MF200Y Linear Power Fail Actuators

MF200Y are linear power fail safe actuators that can be used with 2-port and 3-port seat valves such as RF and RGD ranges. The actuators provide power fail spindle down operation.

The MF200Y actuators can be used with 0(2)..10Vdc and 0(4)..20mA control signals.The actuators have built-in position feedback and visual position indication. Manual operation can be provided usign allen key.

Features

- Service Free Compact Actuator
- Stroke Up to 20mm
- Emergency Powerfail Function
- Valve Blockagege Monitoring Function
- Manual Override in Powerless State via Allen Key
- 0(2)..10Vdc or 0(4)..20mA Control
- Priority Switching via Open/Stop/Close Contacts
- 0..10Vdc Position Feedback Signal

Model Type

Model	Description
MF200Y	1000N Linear Power Failsafe Actuator, 0(2)..10Vdc or 0(4)..20mA Control Signal, Powerfail Spindle Down

Technical Data

Power Supply	24Vac ±15%, 21VA
Stroke	Max. 20mm, automatic stroke adjustment by initializing
Running Speed	2 secs/mm
Power Fail Speed	Approx. 1 sec/mm
Thrust	1000N
Control Signal	0(2).10Vdc or 0(4)..20mA Compensation of external interference on the control signal through dynamic hysteresis Priority switching via open / stop / close contacts
Position Feedback	0..10V for 0..100% stroke, <5mA
Compatible Valves	RK15..50/RK65K(-BF), RB15..50(BK), RF15..50/RF65K(-BF), RFH15..25, RGD15..40, and RWG15..40
Manual Operation	Socket for hex key beneath the drive cover, key socket 4mm, locking using knob)
Emergy Operation	Spindle Down when Power Fails
Valve Monitoring	Automatic valve block monitoring with fault signal approx. > 12.5V or 0mA
Installation Position	Vertical above the valve, up to the horizontal position
Ambient Temp	0..50°C
Protection Class	IP54 III in acc. with EN 60730 I in acc. with EN 60730 with switch module E/MDY
Weight	2.75 kg

Wiring and Installation Details

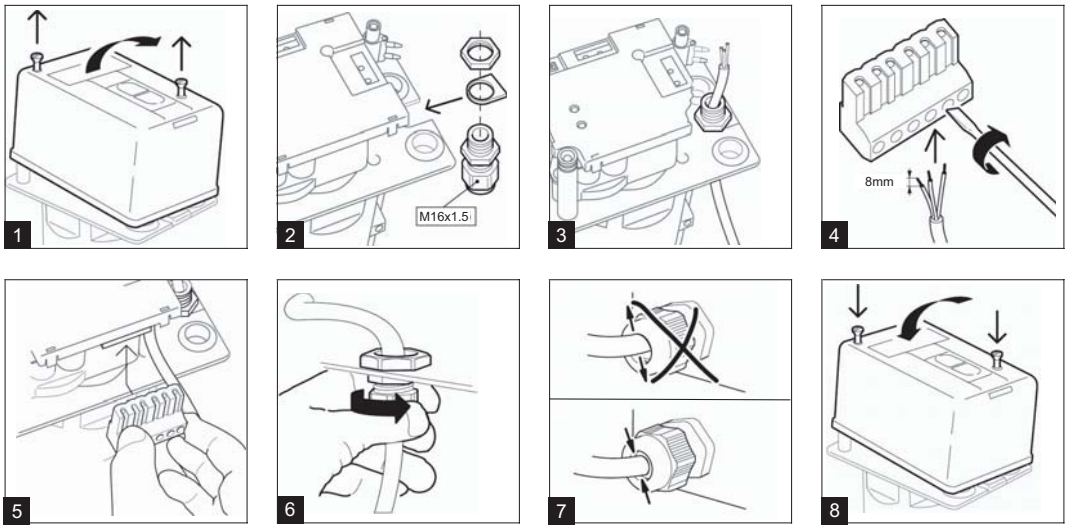
The actuator should be wired by a competent person. For safety, when the hood is removed, the actuating drive automatically moves into its power fail function.

