

BACnet Interface Description



JR actuator Rotary actuator for butterfly valves

Edition 2024-06 / JR 1.6



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Protocol Implementation Conformance Statement – PICS

General information

Date	21.06.2024
Vendor Name	BELIMO Automation AG
Vendor ID	423
Product Name	JR actuator
Product Model Number	JR..A-BAC..
Application Software Version	JR/QR 1.6.0001
Firmware Revision	BTL:0001 B:0002
BACnet Protocol Revision	23
Product Description	Rotary actuator for butterfly valves
BACnet Standard Device Profile	BACnet Application Specific Controller (B-ASC)
Segment Capability	No
Data Link Layer Options	MS/TP Manager Node
Device Addressing Binding	No static device binding supported
Networking Options	None
Character Sets Supported	ISO 10646 (UTF-8)
Gateway Options	None
Network Security Options	Non-secure device
Conformance	BTL listing pending

BACnet Interoperability Building Blocks supported (BIBBs)

Data sharing – ReadProperty-B (DS-RP-B)
 Data sharing – ReadPropertyMultiple-B (DS-RPM-B)
 Data sharing – WriteProperty-B (DS-WP-B)
 Data sharing – COV-B (DS-COV-B)
 Device management – DynamicDeviceBinding-B (DM-DDB-B)
 Device management – DynamicObjectBinding-B (DM-DOB-B)
 Device management – DeviceCommunicationControl-B (DM-DCC-B)

BACnet MS/TP

Baud Rates	9'600, 19'200, 38'400, 76'800, 115'200 (Default: 38'400)
Address	0...127 (Default: 1)
Number of Nodes	Max. 32 (without repeater), 1 full bus load
Terminating Resistor	120 Ω

Parametrisation

Tool	Belimo Assistant
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All writeable objects with instance number ≥ 90 which are persistent are **not** supposed to be written on a regular basis.

Standard object types supported

Object type	Optional properties	Writeable properties
Device	Description Location Active COV Subscriptions Max Manager Max Info Frames Profile Name	Object Identifier Object Name Location Description APDU Timeout (1'000...60'000) Number of APDU Retries (0...10) Max Manager (1...127) Max Info Frames (1...255)
Analog Input [AI]	Description COV Increment	COV Increment
Analog Output [AO]	Description COV Increment	Present Value COV Increment Relinquish Default
Analog Value [AV]	Description COV Increment	Present Value COV Increment
Binary Input [BI]	Description Active Text Inactive Text	–
Binary Value [BV]	Description Active Text State Text	Present Value
Multi-state Value [MV]	Description State Text	Present Value

The device does not support the services CreateObject and DeleteObject. The specified maximum length of writeable strings is based on single-byte characters.

- Object name 32 char
- Location 64 char
- Description 64 char

Service processing

The device supports the DeviceCommunicationControl services. No password is required.

A maximum of 5 active COV subscriptions with a lifetime of 1...28'800 s (8 hours) are supported.

BACnet object description

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
RelPos	AI[1]	Relative position in % Overridden = true, if the gear train is disengaged	0...100	0.01...100 Default: 1	R
SpAnalog	AI[6]	Analog setpoint in % Shows setpoint in % if actuator is controlled by analog signal (SpSource MV[122] is analog (1)). If SpSource MV[122] is Bus (2) then Out_Of_Service is TRUE	0...100	0.01...99.99 Default: 0.01	R
Sens1Active_Volt	AI[20]	Sensor 1 as voltage in V If Sens1Type MV[220] is not 2: active then Out_Of_Service is TRUE	0...10	0.01...10 Default: 0.1	R
Sens1Passive_Ohm	AI[21]	Sensor 1 as resistance in Ω If Sens1Type MV[220] is not 4: passive then Out_Of_Service is TRUE	0...5'500'000	0.1...5'500'000 Default: 1	R
Sens2Active_Volt	AI[34]	Sensor 2 as voltage in V If Sens2Type MV[222] is not 2: active then Out_Of_Service is TRUE	0...10	0.01...10 Default: 0.1	R
Sens2Passive_Ohm	AI[35]	Sensor 2 as resistance in Ω If Sens2Type MV[222] is not 4: passive then Out_Of_Service is TRUE	0...5'500'000	0.1...5'500'000 Default: 1	R
SpRel	AO[1]	Relative setpoint in % If controlled via bus (MV[122] = 2). The setpoint is related to the position, see also AV[2]. Overridden = true, if forced control (bus, tool and analog forced control) is active	0...100 Default: 0	0.01...100 Default: 1	C
AbsPos	AV[2]	Absolute Position in $^{\circ}$ Overridden = true, if the gear train is disengaged.	0...95	0.01...95 Default: 1	R
Sens1Temp_UnitSel	AV[20]	Sensor 1 as temperature in selected unit Unit can be selected by MV[127].	-273.1...176.8°C 0...450 K -459.6...350.3°F	0.01...810 Default: 0.01	R
Sens2Temp_UnitSel	AV[24]	Sensor 2 as temperature in selected unit Unit can be selected by MV[127].	-273.1...176.8°C 0...450 K -459.6...350.3°F	0.01...810 Default: 0.01	R
Max	AV[98]	Maximum limit in % Max has to be \geq 30%	30...100 Default: 100	0.01...100 Default: 1	R / W
BusWatchdog	AV[130]	Timeout for bus watchdog in s If no write request is received within the timeout, the device will execute the action defined in MV[130] (bus watchdog fail action).	5...3'600 Default: 120	1...3'595 Default: 1	R / W
Sens1Switch	BI[20]	Sensor 1 as switch If Sens1Type MV[220] is not 5: switch then Out_Of_Service is TRUE	0: Inactive 1: Active Default: 0	–	R / W
Sens2Switch	BI[21]	Sensor 2 as switch If Sens2Type MV[222] is not 5: switch then Out_Of_Service is TRUE	0: Inactive 1: Active Default: 0	–	R / W
BusTermination	BV[99]	Bus termination	0: Disabled 1: Enabled Default: 0	–	R

