resideo

Centra Rotary Actuator M7061

APPLICATION

The Resideo M7061 actuator is designed to provide floating control in heating and air conditioning systems. High control performance and a robust design are standard for this actuator.

In combination with the valves DR/ZR/DRU, it is possible to control very exact heating and cooling water temperatures. The mechanical interface between actuator and valve is designed for reliable operation.

Actuators with torques from 10 Nm up to 40 Nm are available for a wide range of rotary mixing valves (DN 15 up to DN 80).

SPECIAL FEATURES

- Protected against overload and blocking
- Maintenance-free electrical actuator for rotary valves
- Clear position indicator
- Direct mounting on rotary valves
- Manual operation
- High torque
- Large wiring cabinet
- Long lifetime

TECHNICAL DATA

Specifications	
Power supply:	24 Vdc (±10%)24 Vac (+15% / -20%, 50/60 Hz)
Power consumption:	100 mA
Control signal:	0...10 V / 2...10 V
Protection standard:	IP 54 per EN 60529
Angle of rotation:	90°
Insulation class:	I per EN 60730
Ambient operating temperature:	0 to 45 °C
Water temperature in valve:	2 to 110 °C
Max. relative air humidity:	non-condensing
Weight:	1.5 kg

METHOD OF OPERATION

The actuator is powered by a DC-motor. The spindle of the actuator rotates 90°. The position is controlled by internal electronics.

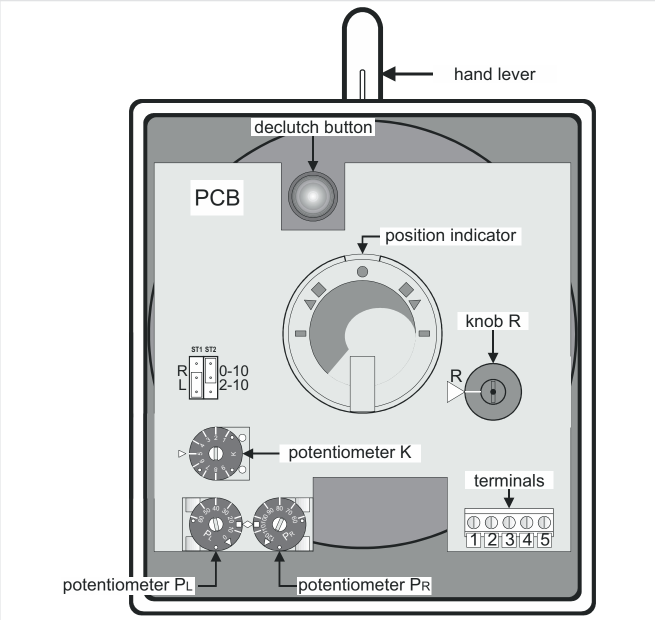


Fig. 1 Main features

The angle of rotation is electronically limited and can be adjusted (see section "Angle of Rotation"). The spindle can also be rotated manually by using the declutch button to disengage the gear and then turning the hand lever

As soon the actuator is powered, the valve is driven by the actuator again.

An electrical overload circuit protects the actuator. If the rated torque is exceeded, the actuator is switched OFF automatically.

The actuator is maintenance-free.

VMU1

After removing the cover of the M7061, the VMU1 is pushed onto the printed circuit board of the M7061 in the desired position until it locks itself.

The switch located at the upper edge of the housing of the VMU1 adjusts the direction of rotation of the M7061. It must be adjusted to correspond with the position of jumper ST1.

The angle of rotation of the M7061 is then set using potentiometer Y on the VMU1 housing. Potentiometer Y must be adjusted to the same symbol (square or triangle) as potentiometer P_L or P_R.

