Date	2024.7.24
Ver	A2

V-TORK®

VTMR Series Electric Actuator

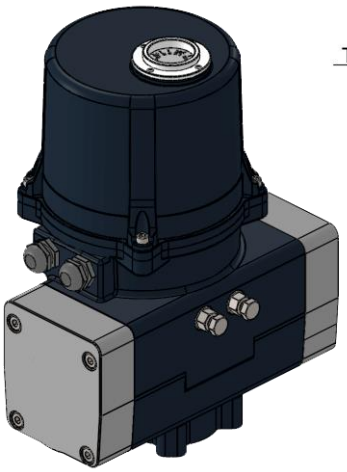
Quarter-turn electric actuator
Compact design to meet space requirements
Wide range of sizes and thrust outputs
For On-Off or modulating control

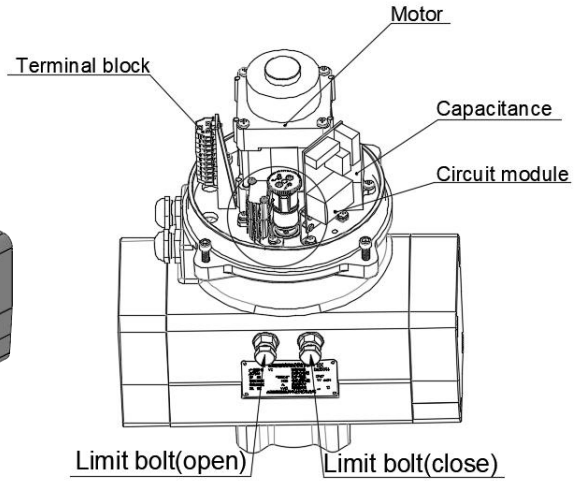
VTMR Series Electric Actuator

Introduction

The V-Tork VTMR Series is a rugged,compact electric quarter-turn actuator for on-off and modulating control of valves and dampers. It has the ability to automatically return to the fully open/fully closed position of the valve after power outage according to the factory settings.The VTMR offers a high quality,reliable solution for valve automation that is also cost-effective.

Product details





Shell	The shell is made of aluminum alloy, anodized and coated with polyester powder.
Protection Grade	IP67
Motor	Totally enclosed cage induction motor, Low rotational inertia,insulation class F,built in overheat protection.
Hand wheel& endless screw	After power failure,hand wheel can be used for manual control, internal endless screw design,clutch less, light and easy to control.
Mounting base	ISO 5211 design,high versatility,the transmission shaft adopts spline shaft design.
Limit Configuration	Mechanical Limiter + Electrical Limiter
Limiter	Power cut-off + passive feedback （Vmax 250V，Imax5A）
Pointer dial	For valve position indication,it will rotate with the valve
Heater	Used to balance temperature difference and prevent condensation. Ensure that the internal electrical components work normally(optional).
Temperature resistance	ON/OFF Types:-20℃~+60℃（-4°F~140.00°F） Modulating Types:-20℃~+55℃（-4°F~131°F）
Humidity resistance	Maximum relative humidity 90% (non condensing)
Seismic capacity	XYZ10g.0.2～34Hz,30mins.

1.VTMR Modulating control type

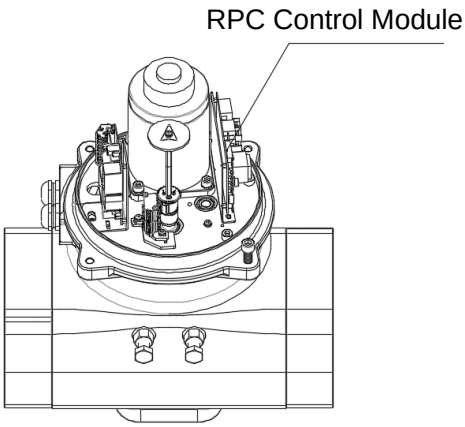
VTMR Modulating electric actuators integrate a multi-functional servo amplifier and a position signal transmitter into the standard actuator to provide modulating control.All operations such as calibration,sensitivity setting and automatic/manual switching are controlled by four buttons on the PRC Control Module making it quick and easy to install and set up. LEDs on the panel indicate actuator status.

