rotork®

Keeping the World Flowing
for Future Generations

A rotork Brand
NOAH
Actuation

Noah SR Range

Spring-return electric actuator

Reliable, compact, spring-return actuators designed to provide configurable valve control options for industrial applications.

Rotork Group

Rotork is a market-leading global provider of mission-critical flow control and instrumentation solutions for the industrial actuation and flow control markets. These include oil and gas, water and wastewater, power, chemical, process and industrial applications.

Customers rely on us for innovative, high quality and dependable solutions for managing the flow of liquids, gases and powders. We help customers around the world to improve efficiency, reduce emissions, minimise their environmental impact and assure safety.

Our reliability record is second to none. Our products are designed with safety and performance at their core and are put through vigorous testing and certified to international standards. Our products are certified for use in the world's most dangerous and hazardous areas.

Partnering with us provides the following:

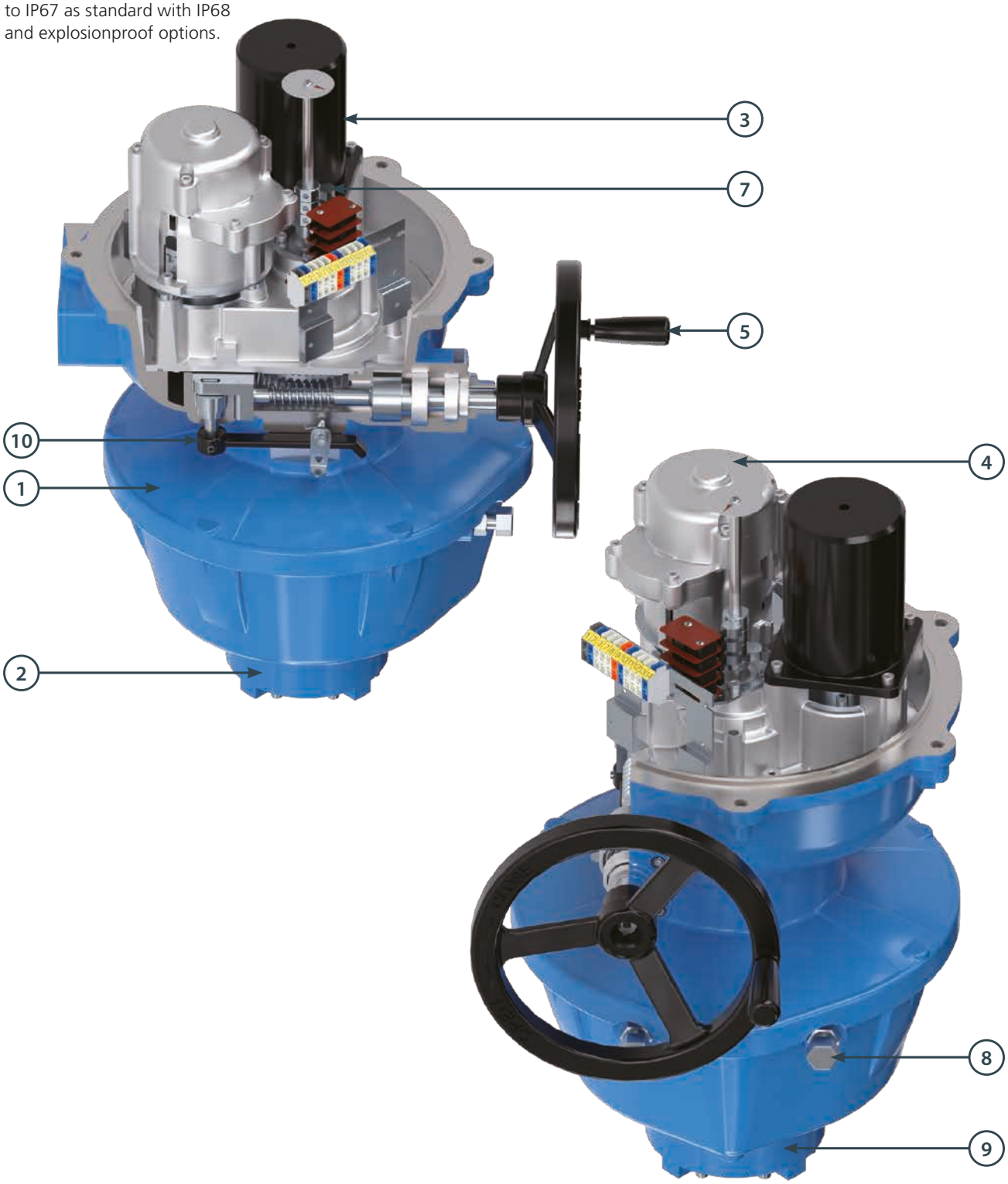
- Assured safety and reliability
- Industry leading accuracy and efficiency
- Proven technology that works with all network control systems
- Product range with solutions to suit every application
- Assistance with plant planning, development and maintenance through our local support services
- We have innovative research and development centers throughout the world

A rotork Brand NOAH Actuation

Contents

Noah SR

The Noah SR spring-return electric actuator is waterproof to IP67 as standard with IP68 and explosionproof options.



