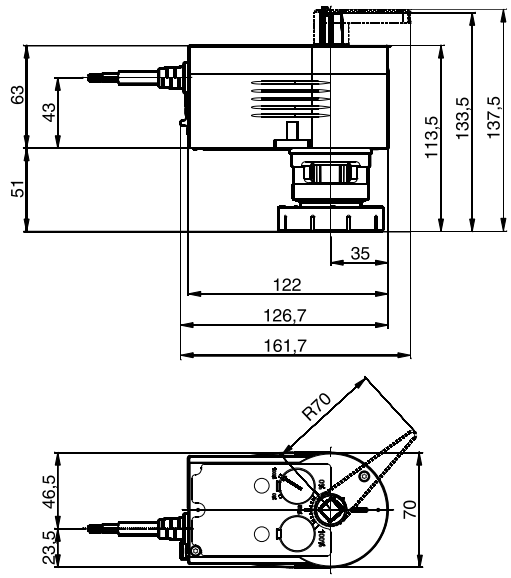
HERZ - Rotary actuator for ball valves

Datasheet **7712** 33,35, Issue 0620

Dimensions in mm





Models

1 **7712** 33 Rotary actuator for ball valves
Torque 8 Nm, Voltage AC 230 V, Control: 2-/3-point
for HERZ ball valves 1 2117…

1 **7712** 35 Rotary actuator for ball valves
Torque 8 Nm, Voltage AC/DC 24 V, Control: 2-/3-point, constant
for HERZ ball valves 1 2117…

Features

1 **7712** 33:

- For controllers with a switching output (2-/3-point control)
- Fitted to ball valves up to DN 50 without the need to use tools
- Synchronous motor with electronic activation and cut-out
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the ball valve manually (using the lever)
- Bracket and bayonet ring made of glass-fibre-reinforced plastic for fitting onto ball valve
- Fitting vertically upright to horizontal, not suspended

1 **7712** 35:

- For controllers with constant output (0...10 V) or switching output (2-/3-point control)
- Assembly with ball valve without the use of tools
- Stepping motor with SUT electronic control unit
- Electronic force-dependent motor cut-off

- Automatic recognition of applied control signal (continuous or switched)
- Coding switch for selection of characteristic and running time (35 s, 60 s, 120 s)
- Type of characteristic (linear/quadratic/equal-percentage) can be set on the actuator
- Direction of operation can be selected directly on the cable
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the ball valve manually (using the lever)
- Bracket and bayonet ring made of glass-fibre-reinforced plastic for fitting onto ball valve

Technical data

General	
Ambient conditions	
Admissible ambient temperature	–10...55 °C
Admissible ambient humidity	5...95% rF without condensation
Temperature of medium	Max. 100 °C
Construction	
Weight	0,7 kg
Housing	Lower section black, upper section red
Housing material	Fire-retardant plastic
1 **7712** 33:	
Power supply	
Supply voltage 230 V~	±15%, 50...60 Hz
Power cable	1,2 m, 3 × 0,75 mm2
Response time	Min. 200 ms
Angle of rotation	90°
Control	2-/3-point
Standards and directives	
Type of protection	IP 54 acc. to EN 60529
Protection class	II acc. to IEC 60730
Over-voltage categories	III
Degree of contamination	II
CE conformity according to	Directive 2006/95/EC EN 60730-1/EN 60730-2-14 EMV Directive 2004/108/EC EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
1 **7712** 35:	
Power supply	
Supply voltage 24 V~	±20%, 50...60 Hz
Supply voltage 24 V=	–10%...20%
Power consumption	5,4 W/9,5 VA
Runnning time	35/60/120 s
Angle of rotation	90°
Response time	200 ms
Power cable	1,2 m, 5 × 0,5 mm²

Positioning signal y	0...10 V, Ri > 100 kΩ
Positioning feedback signal	0...10 V, Load > 10 kΩ
Starting point U0	0 V or 10 V
Control span ΔU	10 V
Switching range Xsh	200 mV
Installation	vertically upright to horizontal, not suspended

Standards and Directives		
Type of protection	IP54 nach EN 60529	
Protection class	III nach IEC 60730	
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	EN 61000-6-4 Directive 2006/95/EG	Machine directive (EN 1050)

Description of operation

1 **7712** 33:

When voltage is applied to the cable, the control unit to be activated is moved to any desired position by means of the carrier stem.

