

Rotary actuator for butterfly valves

- Torque motor 90 Nm
- Nominal voltage AC 24...240 V / DC 24...125 V
 Control Open/close, 3-point
- With 2 integrated auxiliary switches





Toc	hnical	data

Nominal voltage			
Nominal voltage range AC 19.2264 V / DC 19.2137.5 V Power consumption in operation 20 W Power consumption for rest position 7 W Power consumption for wire sizing with 24 V 20 VA / with 240 V 55 VA Auxiliary switch 2x SPDT, 1x 10° / 1x 090° (default setting 85°) Switching capacity auxiliary switch 1 m3 A (0.5 A inductive), DC 5 VAC 250 V Connection protective earth Terminals 0.52.5 mm², copper conductors only Connection supply / control Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Functional data Torque motor 90 Nm Manual override hand crank Running time motor 35 s / 90° Running time motor 35 s / 90° Running time motor 45 dB(A) Position indication Mechanical, integrated Safety data Protection class IEC/EN I, protective earth (PE) Power source UL Class 2 Supply Degree of protection IEC/EN IP66/67 Degree of protection NEMA/UL NEMA 4X Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Certification IEC/EN IEC/EN G0730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case	Electrical data	Nominal voltage	AC 24240 V / DC 24125 V
Power consumption in operation Power consumption in rest position Power consumption for wire sizing Auxiliary switch Switching capacity auxiliary switch Connection protective earth Connection supply / control Connection supply / control Terminals 0.52.5 mm², copper conductors only Connection auxiliary switch Parallel operation Functional data Torque motor Manual override Running time motor Running time motor variable Sound power level, motor Position indication Safety data Protection class IEC/EN Power source UL Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure EMC Cet according to 2014/35/EU Cettification IEC/EN UL Approval LU Approval Power source UL Cet according to 2014/35/EU Cettification IEC/EN UL Approval CULus according to UL-Compliant in any case		Nominal voltage frequency	50/60 Hz
Power consumption in rest position 7 W Power consumption for wire sizing with 24 V 20 VA / with 240 V 55 VA Auxiliary switch 2x SPDT, 1x 10° / 1x 090° (default setting 85°) Switching capacity auxiliary switch 1 mA3 A (0.5 A inductive), DC 5 VAC 250 V Connection protective earth Terminals 0.52.5 mm², copper conductors only Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Functional data Torque motor 90 Nm Manual override hand crank Running time motor 35 s / 90° Running time motor 45 s / 90° Running time motor 55 s / 90° Running time motor 65 dB(A) Position indication Mechanical, integrated Safety data Protection class IEC/EN I, protective earth (PE) Protection class UL I, protective earth (PE) Power source UL Class 2 Supply Degree of protection IEC/EN IP66/67 Degree of protection NEMA/UL NEMA 4X Enclosure UL Enclosure Type 4X EMC CE according to 2014/35/EU Certification IEC/EN IEC/EN G0730-1 and IEC/EN 60730-2-14 CULua according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Nominal voltage range	AC 19.2264 V / DC 19.2137.5 V
Power consumption for wire sizing Auxiliary switch 2x SPDT, 1x 10° / 1x 090° (default setting 85°) Switching capacity auxiliary switch Connection protective earth Terminals 0.52.5 mm², copper conductors only Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Parallel operation Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Functional data Torque motor Manual override Running time motor Running time motor variable Sound power level, motor Position indication Safety data Protection class IEC/EN Protection class IEC/EN I, protective earth (PE) Power source UL Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Certification IEC/EN UL Approval LUA Approval LUA Approval LUA CULus according to UL60730-1A, UL60730-2-14 and CAM/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Power consumption in operation	20 W
Auxiliary switch 2x SPDT, 1x 10° / 1x 090° (default setting 85°) Switching capacity auxiliary switch Connection protective earth Terminals 0.52.5 mm², copper conductors only Connection supply / control Terminals 0.52.5 mm², copper conductors only Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Functional data Torque motor 90 Nm Manual override Running time motor 80 Nd Manual override Power level, motor 65 dB(A) Position indication Mechanical, integrated Protection class IEC/EN Protection class UL I, protective earth (PE) Power source UL Class 2 Supply Degree of protection IEC/EN Pegree of protection NEMA/UL EMC CE according to 2014/30/EU Low voltage directive Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Power consumption in rest position	7 W
Switching capacity auxiliary switch Connection protective earth Connection supply / control Terminals 0.52.5 mm², copper conductors only Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Torque motor 90 Nm Manual override Running time motor Running time motor variable Sound power level, motor 65 dB(A) Position indication Mechanical, integrated Safety data Protection class IEC/EN Protection class UL I, protective earth (PE) Power source UL Class 2 Supply Degree of protection IEC/EN Pegree of protection NEMA/UL NEMA 4X Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Certification IEC/EN UL Approval CULus according to UL60730-1-1, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Power consumption for wire sizing	with 24 V 20 VA / with 240 V 55 VA
Connection protective earth Connection supply / control Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Torque motor Manual override Running time motor Running time motor variable Sound power level, motor Position indication Mechanical, integrated Protection class IEC/EN Protection class IEC/EN I, protective earth (PE) Protection class UL Power source UL Class 2 Supply Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Low voltage directive CE according to 2014/35/EU Certification IEC/EN UL Approval CULus according to UL60730-1-1, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Auxiliary switch	_