1.1 RPC Control Module

The PRC Control Module is installed in the actuator enclosure and receives the 4~20mA control signal from the control system or other control device. An integral potentiometer acts as the electronic valve positioner input to the PRC Control Module.

1.2 Specifications

- Input Signal:4~20mA.DC,0~10mA.DC
- Input Impedance:250Ω(4~20mA) or 500Ω(0~10mA)
- Valve Position Sensor:Single-turn absolute value encoder
- Valve Transmitting Output Sinal:4~20mA.DC or 0~10mA.DC
- Intrinsic Error:≤+0.2%
- Motor Blocking Protection Time:1~25.4S(default 6.4S)
- Consumptin Power:≤3VA
- Actuator Operating Sensitivity:0.1%~12.5%
- Insulation Strength:power frequency 1500V,1min
- Insulation Resistance:above 50MΩ
- Power Voltage:220VAC/120VAC,50/60Hz±10% or 24VDC
- Signal loss,feedback loss,motor stalling failure protection function
- Instantaneous Reverse Rotation Protection Function with adjustable time delay
- Failure code warning function
- One-key calibration function
- Passive feedback output function for full close position and full open position

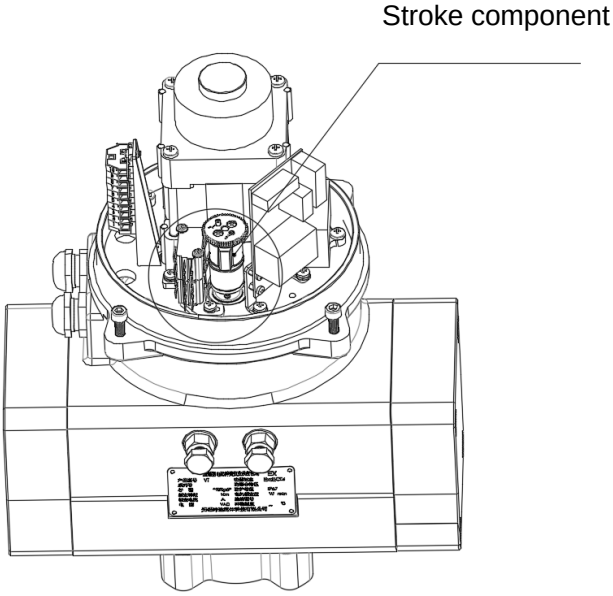


2.The VTMR ON/OFF control type

The VTMR ON/OFF Control type uses several sets of travel switches to cut off power and output analog control signals after the product reaches its position.