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
Override	MV[1]	Override control Overrides setpoint with defined values	1: None 2: Open 3: Close 4: – 5: Mid 6: Max 7: – 8: – 9: – 10: – 11: – 12: – 13: – 14: – Default: 1	–	R / W
SummaryStatus	MV[99]	Summary status Summarizes all status 2: Warning: Gear train disengaged / handcrank is plugged 3: Not OK: Mechanical overload, use Belimo Assistant for more information	1: OK 2: Warning 3: Not OK Default: 1	–	R
StatusActuator	MV[106]	Status actuator 2: Actuator cannot move: Mechanical overload due to blocked valve, etc. 3: Gear train disengaged /hand crank plugged	1: OK 2: Mechanical overload 3: Gear train disengaged / hand crank plugged 4: – Default: 1	–	R
SpSource	MV[122]	Setpoint source If Analog (1) then actuator is controlled by analog signal 0...10 V on wire 3. If Bus (2) then setpoint is controlled via bus (SpRel AO[1]).	1: Analog 2: Bus Default: 1	–	R / W
UnitSelTemperature	MV[127]	Unit selection temperature sensors The selected unit is valid for AV[20] and AV[24]	1: °C 2: K 3: °F Default: 1	–	R / W
BusFailAction	MV[130]	Bus watchdog fail action The bus monitoring controls the BACnet communication. If neither the Setpoint (AO[1]) nor the Override Control (MV[1]) is renewed before the Timeout for Bus Watchdog (AV[130]), the actuator is controlled by the Bus Watchdog Fail Action. Triggered bus monitoring is indicated in Status Bus Watchdog (MV[135]).	1: None 2: Open 3: Close 4: Max 5: – 6: Mid 7: – 8: – 9: – 10: – 11: – 12: – 13: – 14: – Default: 1	–	R / W

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
StatusBusWatchdog	MV[135]	Status bus watchdog	1: OK 2: Bus Watchdog active	–	R
Sens1Type	MV[220]	Sensor 1 type Additional sensor input	1: None 2: Active Volt 3: – 4: Passive 5: Switch Default: 1	–	R / W
Sens1TempType	MV[221]	Sensor 1 passive type Values related to selected units on MV[127]. Only available if MV[220] Sensor 1 type is set to value 4 "Passive".	1: None 2: PT1000 3: Ni1000EU 4: – 5: – 6: – 7: – 8: NTC10k2 9: NTC10k3 Default: 1	–	R / W
Sens2Type	MV[222]	Sensor 2 type Additional sensor input	1: None 2: Active Volt 3: – 4: Passive 5: Switch Default: 1	–	R / W
Sens2TempType	MV[223]	Sensor 2 passive type Values related to selected units on MV[127] Only available if MV[222] Sensor 2 type is set to value 4 "Passive".	1: None 2: PT1000 3: Ni1000EU 4: – 5: – 6: – 7: – 8: NTC10k2 9: NTC10k3 Default: 1	–	R / W

Description Access: C = Commandable with priority array, R = Read, W = Write

Note: BACnet "Multistate Objects" have states from 1 to n, whereas "Binary Objects" have states defined with 0 and 1, but else, they are represented the same.

All inclusive.

Belimo as a global market leader develops innovative solutions for the controlling of heating, ventilation and air-conditioning systems. Damper actuators, control valves, sensors and meters represent our core business.

Always focusing on customer value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

The "small" Belimo devices have a big impact on comfort, energy efficiency, safety, installation and maintenance.

In short: Small devices, big impact.



5-year warranty



On site around the globe



Complete product range



Tested quality



Short delivery times



Comprehensive support



BELIMO Automation AG

Brunnenbachstrasse 1, 8340 Hinwil, Switzerland

+41 43 843 61 11, info@belimo.ch, www.belimo.com

