M52R, EM52R

Actuator for small and medium sized dampers

G-11-6

1999.12

M52R and EM52R actuators are designed for small and medium sized dampers.

M52R is controlled by a 24 V AC increase/decrease signal, and EM52R by a DC signal between 2–10 V. A 24 V AC power supply is required.

The actuator has a reversible 24 V AC motor which drives the output shaft through a gear train.

All bearings in the motor and gear box are of permanent lubrication type.

The actuators include provision for manual operation.

TECHNICAL DATA

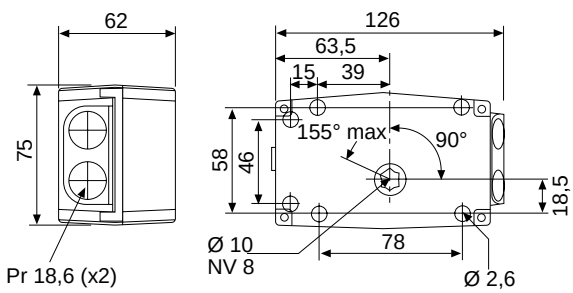
Part number:
- EM52R/90/\° 852-2532-000
- EM52R/155/\° 852-2232-000
- M52R/90/\° 852-2340-000

Power supply ..... 24 V AC ±10%, 50–60 Hz
Power consumption ..... 3 VA
Ambient temperature:
- Operation ..... min. –20 °C, max. 50 °C
- Storage ..... min. –40 °C, max. 50 °C

Ambient humidity ..... max. 90% RH
Materials:
- Reduction gear train ..... acetal/amide
- Case ..... polycarbonate
- Cover ..... ABS-plastic

Enclosure rating ..... IP 44
Colour ..... red/black
Running time:
- M52R, EM52R/90/\° ..... 170 s
- EM52R/155/\° ..... 300 s

Torque ..... 2,5 Nm
”Break away” torque ..... 5,5 Nm



EM52R:
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

FUNCTION

M52R

M52R is controlled by a 24 V AC increase/ decrease signal. The actuator has two control inputs, VH and VC.

When the control voltage is applied to the VH terminal, the damper goes towards an open position, i.e. the output shaft will rotate in clockwise (+) direction (when looking at the end of the shaft), and when the voltage is applied to the VC, the opposite function is obtained, see figure 1.

By pushing a plug on the back of the actuator, the motor and gear box can be disengaged, whereupon the damper can be operated manually.

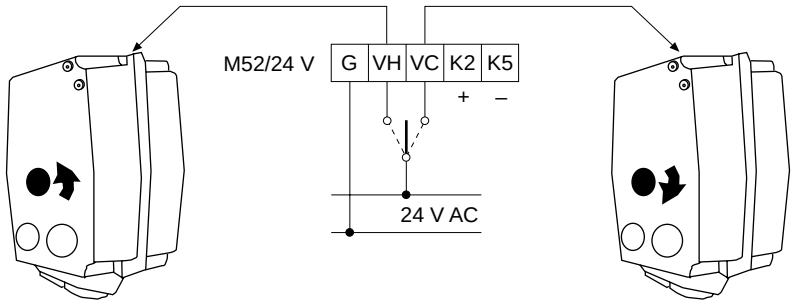


Figure 1

EM52R

EM52R is controlled by a DC signal between 2–10 V, which corresponds to a 90/\° torsional angle.

The actuator has two control inputs, one normal input X1and one inverted input X2.

If the control signal is applied to the normal input, the output shaft will rotate towards negative (–) position, as the control voltage increases, i.e. it will rotate in counter clockwise direction.

If the control signal is applied to the inverted input, the same function can be obtained, as when the control voltage decreases.

At a control voltage of 6 V, the actuator will always be in the mid position of the operating range, see figure 2.

EM52R can be set to each end position by applying 16 V (G1) and (M) to the control inputs.