Inside the Noah SR Actuator

1. Outer case

The aluminum alloy casting is oxide film treated then powder coated (Polyester, TGIC-Free) to provide the best corrosion protection performance in any environment.

2. Self-locking

The two-stage gear structure prevents rotation and reverse torque from valves and attached equipment.

3. Motor

Supply voltages for customer selection include 1-phase (110/220 VAC), 3-phase (380/440 VAC) and 24 VDC.

Noah SR range actuators include a built-in thermal protector to protect the motor and coil in the event of motor overload:

Open: +150 ±5 °C (+302 ±9 °F)
Closed: +96 ±15 °C (+205 ±27 °F)

4. Speed controller

To prevent excessive load on the actuator due to the shock of spring return action in the event of power loss, the speed controller delays and reduces the resulting load.

5. Handwheel

The handwheel provides effective manual operation of the valve. Handwheel drive is independent of the motor drive and is selected with a lockable lever for safe operation even when the motor is running.

6. Internal heater

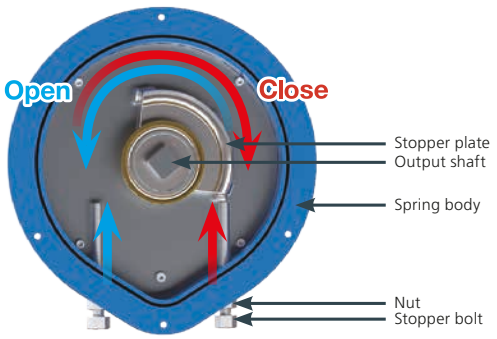
The built-in internal heater (20 W) prevents condensation and moisture forming inside the actuator to protect the internal components.

7. Limit switch

A built-in mechanical cam-type limit switch is included which accurately controls the position of valves and rotating devices. The simple design and structure allows for easy adjustment.

8. Stopper bolt

Install one stopepr bolt each for Fail Close or Fail Open to ensure that the actuator returns to a set position when the actuator power is off or the limit switch fails.

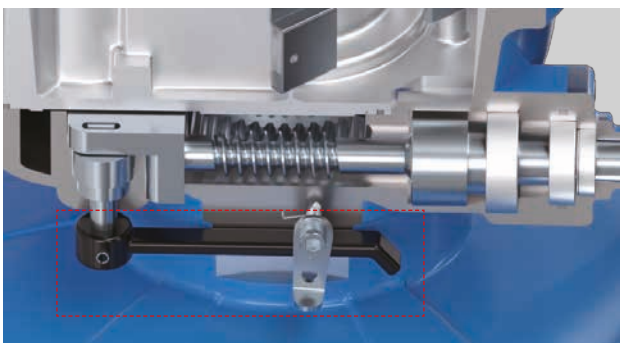


9. Base

The base is manufactured to ISO 5211 specifications and has a detachable drive bushing that can be machined to the desired shape.

10. Manual/automatic switching device

The built-in manual/automatic lever allows switching between manual (handwheel) and automatic (motor) output control. The lever is lockable in either position.



Standard specifications

Waterproof rating	Watertight ingress protection IP67
Operating temperature range	Tamb -20 to +55 °C (-4 to +131 °F)
Process temperature	T6: -20 to +60 °C (-4 to +140 °F) T5/T4: -20 to +80 °C (-4 to +176 °F)
Power supply	1-phase 110-230 VAC 50/60 Hz, 3-phase 380/440 VAC 50/60 HZ A:24 VDC)
Limit switch	Open : 1ea / Close : 1ea (250 VAC 15 A)
Duty cycle	S4 30%
Motor protection	Thermal protection
Travel angle	90° ±5°
Indicator	Continuous position indicator
Manual operation	Automatic return type manual/electric changeover device
Self-locking	Prevention of reverse rotation by two-stage gear
Mechanical protection device	External adjustable screw
Heater	20 W
Cable entries	2-PF ¾" (Options: 2-M20 x Pitch 1.5, 2-NPT ¾")
Lubricant	Shell Gadus S2 V220 2
Case material	Aluminium
Surface treatment	Anodising
Standard paint finish	Polyester (TGIC-free)

