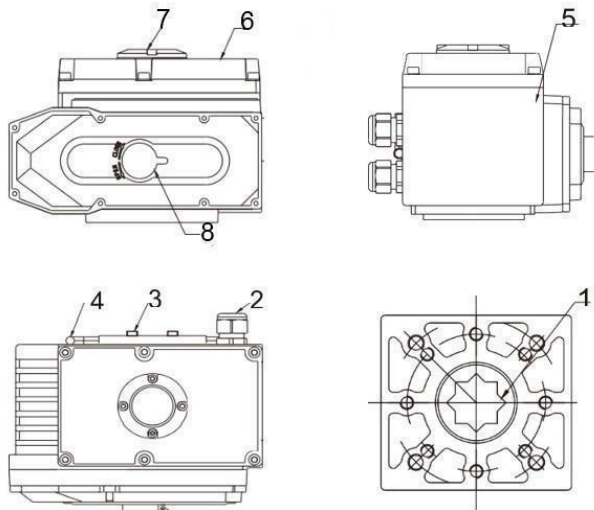


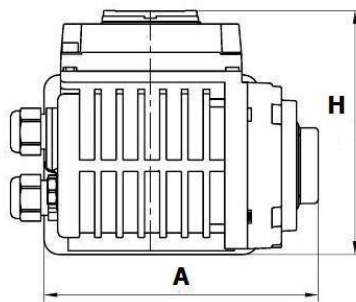
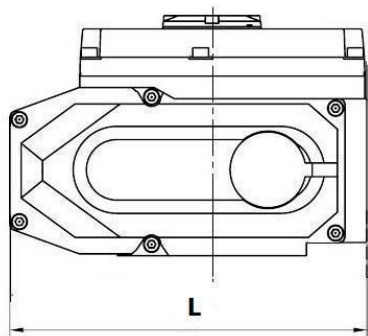
Figure 1 – Detail

Table 3: Details

Nº	Part Name
1	Output shaft
2	Cable lock
3	Mechanical stop
4	Manual override
5	Housing
6	Cover
7	Viewing glass
8	Dust protection



4. ГАБАРИТНЫЕ РАЗМЕРЫ



Drive model	L, mm	H, mm	A, mm
QT-N-003EM-O1-x-U1	140	118	109
QT-N-005EM-O1-x-U1	166	122	118
QT-N-008EM-O1-x-U1	200	128	133
QT-N-010EM-O1-x-U1	200	128	133
QT-N-015EM-O1-x-U1	200	128	133
QT-N-020EM-O1-x-U1	269	155	174
QT-N-030EM-O1-x-U1	269	155	174
QT-N-040EM-O1-x-U1	269	155	174
QT-N-060EM-O1-x-U1	269	155	174
QT-N-080EM-O1-x-U1	309	178	200
QT-N-100EM-O1-x-U1	309	178	200
QT-N-200EM-O1-x-U1	309	178	200
QT-N-300EM-O1-x-U1	No data	No data	No data



5. ELECTROMECHANICAL PARAMETERS OF ELECTRIC DRIVES

Table 5. Operating characteristics of actuators QT-003-QT005

Drive model	QT-003			QT-005		
	Supply voltage	220V	24V	220V	380V	24V
Rated current, A	0,2	0,7	0,24	0,15	0,8	
Rated power, W	9	8	15	15	15	
Torque, Nm	30	30	50	50	50	
Cycle time (90° rotation), sec	10	15	20	20	10	

Table 6: Operating characteristics of actuators QT-008-QT010

Drive model	QT-008			QT-010		
	Supply voltage	220V	380V	24V	220V	380V
Rated current, A	0,32	0,19	1,3	0,19	0,19	1,3
Rated power, W	30	30	30	30	30	30
Torque, Nm	80	80	80	100	100	100
Cycle time (90° rotation), sec	25	25	10	25	25	10

Table 7. Operating characteristics of actuators QT-015-QT020

Drive model	QT-015			QT-020		
	Supply voltage	220V	380V	24V	220V	380V
Rated current, A	0,35	0,22	1,3	0,48	0,25	9
Rated power, W	30	30	30	90	60	60
Cycle time (90° rotation), sec	25	25	10	45	45	25

