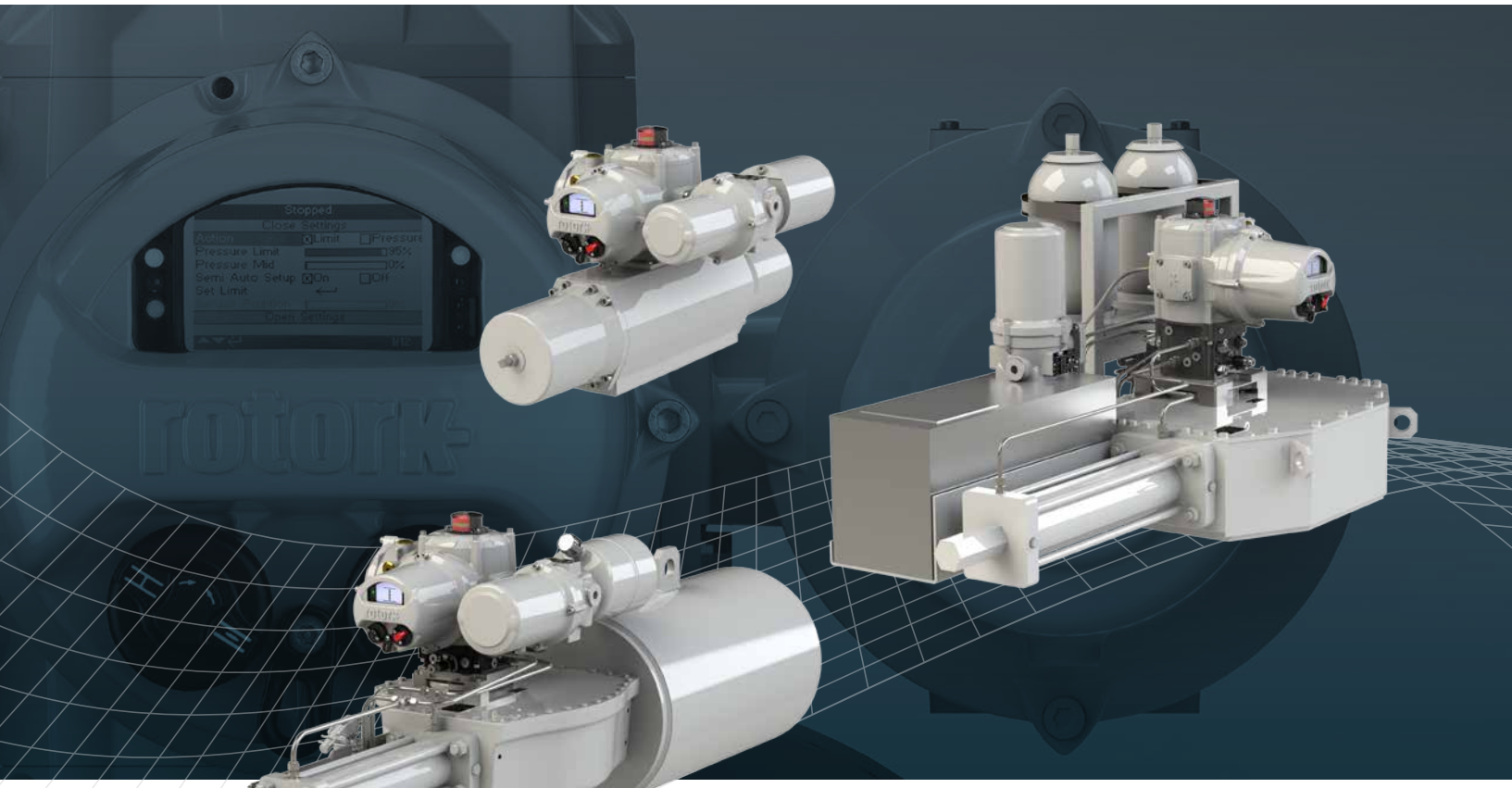
rotork®
Fluid Systems

Skilmatic SI_3 Range



Spring-Return and Double-Acting
Self-Contained Electro-Hydraulic Actuators

Keeping the World Flowing

rotork®

Keeping the World Flowing

RELIABLE OPERATION WHEN IT MATTERS

Assured reliability for critical applications and environments.