Performance data

Model	Torque		Spring return time (90°)	Motion time (90°)/sec (Open/Close)										
				110 VAC		120 VAC	220 VAC		230 VAC	380 VAC		440 VAC		24 VDC
	Nm	lbf.ft	Seconds	50 Hz	60 Hz	60 Hz	50 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
SR05	50	37	1 (When equipped with a speed controller: 2±1 seconds)	17/16	15/14	15/14	17/16	14/13	17/16	17/15	15/13	17/15	15/13	14/10
SR10	100	74		20/19	17/16	17/16	20/19	17/15	20/19	21/19	19/16	21/19	17/16	23/13
SR20	200	148	1-2 (Accelerator standard)	60/56	51/46	51/46	59/55	50/44	59/55	62/57	52/47	62/57	52/42	55/35
SR30	300	221	2±1 (Accelerator standard)	85/81	72/68	72/68	87/83	75/70	87/83	87/82	74/68	86/82	73/67	100/56
SR50	500	369		116/110	99/93	99/93	116/110	99/87	116/110	122/110	110/93	122/110	99/93	133/75

Model	Motor (W)		Duty cycle (S2)	Rated current (A)										
				110 VAC		120 VAC	220 VAC		230 VAC	380 VAC		440 VAC		24 VDC
	AC	24 VDC	Min.	50 Hz	60 Hz	60 Hz	50 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
SR05	90	120	15	2.8	3.6	3.6	1.6	2.0	1.6	0.24	0.25	0.28	0.24	12
SR10	90	120	15	2.8	3.6	3.6	1.6	2.0	1.6	0.4	0.4	0.5	0.4	12
SR20	90	120	15	2.8	3.6	3.6	1.7	2.1	1.7	0.38	0.35	0.5	0.36	13
SR30	90	120	15	2.8	3.7	3.7	1.6	2.0	1.6	0.35	0.29	0.62	0.31	15
SR50	90	120	15	2.8	3.7	3.7	1.6	2.1	1.6	0.37	0.31	0.62	0.31	15

Model	Base (ISO5211)	Number of handle turns	Weight	
	ISO5211		kg	lbs
SR05	F07	25	SR05: 26.5 SR05X: 31.5	SR05: 58.4 SR05X: 69.4
SR10	F07 / F10	25	SR10: 35 SR10X: 40	SR10: 77.2 SR10X: 88.2
SR20	F10 / F12	75	SR20: 51 SR20X: 51	SR20: 112.4 SR20X: 112.4
SR30	F10 / F12	113	SR30: 62 SR30X: 67	SR30: 136.7 SR30X: 147.7
SR50	F10 / F12	145	SR50: 82 SR50X: 82	SR50: 180.8 SR50X: 180.8

Optional extras

Waterproof (optional)

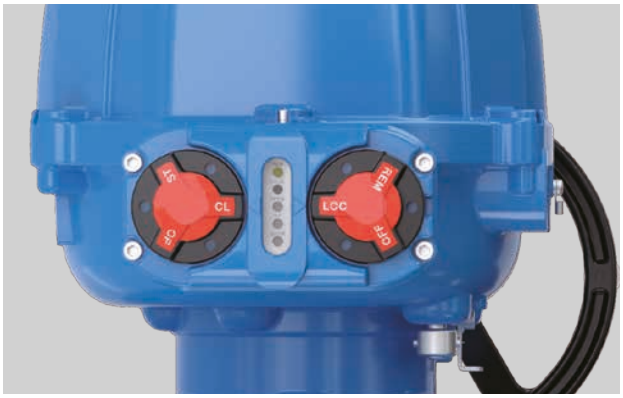
IP68 waterproof and dustproof rating is available as an option. IP68: 10 m water depth / 72 hours

No-voltage auxiliary limit switch (ALS)

Used when the actuator position (open/closed/middle) status is output as a voltage-free contact signal with a cam structure connected in series with the driving shaft, such as the limit switch of the actuator.

Local Control Unit (LCU)

The compact LCU can be installed directly or indirectly on the actuator as a field control panel. It is composed of a Local/Remote switch, Open/Stop/Close switch and LED lamp, enabling easy basic operation of the actuator in the field. Mains power 110 V or 220 V.



Proportional Control Unit (PCU)

Used to control the actuator so that the opening/closing degree of the valve is proportional to the input signal.

- Input adjustment signal: DC 4-20 mA (Default) / 0-5 VDC / 0-10 VDC / 1-5 VDC / 2-10 VDC
- Output transmission signal: DC 4-20 mA

Current Position Transmitter (CPT)

Outputs the actuator's closed and open (0-100%) position by converting the resistance value of the potentiometer directly connected to the drive shaft into a current value. Output signal: 4-20 mA.

Potentiometer (PIU)

Output the actuator position signal as a resistance value.