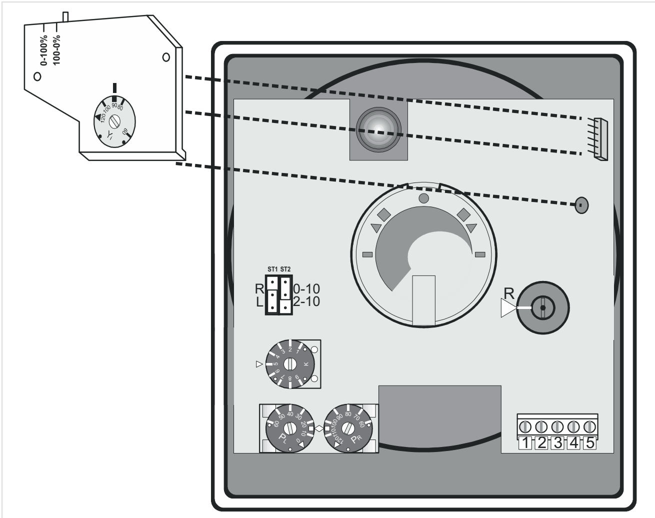


Fig. 2 Mounting VMU1

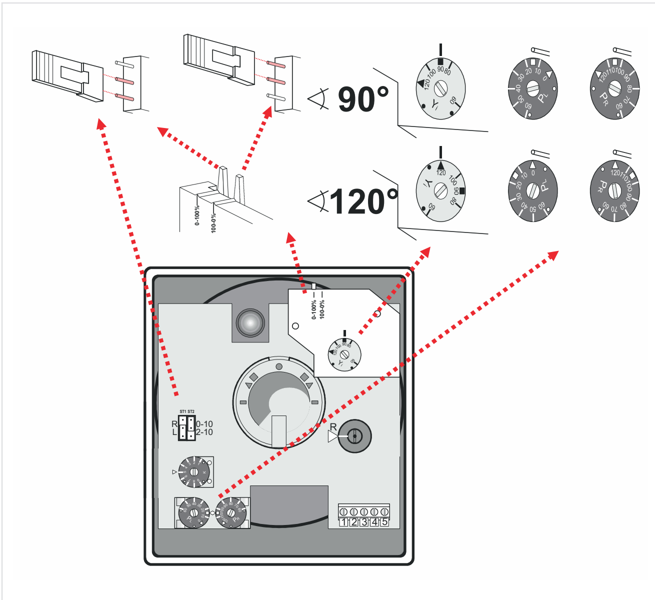


Fig. 3 Adjusting settings

Angle of Rotation

The angle of rotation is adjustable via the potentiometers PLand PR. Start and end points can be adjusted independently.

The nominal angle is 90 ° (105° – 15° = 90°); the potentiometers are factory set as follows: P_L = 15 and P_R = 105. These settings are marked by a square ■.

The desired angle can be adjusted by changing the start and end points; within the total range, all angles are possible. The start point can be adjusted between 0 and 60° using potentiometer PL, while the end point is adjustable between 60° and 120° using potentiometer P_R.

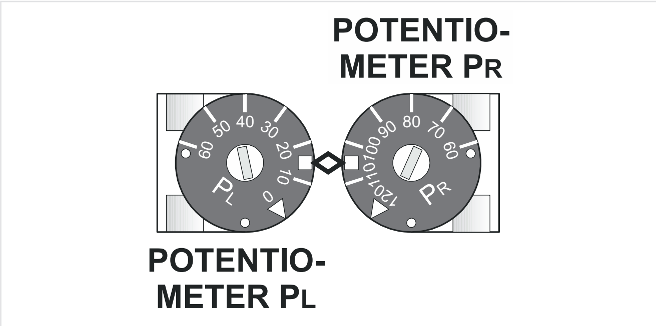


Fig. 4 Example setting of angle of rotation (PL and PR)

The figure shows an example setting of the angle rotation in which the start point has been set to 15° and the end point to 105°.

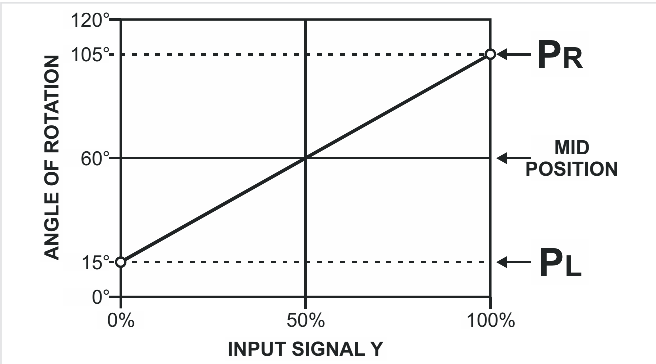


Fig. 5 Input signal Y and angle of rotation

This figure shows the corresponding relation between the input signal and the angle of rotation.

Setting angles of rotation which cause the actuator to drive against the mechanical end-stop will decrease the actuator's effective lifetime.