Table 8: Operating characteristics of actuators QT-030-QT040

Drive model	QT-030			QT-040		
	Supply voltage	220V	380V	24V	220V	380V
Rated current, A	0,48	0,25	9	0,52	0,28	9
Rated power, W	60	60	90	60	60	90
Cycle time (90° rotation), sec	45	45	25	45	45	25

Table 9: Operating characteristics of actuators QT-060-QT080

Drive model	QT-060			QT-080		
	Supply voltage	220V	380V	24V	220V	380V
Rated current, A	0,92	0,45	9	0,95	0,46	12
Rated power, W	90	90	90	100	100	120
Cycle time (90° rotation), sec	45	45	25	45	45	45

Table 10. Operating characteristics of actuators QT-100-QT200

Drive model	QT-100			QT-200	
	Supply voltage	220V	380V	24V	220V
Rated current, A	1,2	0,48	12	1,4	0,52
Rated power, W	100	100	130	250	250
Cycle time (90° rotation), sec	45	45	45	45	45



Table 11. Operating characteristics of the electric drive QT-300

Drive model	QT-0300
Supply voltage	380V
Rated current, A	0,85
Rated power, W	250
Cycle time (90° rotation), sec	n/d



6. WIRING DIAGRAMS FOR ACTUATORS

6.1. 220 V

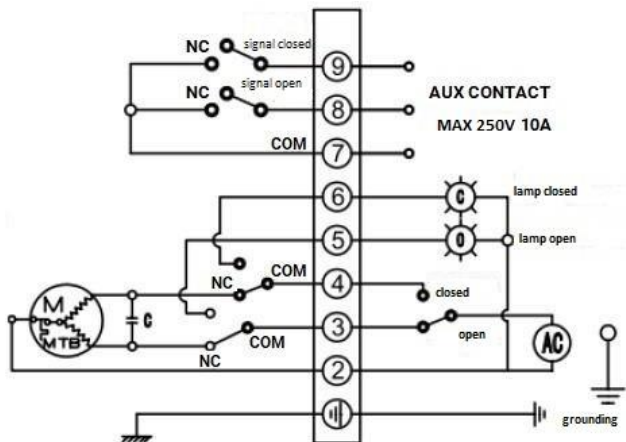


Figure 3 - Wiring diagram for 220 V

6.2. 380 V

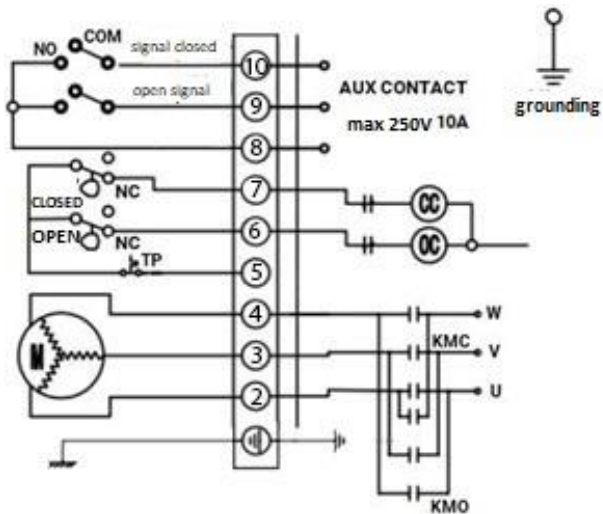


Figure 4 - Wiring diagram for 380 V



6.3. 24 V DC

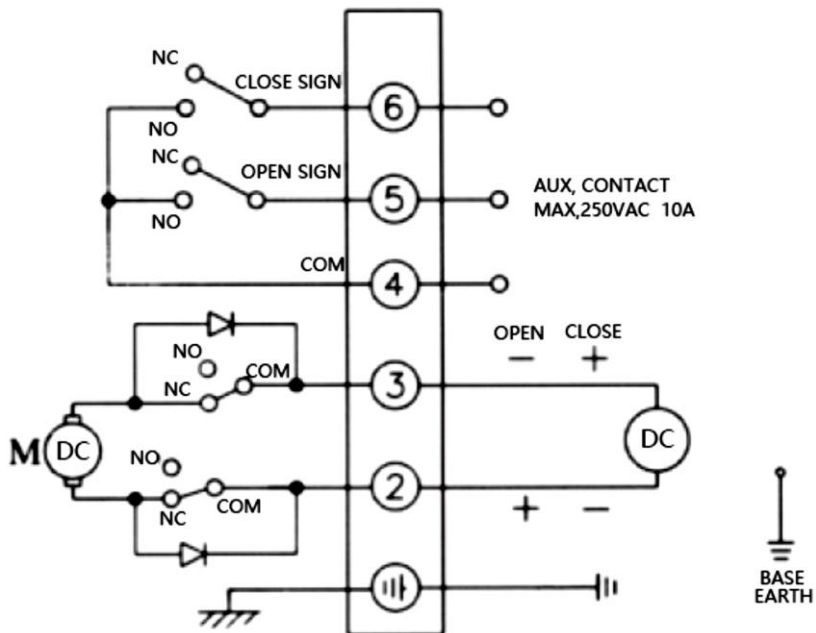


Figure 5 - Wiring diagram for 24 V



7. INSTALLATION AND OPERATING INSTRUCTIONS

7.1 This actuator is not equipped with torque switches, therefore, when using the actuator as an actuating control element on valves conveying contaminated and/or abrasive media with solid inclusions, in order to avoid actuator and/or valve failure, it is necessary to exclude the possibility of jamming of the valve shut-off body due to solid particles/body between the shut-off body and the valve body and/or seal, or to provide for electric protection and disconnection by electric current consumption.

7.2 The actuator may be installed by personnel who have studied the actuator design, safety rules and requirements of this data sheet.

7.3 The operating position of the actuator is any.