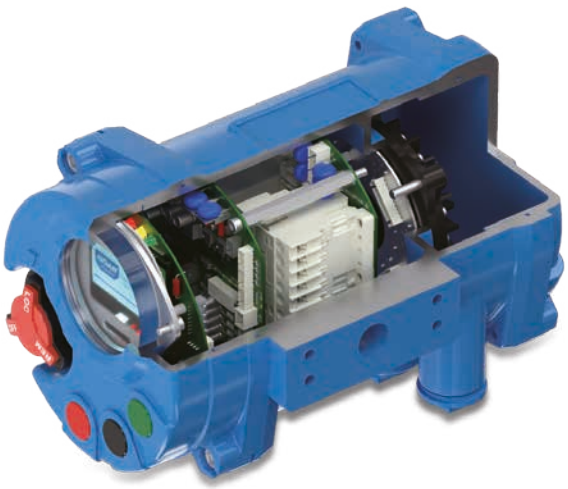
Output value: 0-1 kΩ

Speed controller

A device that slows down the spring return that occurs when power is turned off, thereby reducing the amount of shock generated.

INTEGRAL controls

The INTEGRAL unit is equipped with a field operation panel, a positive/negative converter and local controls. It can be used with all power specifications and can be used to switch modes (OFF, LOCAL, REMOTE) and operate (OPEN, CLOSE, STOP) on site. Optional control boards can be fitted inside the INTEGRAL enclosure.



Wired Communication

Our network control options for all major fieldbus networks provide seemless compatibility with existing and new site control systems.

Modbus® is a low-speed communication protocol suitable for small systems with simple and limited scalability.

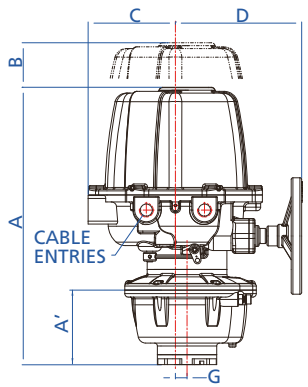
Profibus® supports high speed and large-scale networks and is widely used in manufacturing and process automation.

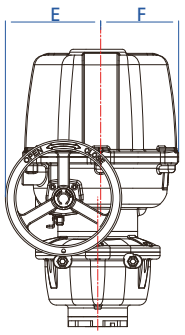
Foundation Fieldbus is a protocol that supports peer-to-peer communication between devices and is designed to allow more processing to be done locally in process control systems.

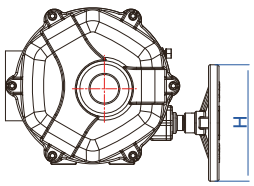
The advantage of HART® is that it uses a hybrid approach of analog systems and digital communications, allowing digital data to be transmitted while maintaining existing infrastructure.

(*Applicable to both general type and integral type) Contact Rotork for details.

Dimensional Data



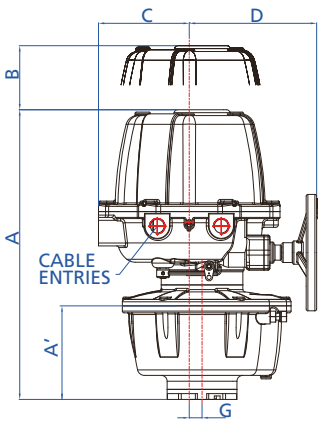


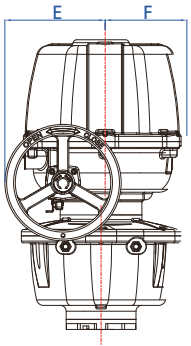


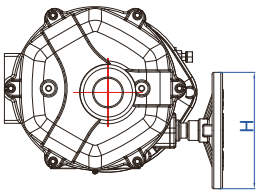
NO.	P.C.D	N-M#
1	Ø70	4-M8
OPTION	Ø82	4-M8

All dimensions in millimetres

Model	Dimension								
	A	A'	B	C	D	E	F	G	H
SR05 (excluding eye bolts)	355	122	155	150	217	164	134	20	200
SR05X (excluding eye bolts)	349	155	155	150	217	164	134	20	200