Whether used 24/7 or infrequently, Rotork products will operate reliably and efficiently when called upon.

QUALITY-DRIVEN GLOBAL MANUFACTURING

Products designed with 60 years of industry and application knowledge.

Research and development across all our facilities ensures cutting edge products are available for every application.

CUSTOMER-FOCUSED SERVICE WORLDWIDE SUPPORT

Solving customer challenges and developing new solutions.

From initial enquiry through to product installation, long-term after-sales care and client support programmes.

LOW COST OF OWNERSHIP

Long-term reliability prolongs service life.

Rotork helps to reduce long term cost of ownership and provides greater efficiency to process and plant.

Skilmatic SI_3 Range

COMPREHENSIVE PRODUCT RANGE SERVING MULTIPLE INDUSTRIES

Improved efficiency, assured safety and environmental protection.

Rotork products and services are used in the Power, Oil & Gas, Water & Waste Water, HVAC, Marine, Mining, Food & Beverage, Pharmaceutical and Chemical industries around the world.

MARKET LEADER TECHNICAL INNOVATOR

The recognised market leader for 60 years.

Our customers have relied upon Rotork for innovative solutions to safely manage the flow of liquids, gases and powders.

GLOBAL PRESENCE LOCAL SERVICE

Global company with local support.

Manufacturing sites, offices and *Centres of Excellence* throughout the world provide unrivalled customer services and fast delivery.

CORPORATE SOCIAL RESPONSIBILITY

A responsible business leads to being the best business.

We are socially, ethically, environmentally responsible and committed to embedding CSR across all our processes and ways of working.

Introduction

The Rotork SI_3 range of self-contained electro-hydraulic actuators combine the simplicity of electrical operation with the precision of hydraulic control and the reliability of mechanical spring-return or accumulator fail-safe action.

With Rotork's continuous development and improvement policy and to meet new applications and customer needs, Rotork has introduced the 3rd generation of SI actuators. The SI_3 range of self-contained electro-hydraulic actuators includes a full range of quarter-turn and linear actuators. The SI_3 quarter-turn actuators are available from 65 to 500,000 Nm. The SI_3 linear are available from 1.76 to 5,000 kN.

Designed for Safety Instrumented Systems (SIS) to safeguard life, the environment and the process plant. The SI_3 provides a reliable means of positioning a valve or damper in the safe position (fail-safe) on loss of power supply, ESD or control signal.

With over 30 years experience in manufacturing electro-hydraulic actuators, the SI_3 range have been specifically designed to meet today's control and safety needs for both two-position and positioning control applications. The actuators are offered with a wide range of operating speeds, ESD inputs, partial stroke testing, analogue, HART and fieldbus communication capabilities to comply with all control configurations.

The Skilmatic SI_3 actuators have been designed for fail-safe applications where functional safety is paramount. The actuators are suitable for use in Safety Instrumented Systems (SIS), certified to IEC 61508:2010.

The SI_3 can be supplied fail close, open or in last position on loss of Emergency Shutdown (ESD) signal and when selected on loss of power supply. Independent limit switches and position feedback are provided and selectable status and alarm indication with volt free relay outputs are also offered as standard.

Key Benefits

- Fail-safe, closed, open or in last position
- Only requires electrical power
- Hazardous area certified Ex d IIB/IIC T4 & watertight IP66/68
- ESD/PSD options including dual inputs and various solenoid configurations
- Functional Safety SIL2 & SIL3 to IEC 61508:2010.
- Advanced dual-stacked display presents valve and process data for asset management and data analysis
- Non-intrusive setting – no cover removal required using secure *Bluetooth*® wireless connection
- Datalogger – capable of storing up to 3,000 events
- Partial Stroke Test (PST) based on time and position with pressure (torque) logged
- Partial Stroke Tests (PST) initiated via *Bluetooth*® Setting Tool, hardwired or remotely through network cards
- PST results displayed on the screen and recorded in the data logger with the last 25 PST results
- Configurable status and alarms with optional outputs
- 4-20 mA Positioning control resolution to <0.25%
- Increased functionality over networks including *Pakscan*™, Profibus®, Foundation Fieldbus® Modbus® and HART®
- Operating temperatures -50 to +70 °C

The SI_3 are compact, robust and sealed to the environment watertight to IP66/68, they can be supplied certified for hazardous areas Zone 1 or Division 1.

