Miniature Motorized Actuator

SRJ

Lightweight, easy-to-handle, and completely waterproof Miniature motorized actuator for 90 degrees rotation rotary valves

Can be submersed (IP68)
Uses special gaskets and O-rings, with doublle-sealed terminals.

Case and covers of lightweight, high-rigidity aluminum alloy

Open/close torque and limit switches
Limit switch open/close both 1a1b.
Torque switch open/close both 1a1b.

Combines worm and spur high-speed reduction ratio gears

Exd II BT4 pressure-resistant, explosion-proof configuration available (complies with IEC standard)

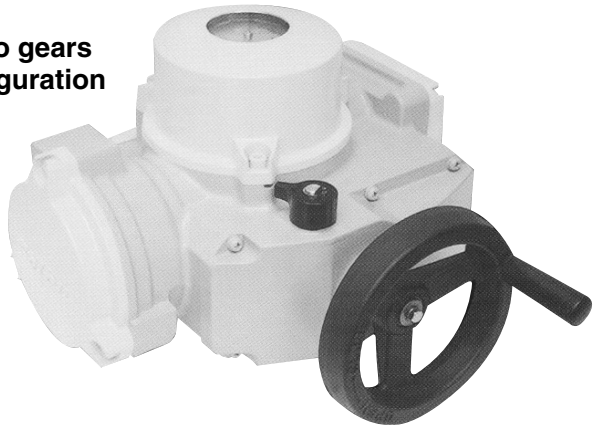
Simplified external wiring
32 terminal contacts, 3-G1 cable feed-in port.

ISO flanges

Both open and close stoppers included

Includes handle and automatic recovery select lever

Rich range of options
-Auxiliary contact (limit switch)
-Opening angle transmitter
-R/I converter
-Proportional controller
Electronic controller



Electronic controller

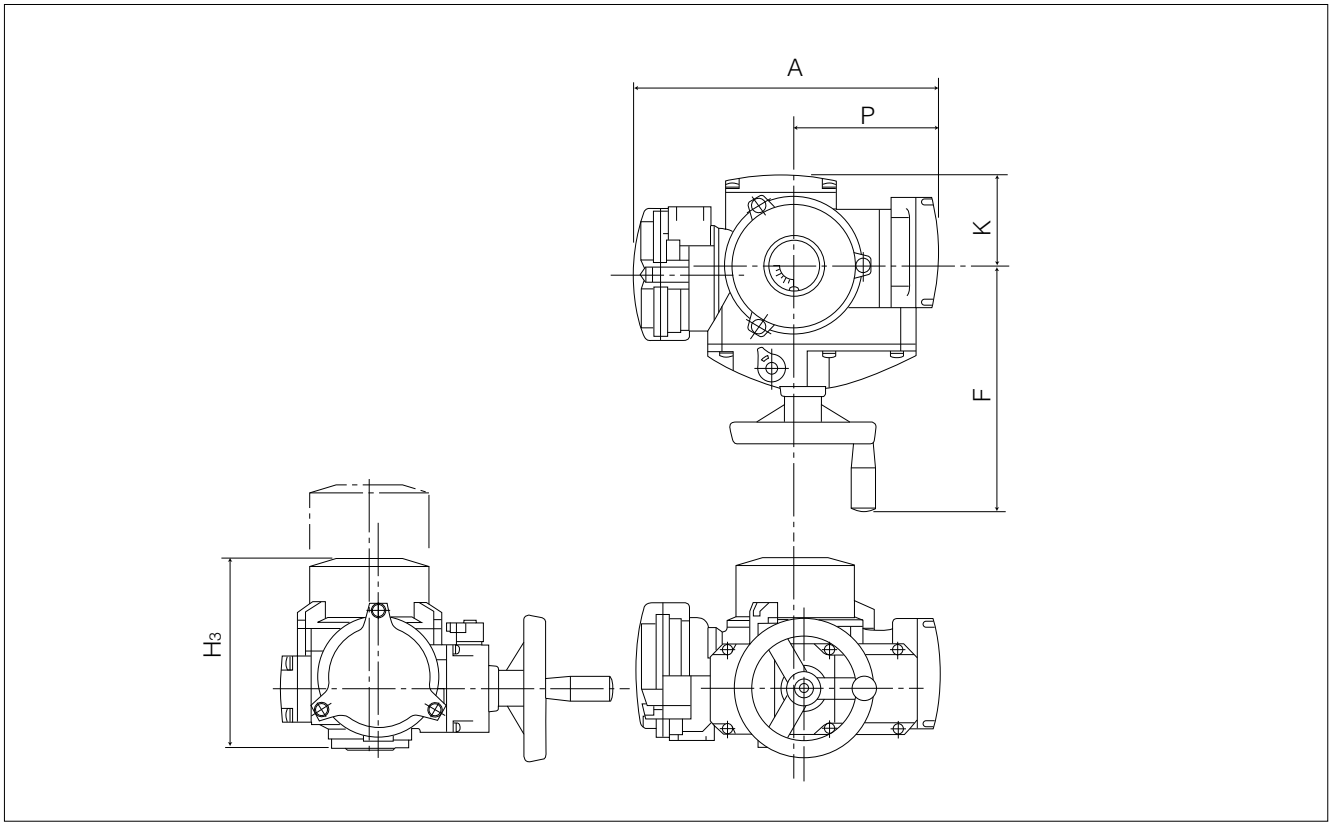
Seitroller
Inputs the continuous DC signal from the adjustor or other system, compares it to valve angle (feedback potentiometer), and implements proportional control of valve. (Includes Seimitter functions.) Single-phase supply only.

