MF40 ER

Specifications

Part Number. . . . . .MF40ER-24M (Modulating)
MF40ER-24T (Two Position)
Nominal Torque . . . . . Min. 40 Nm

Running Time

Motor Driven. . . . . 150 s/90°
Capacitor Driven. . . . . .35 s/90°

Control Signal (MF40 ER-24M)

Range of Operation (X) . . . . . .2-10 VDC
Input Resistance. . . . . .100 kΩ
Position Feedback (Y). . . . . 2-10 VDC, max 0.5 mA
Position Accuracy. . . . . +/- 5%

Functional Data

Electronic Return Position. 0
100% of max. angle or rotation (POP dial)

Direction of Rotation

Motor (mod.). . . . . Reversible with Switch 0/1
Electronic Return (SuperCap) position 0-100%
(any position between, as set by POP dial)
Angle of Rotation . . . . . Max. 90°
limited both ends, adjustable end stops
Position Indication . . . . . .Mechanical

Power consumption

In Operation . . . . . 11 W @ nominal torque
At Rest. . . . . <3 W
Wire Sizing . . . . . .≤21 VA

Environment

Operation Temperature. . . . . 0°C to + 50°C
Media Temperature Range . . . . . -20°C to + 100°C
Storage (Non operation) . . . . . .-40°C to + 80°C
Ambient Humidity . . . . . .95% r.h. Non-condensing
Sound Power Level, Motor . . . . . .≤52 dB
Electronic Return (SuperCap Driven). . . . . .≤61 dB
Weight . . . . . approx. 2.8 kg

Electronic Return (SuperCap) Butterfly Valve Actuator

Modulating and Two-Position Control 40 Nm

The MF40 ER is a robust, reliable rotary actuator for the control of the VF208W DN125-200 butterfly valves.

The MF40 ER actuators utilize super capacitor technology for power return in the event of power failure.

These actuators do not require linkage kits, providing a quick and simple installation.

- 24V AC/DC
- 2-10V Position Feedback
- Long Life SuperCaps

Safety

Protection Class . . . . . III Safety Extra low Voltage / UL class 2 Supply
Degree of Protection. IP54
NEMA2, UL Enclosure Type 2
Maintenance. . . . . Maintenance free
Control Pollution Degree. 3
Mode of Operation . . . . . .Type 1.AA
Rated Impulse Voltage . . . . . 0.8 kV

Standards Conformity

EMC. . . . . .CE according to 2004/108/EC
Certification . . . . . .cULus to UL60730-1A
... UL60730-2-14 and CAN/CSA E60730-1:02
... IEC/EN 60730-1 and IEC/EN 60730-2-14

Schneider Electric

FUNCTION

Mode of operation

The modulating actuator is positioned and controlled with a standard 2-10 VDC control signal. If the supply voltage is interrupted the valve is returned by the electrical charge of the internal super capacitors to the position indicated by the POP dial.

The direction of rotation switch changes the running direction of the actuator against the control signal. The direction of rotation switch has no influence on the power off position as set by the POP switch.

The two-position actuator (MF40ER-24T) is driven fully On by a 24 VAC or DC supply and is returned by the super capacitors when the 24 V supply is switched off.

Power Off Position (POP) setting

The Power Off Position (POP) is an electronic position return feature in the MF40 ER actuator. The position can be determined from the POP setting dial on the top of the actuator.

The switch always refers to an angle of rotation of 90° and does not take into account any retroactively adjusted mechanical end stops.

In the event of a power supply interruption, the actuator will move into the selected power off position, initiating after a preset bridging time (PF) of 2 s.

FEATURES

Simple direct mounting

Straightforward direct mounting onto the butterfly valve, using only two bolts. The mounting position in relation to the butterfly valve can be selected in 90° steps.

There is no internal mechanical spring on the actuator; the usual practice of reversing the mounting orientation as on traditional spring return actuators is not needed because the direction of closing is governed by the setting of the POP dial.

Manual Override

Manual operation of the valve is possible using the actuator hand crank when the interlocking button is depressed. Any selected position can be locked by releasing the interlocking button. The actuator will drive to the control signal position when an electrical supply is present and the interlocking button is released, or to the POP position when power is not present.