Connection supply / control Connection auxiliary switch Connection auxiliary switch Parallel operation Functional data Torque motor Manual override Running time motor wariable Sound power level, motor Position indication Functional data Protection class IEC/EN Protection class UL Power source UL Degree of protection NEMA/UL Enclosure EMC Cet according to 2014/30/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Switching capacity auxiliary switch	1 mA3 A (0.5 A inductive), DC 5 VAC 250 V
Connection auxiliary switch Terminals 0.52.5 mm², copper conductors only Parallel operation Yes (note the performance data) Functional data Torque motor Manual override Running time motor Running time motor variable Sound power level, motor Position indication Mechanical, integrated Frotection class IEC/EN Protection class UL Power source UL Class 2 Supply Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/35/EU Certification IEC/EN UL Approval CHANCAS E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Connection protective earth	
Functional data Torque motor Manual override Running time motor variable Safety data Protection class IEC/EN Protection IEC/EN Degree of protection NEMA/UL Enclosure EMC Certification IEC/EN Certification IEC/EN UL Approval Only Yes (note the performance data) For Name of Son Mm Add Canal Ca		Connection supply / control	• •
Functional data Torque motor Manual override Running time motor Running time motor variable Sound power level, motor Position indication Frotection class IEC/EN Protection class UL Power source UL Degree of protection NEMA/UL Enclosure EMC EMC CE according to 2014/30/EU Certification IEC/EN IEC/EN CE according to 2014/35/EU Certification IEC/EN UL Approval CUL saccording to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Connection auxiliary switch	• •
Manual override Running time motor Running time motor variable Sound power level, motor Position indication Safety data Protection class IEC/EN Protection class UL Power source UL Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval CULs according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Parallel operation	Yes (note the performance data)
Running time motor Running time motor variable Sound power level, motor Position indication Protection class IEC/EN Protection class UL Power source UL Degree of protection IEC/EN Enclosure EMC Low voltage directive Certification IEC/EN UL Approval CUL Approval Running time motor 35 s / 90° Running time motor 20120 s 20120 s Mechanical, integrated I, protective earth (PE) I, protective earth (PE) Class 2 Supply Loke active and AX Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU CE according to 2014/35/EU CULus according to 2014/35/EU CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case	Functional data	Torque motor	90 Nm
Running time motor variable Sound power level, motor Fosition indication Safety data Protection class IEC/EN Protection class UL Protection class UL Fower source UL Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Certification IEC/EN UL Approval CULUS according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Manual override	hand crank
Sound power level, motor Position indication Mechanical, integrated Protection class IEC/EN I, protective earth (PE) Protection class UL Power source UL Class 2 Supply Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Low voltage directive CE according to 2014/35/EU Certification IEC/EN UL Approval CULUS according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Running time motor	35 s / 90°
Position indication Mechanical, integrated Protection class IEC/EN Protection class IEC/EN I, protective earth (PE) Power source UL Class 2 Supply Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Running time motor variable	20120 s
Protection class IEC/EN Protection class UL Protection class UL I, protective earth (PE) Power source UL Class 2 Supply Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Low voltage directive CE according to 2014/35/EU Certification IEC/EN UL Approval CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Sound power level, motor	65 dB(A)
Protection class UL Power source UL Class 2 Supply Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Low voltage directive CE according to 2014/35/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Position indication	Mechanical, integrated
Power source UL Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Low voltage directive CE according to 2014/35/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case	Safety data	Protection class IEC/EN	I, protective earth (PE)
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Enclosure UL Enclosure Type 4X EMC CE according to 2014/30/EU Low voltage directive CE according to 2014/35/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Degree of protection IEC/EN	IP66/67
EMC Low voltage directive CE according to 2014/30/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval CULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Degree of protection NEMA/UL	NEMA 4X
Low voltage directive CE according to 2014/35/EU Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Enclosure	UL Enclosure Type 4X
Certification IEC/EN IEC/EN 60730-1 and IEC/EN 60730-2-14 UL Approval cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		EMC	CE according to 2014/30/EU
UL Approval cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Low voltage directive	CE according to 2014/35/EU
and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case		Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
Type of action Type 1		UL Approval	and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant
		Type of action	Type 1