The actuators are provided with a dual stacked LCD display, data logging, diagnostic capabilities and *Bluetooth* connectivity to download the historical data such as events, trends and status.

To maintain the integrity of the enclosure, Rotork non-intrusive infra-red / *Bluetooth* Setting Tool is supplied to allow for viewing settings and to down load the actuator data without the removal of any actuator covers.

The SI range of actuators consist of a sealed control module with the LCD dual display located behind a sealed toughened glass window. Set-up and reviewing the configuration is undertaken with the Rotork *Bluetooth* Setting Tool Pro, making the actuators ideal for use in hazardous and harsh environments. The non-intrusive *Bluetooth* handheld Setting Tool provides access to internal hydraulic pressure settings, position limits, control, indication functions and the datalogger. The setting tool is also compatible with older models of Rotork infra-red setting tools. The 3rd generation SI range can operate using the Rotork *Bluetooth*® Setting Tool Pro, allowing access without direct line of sight over greater distances. This is achieved by pairing the setting tool and actuator in a single infra-red transaction after which *Bluetooth*® wireless connection can take over. Configuration changes are password protected and the actuator is immune to connection by non-Rotork devices or programmes.

The 3rd generation of SI actuators benefit from further advances in human interface design. In addition to a configurable, information rich display, the actuators provide a highly intuitive menu structure for commissioning and diagnostics.

The latest version of the Rotork Insight software streamlines actuator set-up. The settings can be saved on a suitable PC and quickly downloaded to the individual actuators via the handheld Rotork *Bluetooth*® Setting Tool. Insight allows the operator to review settings, events and trends on a PC remote from the actuator.

Double-Sealed Terminal Compartment

The SI actuator control modules are rated to IP 66/68 watertight and dust tight. The terminal compartment is designed with a double seal to ensure protection of all internal components by separating them from the cable glands and terminal compartment with a sealed watertight terminal block. Protection is maintained during site installation when the terminal cover is removed and is independent of cable gland sealing. The terminal compartment is available as watertight or hazardous area certified Ex d or Ex e.

Bluetooth®

SI_3 **Quarter-Turn** Actuators

The Skilmatic SI_3 standard quarter-turn actuator range (size 2 & 3) offer a unique and reliable solution for electric fail-safe actuation on all quarter-turn valve and damper applications.

The SI_3-2 & 3 are compact and robust spring-return actuators designed for all types of ball, butterfly, plug valves and dampers. Consisting of a self-contained electro-hydraulic power module with a spring-return scotch yoke drive. The actuators are available as spring-return clockwise, anti-clockwise or lock in last position. The SI_3 actuators can also be configured for modulating control with a positioning resolution <0.25%.

Specifically designed for safety critical applications the actuators accept various inputs signals as standard, including emergency shutdown (ESD) and partial stroke testing (PST). Optional field bus communication can be provided for remote monitoring and control and can be used in conjunction with a hardwired ESD input to maintain the safety integrity of the system when used on ESD applications.

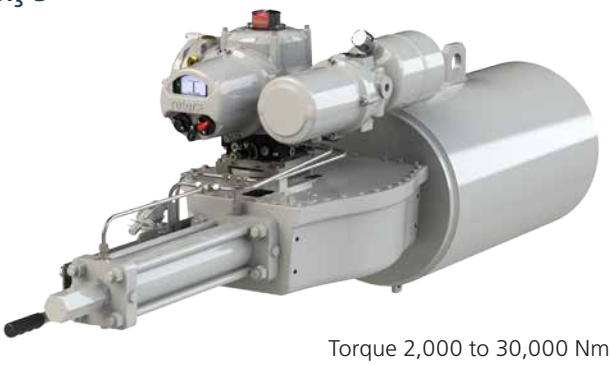
SI_3 actuators are certified to IEC 61508:2010 for Safety Instrumented Systems (SIS), with a Systematic Capability SC-3 and suitable for use in SIL 2 & SIL 3 system.