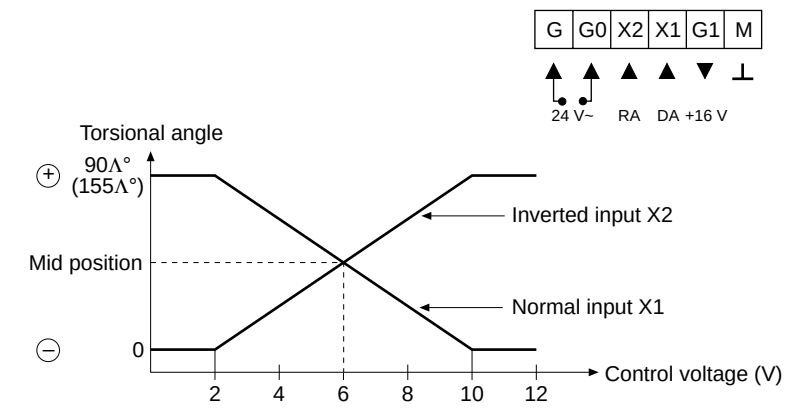


Figure 2

The actuator can be controlled by current between 4–20 mA, provided that 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. See “WIRING”.

M52R/EM52R

The output shaft has cams which actuate micro switches.

These switches break the control signal at each end position, see figure 3.

The cam for positive (+) end position is adjustable, so that the actuator 's operating range can be limited.

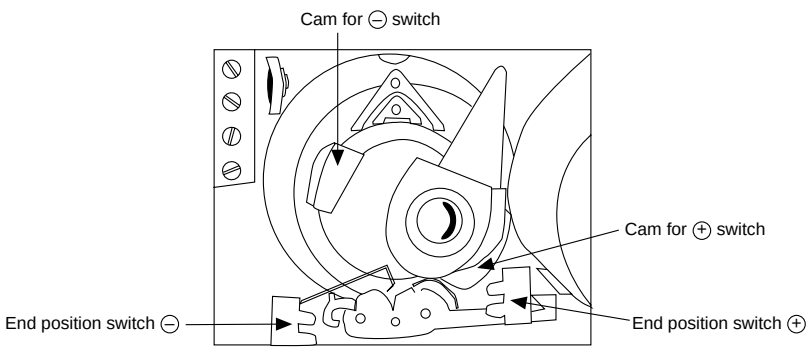


Figure 3

ACCESSORIES

EM52R can be equipped with an extra switch with a terminal block.

The switch 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.

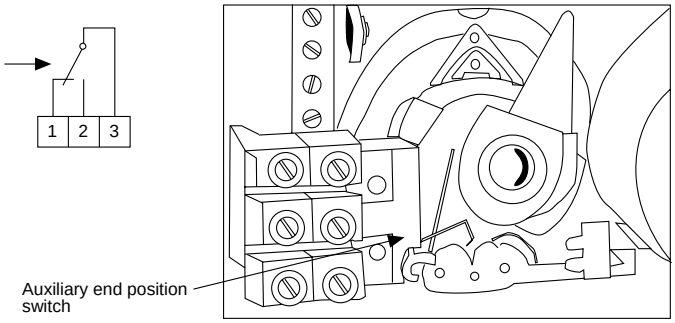


Figure 4

INSTALLATION

Installation components, see figure 5.

Part number: 911-2020-000.

A complete mounting kit consisting of one of each component illustrated.

Mounting strip, adapter, damper arm with screw, and also socket head cap spanner.

The mounting kit also has adhesive labels with the symbols (+) positive and (–) negative.

With these, the actuator can be marked for inverted intentions.

The labels can also be ordered separately.

(+) positive and (–) negative kit:
Part number: 070-1638-000.

