

# Bettis™ RTS FQ Series

## Smart Mechanical Fail-Safe Quarter-Turn Actuator

### Main Features

- Smart mechanical fail-safe quarter-turn actuator
- Mechanical driven fail-safe operation for reliability and safety
- No battery or super-capacitor dependency for fail-safe action
- Direct coupling of the fail-safe with the valve shaft
- On/Off and continuous modulating duty
- Adjustable Speed
- Fail-safe triggering selectable in case of drop-off 24 VDC fail-safe signal or main power supply
- Independently adjustable soft starts / stops
- Position Resolution .2%
- DC, single phase, three phase power supply options
- Weather-proof and explosion proof construction options
- SIL3 Capable
- Optional De-clutchable Handwheel
- Local User Interface with wireless bluetooth control capability for configuration, monitoring, and diagnostics of key parameters
- User Application available for Android Devices
- Process Control via optional onboard PID Controller
- Multilingual user interface



TYPE		FQ-03	FQ-06	FQ-10	FQ-20	FQ-30	FQ-50
Max Electric Torque	max. lbs. ft (Nm)	220 (300)	440 (600)	738 (1000)	1475 (2000)	2210 (3000)	3687 (5000)
End of Spring Remaining Fail-Safe Torque	max. lbs. ft (Nm)	110 (150)	220 (300)	369 (500)	730 (1000)	1100 (1500)	1800 (2500)
Modulating Torque Rating	max. lbs. ft (Nm)	110 (150)	220 (300)	369 (500)	730 (1000)	1100 (1500)	1800 (2500)
Fail-Safe Spring Return Direction		Selectable (CW or CCW) spring return					
Fail-Safe Trigger		Loss of 24 V DC fail-safe command signal or main power supply (selectable)					
Electric Stroke Time Range (Field Adjustable)	sec	14 - 420	14 - 420	20 - 500	30 - 850	38 - 1050	60 - 1600
Fail-Safe Spring Rate / Field Adjustable	sec	1 - 5	1 - 5	1 - 5	3 - 10	3 - 10	6 - 15
Available Travel		90 +/- 5° with mechanical end-stop					
Operation Mode	On/Off Duty	S2					
	Modulating Duty	S9					
Manual Override		Optional					
<b>VALVE-MOUNTING</b>							
Mounting Base	ISO 5210	F07/F10	F10/F12	F12/F14	F14/F16	F14/F16	F16/F25
Max Stem Diameter	inch (mm)	1 (25.4)	1.57 (40)	1.92 (49)	2.36 (60)	2.36 (60)	2.95 (75)
Max Square (Flats)	inch (mm)	0.86 (22)	1.25 (32)	1.61 (41)	1.88 (48)	1.88 (48)	(55)
<b>OPERATING CONDITIONS</b>							
Ingress Protection		IP66 (NEMA 4x) , IP67 (NEMA 6), IP68					
Ambient Temperature		- 40° C (-40°F) to +60°C (140°F)					
<b>HOUSING</b>							
Material		Aluminum					
Enclosure		Weather-proof / Explosion-proof (optional)					
Certification		1ph, 24VD – CSA NEC 500 / NEC505, ATEX, IECEx, LVD 3ph - ATEX		1ph, 24VD – CSA NEC 505, ATEX			
Coating		High quality two component polyurethane paint system-C3 ISO12944-5					
Weight Approx.	lb. (kg)	77 (35)	117 (53)	229 (104)	311 (141)	450 (204)	754 (342)
<b>MOTOR - BRUSHLESS TECHNOLOGY</b>							
Isolation Class		Insulation class F, max. 155° C (311°F) permanent temperature					
Power Supply	V	24 - 230 VDC / 115 - 230 VAC Single Phase / 380 - 480 VAC Three Phase 24 VDC (option not available with FQ-10, FQ-30, FQ-50)					
Current Consumption	A	2.5					
Power Consumption idle with fail-safe brake energized	W	40					
<b>ACTUATOR CONTROL</b>							
Technology		Integrated processor control unit with frequency technology for variable speed control					
Control Unit							
Control Elements		<ul style="list-style-type: none"> <li>· Pad-lockable selector switch LOCAL - OFF- REMOTE contact less sensor technology</li> <li>· Control switch OPEN - STOP - CLOSE contact less sensor technology</li> <li>· Language independent symbols</li> </ul>					
Control Functions		<ul style="list-style-type: none"> <li>· Full stroke test</li> <li>· Partial stroke test</li> </ul>					
Local Display		Backlit LCD display, can be rotated in 90 degree increments					
LEDs		4 programmable red, green, blue LEDs for operation - readiness - warning - and error messages					
Communication		Infrared communication interface and Bluetooth technology including Android App for simple configuration					
Control							
Inputs		5 configurable binary (discrete) control inputs OPEN - STOP - CLOSE - EMERGENCY OPEN - EMERGENCY CLOSE · Nominal voltage 24VDC					
Status							
Outputs		<ul style="list-style-type: none"> <li>· 8 configurable binary (relay) outputs: READY - OPEN - CLOSE - RUNNING OPEN - RUNNING CLOSE - TORQUE - LOCAL - REMOTE</li> <li>· Power supply 24 VDC +/- 6V (selectable internal or external)</li> </ul>					
Voltage Input and Output							
Power Supply - External		<ul style="list-style-type: none"> <li>· Input power range: 20-30VDC max current consumption 320mA or 100mA in current save mode</li> <li>· Status indication also in case of a main power supply failure</li> </ul>					
Power Supply - By Actuator		<ul style="list-style-type: none"> <li>· Output voltage: typical 22V max output current 150mA</li> <li>· Reference ground is the common ground of the control unit and of the analog inputs and outputs</li> </ul>					
<b>FUNCTIONS</b>							
Standard		<ul style="list-style-type: none"> <li>· Switch-off mode adjustable, travel or torque dependent</li> <li>· Torque adjustable: 25-100% of max torque</li> <li>· Adjustable speed for process optimization and emergency speeds.</li> <li>· Password protection (reading and/or writing)</li> <li>· Multilingual display</li> <li>· Status indication for binary inputs/outputs and analog signals on LCD display</li> <li>· Data logging for analysis and service</li> <li>· Motor protection by positive temperature coefficient sensors</li> </ul>					
<b>ELECTRICAL CONNECTION</b>							
Cable Entry		3 metric threaded boreholes for cable glands: Weather-proof 1xM40, 1xM32, 1xM25 / Explosion-proof 1xM40 + 2xM20					
<b>OPTIONS</b>							
Digital Communication		Modbus RTU, ProfiBus, ProfiNet, Foundation FieldBus HART Platforms					
Relay Board		250 VAC, 2A with 4 outputs					
Analog Position Transmitter		0/4-20mA (2-wire)					
Coating		4 layer with Epoxy under coat for increased corrosion protection – C5-I, C5-M ISO12944-5					