Seimitter
Converts the valves opening angle signal (change in potentiometer resistance) to a continuous DC signal (4 to 20 mA DC), enabling remote monitoring angle.

SRJ Specifications

Type		SRJ-010	SRJ-020	SRJ-060	SRJ-1	SRJ-2
Output torque (Nm)		125	250	600	1000	2000
Power source		AC100V/110V, 200V/220V 50/60Hz Single-phase AC200V/220V,AC400V/440V 50/60Hz Triple-phase				
Motor capacity (W)		40		100	200	
Travel time (50/60 Hz) (sec.)	Standard time	18/15	36/30			72/60
	Setting at time of order	9/7.5	18/15			36/30
Mass (kg)		13		18	40	
Rating (min.)		15				
Insulation		B				
Motor protection		Thermal protector				
Stopper		Mechanical (full-closure/opening positioning bolt type)				
Position limit switch		Full-closure/opening, torque switch: one each (1a1b non-voltage)				
Torque limit switch		Contact capacity: AC250V-2A (at induction load), Contact capacity: DC125V-0.4A				
Conduit connections		G1, 3 ports				
Enclosure		IP68				
Manual operation		Reserve (round handle switching lever type auto return)				
Handle revolutions (to 90°)		20.8		26	79.4	
Options		① Pressure-resistant, explosion-proof (ExII BT4): Except SRJ-1 and SRJ-2 ② 2Potentiometer (135Ω, 200Ω and 500Ω) ③ Seimitter (R/I converter) ④ Intermediate valve opening output ⑤ Intermediate valve opening seimitter (Intermediate valve opening output, Seimitter R/I converter) ⑥ Seitroller (Power: single phase only)				

SRJ Dimensions



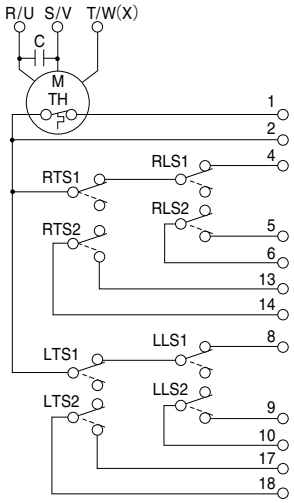
SRJ Dimensions and Weight

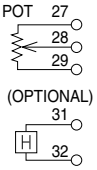
Type	Dimensions (mm)					Approx. Mass (kg)
	H_3	A	P	F	K	
SRJ-010	218	353	167	286	104	13
SRJ-020	218	353	167	286	104	13
SRJ-060	235	393	191	330	130	18
SRJ-1	296	507	267	368	191	40
SRJ-2	296	507	267	368	191	40