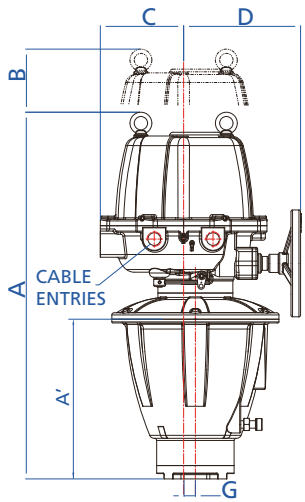


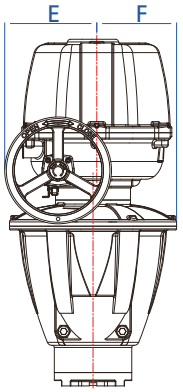
NO.	P.C.D	N-M#
1	Ø70	4-M8
2	Ø102	4-M10

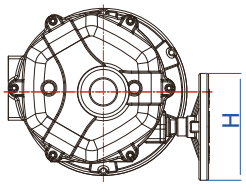
All dimensions in millimetres

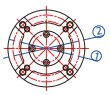
Model	Dimension								
	A	A'	B	C	D	E	F	G	H
SR10	337	161	212.5	156	219	172.5	140.5	22	200
SR10X	337	189	212.5	156	219	172.5	140.5	22	200

Dimensional Data









BASE

NO.	P.C.D	N-M#
1	Ø102	4-M10
2	Ø125	4-M12

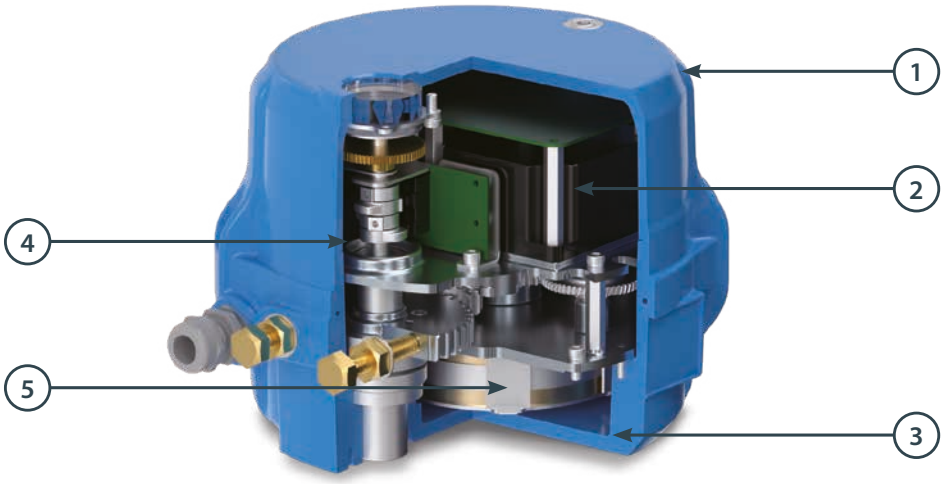
All dimensions in millimetres

Model	Dimension								
	A	A'	B	C	D	E	F	G	H
SR20	374.5	240	212.5	156	219	172.5	140.5	22	200
SR20X	374.5	240	212.5	156	219	172.5	140.5	22	200
SR30	387.5	271	212.5	156	219	172.5	140.5	22	200
SR30X	387.5	299	212.5	156	219	172.5	140.5	22	200
SR50	387.5	299	212.5	156	219	172.5	140.5	22	200
SR50X	387.5	299	212.5	156	219	172.5	140.5	22	200

Base Dimensions

Model	Base					
	1		2		Option	
	P.C.D	N-M#	P.C.D.	N-M#	P.C.D	N-M#
SR05	Ø70	4-M8	-	-	Ø82	4-M8
SR05X	Ø70	4-M8	-	-	Ø82	4-M8
SR10	Ø70	4-M8	Ø102	4-M10	-	-
SR10X	Ø102	4-M10	Ø125	4-M12	-	-
SR20	Ø102	4-M10	Ø125	4-M12	-	-
SR20X	Ø102	4-M10	Ø125	4-M12	-	-
SR30	Ø102	4-M10	Ø125	4-M12	-	-
SR30X	Ø102	4-M10	Ø125	4-M12	-	-
SR50	Ø102	4-M10	Ø125	4-M12	-	-
SR50X	Ø102	4-M10	Ø125	4-M12	-	-

Noah SR03



Actuator operation method

- Open/Close operation using motor
- Full Open or Full Close is possible using spring when power is cut off.
- Open manual operation using the manual lever

1. Outer case

The aluminum alloy casting is oxide film treated then powder coated (Polyester, TGIC-Free) to provide the best corrosion protection performance in any environment.

2. Motor

Supply voltages for customer selection include 1-phase (110/220 VAC) and 24 VDC. Noah SR range actuators include a built-in thermal protector to protect the motor in case of overload.

3. Base

The base is manufactured to ISO 5211 (F03/04/05) specifications, allowing disassembly and assembly of the actuator and valve.

4. Control

A built-in limit switch (Open/Close) precisely controls the position of the valve. The adjustment position does not change even if over-travel occurs. The simple design and structure allows for easy adjustment.

5. Internal heater

The built-in internal heater prevents condensation and moisture forming inside the actuator to protect the internal components.