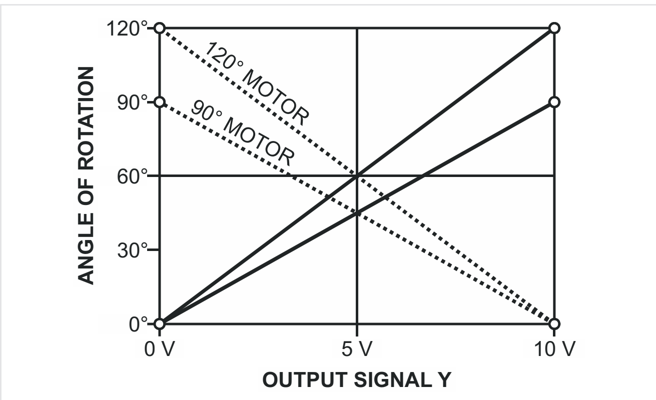


Fig. 6 Output signal Y and angle of rotation with VMU1

COMMISSIONING

Direction of Motor Rotation

The direction of rotation can be defined using jumper ST1.

- ST1 in "L" (left) position (factory setting): clockwise rotation 0 □ 100% (i.e. when Y = 0 Vdc, the hand lever is at the left end)
- ST1 in "R" (right) position: counterclockwise rotation 100% □ 0 (i.e. when Y = 0 Vdc, the hand lever is at the right end).

Input Signal Y

The input signal Y can be set using jumper ST2.

- ST2 in the upper position (factory setting): Y = 0...10 Vdc
- ST2 in lower position: Y = 2...10 Vdc

Adjusting Spindle to Feedback Potentiometer

The position of the spindle can be adjusted to match the signal from the feedback potentiometer using knob R. With the motor in the center position (the mark on the hand lever must line up with the mark on the motor housing), the graduation on knob R must point to the triangle on the PCB (factory setting). Adjustment is required only if the printed circuit board is changed for servicing.

Actuator Characteristic

The actuator characteristic, i.e. the relation between motor rotation and the input signal Y, can be altered to suit the given valve using potentiometer K. The curve of the characteristic between its start and end points can be adjusted infinitely between convex, linear and concave. Potentiometer K is marked with the numerals 1 through 9. The linear characteristic K = 5 is the factory setting.

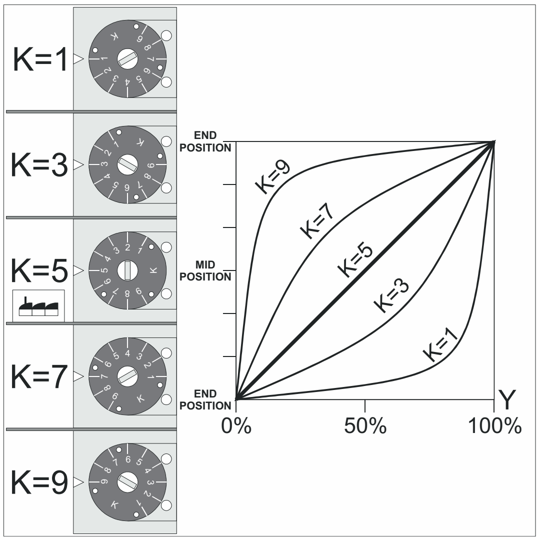


Fig. 7 Characteristic curve

Examples

When mounting the proportional actuator onto a valve with a linear characteristic, an equal percentage characteristic onthe controlled unit can be achieved by setting a concave curve (K □ 3).

An actuator used together with an oversized mixing valve is afurther application requiring a concave curve (K □ 3). If Y = 50% and K ≠ 5, then the actuator will not stop at the mid position.

If, however, Y = 50% and K = 5, then the actuator will stop at the mid position.

INSTALLATION GUIDELINES

Before mounting the actuator, position the rotary valve according to its installation instruction.