WARNING:Electrical installation and unit connection may only be carried out by qualified technicians and must comply with local wiring regulations. The device is required to be connected according to the system circuit diagram.

The electrical connection of the actuating drive must be carried out as a fixed installation.

A M16x1.5 screw fitting is enclosed in the scope of delivery of the actuating drive to be used as a strain relief device. The electrical connection is to be made using plug-in screw terminals (connection diameter 0.3 ..2.3mm).

WARNING: The return function of the MF200Y actuating drive automatically moves the valve into the lower end position using high spring force when the power supply is interrupted.



Polarity protection

When the power supply voltage is applied, the electrical connection is immediately tested. The LED below the drive cover flashes when the connection is incorrect (AC 0V / AC 24V interchanged). The actuating drive automatically enters the safety function.

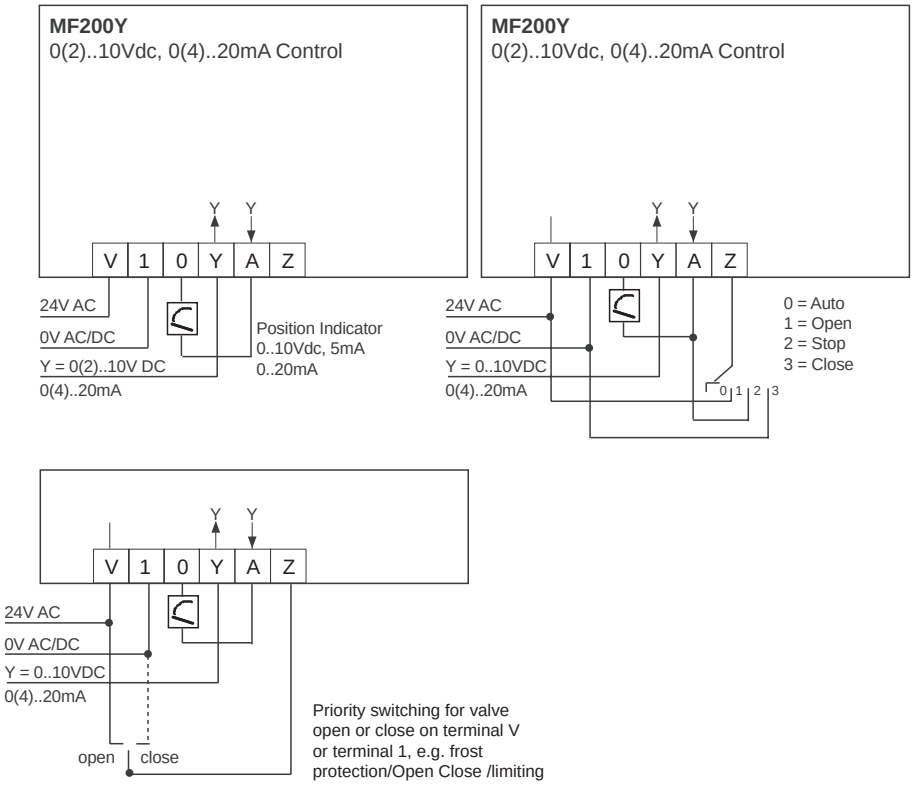
Direct control / priority control

Terminal “Z” can be used to operate the actuating drive directly and independent of the control. Depending on the circuitry, 3-point or 2-point operation is possible.

Run time lag during priority switching

When the actuating drive is operated in priority mode, the positioning movements are carried out after a delay.

Control to normal controlled operation, positioning times of 126s (14mm stroke) and 180s (20mm stroke) are achieved for the entire valve stroke. The positioning movement is carried out cyclically and with intermediate stops of about 5s. This can be used to provide direct 2-point control for frost protection monitors or temperature limiters.