Performance data

Model	Torque		Spring return time (90°)	Motion time (90°) (Open/ Close)	Motor		Duty cycle	Base	Number of handle turns	Weight	
	Nm	lbf.ft	seconds	seconds	W	Class	S2 (minutes)	ISO5211		kg	lbs
SR03	30	22	4, 7, 10 Selectable	10-35, Adjustable	40	E	15	F03 / F04 / F05	8.5	9.2	20.3

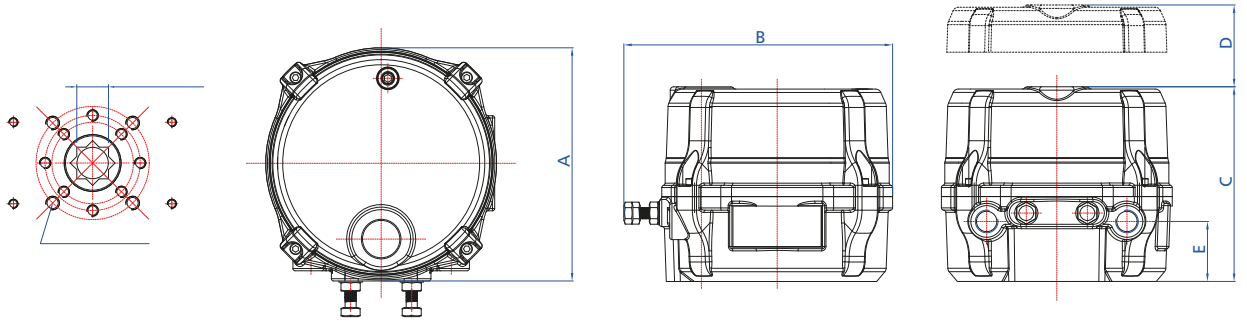
Standard specifications

Waterproof rating	Waterlight ingress protection IP67
Operating temperature range	Tamb 20 to +55 °C (-4 to +131 °F)
Power supply	Single phase 110-230 VAC 50/60 Hz, 24 VDC
Limit switches	1ea Open / Close+ Non-voltage contact 1ea Open / Close
Rotation angle	90° ±5°
Indicator	Continuous position indicator
Manual operation	L-wrench (6 mm hex)
Heater	5 W
Cable entries	2-PF ½" (Options: 2-M20 x Pitch 1.5, 2-NPT ½") (Same as optional specifications in case of explosionproof)
Lubricaant	Shell Gadus S2 V2202
Case material	Aluminium
Surface treatment	Anodising
Standard paint finish	Polyester powder coating (TGIC-FREE)

Optional extras

Position Indication Unit (PIU)	Output the actuator position value as a resistance value / Output: 0~12
Proportional Control Unit (PCU)	Used to control the actuator to open and close the valve proportionally to the input signal. Input : DC 4-20mA, 0-5 VDC, 0-10 VDC, 1-5 VDC, 2-10 VDC Output : DC 4-20 mA

Dimensional data



All dimensions in millimetres

Model	A	B	C	D	E
SR03	204	228	172	130	53

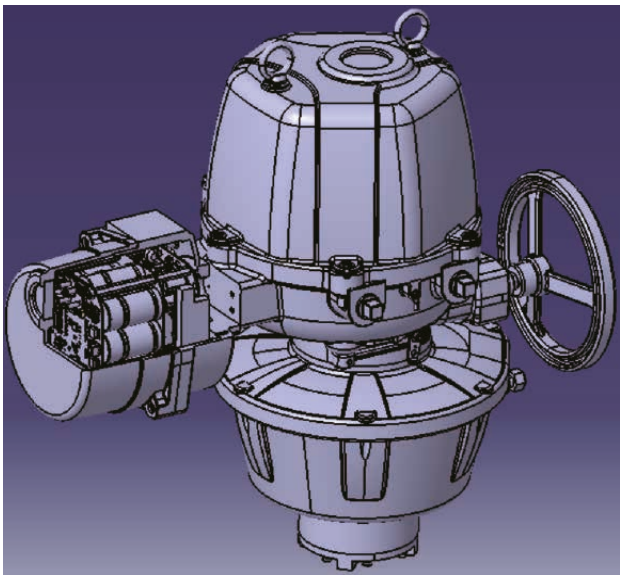
Emergency Action Control Unit (EAU)

The Noah SR actuator is available with a quarter-turn version of the supercap (SCP). However, the role of the SCP on the Noah SR is different to the SCP used with other Noah actuators.

On other Noah actuators: In case of power failure, the stored energy of the SCP inside moves the actuator to the set position.

On Noah SR actuators: In case of power failure, the stored energy of the internal SCP holds the spring for a set amount of time, thereby delaying the emergency operation time.