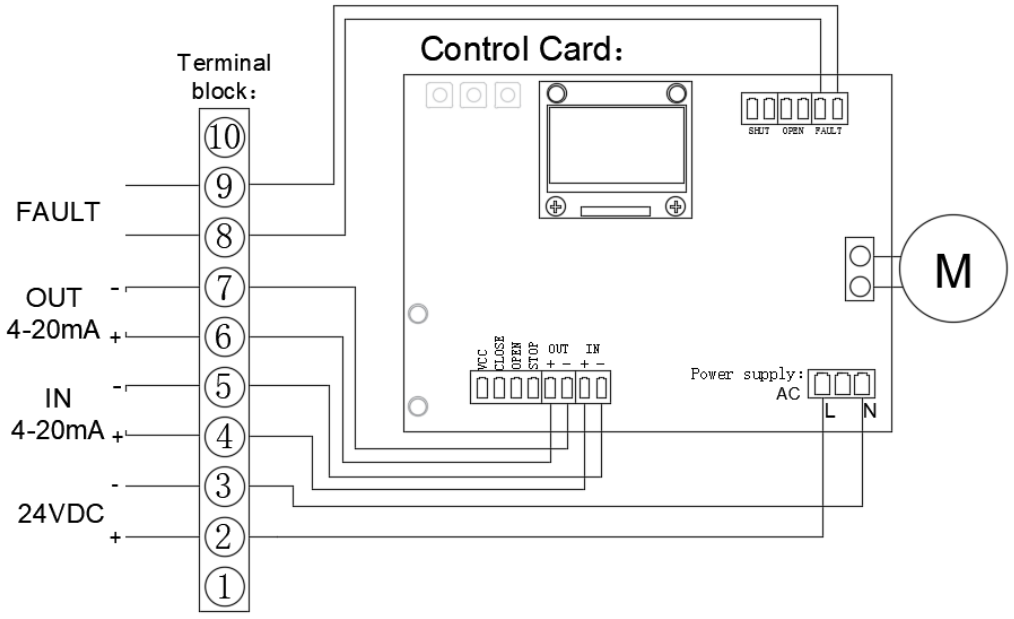
2.1 ON/OFF control

The control of ON/OFF is very simple.
After stroke calibration, only power is needed to the corresponding function's wiring port to open the valve. After the valve is fully opened, the product will have a set of ports output passive contact feedback signals. After the product is powered off, the product will automatically return to the fully closed position of the valve. At this time, another set of passive contact feedback signals will be output, indicating that the valve has been completely closed.



VTMR series Electric Actuator Wiring Diagram

VTMR Modulating wiring diagram（24VDC）



Terminal block:

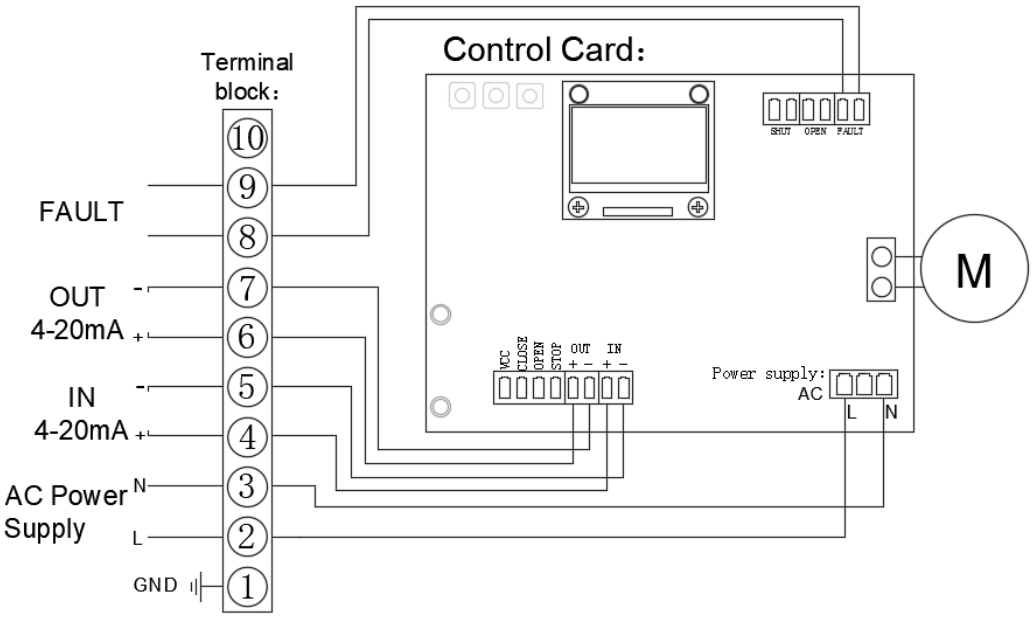
②-③: Connect this port with 24VDC

④-⑤: This port is used to input 4-20mA analog control signal;

⑥-⑦: This port is used to output 4-20mA analog control signal;

⑧-⑨: This port will connect When an error is reported during product operation;

VTMR Modulating wiring diagram（110VAC/220VAC）



Terminal block:

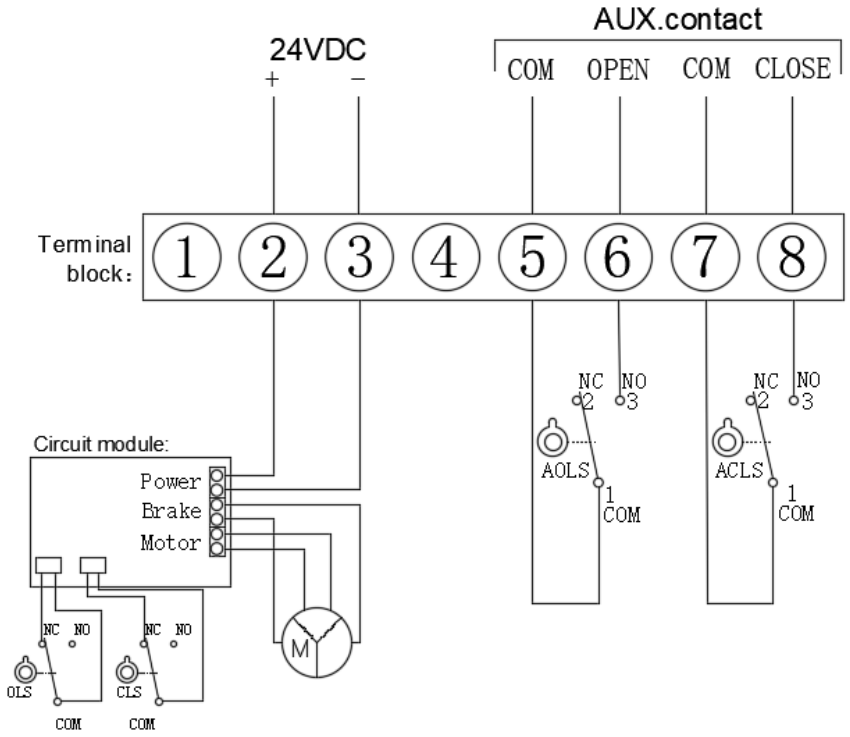
②-③: Connect this port with AC power supply

④-⑤: This port is used to input 4-20mA analog control signal;

⑥-⑦: This port is used to output 4-20mA analog control signal;

⑧-⑨: This port will connect When an error is reported during product operation;