Direction of rotation for 3-point control (viewing the spindle of the ball valve from the actuator):

- The stem turns in the anti-clockwise direction, with the voltage on the brown cable, and the through passage of the ball valve is opened.
- The stem turns in the clockwise direction, with the voltage on the black cable, and the through passage of the ball valve is closed.

With 3-point control, the direction of rotation is changed by swapping the connections.

Direction of rotation for 2-point control (viewing the spindle of the ball valve from the actuator):

There is always voltage on the black cable.

- The stem turns in the anti-clockwise direction, with the voltage on the brown cable, and the ball valve is opened.
- The stem turns in the clockwise direction, with no voltage on the brown cable, and the ball valve is closed.

In the end positions (limit stop in actuator), or in the case of an overload, the magnetic coupling is activated. The positioning signal is switched off by the electronic cut-out after 3 minutes. The manual adjustment is performed by releasing the gear unit (slide switch beside the connection cable) and simultaneously turning it with the lever. The actuator position can be determined by looking at the lever or the indicator knob on the top part of the actuator.

1 **7712** 35:

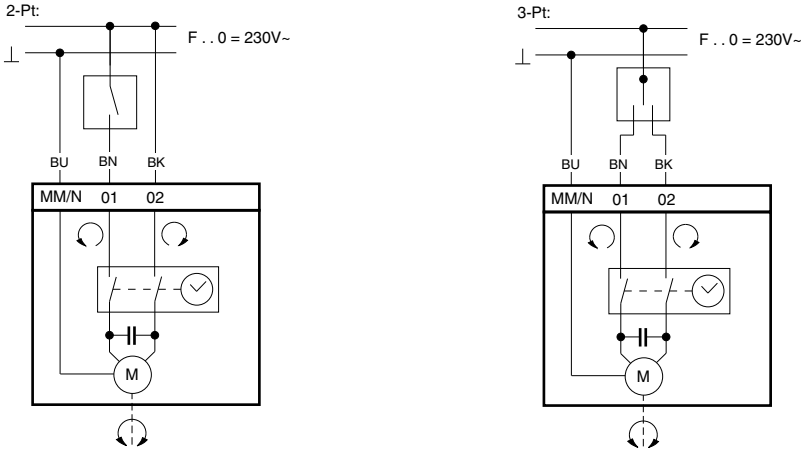
Depending on the type of connection (see connection diagram), the actuator can be used as a continuous 0...10 V, 2-point (OPEN/CLOSE) or 3-point actuator with an intermediate position (OPEN/STOP/CLOSE). The running time of the actuator can be set with the coding switch according to requirements. The coding switch can be used to select the equal-percentage, linear or quadratic characteristic. The HERZ rotary actuator 1 **7712** 35 is combined with ball valves that have an equal-percentage basic characteristic. The manual adjustment is performed by releasing the gear unit (slide switch beside the connection cable) and simultaneously turning it with the lever. The actuator position can be determined by looking at the lever or the indicator knob on the top part of the actuator.

Note: After manually adjusting the slide switch, put it back into its original position (engage gear unit).

Additional technical data

The upper section of the housing with the cover, indicator knob and cover knob contains the stepping motor and the SUT electronics. The lower section of the housing contains the maintenance-free gear unit.

Connection diagram



1 **7712** 35:

Connection as 2-point actuator

This OPEN/CLOSE activation can be performed via 2 cables. The actuator is connected to the voltage via the blue and brown cables. The control passage of the ball valve is opened by connecting the voltage to the black cable. After this voltage is switched off, the actuator moves to the opposite end position and closes the ball valve.