Therefore, it is not called SR SCP but SR EAU (Emergency Action control Unit), and since it has a function to delay the emergency operation time, the product specifications are the same as the specifications of the existing main body.



Standard specifications

Power supply	24 VDC 110, 220 VAC
Charging voltage	26.5 V
Charging time	3 minutes 30 seconds
Weight	0.7 kg

DELAY TIME setting time		0~99 seconds
Charging current	**24 VDC**	8.4 A
	110 VAC	1.1 A
	220 VAC	0.45 A

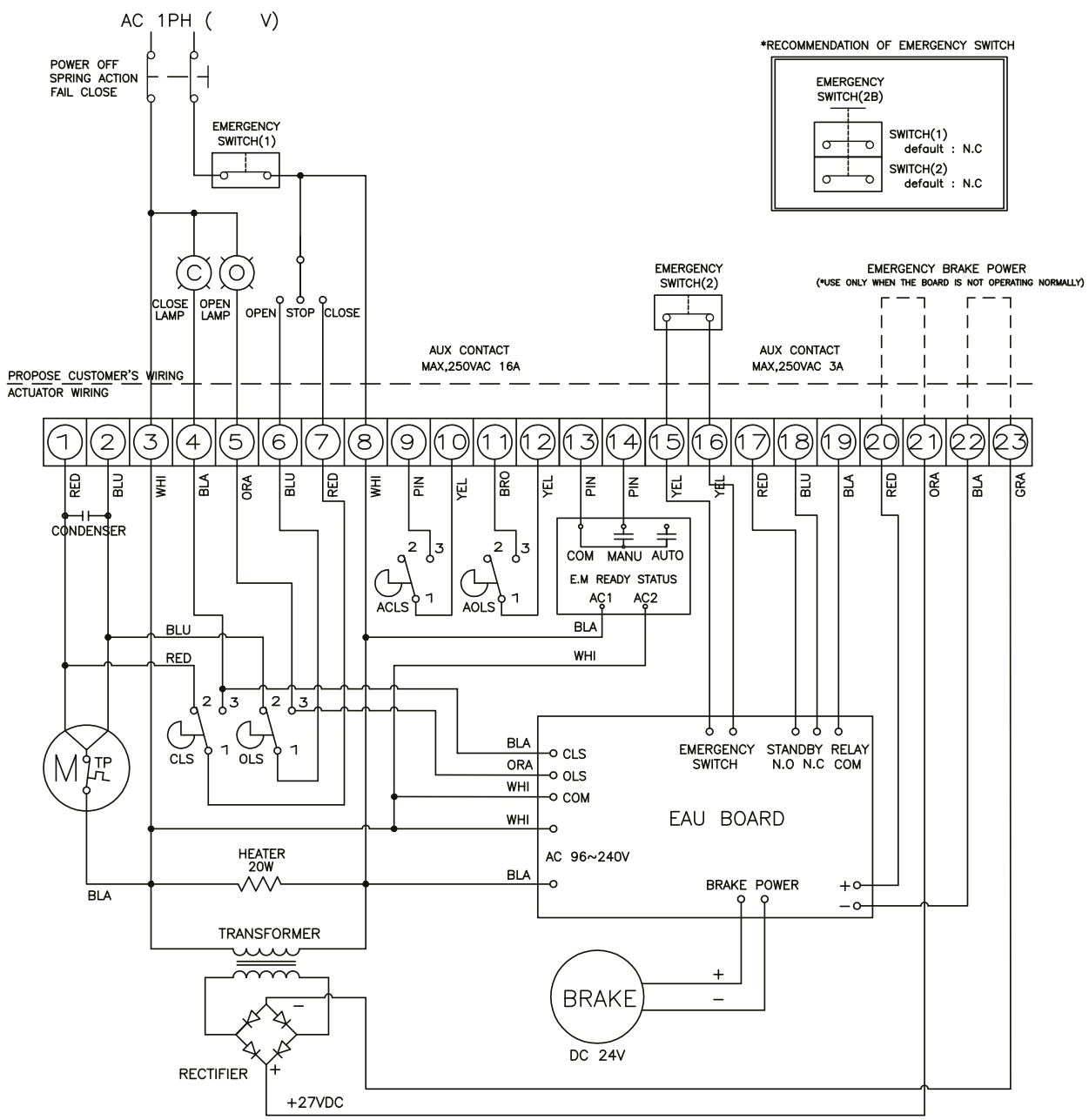
***Before using the SUPER CAPACITOR, fully charge it and then use it. It wxill not operate if not fully charged.**

Optional extras

Non-voltage auxiliary limit switch (ALS)	Used when receiving the actuator position (open/closed/middle) status as a voltage-free contact signal with a cam structure connected in series with the driving shaft, such as the actuator's limit switch.