VTMR ON/OFF control types wiring diagram（24VDC）



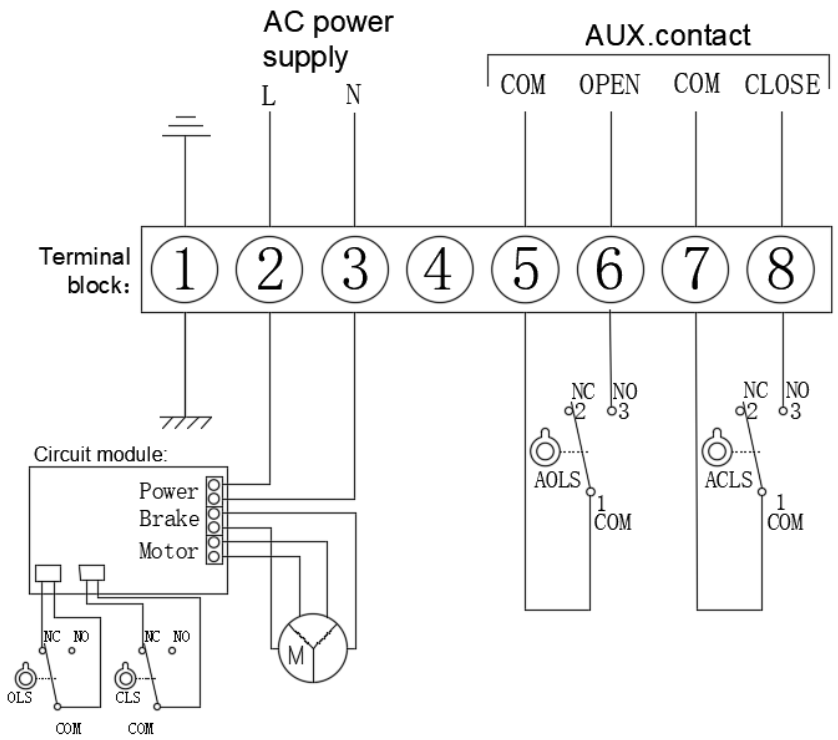
Terminal block：

（Please Pay attention to the positive and negative poles）
①：Empty
②-③：Connect this port with 24VDC to open the valve
⑤-⑥：This port will connect when the valve position reaches full Close;
⑦-⑧：This port will connect when the valve position reaches full Open;
⑤and⑦can be short circuited

Component description：

OLS：Open Limit Switch
CLS：Close Limit Switch
AOLS：Auxiliary Open Limit Switch
ACLS：Auxiliary Close Limit switch
M：Motor

VTMR ON/OFF control types wiring diagram（110VAC/220VAC）



Terminal block：

（Please Pay attention to the positive and negative poles）
①：GND
②-③：Connect this port with AC power supply to open the valve
⑤-⑥：This port will connect when the valve position reaches full Close;
⑦-⑧：This port will connect when the valve position reaches full Open;
⑤and⑦can be short circuited

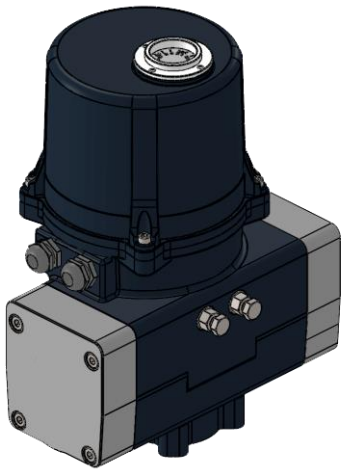
Component description：

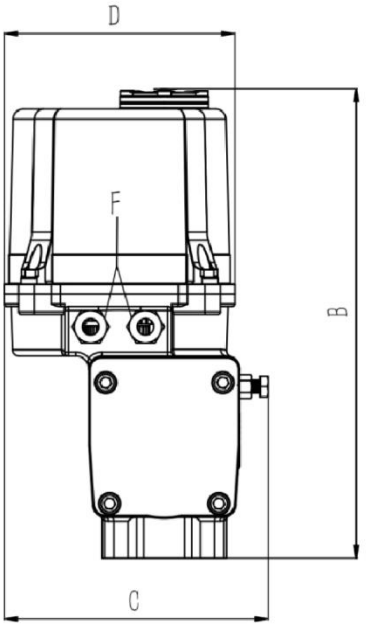
OLS：Open Limit Switch
CLS：Close Limit Switch
AOLS：Auxiliary Open Limit Switch
ACLS：Auxiliary Close Limit switch
M：Motor