Adjustable angle of rotation

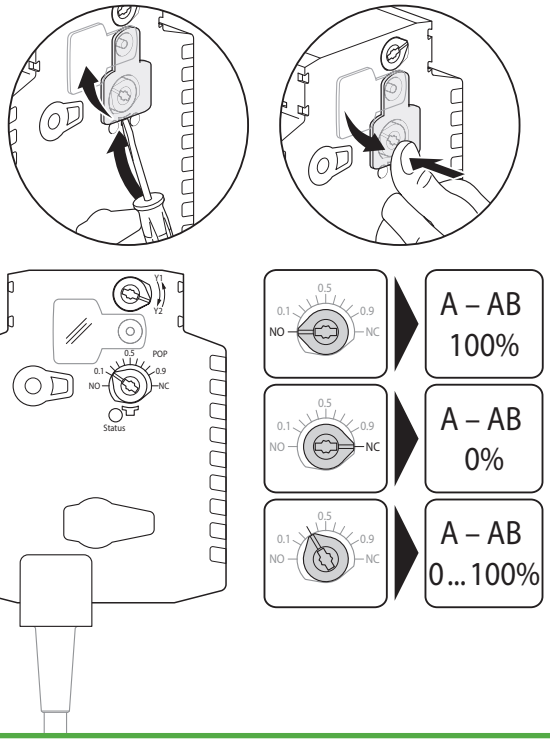
All units have an adjustable angle of rotation up to 90° with mechanical limit stops adjustable from each end.

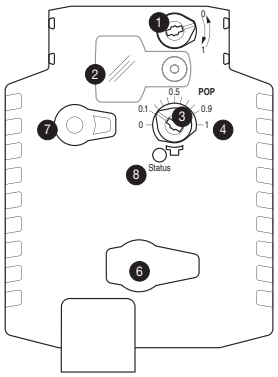
High functional reliability

The actuator is overload-proof, requiring no limit switches and automatically stopping when the end point is reached.

OPERATING CONTROLS AND INDICATORS

Power Off Position (POP)





1. Direction of rotation switch
2. Cover, POP setting dial
3. POP setting dial
4. Scale for manual adjustment

6. No function
7. Disengagement button

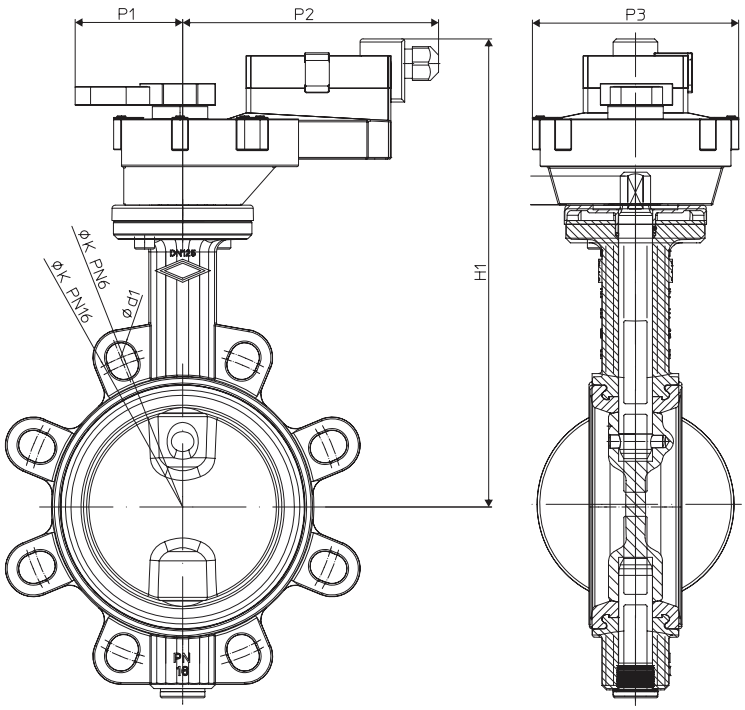
LED display 8 green	Meaning/Function
Illuminated	Operation OK / without fault
Blinking	POP-Function active
Off	– Not in Operation – Pre-charging time SuperCap

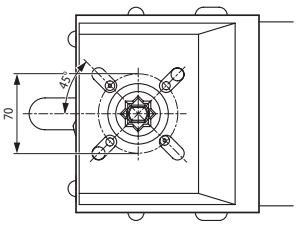
DIMENSIONS mm

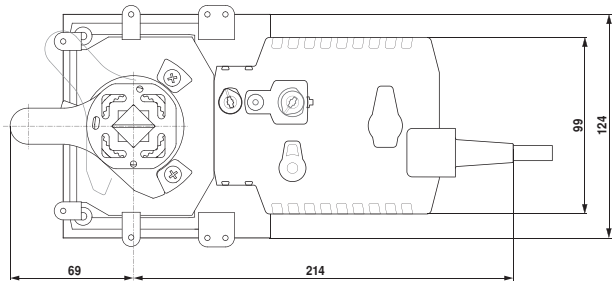
DN	125	150	200
H1	243	309	343
P1	69		
P2	166		
P3	134		

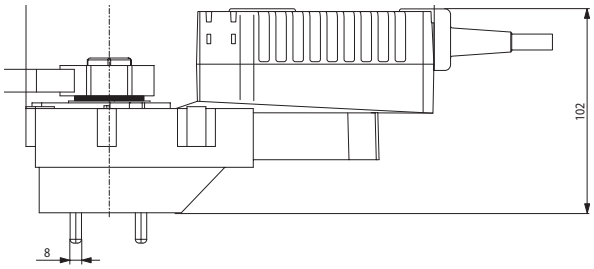
Dimensions in mm

Valve dimensions can be found on the respective Valve Data sheets.