Technical data sheet IRCA-S2-T

Technical data		
Safety data	Overvoltage category	III
	Rated impulse voltage auxiliary switch	4 kV
	Pollution degree	3
	Ambient humidity	Max. 100% RH
	Ambient temperature	-3050°C [-22122°F]
	Storage temperature	-4080°C [-40176°F]
	Software Class	A
	Servicing	maintenance-free
Mechanical data	Connection flange	F07 (F05/F10 only with accessory)
Weight	Weight	3.7 kg

Safety notes



- This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!
- The device has a protective earthing. Incorrect connection of the protective earth can lead to hazards due to electrical shock.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- Apart from the wiring compartment, the device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- The device is not designed for applications where chemical influences (gases, fluids) are
 present or for utilisation in corrosive environments in general.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- The two switches integrated in the actuator are to be operated either on power supply voltage or at safety extra-low voltage. The combination power supply voltage/safety extra-low voltage is not permitted.

Product features

Fields of application

The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions:

- UV radiation
- Dirt / Dust
- Rain / Snow
- Air humidity

Internal heating

An internal heater prevents condensation buildup.

Thanks to the integrated temperature and humidity sensor, the built-in heater automatically switches on/off.

Parametrisable actuators

The factory settings cover the most common applications.

The Belimo Assistant App is required for parametrisation via Near Field Communication (NFC) and simplifies commissioning. Moreover, it provides a variety of diagnostic options.

Simple direct mounting

Simple direct mounting on the butterfly valve. The mounting orientation in relation to the butterfly valve can be selected in 90° (angle) increments.

Manual override

The valve can be manually operated using a hand crank. Unlocking is carried out manually by removing the hand crank.



Product features

High functional reliability

The actuator is overload protected, requires no limit switches and automatically stops when

the end stop is reached.

Innovative motorisation

The actuator uses the powerful Belimo M600 microchip in combination with the INFORM method. It provides the full starting torque from a standstill with high precision (sensorless INFORM Drive he Park Calvard).

INFORM-Drive by Prof. Schrödl).

Flexible signalling

The actuator has one auxiliary switch with a fixed setting (10°) and one adjustable auxiliary switch (0...90°).