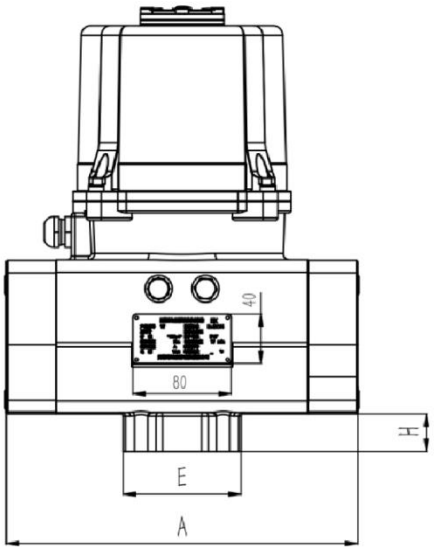
VTMR Type Specifications

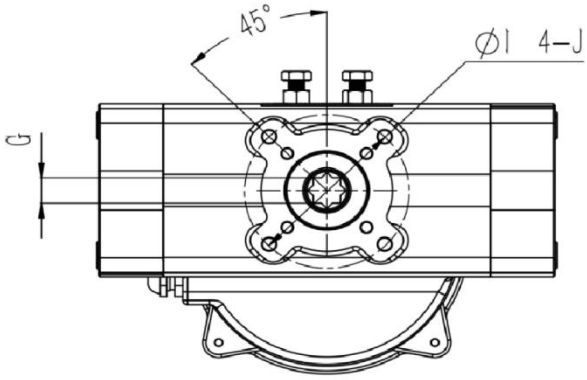
Model No	torque		Power(W)	Start Time(Sec)	Spring Circle Life Time(S)	Electric Current			Weight
	N.m	In.ibs				DC24V	AC110V 50/60Hz	AC220V 50/60Hz	Kg
VTMR-2	38	336	18W	8	3	2.5A	1.2A	0.6A	8
VTMR-3	55	487	40W	10	8	3.5A	1.6A	0.7A	18
	70	620	60W	10	8	5A	1.8A	0.7A	
VTMR-4	140	1239	90W	8	7	8.5A	4.2A	2.2A	31
	210	1859	120W	8	7	9.5A	4.5A	3.2A	
VTMR-5	300	2655	200W	33	13	21A	5.5A	3.2A	44.5

VTMR dimensions（mm）









Model	Unit	A	B	C	D	E	F	G	H	ΦI	J
VTMR-2	mm	229	303	162	145	75	M20*1.5	14	17	F05/F07	M6*1.0*15
											M8*1.25*16
VTMR-3		285	380	202	177	96		17	32	F07/F10	M8*1.25*16
											M10*1.5*20
VTMR-4		391	439	202	206	120		22	20	F10	M10*1.5*20
VTMR-5		406	506	312	260	130		27	23	F10/F12	M10*1.5*20
											M12*1.75*20

Installation suggestions and configuration reference

Installation suggestions

1,Installation site：

Precautions for indoor installation:

The product currently does not support explosion-proof function.Please explain in advance if it is installed in a flooded environment or outdoors.Please reserve space for wiring, manual operation and maintenance during installation.

2,Precautions for outdoor installation:

In order to avoid rain, direct sunlight and other problems, it is necessary to install a protective cover, or choose a configuration with a protection grade of IP67 or above. Please reserve space for wiring, manual operation and other maintenance.

3, Ambient temperature:

The acceptable working temperature is within the range of -20 ℃ ~ + 60 ℃(ON/OFF control)，-20 ℃ ~ + 55 ℃ (Modulating control).When the ambient temperature is below 0 ℃, install dehumidification heater in the machine.

4,Fluid temperature conditions:

When used in conjunction with valves, the heat of fluid will be transferred to the body, causing the body temperature to rise. When the fluid is in a high temperature condition, special treatment is required for the supports connected to the valves.

1：Standard supports: suitable for fluids below +65 C or without optional.

2：Medium temperature support: suitable for fluid temperature + above 100 C, + below 180 C.

3：High-temperature support: suitable for fluid temperature + over 180 C.

Note: Users can design and manufacture brackets separately according to the functional requirements of drive bushing. The brackets can be designed as circular shaft, square shaft or other forms of shaped shaft output.

(Processing must ensure that holes are concentric with the outer circle)

Selection Criteria and Configuration Reference

VTMR — T — K — V — B

Model No | torque | Control method | Power Supply | Opitions

Control method（K）：	Power Supply（V）：
O :Open/Close	D: AC 220 V(50 / 60 hz)
M1 : 4 - 20 mA input/output	E: AC 110 V(50 / 60 hz)
M2 : 0 - 5V mA input/output	F: DC 24 V
M3 : 2 – 10 V input/output	

Opitions（B）：

X: Heater（Recommended for high humidity and low temperature working environment）

The M2 and M3 control methods need to be developed, and if this control is chosen, the delivery time will be delayed

*The above information is for reference only. If you are interested, please consult the factory in advance