7.4 When installing the actuator it is necessary to provide space for cable repair and manual work.

7.5 Before starting the actuator operation it is necessary to make sure that the manual mode is switched off (the socket of the manual doubler is fully depressed).

7.6 The actuator is mounted directly on the shut-off valve. When mounting, attention should be paid to correct alignment of the actuator seating flange and the mating seating flange on the actuator. Tight fit, backlash, clearances between actuator and shut-off valve are not allowed. This leads to increased load on the actuator units and parts, accelerated wear and rapid failure of the actuator.

7.7 The actuator must have its own supports in case of its installation on the valve in a position other than horizontal. The actuator housing must be grounded.

7.8 Before starting the actuator, several cycles of valve opening-closing test operation should be performed using the actuator's handwheel. If the valve opens-closes normally when opened by the manual override, connect it to the supply and control networks and perform several test opening-closing cycles with the actuator.

WARNING The use of the handwheel with the supply voltage applied is strictly prohibited. Failure to observe this regulation may result in personal injury as well as damage to parts.

7.9. The drive must be maintained and operated in accordance with the established “ Rules of technical operation of electrical installations of consumers ” .



8. SETUP INSTRUCTIONS

8.1. Setting the limit switches

8.1.1. Disconnect power supply from the actuator.

8.1.2 Using the handwheel, move the actuator to the position corresponding to the fully closed gate.

8.1.3 Loosen the nut securing the cams on the actuator working shaft.

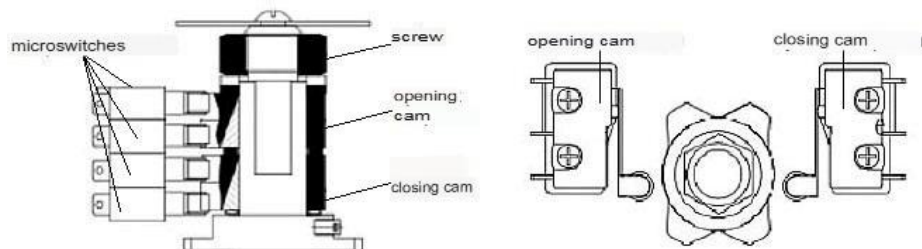


Figure 6 - Limit switches

8.1.4. By turning the cams (yellow - opening, red - closing), set them in such a way that the cam clamps the required microswitch in the required position.