The unused red and grey wires must not be connected or come into contact with other cables. We recommend that you insulate these.

Connection as 3-point control unit

When voltage is applied to the cable (brown or black), the ball valve is moved to any desired position.

Direction of rotation (viewing the spindle of the ball valve from the actuator):

- The stem turns in the clockwise direction, with voltage on the brown cable, and closes the ball valve.
- The stem turns in the anti-clockwise direction, with the voltage on the black cable.

In the end positions (limit stop in actuator, max. angle of rotation of 95° reached) or in the case of an overload, the electronic motor cut-off is activated (no limit switches). Direction of rotation changed by transposing the connections.

The unused red and grey wires must not be connected or come into contact with other cables. We recommend that you insulate these.

Connection for control voltage 0...10 V

The built-in positioner controls the actuator depending on controller's output signal y. Direction of rotation (viewing the spindle of the ball valve from the actuator):

Direction of operation 1 (mains power supply on brown cable):

When the positioning signal is increasing, the carrier stem turns in the anti-clockwise direction and opens the control passage of the ball valve.

Direction of operation 2 (mains power supply on black cable):

When the positioning signal is increasing, the carrier stem turns in the clockwise direction and closes the control passage of the ball valve.

The starting point and control span are fixed. Only the brown cable or the black cable may be connected to the voltage. The cable not used must be insulated (if not connected via switch).

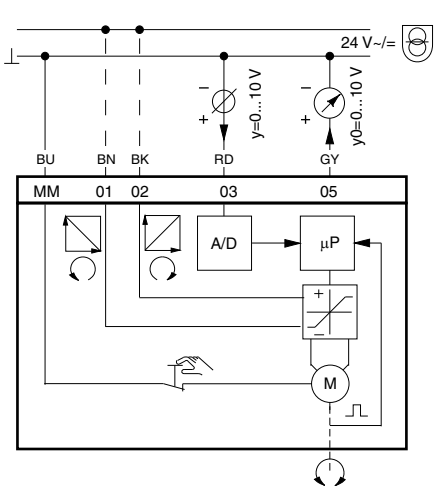
After a manual adjustment or a power failure of more than at least 5 min, the actuator automatically readjusts itself, always with a running time of 60 s.

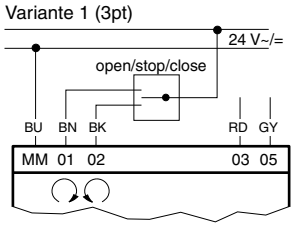
After the power supply is connected, the stepping motor moves to the 100% position, makes the connection with the carrier stem, and then moves to the 0% position and thus defines the working range. After this, every position between a 0 and 90 ° angle of rotation can be achieved, depending on the control voltage. Thanks to the electronics, no steps can be lost, and the actuator does not require periodic re-adjustment. It is possible to operate multiple actuators of the same type in parallel. The feedback signal y0 = 0...10 V corresponds to the effective angle of rotation of 0…90°.

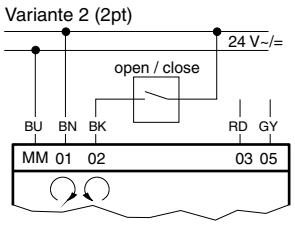
When control signal 0…10 V is interrupted and direction of operation 1 is connected, the ball valve is closed completely (0% position).

The coding switch can be used to select the characteristic of the ball valve. Characteristics can only be generated when the actuator is used as a continuous actuator. The running times can be selected with additional switch settings. These can be used regardless of whether the 2-point, 3-point or continuous function is selected