The standard range consists of two product sizes:

SI_3-2

Torque 65 to 4,000 Nm
(575 to 35,400 lbf.in)

SI_3-3



Torque 2,000 to 30,000 Nm
(17,700 to 265,500 lbf.in)

Model	Torque Nm		Speed (seconds)			
			Hydraulic Direction		Spring Direction	
	From	To	From	To	From	To
SI_3 - 2 Q	65	4,000	8	83	1.5	300
SI_3 - 3 Q	2,000	30,000	15	130	0.5	728

See product specification data sheet for full details

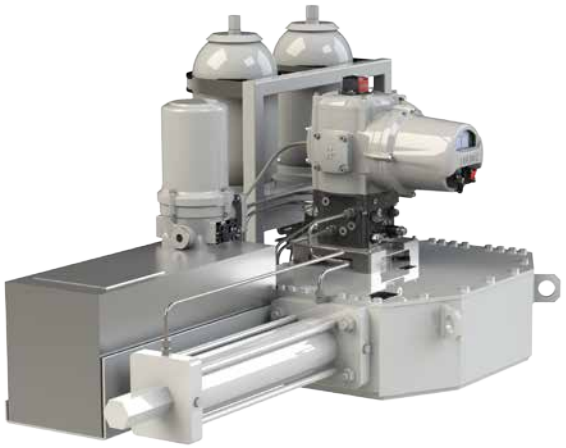
SI_3 **Quarter-Turn** Actuators

Skilmatic SI_3 size 4 (SI_3-4) quarter-turn actuators offer the flexibility to customise the actuators to suit specific applications and process conditions. The actuators are self-contained and utilise a higher internal pressure to drive a double-acting or spring-return scotch yoke drive. Eliminating the high installation and maintenance costs associated with conventional electro-hydraulic systems which utilise central hydraulic power units.

Accumulators are offered with the SI_3-4 range to provide an alternative to spring-return. With double-acting actuators the accumulators will provide multiple strokes on loss of power supply. They can also be provided to decrease the hydraulic stroke speed on spring-return actuators.

SI_3 actuators are certified to IEC 61508:2010 for Safety Instrumented Systems (SIS), with a Systematic Capability SC-3 and suitable for use in SIL 2 & SIL 3 system.

SI_3-4 Double-Acting with Accumulator



SI_3-4 Spring-Return with Optional Accumulator

Model	Torque Nm		Speed (seconds)			
			Hydraulic Direction		Spring Direction	
	From	To	From	To	From	To
SI_3 - 4 Q - SR	8,480	154,000	5	425	2.5	700
SI_3 - 4 Q - DA	5,768	500,000	5	325	N/A	N/A

See Product specification data sheet for full details

SI_3 **Linear** Actuators

The Skilmatic SI_3 Linear actuator product range provides a reliable solution for electric fail-safe and modulating control when a direct linear movement is required.

The range consists of the SI_3–1, 2 & 3 are standard sizes, the SI_3-4 are customised to suit the application. The actuators are available as spring-return to extend or retract or double-acting for fail-safe or lock in last position on loss of power or control signal.

The SI_3 actuators accept analogue input signal to accurately position a control valve with a resolution < 0.25%, they will also provide a 4-20 mA output of valve position.

For modulating control the deadband and hysteresis can be independently adjusted in both directions to optimise the positioning accuracy and repeatability to suit the process. The output position against demand profile can also be characterised within the actuator program to suit the valve flow characteristics such as linear, equal % or quick opening. The option for stepping control is also available as standard and is selectable in the menu for pressure surge and choke valve applications.

The actuators are available for use with various power supplies, single-phase, three-phase or 24 VDC.

SI_3-4-LH actuators offer the flexibility to customise to suit specific applications and are designed for two position and emergency shutdown applications. The actuators can also be configured for analogue control with a resolution of <0.5%.

Accumulators are offered with the SI_3-4 range to provide an alternative to spring-return. With double-acting actuators the accumulators will provide multiple strokes on loss of power supply. They can also be provided to decrease the hydraulic stroke speed on spring-return actuators.