Electrical connection

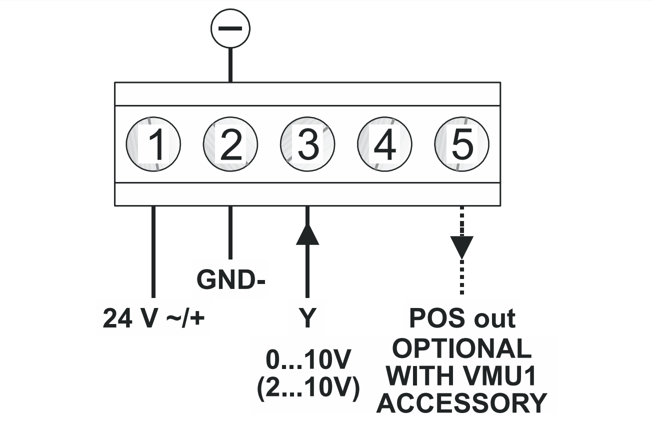


Fig. 8 Wiring

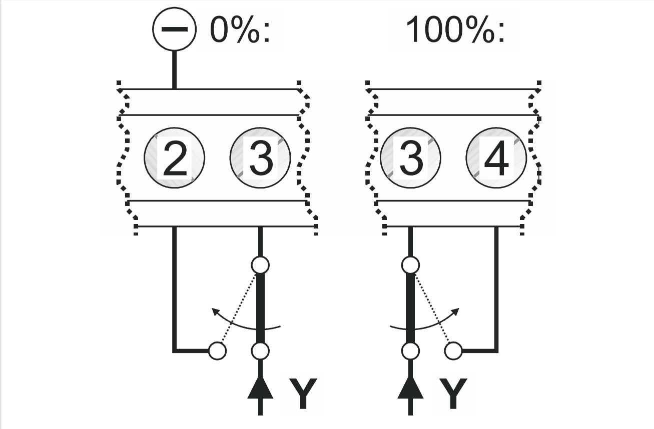


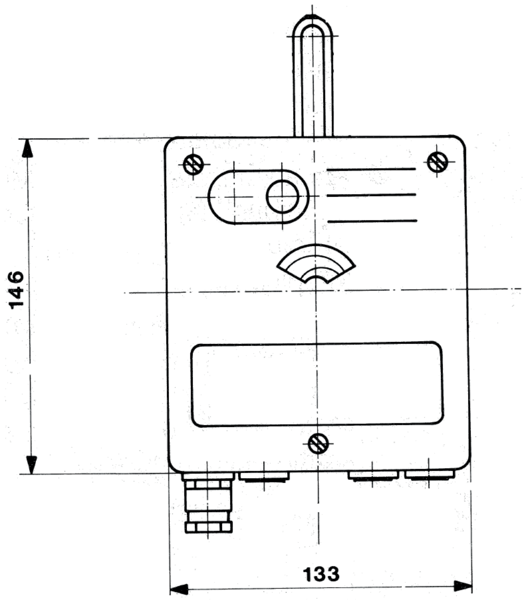
Fig. 9 Overriding the input signal Y,

To override the input signal Y, i.e. in order to control the position from an external source, connect to motor terminals as follows

- for a signal variable of 100%, connect terminal 3 to terminal 4
- for a signal variable of 0%, connect terminal 3 to terminal 2 (system ground or ground wire).

DIMENSIONS

Overview

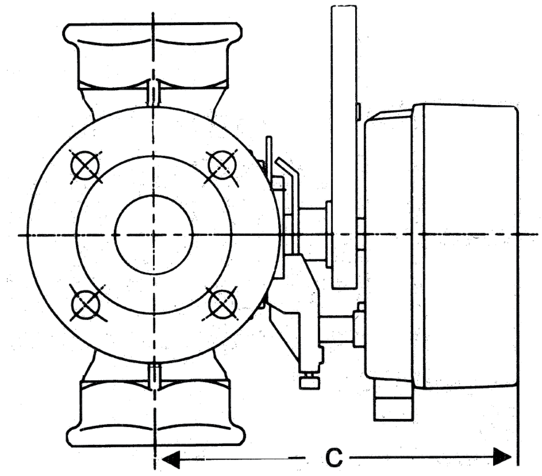


Type	DN
M7061E1012	15 to 40
M7061E1020	15 to 80

Note: All dimensions in mm unless stated otherwise.

