M52L, EM52L

G-11-5

Actuators for small valves

1999.12

M52L and EM52L actuators are designed specifically for the V354 and V355 valve. The actuator is mounted directly on the valve without any additional mounting kit.

M52L is available in two versions, for 24 V or 220 V AC power supply, and is controlled by an increase/decrease signal.

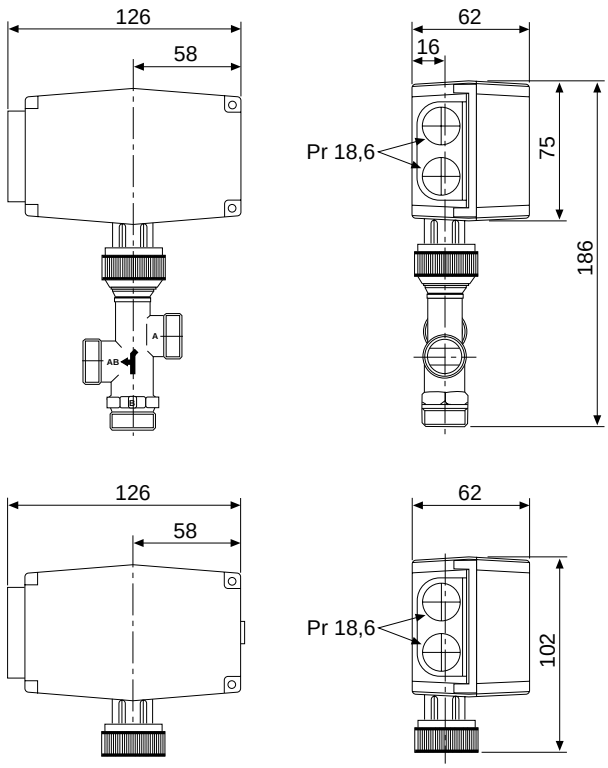
EM52L requires 24 V AC power supply, and is controlled by voltage between 2–10 V DC. The actuator can also be controlled by current between 4–20 mA DC.

The actuator consists of a reversible alternating current motor with gear train in a plastic enclosure.

All bearings in the motor and gear box are of permanent lubrication type. The actuator includes provision for manual operation.

TECHNICAL DATA

Part number ..... see table
Power supply ..... see table
Power consumption ..... 3 VA
Intermittent duty factor 10%
Ambient temperature:
  Operation ..... –20 – +50 °C
  Storage ..... –40 – +50 °C
Ambient humidity ..... max. 90% RH
Materials:
  Case ..... polycarbonate
  Cover ..... ABS-plastic
Enclosure rating ..... IP 44
Colour ..... red/black
Running time ..... approx. 300 s
Torsional angle ..... 155/\°
Stroke ..... 8,5 mm
Thrust ..... 180 N
EM 52L:
Hysteresis:
  Same direction ..... 30 mV
  Changing direction ..... 250 mV
Output G1:
  Voltage ..... 16 V DC ±0,8 V
  Load ..... 20 mA, short-circuit proof
Inputs X1, X2:
  Permissible voltage ..... 0–16 V DC
  Input current ..... max. 0,1 mA
Weight ..... 0,3 kg



M52L and EM52L mounted on the V354 and V355 valve.

FUNCTION

M52L
The actuator is controlled, depending on performance, by a 24 V or 220 V AC increase/decrease signal. M52L has two control inputs VH and VC for 24 V voltage supply, and NH and NC for 220 V voltage supply.

When power is connected to input VH (NH), the stem valve is affected downwards, and when the voltage is on VC (NC) it is affected upwards.

When the actuator is mounted on V354 and V355 valve, then port A opens and port B closes when the control voltage is on VH (NH). The opposite process is obtained when the voltage is on VC (NC).

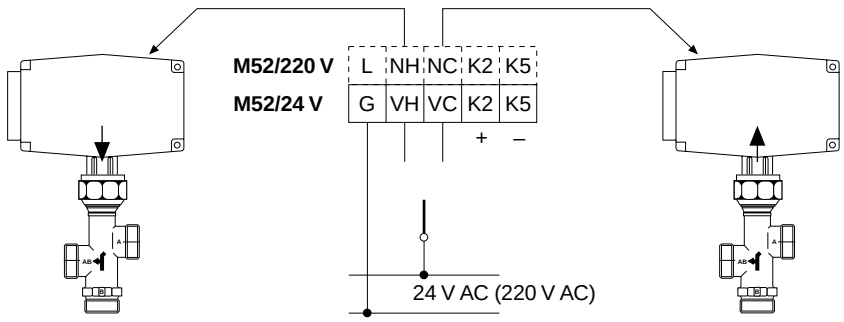


Figure 1

EM52L
The actuator is controlled by voltage between 2–10 V, which corresponds to a stem travel of 8,5 mm.