SRJ Motor Rated Current

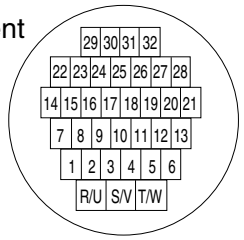
Type	Power source (V)	Frequency (Hz)	Single-phase motor		Three-phase motor	
			Starting current (A)	Rated current (A)	Starting current (A)	Rated current (A)
SRJ-010 SRJ-020	100	50	2.31	1.40	—	—
		60	2.34	1.44	—	—
	110	50	2.61	1.73	—	—
		60	2.59	1.50	—	—
	200	50	1.20	0.72	1.27	0.53
		60	1.19	0.78	1.19	0.45
	220	50	1.34	0.88	1.40	0.59
		60	1.33	0.80	1.28	0.48
	400	50	—	—	0.63	0.26
		60	—	—	0.58	0.22
	440	50	—	—	0.68	0.29
		60	—	—	0.63	0.23
SRJ-060	100	50	3.25	2.44	—	—
		60	3.38	2.48	—	—
	110	50	3.60	2.74	—	—
		60	3.71	2.50	—	—
	200	50	1.86	1.56	1.89	0.74
		60	1.82	1.13	1.77	0.67
	220	50	2.04	1.84	2.00	0.76
		60	2.01	1.27	1.92	0.67
	400	50	—	—	0.94	0.37
		60	—	—	0.90	0.34
	440	50	—	—	0.99	0.39
		60	—	—	0.97	0.34
SRJ-1 SRJ-2	100	50	9.33	4.98	—	—
		60	9.63	7.43	—	—
	110	50	10.27	5.15	—	—
		60	10.56	7.43	—	—
	200	50	4.34	2.18	4.57	1.10
		60	4.45	3.00	4.31	0.99
	220	50	4.87	2.28	5.07	1.06
		60	4.91	2.99	4.76	0.96
	400	50	—	—	2.35	0.53
		60	—	—	2.24	0.48
	440	50	—	—	2.48	0.52
		60	—	—	2.48	0.47

SRJ Wiring Diagram (Single-phase)





Terminal arrangement



Switch	Terminal No.	Degree of valve opening: Left limit / Right limit
RLS1	1–4	
RLS2	5–6	
LLS1	1–8	
LLS2	9–10	

——— : Contact ON – – – : Contact OFF

13–14 : ON at right limit direction over-torque
1–4 : OFF at right limit direction over-torque
17–18 : ON at left limit direction over-torque
1–8 : OFF at left limit direction over-torque
31–32 : Heater power terminal

Direction of rotation

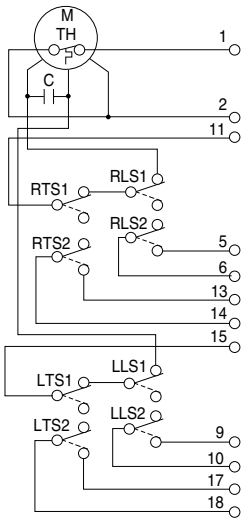
Single phase: Clockwise at R - (U), T - (X)
Single phase: Counterclockwise at R - (V), T - (X)
Direction of rotation refers to direction from the valve controller to the valve

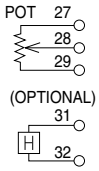
Definition of codes

RLS1, RLS2 : Right directional rotation limit switch
LLS1, LLS2 : Left directional rotation limit switch
RTS1, RTS2 : Right directional rotation torque switch
LTS1, LTS2 : Left directional rotation torque switch

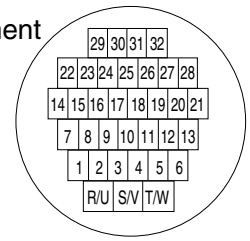
M : Motor
TH : Thermal protector
H : Heater
C : Condenser
POT : Potentiometer (option)

SRJ Wiring Diagram (Single-phase 3-wire)





Terminal arrangement



Switch	Terminal No.	Degree of valve opening: Left limit / Right limit
RLS1	1–11	
RLS2	5–6	
LLS1	1–15	
LLS2	9–10	