Model	Thrust kN		Speeds (mm/sec)		Stroke (mm)
	From	To	From	To	
SI_3 - 1 L	1.76	11	6	0.9	Up to 100
SI_3 - 2 L	11	36	5.2	1.0	Up to 150
SI_3 - 3 LH - SD	30	235	10	0.8	Up to 210
SI_3 - 4 LH - SD	25	235	300	0.5	Customer specified
SI_3 - 4 LH - D	10	5,500	300	0.5	Customer specified

See Product specification data sheet for full details

SI_3 Features

Local Control and Indication

Non-intrusive selectors are provided on the actuators electrical control module cover which also includes an LCD display showing actuator position, status and alarm. The control module cover may be rotated through 360° (90° increments) to suit actuator orientation/operator access. Set-up is over a *Bluetooth* interface using the supplied Rotork *Bluetooth*® Setting Tool Pro.

Display

The LCD dual stacked display allows large segment characters for position and pressure to be displayed down to -50 °C (-58 °F), while the matrix display provides detailed setting, status and diagnostic screens. The display is backlit to provide excellent contrast even in the brightest ambient light conditions and is protected by a toughened glass window.

An optional protective clip-in cover is available where high UV levels or abrasive environments are present.

Position Indictor LED's

Within the display window position indication LEDs are supplied in duplicate on each side of the display to indicate end of travel limits (Open and Closed) and intermediate position.

Local Controls

The control module is complete with local lockable controls. The Local/Stop/Remote selector switch and Open/Close switch are non-intrusive, coupled magnetically to the designated switch, thereby maintaining the module sealed to the environment. The Open/Close switch can only be operated when local is selected.

Pressure and Position Monitoring

The actuator torque is measured in the form of hydraulic pressure which directly relates to the torque required to operate the valve.

The SI_3 actuator monitors the valve position and torque, the signals are used by the actuator control circuit to limit position and pressure. They also provide real time indication, alarms and record valve operating profiles to the internal datalogger with date and time stamped.

Pressure

The hydraulic pressure sensor is integral to the actuator control module and monitors the pressure generated to overcome the valve force throughout the actuator stroke.

The pressure sensor will detect obstructions in mid-travel and will alarm should a high pressure be detected. The actuator can torque seat a valve at either end of travel.

When torque seating is required an option is included for the system to maintain the internal hydraulic pressure by re-starting the motor/pump automatically if the pressure drops below the required pressure.

Hysteresis adjustment for over- and under- pressure can be enabled to compensate for hydraulic expansion or contraction due to large ambient temperature changes.

Position

Reliable valve position monitoring is critical in all remote valve automation applications constantly monitoring the position throughout the valve stroke. The monitoring system needs to provide the actuator controls with continuous position information.

The SI_3 monitors the position through a high resolution non contacting Hall Effect sensor incorporated within the actuator control module. The sensor is designed for high duty cycling with minimum moving parts and is directly connected to the valve drive shaft to provide a resolution < 0.25%. The actuator display will read position as 0.0% at the closed limit and 100.0% at the open limit.

Position feedback can be provided as a 4-20 mA output signal.

The actuator is capable of setting the open and closed limits on position or hydraulic pressure (torque).

Local Mechanical Indicator

The SI_3 actuator can be provided with mechanical position indication, visible at over 10 meters from the actuators. The red and green visual indicator can be provided with either UV resistant polycarbonate or 316 stainless steel indicator.

SI_3 Features

Control

The actuator can be configured for remote control of a valve or damper in two position or positioning control applications. Available to meet the requirements of various site control systems from simple manual push-button control, remote two position control, emergency shutdown (ESD) through to positioning control using hardwired switched signals, analogue or digital "bus" network systems.

Hardwired two position control can be selected as 2 or 3 wire control – Open, Close and Maintain commands with emergency shutdown and partial stroke testing configurable as standard.

Stepping Control to slow the rate of opening and / or closing over part or the full stroke of the valve can be selected to reduce pressure surges in the valve and pipeline. The stepping option is selected in the menu and the required stepping control travel, stroke time and number steps are set in the menu.

Emergency Shutdown – (ESD)

The Skilmatic SI_3 has been designed for fail-safe applications where functional safety is paramount. The actuators are suitable for use in Safety Instrumented Systems (SIS), certified to IEC 61508:2010. For use in SIL 2 & SIL 3 systems.