EM52L has two control inputs, one normal X1 and one inverted X2. When the control voltage is connected to the normal input X1, the stem valve moves to its upper end position when the voltage increases, and to its lower end position when it decreases.

The process becomes opposite when the control voltage is connected to X2.

When the EM52L is mounted on V354 or V355 valve and the control voltage connected to X1, then port A closes and port B opens when the control voltage increases.

At control voltage 6 V, the actuator always stands in the mid position's operating range, see figure 2.

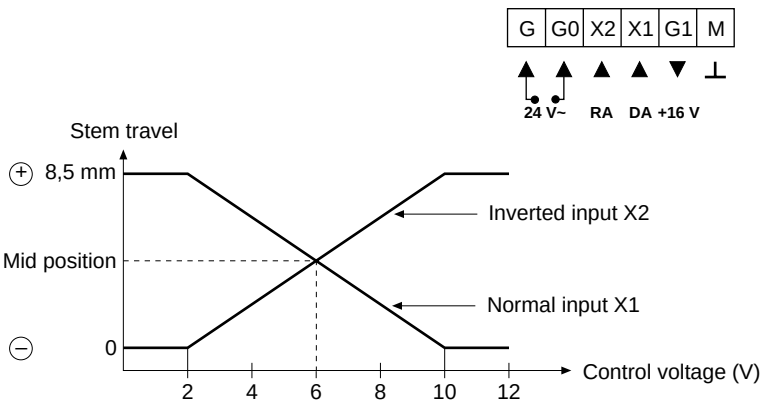


Figure 2

The actuator can be set to either end position if either 16 V (G1) or 0 V (M) is connected to the control input X1 (X2).

EM52L can be controlled by current between 4–20 mA, if a 500 ohm resistor is connected between the control input X1 (X2) and M. 4 mA corresponds to 2 V and 20 mA corresponds to 10 V.

M52L
The output shaft is equipped with cams, which via a micro switch breaks the control signal in each end position.

The cam for the positive end position is adjustable, so that the valve's stroke can be limited, see figure 3.

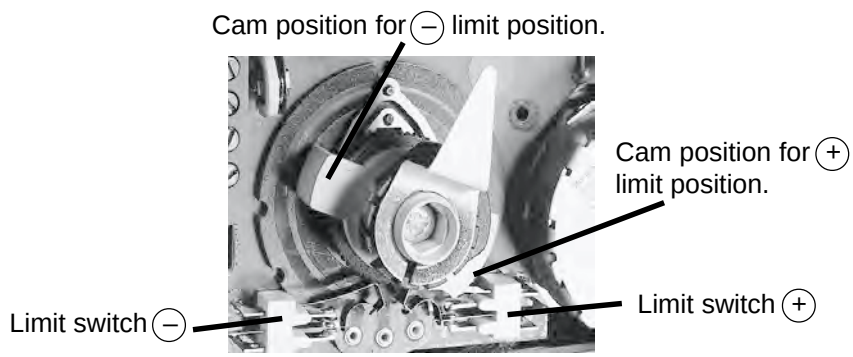


Figure 3

ACCESSORIES

M52L can be equipped with an extra switch with a terminal block. It is controlled by a separate cam and can be adjusted for breaking or closing within the operating range, see figure 4.

Mounting kit:
Part number: 913-1001-000.

Note: Applies only to M52L.

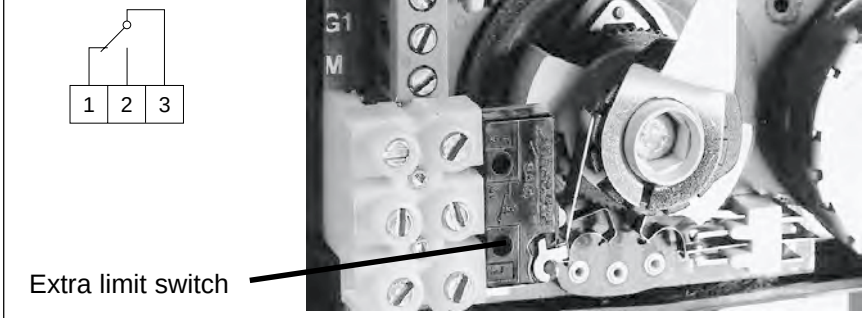


Figure 4

CARE AND MAINTENANCE

The motor and gear box are of permanent lubrication type, and ensure a maintenance free actuator for normal operation.

The actuator must however be kept dry and externally cleaned when necessary.