Automatic Mode / Testing Power Fail Function

Automatic mode or manually testing the power fail function can be selected directly on the actuating drive using the sliding switch that is integrated into the drive cover.

Automatic mode:	Slide the switch to pos.
Testing power fail function:	Slide the switch to pos.

Fig. Testing the power fail function

When the “power fail test function” feature is activated, the extended indicator slide allows this status to be recognized even in poorly lit areas. This operating status is also reported with a feedback signal of approx. > 12.5V or 0mA (with 4..20mA).

After “Power Fail Test Function” is switched off, the actuating drive resumes automatic positioning.

WARNING: After the power fail function has been activated manually, the actuating drive no longer automatically follows the actuating signal. To do this, you must switch it back to automatic control position

Position Indication

The current stroke position of the valve is displayed by the position of the stroke range scale.

Valve Blockage Monitoring

Block protection is not activated when the unit is delivered.

If the system specifications permit, the valve block protection feature may be activated during commissioning.

Block protection prevents the ball from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems, during the summer.

When block protection is activated, the valve ball is lifted for several seconds if there is no stroke movement for 12 hours.

Automatic Fault Messages

If the pipe becomes blocked by foreign objects during a valve stroke, the drive reports this malfunction with a feedback signal, approx > DC 12.5V (connection terminal A). The LED below the drive cover also flashes (short flashes).

The actuating drive then automatically tries to correct the valve block using a remedy algorithm, which repeatedly lifts the valve seat for a short time. Additional audible or visual fault messages may be set up using the E/MDY (accessory) switch module.

A manually activated power fail function, manual adjustment, or an incorrect electrical connection is also signaled by a feedback signal of approx. > 12.5V or 0mA (with 4..20mA).

This function largely prevents external interference and unnecessary temperature fluctuations as well as avoids wear on the actuating drive and valve.

Compensation of external interference (dynamic)

To prevent the actuating drive from oscillating when external interference overcouples on control line Y, the input hysteresis band is automatically enlarged. When the interference stops, the hysteresis is adjusted back to minimal values.

Forced control, manual adjustment or an initialization run also reset the current hysteresis value.

Zero crossing

The economical 3-wire connection combines the zero potentials of control line Y (direct current) and of the power line (alternating current) into one wire.

The Y control signal is processed by software to reduce errors in the Y control signal caused by voltage drops arising from very long cable lengths.

Drive heater

A heater function is automatically activated when the actuating drive is used in ambient temperatures < 3°C. This allows the use of actuating drives in ambient temperatures down to –15°C.

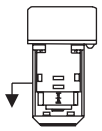
Run time lag after mains power recovery

After power has been lost for a longer time, the actuating drive moves out of the safety position to the current setpoint position with reduced positioning speed. When the current control position is reached, it is switched over to the positioning speed that is set.

This prevents oscillations in steam systems and monitoring from being triggered when power is recovered. The run time lag is also in effect where there is direct control or priority control