——— : Contact ON – – – : Contact OFF

13–14 : ON at right limit direction over-torque
1–11 : OFF at right limit direction over-torque
17–18 : ON at left limit direction over-torque
1–15 : OFF at left limit direction over-torque
31–32 : Heater power terminal
27,28,29 : Potentiometer terminal

Direction of rotation

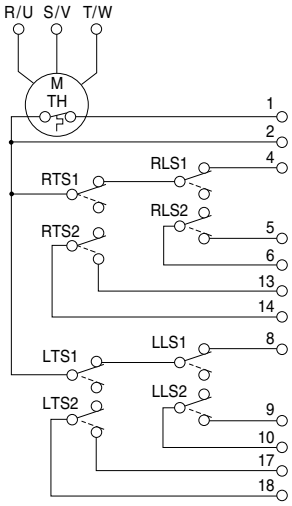
Single phase: Clockwise at R - 1, T - 11
Single phase: Counterclockwise at R - 1, T - 15
Direction of rotation refers to direction from the valve controller to the valve

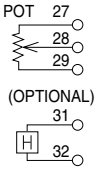
Definition of codes

RLS1, RLS2 : Right directional rotation limit switch
LLS1, LLS2 : Left directional rotation limit switch
RTS1, RTS2 : Right directional rotation torque switch
LTS1, LTS2 : Left directional rotation torque switch

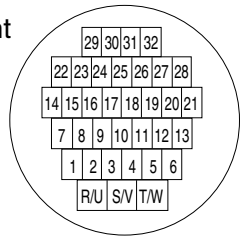
M : Motor
TH : Thermal protector
H : Heater
C : Condenser
POT : Potentiometer (option)

SRJ Wiring Diagram (Three-phase)





Terminal arrangement



Switch	Terminal No.	Degree of valve opening: Left limit — Right limit
RLS1	1—4	
RLS2	5—6	
LLS1	1—8	
LLS2	9—10	

——: Contact ON – – – –: Contact OFF

13—14 : ON at right limit direction over-torque
1—4 : OFF at right limit direction over-torque
17—18 : ON at left limit direction over-torque
1—8 : OFF at left limit direction over-torque
31—32 : Heater power terminal

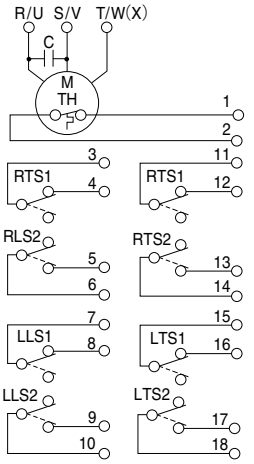
Direction of rotation

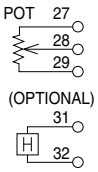
Three-phase: Clockwise at R - (W), S – (V), T - (U)
Three-phase: Counterclockwise at R - (U), S – (V), T - (W)
Direction of rotation refers to direction from the valve controller to the valve

Definition of codes

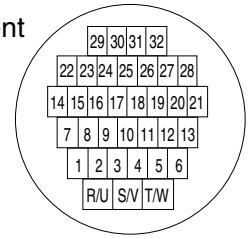
RLS1, RLS2 : Right directional rotation limit switch
LLS1, LLS2 : Left directional rotation limit switch
RTS1, RTS2 : Right directional rotation torque switch
LTS1, LTS2 : Left directional rotation torque switch
M : M: Motor
TH : TH: Thermal protector
H : H: Heater
C : C: Condenser
POT : POT: Potentiometer (option)

SRJ Wiring Diagram (Single-phase All terminals independent contact)





Terminal arrangement



Switch	Terminal No.	Degree of valve opening: Left limit — Right limit
RLS1	3—4	
RLS2	5—6	
LLS1	7—8	
LLS2	9—10	

——: Contact ON – – – –: Contact OFF

13—14 : ON at right limit direction over-torque
11—12 : OFF at right limit direction over-torque
17—18 : ON at left limit direction over-torque
15—16 : OFF at left limit direction over-torque
31—32 : Heater power terminal