Actuator designation	Part number	Power supply	Control voltage
M52L/24 V	852-2320-000	24 V AC ±10%, 50–60 Hz	24 V AC
M52L/220 V	852-1320-000	220 V AC ±10%, 50–60 Hz	220 V AC
EM52L/24 V	852-2221-010	24 V AC ±10%, 50–60 Hz	2–10 V DC
EM52L4/24 V	852-2210-000	24 V AC ±10%, 50–60 Hz	2–10 V DC

POSITION INDICATION

The actuator is equipped with an indicating position.

INSTALLATION

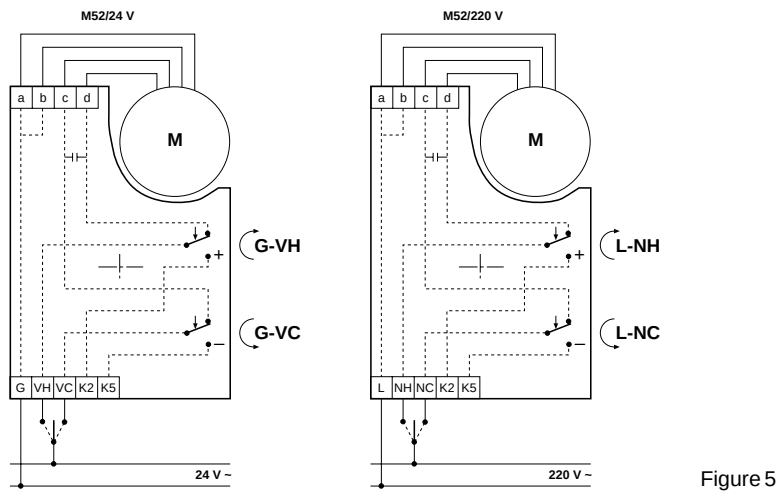


Figure 5

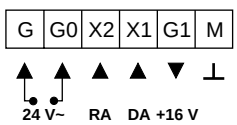


Figure 6

M52L/24 V

G	24 V AC input
VH	Input for increase +
VC	Input for decrease –
K2	End position switch, positive pos.
K5	End position switch, negative pos.

M52L/220 V

L	220 V AC input
NH	Input for increase +
NC	Input for decrease –
K2	End position switch, positive pos.
K5	End position, negative pos.

EM52L/24 V

G	24 V AC input
G0	System neutral
X2	Inverted input
X1	Normal input
G1	+16 V DC output
M	Measuring neutral

WIRING

Conduit connection
In cases when more than one actuator is controlled from the same control unit, the connection of output G1 (+16 V) to the control unit must be made from one of the actuators only.

If this rule is ignored (connection of G1 from more actuators to the control unit), undesirable effects can occur, such as noise from the actuators.

Length of cables
Max. 100 m, area 0,5 mm² to X1, X2 and G1.

Max. 100 m, area 1,5 mm² to the remaining connections.

The actuator has two tapped outlets for Pr 18,6 conduit entries.

Connection to a 16 V DC controller.

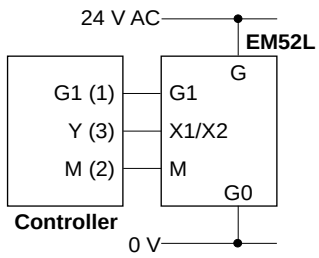


Figure 7

Connection to a 24 V AC controller.

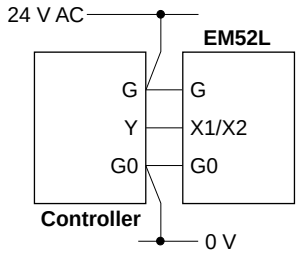


Figure 8

Controlled by a current signal.

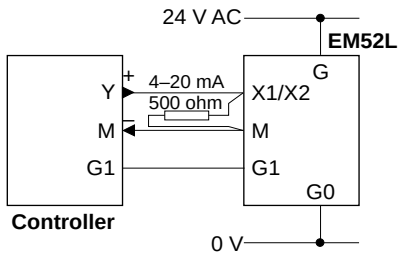


Figure 9

Connection to increase/decrease controller.

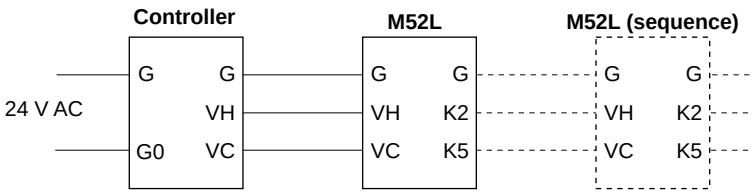


Figure 10