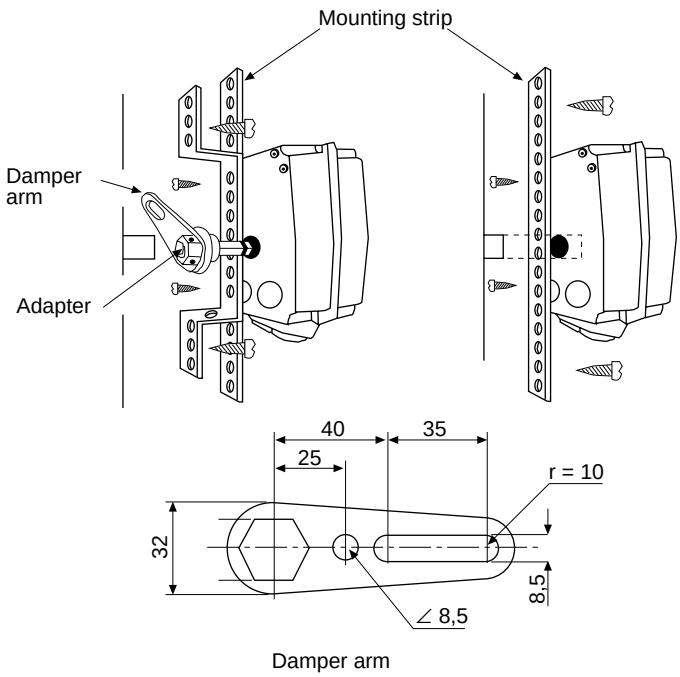


Figure 5

WIRING

M52R

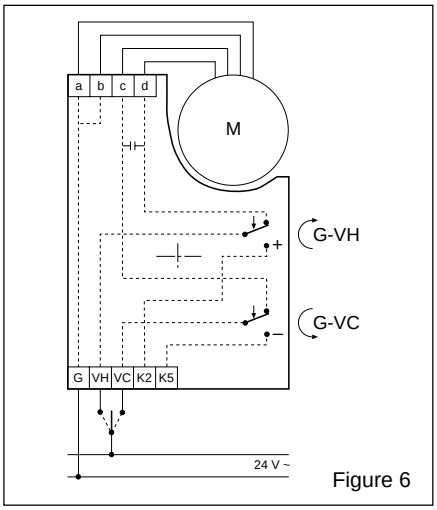


Figure 6

Connections on the terminal block

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.

Connection to increase/decrease controller.

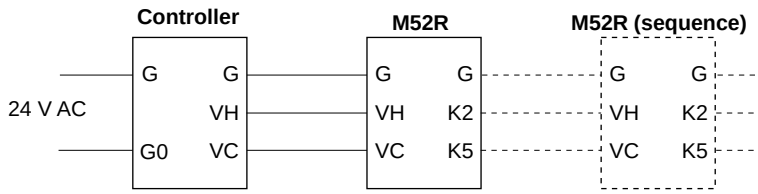


Figure 7

EM52R

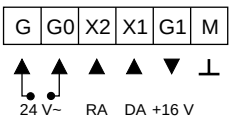


Figure 8

Connections on the terminal block

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

Connection to a 24 V controller.

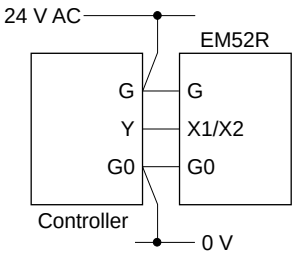


Figure 9

Connection to a 16 V controller.

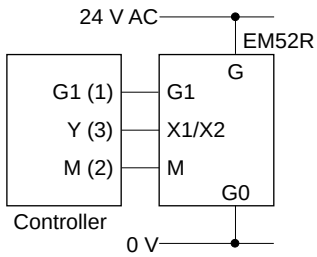


Figure 10

Controlled by a current signal.

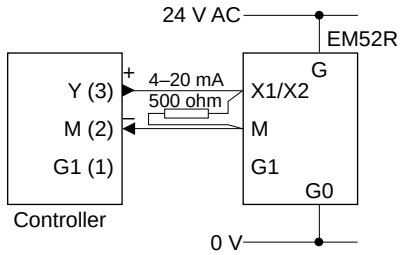


Figure 11

Conduit connection

If 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 form the actuators.

Length of cables

Max. 100 m, area 0,5 mm^2 to X1, X2 and G1.

Max. 100 m, area 1,5 mm^2 to the remaining connections.

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

CARE AND MAINTENANCE

The actuator is maintenance free for normal operation.

The actuator should be kept dry and externally cleaned when necessary.