Standard wiring diagram

EAU type standard wiring diagram



Network Communications

Modbus

- Modbus transmission mode: RTU (8 bit binary data)
- Communication support speed (Baud rate): 1.2~115.2 kbit/s
- Maximum communication distance: 1.2 km (based on 9.6 Kbit/s)*
- Maximum number of connections: 127 (with repeater)
- Option: Redundant line

HART COMMUNICATION PROTOCOL

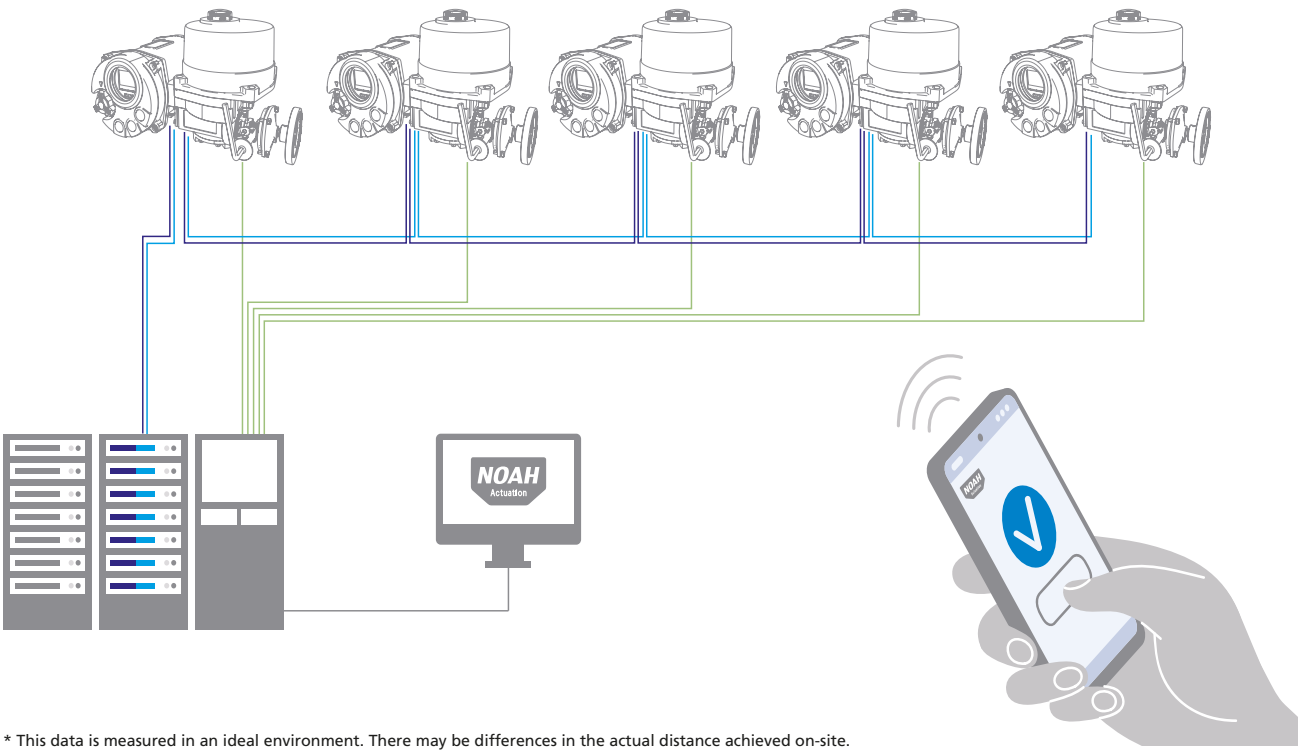
- All digital, serial, two-way communication
- F/F communication speed: 31.25 kbit/s
- A communication method that connects power lines and communication lines simultaneously.
- Maximum number of connections: 3

PROFIBUS

- PROFIBUS E 4 0|50: RS-485 2-wire highway, half duplex
- PROFIBUS EM IEEE: Profibus DP-VO
- Communication support speed (Baud rate): 9.6 kbit/s~1.5 Mbit/s
- Maximum communication distance: 1.2 km (based on 9.6 kbit/s)*.
- Maximum number of connections: 127 (with repeater)
- Option: Redundant line

FOUNDATION

- 4-20 mA analog communication + FSK (Frequency Shift Keying) communication method, Half-duplex communication method
- HART communication speed: 1.2 kbit/s
- A communication method used when you want to add additional digital communication functions using the 4~20 mA analog communication facilities.
- Maximum number of connections: 16



* This data is measured in an ideal environment. There may be differences in the actual distance achieved on-site.

rotork®

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mail@rotork.com
www.rotork.com

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