Connection diagram



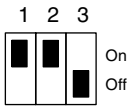
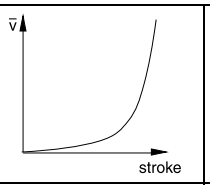
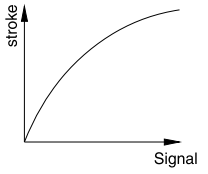
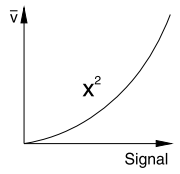
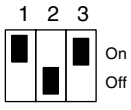
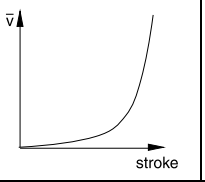
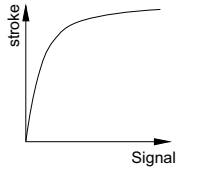
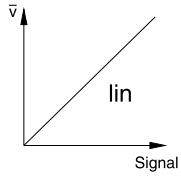
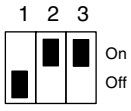
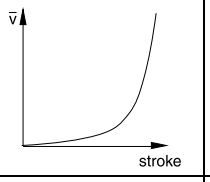
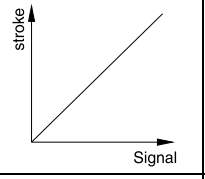
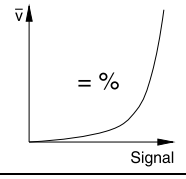
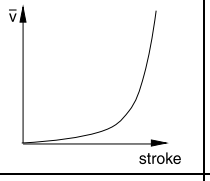
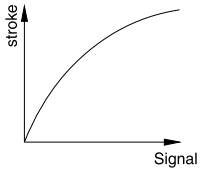
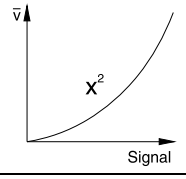
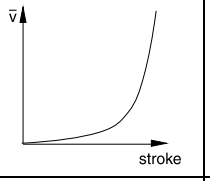
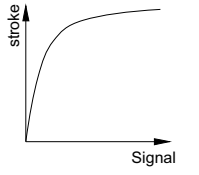
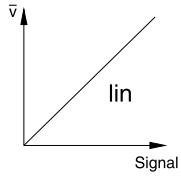
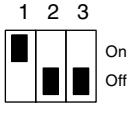
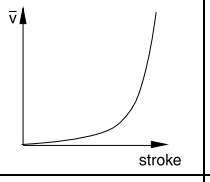
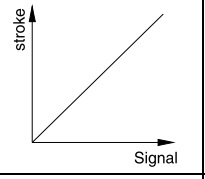
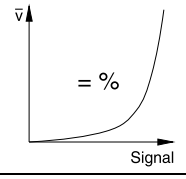
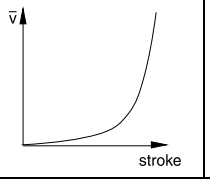
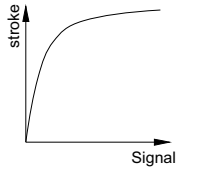
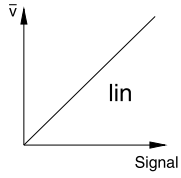




RD = red
BN = brown
BK = black
BU = blue
GY = grey

Coding switch for running time and characteristic selection

switch position	Y01955	Y07552	Y01852	running time/angle of rotation s/90°
1 2 3 On Off	v̄ stroke	stroke Signal	v̄ = % Signal	120 s ± 4

				120 s ± 4
				120 s ± 4
				60 s ± 2
				60 s ± 2
				60 s ± 2
				35 s ± 1
				35 s ± 1

Notes on engineering and installation

Condensate, dripping water, etc. must be prevented from entering the actuator along the carrier stem. When connecting the electricity supply, ensure that the cross-section of the power cable is adapted to the power output and the length. However, we recommend a minimum cross-section of 0.75 mm². The actuator/ball valve is mounted by inserting and turning the bayonet ring until the limit stop without any additional adjustment. No tools are required. The coupling of the spindle of the ball valve with the carrier stem is performed automatically, either by moving the manual adjuster to an angle of rotation of 100% or connecting the voltage. For dismantling, the bayonet ring is simply opened and the actuator removed. The device is delivered ex works in the middle position.

The concept of stepping motor and electronics enables parallel operation of multiple actuators of the same SUT type.

The coding switches are accessible via an opening with a black cover in the housing lid.

Note The housing must not be opened.