with DRxxxGMLA

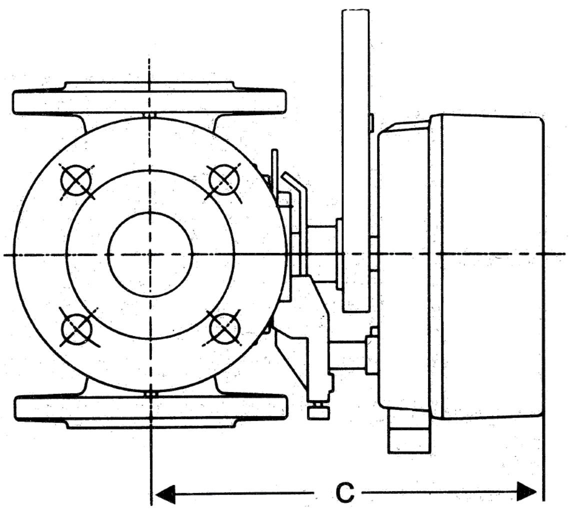
Overview



Type	DN	c
DR15GMLA	15	179
DR20GMLA	20	179
DR25GMLA	25	179
DR32GMLA	32	188
DR40GMLA	40	188

DRxxxGFLA

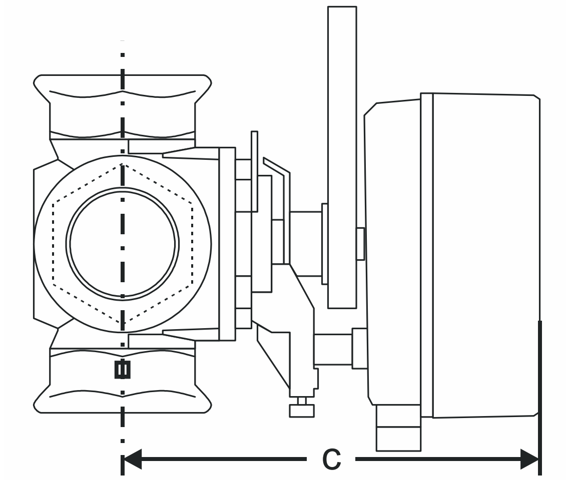
Overview



Type	DN	c
DR20GFLA	20	179
DR25GFLA	25	179
DR32GFLA	32	188
DR40GFLA	40	188
DR50GFLA	50	202
DR65GFLA	65	219
DR80GFLA	80	219
DR100GFLA	100	240
DR125GFLA	125	267
DR200GFLA	150	274

ZRxxxMA

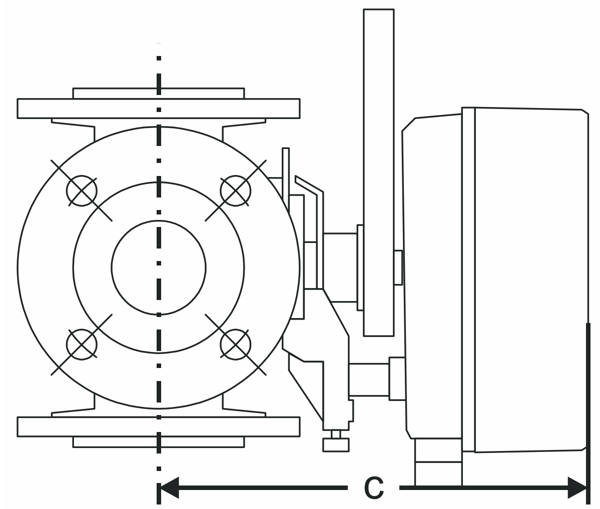
Overview



Type	DN	c
ZR15MA	15	179
ZR20MA	20	179
ZR25MA	25	179
ZR32MA	32	188
ZR40MA	40	188

ZRxxxFA

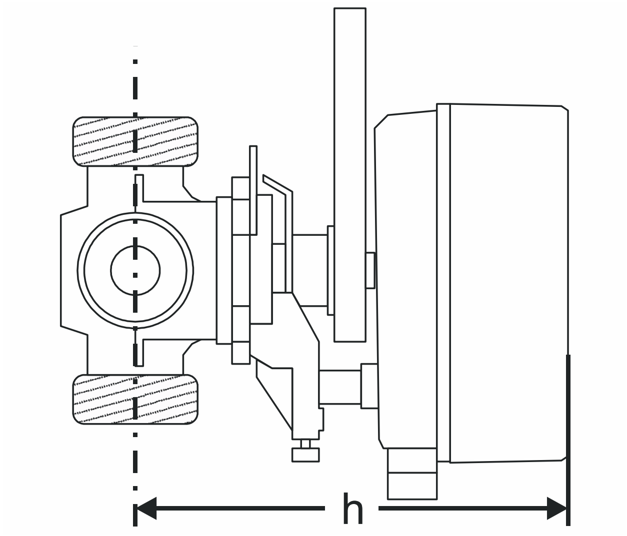
Overview



Type	DN	c
ZR25FA	25	179
ZR32FA	32	188
ZR40FA	40	188
ZR50FA	50	202
ZR65FA	65	219
ZR80FA	80	219
ZR100FA	100	240
ZR125FA	125	267
ZR150FA	150	274
ZR200FA	200	314

DRU

Overview



Type	DN	h
DRU25-2.5	25	182
DRU25-4.0	25	182
DRU25-6.3	25	182
DRU25-10	25	182
DRU25-16	25	182
DRU32-10	32	200
DRU32-16	32	200
DRU32-25	32	200

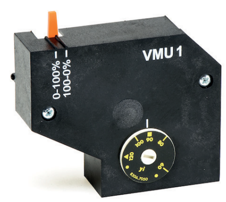
ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Options

Order number	Nominal torque (Nm)	Runtime
M7061E1012	10	1.5
M7061E1020	20	3.0

ACCESSORIES

	Description	Part No.
	The VMU1 is an optional accessory which provides a feedback value (output signal) indicating the actuator's current position.	VMU1

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For more information
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Subject to change. EN0H-1727GE23 R1120