When used for a fail-safe application the SI_3 can be configured through hardware selection to accept an ESD inputs as part of a SIS. In this configuration the actuator will only operate when the actuator detects a safe ESD input signal and will trip on loss of the signal. The actuator can be provided to operate in the following ESD modes.

Fail-Safe on Loss of Mains Supply

For applications where the loss of mains power is considered part of the Safety Instrumented System the SI_3 is offered as Fail-Safe on either loss of power supply or ESD signal. This option offers a low power consumption on the ESD input (0.2 W). In this mode the solenoid valve(s) that perform the safety function are powered from the main power supply circuit, the actuator will accept an ESD input signal of 20 to 60 VDC or 60 to 120 VAC with the following functionality:

- Fail-safe on loss of ESD signal
- Fail-safe on loss of mains power supply

Fail in Position on Loss of Mains Supply

For applications where the mains power is unreliable and is not critical to the functional safety of the process, the SI_3 can be offered for fail safe on loss of ESD signal and will comply with IEC 61508. In this mode the solenoid valve(s) that perform the safety function will require to be powered from a 24 VDC ESD input and will operate through a Pulse Width Modulation (PWM) circuit to reduce the power consumption. This option will provide the following functionality.

- Fail-safe on loss of ESD signal
- Fail in last position on loss of mains power supply

Additional ESD Input

The standard fail-safe configuration of the SI_3 actuator will accept a single ESD input. The SI_3 offers the option of a second ESD input by using an additional ESD option card. This allows the SI_3 to operate with two shutdown systems such as emergency shutdown ESD system and a Process shutdown from a DCS system without affecting the integrity of the safety system with the following functionality:

- Two ESD signals operate common solenoid valve(s). If either ESD signal is removed the actuator will perform the safety function by operating the same final elements.
- Two ESD signals operating independent solenoid valve(s). If either ESD signal is removed then the actuator will perform the safety function by operating the associated solenoid valve.

ESD Manual Reset

When an ESD signal has tripped and the actuators has moved to the safe position, the actuator will only operate when the ESD signal is reinstated and a new command signal is provided.

As an added protection layer the SI_3 has an option, selected in the menu to manually reset the actuator before the actuator can accept a new command signal. The manual reset can be operated by the local controls on the actuator control module which will act as reset switch or by a remote reset pushbutton supplied by the customer and wired to the actuators.

Partial Stroke Testing (PST)

Partial Stroke Testing is a function used in two position safety critical applications where the safety valve is infrequently operated. PST allows the operator to test critical components in the actuator and valve for possible failure. The test can be performed without the need to physically close the valve and thereby maintain the process operational. This allows the user to identify any potential faults which could prevent the actuated valve from performing its safety function.

All final elements such as solenoids, actuator drive and the shutdown valve are tested during the Partial Stroke Test.

The SI_3 range of actuators provide partial stroke testing as a standard option on all two position configurations. When the command is given to initiate the test, the actuator will move the valve to a pre-set position and the stroke time recorded.

The advanced PST system operates by de-energising each solenoid valve in turn to allow the valve to move to the required position and then return the valve to the original position. The degree of movement required is configured by the user during the commissioning process and is adjustable from 0 to 99% of travel. The time taken will be measured and compared to the original full stroke test recorded at the commissioning stage for each solenoid and combination of solenoids.

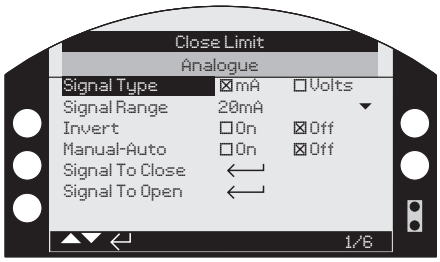
A pass or fail will be displayed and the alarm will be activated if enabled. Internal pressure will also be measured and recorded in the datalogger.

The PST can be initiated remotely hardwired, through the network card or locally with the Rotork *Bluetooth*® Setting Tool Pro.

The SI_3 range also provide the facility to undertake a Full Stroke Test (FST) during scheduled planned maintenance. FST is selected in the actuator menu.