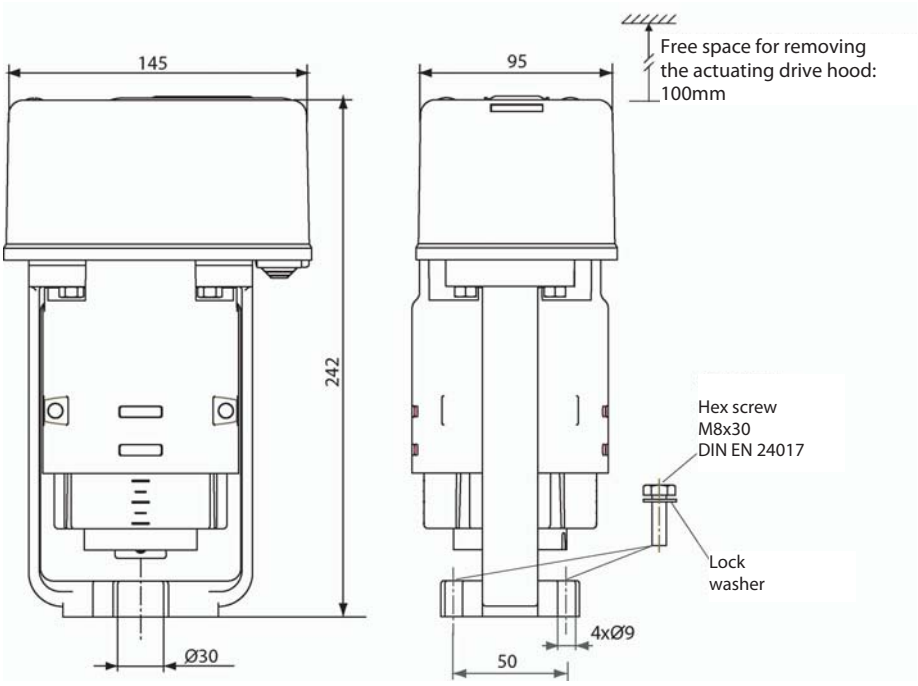
Actuator / Valve Power Fail Direction

The following table illustrates the actuator and valve power fail operation.
Depending on the valve type the spindle down power failure operation causes the valve either to open or close.



MF200Y Power Fail Spindle Down	District heating valve RFH and two-way valves RGD..... close
	Two-way valves
	RK..-BF, RB..-BK, RF..-BF..... open
	Three-way valves
	RKRB/RF/RWG.. Port A:.....opens
	Port B: ..... closes

Dimensions



Actuating directions

Accessories for MF200Y

Model	Description
E/MDY	Switch Module with two electrically isolated switches (relay outputs), max. load AC 250V, 3A
H/V	Spindle heater, controlled, temperature limited semi-conductor heating
H/V65	Spindle heater, uncontrolled for valve types RK/RF65K(-BF)

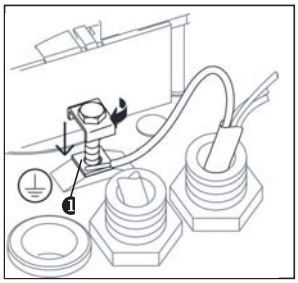
E/MDY Switch Module

Application: The E/MDY switch module provides the MF200Y actuating drive with malfunction feedback or with feedback about both valve end positions (open/closed).

This function can be switched.

WARNING: If low voltage (AC 230V) is applied, the device must be installed to meet the requirements of protection class I.

The wiring of the PE terminal must be connected between the terminal clip and the square washer (Cupal washer), with the copper-coated side of the washer facing the terminal clip. Copper-coated side of the square washer. (Cupal washer).



❶ Copper-coated side of the square washer (Cupal washer)

H/V Spindle Heating, Controlled, Temperature Limited Semi-Conductor Heating

for valve types RB15..50(-BK), RK/RF15..50(-BF), RFH15..25 to prevent icing of the valve spindle when the valve is used in medium temperatures = 0°C.

Medium	Water with glycol-based anti-freeze (max. 50% glycol)
Minimum medium temperature	-15°C for RB15..50(BK), RFH15..25°C
	-10°C for RK/RF15..50(-BF)
Power Supply	AC 24V ± 10%, 50/60Hz ± 5%
	Start-up power max. approx. 200W at nominal voltage
	Constant power approx. 45W at nominal voltage. Power consumption varies depending on the thermal output carried off.
Degree of protection	IP54

H/V65 Spindle heater, uncontrolled

for valve types RK/RF65K(-BF) To prevent icing of the valve spindle when the valve is used in medium temperatures 0..-10°C.

Medium	Water with glycol-based anti-freeze (max. 50% glycol)
Power Supply	AC 24V ± 10%, 50/60Hz ± 5%
	Power consumption approx. 60W at nominal voltage
Degree of protection	IP40