Accessories

Tools	Description	Туре
	Belimo Assistant App, Smartphone app for easy commissioning,	Belimo Assistant
	parametrising and maintenance	Арр
	Converter Bluetooth / NFC	ZIP-BT-NFC
Mechanical accessories	Description	Туре
	Position indicator and tappet shaft, F07, square 45° offset, SW 17, DN 125150	ZJR01
	Position indicator and tappet shaft, F05, square 45° offset, SW 14, DN 50100	ZJR03
	Tappet shaft, F07, square 45° offset, SW 17	ZPR02
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), flat head/square, SW 17	ZPR05
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), square 45° offset, SW 14	ZPR06
	Adapter kit with spacer ring, F07, square 45° offset, SW 17	ZPR08
	RetroFIT+ adapter kit, F07/F05/F10 (incl. screws F07), flat head/square, SW 14	ZPR09
	RetroFIT+ adapter kit, F05/F07/F10 (incl. screws F05), flat head/square, SW 14	ZPR10
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), square 45° offset, SW 18	ZPR11
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), flat head/square, SW 16	ZPR12
	RetroFIT+ adapter kit, F07/F05/F10 (incl. screws F07), flat head/square, SW 11	ZPR13
	RetroFIT+ adapter kit, F07/F05/F10 (incl. screws F07), flat head/square, SW 12.7	ZPR14
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), square 45° offset, SW 11	ZPR15
	Hand crank for JR actuator Spacer ring, F04/F05, Height 22 mm Spacer ring, F05/F07, Height 23.5 mm	ZJR20 ZRI-001 ZRI-002

Electrical installation



Caution: Power supply voltage!

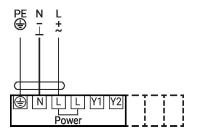
Parallel connection of other actuators possible. Observe the performance data.

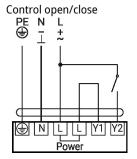


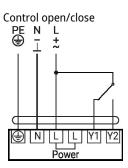
Electrical installation

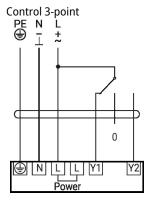
Wiring diagrams

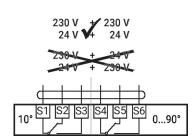
AC 24...240 V / DC 24...125 V







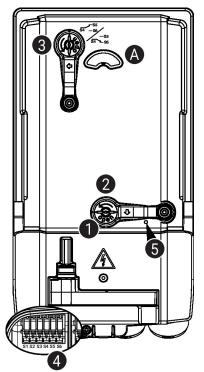




Auxiliary switch



Operating controls and indicators



5 LED display green

Off: No power supply or malfunction

On: In operation

Auxiliary switch settings



Note: Perform settings on the actuator only in deenergised state.

For the auxiliary switch position settings, carry out points 1 to 4 successively.

Gear train disengagement

Opening the manual override cover and adjusting the hand crank. Manual override is possible.

2 Manual override

Turn the hand crank until the desired switching position (A) is indicated and then remove the hand crank.

3 Auxiliary switch

For the auxiliary switch position settings, carry out points 1

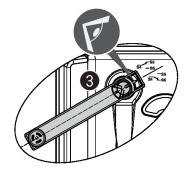
to 4 successively.

Opening the auxiliary switch adjustment cover and adjusting the hand crank. Turn the hand crank until the arrow points to the line.

4 Terminals

Connect continuity tester to S4 + S5 or to S4 + S6.

If the auxiliary switch should switch in the opposite direction, rotate the hand crank by 180°.



Service

NFC connection

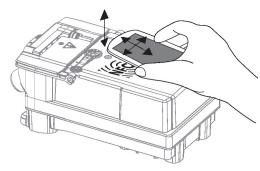
Belimo devices marked with the NFC logo can be operated with the Belimo Assistant App.

Requirement:

- NFC- or Bluetooth-capable smartphone
- Belimo Assistant App (Google Play and Apple AppStore)

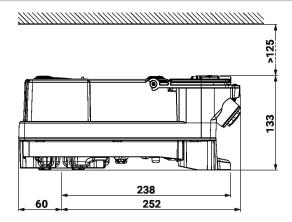
Align NFC-capable smartphone on the device so that both NFC antennas are superposed.

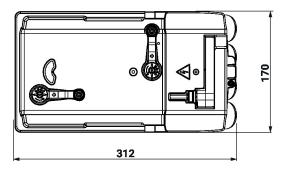
Connect smartphone to the device.





Dimensions





Further documentation

- $\bullet \ \ \text{The complete product range for water applications}$
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- General notes for project planning