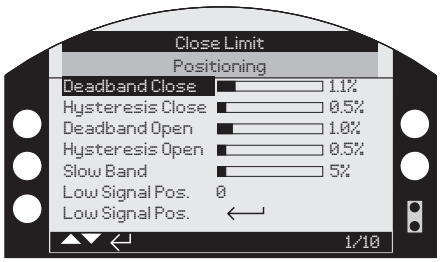
Positioning Control

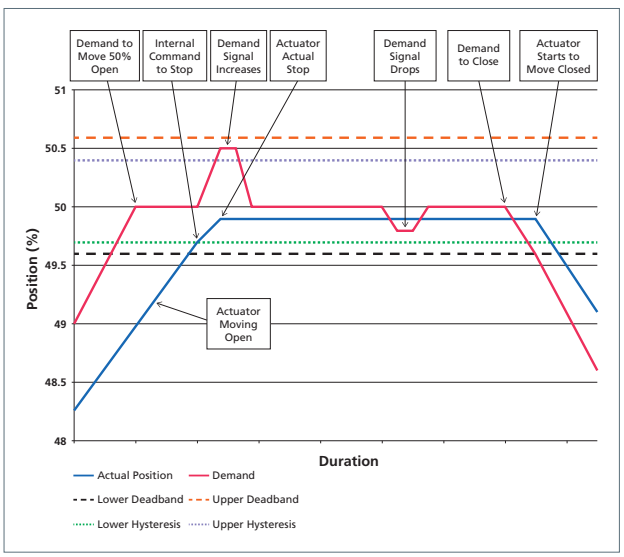
The SI_3 actuators are suitable for modulating control applications and will position a valve or damper from an analogue mA or voltage input signal, digital pulsed or through a range of network cards or the HART interface.



When analogue control is selected independent deadband and hysteresis adjustments are provided in the menu to optimise the control to suit the process conditions. The position against demand profile can also be tailored to suit the specific valve flow characteristics such as linear or equal percentage profile by utilising the Rotork Insight2 software.

With slowmode option selected the actuator will position the valve to a resolution <0.25% and remote position feedback is provided with the option of a 4-20 mA output signal for valve position. The option for stepping control is also available as standard and is selectable in the menu for choke valve control applications.

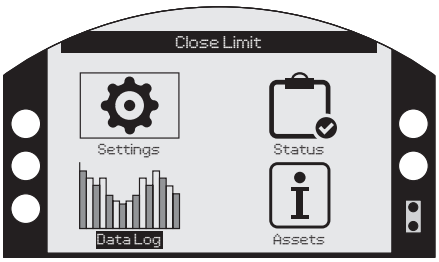




SI_3 Features

Datalogger

The internal datalogger provides data of the actuator, valve and input signals. The datalogger stores the configuration set-up, events, trends, status and alarms with up to 3,000 events held in the actuator memory. The position, hydraulic pressure and temperature are also continuously monitored and stored.



The data can be viewed locally on the dot matrix display and can display pressure and position graphs through to statistical operational data. All data held is secure and can be down loaded using the Rotork *Bluetooth*® setting tool for viewing on a PC with Rotork Insight2 software.

All configurations and datalogger files are stored in non-volatile EEPROM memory, which means all settings are safe when the power is removed. An internal super capacitor is provided to maintain the real time clock when the actuator is not powered for periods over two weeks should the power supply be disconnected.

The datalogger provides comprehensive data capture and analysis for planned maintenance and troubleshooting issues with the valve and processes, this includes:

- Pressure profiles
- Operational starts profiles
- Operational, vibration and temperature trend logs
- Event logs

Asset Management

Asset management data regarding the actuator and the valve can be stored within the actuator including tag numbers, actuator build data and valve information along with service information. Specific asset management information includes:

- Running time
- Average pressure
- Starts
- Life statistics

To improve asset management and providing reliable data to optimise preventative maintenance, the SI_3 includes configurable service / maintenance alarms. The alarm parameters include:

- Pressure at Open limit
- Pressure at Closed limit
- Starts/Hr
- Total starts
- Service intervals

Auxiliary Supply

Auxiliary 24 VDC supply option card is offered for applications where indication relays, sensors, network cards, display, and datalogger are required to be maintained when mains power is not available. This option will also provide a log of valve movement on loss of mains supply. The fail-safe action will be recorded and remote indication will be maintained.