8.1.5. Move the electric actuator to the position corresponding to the fully open gate using the manual doubler.

8.1.6. Repeat the operation to set the fully open position.

8.1.7. Secure the cams with the clamping nut.

8.2. Adjusting the mechanical stops

8.2.1. Loosen the mechanical stop nut and move the actuator to the fully closed position using the handwheel.

8.2.2 Turn the nuts of the mechanical stops until they touch the fan gear and then tighten them two turns.

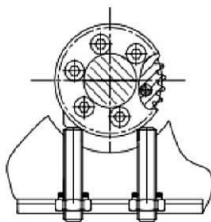


Figure 7 - Mechanical stops

8.2.3. Repeat the operation for the “open” position.



9. POSSIBLE MALFUNCTIONS AND REMEDIES

Table 14. Troubleshooting possible malfunctions

Fault	Possible cause	Remedial action
Drive does not run	No power supply	Check the connection to the power supply
	Damaged wire, weak terminal fastening	Replace wire, tighten terminal fastening
	Power supply voltage does not match the required drive voltage	Adjust the supply voltage to the drive specifications
	Overheating protection tripped	Eliminate the cause of the protection trip
	Limit switch not functioning correctly	Replace limit switch
	Start capacitor destroyed	Replace the start capacitor and check the operating temperature of the actuator.
Drive does not stop	Incorrect supply voltage	Check and adapt the supply voltage to the actuator characteristics

10. TRANSPORTATION AND STORAGE

10.1. The actuators can be transported by any type of transport in a way that prevents damage to the actuator in accordance with the procedure established at the enterprise.

10.2 The actuators are stored in the manufacturer's packaging in the warehouses ensuring safety and serviceability of the actuators in accordance with the procedure established at the enterprise.

11. UTILIZATION

11.1. The product is disposed of in accordance with the procedure established at the enterprise (remelting, burial, resale).



12. WARRANTY OBLIGATIONS

12.1. Warranty period - 12 months from the date of commissioning, but not more than 18 months from the date of sale.

12.2. The warranty applies to equipment installed and used in accordance with the installation instructions and product specifications described in this data sheet.

12.3. The manufacturer guarantees compliance of the product with safety requirements, provided that the consumer complies with the rules of transport, storage, installation and operation.

12.4. The warranty covers all defects caused by the fault of the manufacturer.

12.5. The warranty does not apply:

- parts and materials of the product subject to wear and tear;
- for cases of damage caused by:
 - modifications to the original design of the product;
 - violation of general installation recommendations;
 - faults caused by improper maintenance and storage; improper operation and use of the equipment.

13. WARRANTY TERMS

13.1. Claims to the quality of the goods may be made during the warranty period.

13.2. Defective products are repaired or exchanged for new ones free of charge during the warranty period. ELEPHANT decides whether to replace or repair the product. The replaced product or its parts resulting from the repair shall become the property of 'ELEPHANT'.

13.3. Costs related to dismantling, installation and transport of the defective product during the warranty period shall not be reimbursed to the Buyer.

13.4. If the claim is unfounded, the Buyer shall pay the costs of diagnostics and expertise of the product.

13.5. Products are accepted for warranty repair (as well as for return) fully assembled.



WARRANTY CARD № _____

№	Product Name	Packs

Name and address of the trading organisation _____

Date of sale _____ Seller's signature _____

Stamp or seal of the trading organisation

Acceptance stamp

I agree with the terms and conditions of the warranty:

Buyer _____ (signature)

Warranty period - 12 months from the date of commissioning, but not more than 18 months from the date of sale.

For warranty repairs, complaints and product quality claims, please contact ELEPHANT at: Carrer d'Aragó,264,3-1,08007 Barcelona, Spain E-mail address: sales@valveelephant.com.

When making a complaint about the quality of goods, the buyer shall present the following documents:

1. A free-form application, which shall specify:
 - name of the organisation or full name of the buyer, actual address, contact telephone numbers;
 - name and address of the organisation that carried out the installation;
 - basic parameters of the system in which the product was used;
 - a brief description of the defect.
2. Document confirming the purchase of the product (delivery note, receipt)..
3. Act of hydraulic test of the system in which the product was installed.
4. This completed warranty card.

A note on the return or exchange of goods _____



Date: «__»_____202__yr. Caption _____