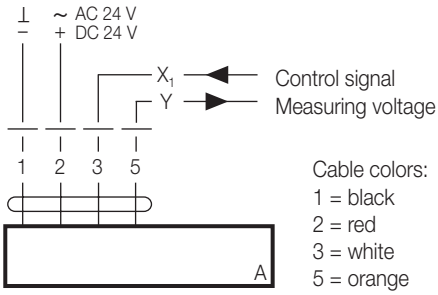


SAFETY NOTES

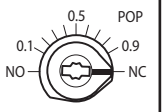
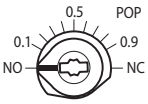
- The actuator must not be used outside the specified field of application.
- It may only be installed by suitably trained or supervised personnel. Any legal regulations or other regulation issued by authorities must be observed during installation.
- The switch for changing the direction of rotation must only be operated by authorised personnel. In particular, the direction of rotation must not be reversed in a frost protection circuit.
- The actuator may only be opened at the manufacturer's site. It does not contain any serviceable or replaceable parts by the user.
- The cable and connector must not be removed from the device.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

WIRING DIAGRAMS

MF40 ER-24M

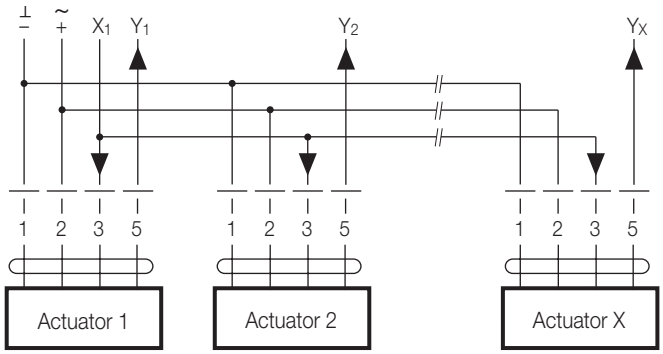


Cable colors:
1 = black
2 = red
3 = white
5 = orange

NC	NO
A-AB=0%	A-AB=100%
	

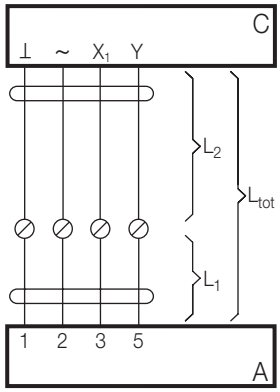
Note
Connect via safety isolation transformer.

Wiring diagram for parallel operation



Notes
- A maximum of eight actuators can be connected in parallel.
- Parallel operation is permitted only for separated axes.
- It is imperative that the performance data is observed with parallel operation.

Cable lengths

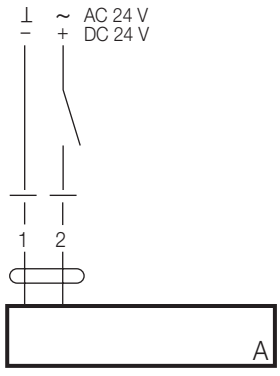


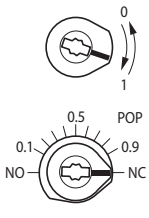
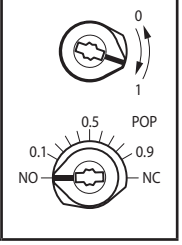
A = Actuator
C = Control unit
L_1 = Attached connecting cable, 1 m (4 x 0,75 mm²)
L_2 = Customer cable
L_{tot} = Maximum cable length

Note
When several actuators are connected in parallel, the maximum cable length must be divided by the number of actuators.

Cross-section L_2 ⊥ / ~	Max. cCable length $L_{tot} = L_1 + L_2$		Example for DC
	AC	DC	
0,75 mm²	≤40 m	≤20 m	1 m (L_1) + 19 m (L_2)
1,00 mm²	≤50 m	≤30 m	1 m (L_1) + 29 m (L_2)
1,50 mm²	≤80 m	≤45 m	1 m (L_1) + 44 m (L_2)
2,50 mm²	≤130 m	≤80 m	1 m (L_1) + 79 m (L_2)

MF40 ER-24T



NC	NO
A-AB=0%	A-AB=100%
	

Note
Connect via safety isolation transformer.