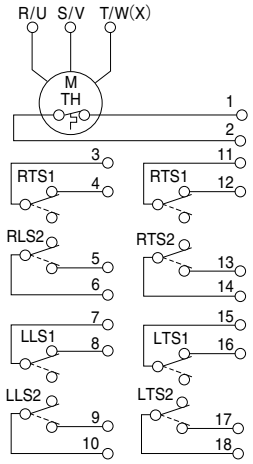
Direction of rotation

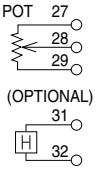
Single phase: Clockwise at R – (U), T – (X),
Single phase: Counterclockwise at R – (V),
Direction of rotation refers to direction from the valve controller to the valve

Definition of codes

RLS1, RLS2 : Right directional rotation limit switch
LLS1, LLS2 : Left directional rotation limit switch
RTS1, RTS2 : Right directional rotation torque switch
LTS1, LTS2 : Left directional rotation torque switch
M : Motor
TH : Thermal protector
H : Heater
C : Condenser
POT : Potentiometer (option)

SRJ Wiring Diagram (Three-phase, All terminals independent contact)

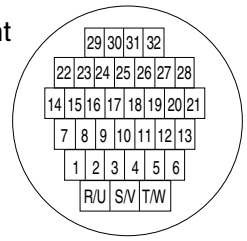




Switch	Terminal No.	Degree of valve opening: Left limit – Right limit
RLS1	3–4	——— - - -
RLS2	5–6	- - - - - - - - - - ———
LLS1	7–8	- - - ——— - - -
LLS2	9–10	——— - - - - - - - - -

——— : Contact ON　- - - - : Contact OFF

Terminal arrangement



13–14 : ON at right limit direction over-torque
11–12 : OFF at right limit direction over-torque
17–18 : ON at left limit direction over-torque
15–16 : OFF at left limit direction over-torque
31–32 : Heater power terminal

Direction of rotation

Three-phase: Clockwise at R - (W), S – (V), T - (U)
Three-phase: Counterclockwise at R - (U), S – (V), T - (W)
Direction of rotation refers to direction from the valve controller to the valve

Definition of codes

RLS1, RLS2 : Right directional rotation limit switch
LLS1, LLS2 : Left directional rotation limit switch
RTS1, RTS2 : Right directional rotation torque switch
LTS1, LTS2 : Left directional rotation torque switch

M : Motor
TH : Thermal protector
H : Heater
C : Condenser
POT : Potentiometer (option)

SRJ Selection Chart

700 Series

Nominal size	mm	40	50	65	80	100	125	150	200	250	300	350	400	450
	inch	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18
700G		SRJ-010					SRJ-020		SRJ-060			SRJ-1	SRJ-2	
704G / 722F			SRJ-010				SRJ-020		SRJ-060			SRJ-1	SRJ-2	
700S / 720F			SRJ-010				SRJ-020		SRJ-060			SRJ-1	SRJ-2	
731P / 732X			SRJ-010				SRJ-020		SRJ-060		SRJ-1	SRJ-2		
732P			SRJ-010				SRJ-020		SRJ-060	SRJ-1				

500 Series

Nominal size	mm	40	50	65	80	100	125	150	200	250	300	350	400	450
	inch	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18
508V			SRJ-010		SRJ-010			SRJ-020	SRJ-060		SRJ-1	SRJ-2		
507V			SRJ-010		SRJ-010			SRJ-020		SRJ-060				

300 Series

Nominal size	mm	40	50	65	80	100	125	150	200	250	300	350	400	Nominal size
	inch	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	
302Y	TL	SRJ-010					SRJ-020	SRJ-060		SRJ-1	SRJ-2			T_L
	TH	SRJ-010			SRJ-020			SRJ-060		SRJ-2				T_H
302A	T10				SRJ-010		SRJ-020		SRJ-060		SRJ-1	SRJ-2		Category A
												SRJ-2		Category B
	T20				SRJ-010	SRJ-020		SRJ-060		SRJ-1	SRJ-2			Category C
304Y	T10	SRJ-010						SRJ-020	SRJ-060					T10
	T20	SRJ-010					SRJ-020		SRJ-060					T20
304A	T10				SRJ-010			SRJ-020	SRJ-060			SRJ-2		Category A
												SRJ-2		Category B
	T20				SRJ-010		SRJ-020		SRJ-060					Category C

MEMO