SI_3 Features

Network System Connectivity

With the addition of the appropriate option card, the SI_3 actuator can be incorporated in a number of different network control systems. The SI_3 actuators can be utilised within the Rotork *Pakscan* control system and all major open fieldbus protocols, including Profibus®, Foundation Fieldbus®, Modbus® and HART®. All control functions, position and status indication would be communicated through the chosen network. When used in a functional safety application the actuator would be supplied with Hardware ESD input which will take priority over all other commands

SI_3 Features

Remote Hand Station

Actuators used in many applications can be mounted in locations where it is hazardous, or inconvenient for human operation. In these cases it is useful to be able to see the status and locally operate the actuator from a safe distance.

Typical in this situation is the use of a simplistic interface for basic operation and indication. Rotork's solution allows the user to have the exact same interface as though stood in front of the actuator.

Using the same display and control interface from the SI_3 actuator, users can remotely operate, interrogate and configure the SI_3 actuator from up to 100 m distance. Due to the familiar feature rich interface set-up couldn't be easier using the Rotork *Bluetooth* Setting Tool Pro supplied with the actuator.

Duplicating the full functionality of the SI_3 data logs, can be viewed and downloaded locally at the Remote Hand Station (RHS) instead of gaining access to the actuator. Power for the RHS is supplied by the actuator, removing the need for a supplementary power supply.

Features and Benefits

- Installation using standard data cable,
- Up to 100 meters from the actuator.
- Pole or wall mounting
- Replicates the SI_3 user interface, including set-up and configurations
- Powered from the actuator 24 VDC output
- Double-sealed
- Enclosure IP66/68 (7 m for 72 hours)
- Explosion-proof / Flameproof options available
- Actuator data logs available to view and download locally

Specification

Type	Standard	Optional
Enclosure Non-Hazardous	IP66 / IP68 (7 m / 72 hours), NEMA 4, 4X & 6, Double-sealed	–
Enclosure Hazardous	ATEX, CSA, CSAus and IEC	–
Temperature Range	-30 to +70 °C (-22 to +158 °F)	-50 °C (-58 °F)
Power Supply	Actuator derived 24 VDC	–
Mounting Options	Wall or pole mounted	–
Coating	Polyester powder coated	Off-shore paint, special colours
Support Tools	Rotork *Bluetooth*® Setting Tool Pro, Insight2	–
Local Control	Non-Intrusive, Local/Stop/Remote (lockable) selector and Open/Close selectors	Vandal-proof cover

SI_3 Features

Manual Override

On loss of power or control network, SI_3 actuators are available with the option of a hand pump manual override. The manual override consists of a hydraulic hand pump and a lockable selector valve, the manual selector valve is normally locked in the electrical operating position for normal actuator operation. When the power supply or control signal is not available the pipeline valve can be operated manually by removing the lock on the manual override selector valve and rotating the selector valve through 90° to the manual position.

The hand pump can be operated to move the actuator in the hydraulic direction. Selecting electrical operation position on the manual selector valve will return the actuator in the spring direction.

Care must be taken when using the Manual Override, in the manual position the actuator will not be part of a Safety Instrumented System (SIS) and will not respond to an ESD signal. The manual selector valve will detect when manual mode has been selected and prevent electrical operation until the valve has been returned to the normal electrical control position. The local mechanical position indicator will show the position of the valve.

Should power be reinstated while the actuator is in manual mode the actuator will display a manual alarm.

Certification

Functional Safety

SI_3 actuators are certified to IEC 61508:2010 for Safety Instrumented Systems, with a Systematic Capability SC-3 and suitable for use in SIL 2 & SIL 3 system. Copy of the certificate is available Rotork with PFD and SFF data, hardware fault tolerance (HFT) according to Table 6 of IEC 61511-1 should be observed.

Non Hazardous & Hazardous areas Certification

All SI_3 actuator control modules are watertight to IP66/ IP68/NEMA Type 4 & 6. Through the use of non-intrusive commissioning, using the Rotork *Bluetooth*® Setting Tool Pro, covers do not need removing and therefore the hermetic, factory-sealed enclosure protects internal components for life.

The SI_3 range of actuators are available for use in hazardous areas and certified for use in temperature from -50 to +70 °C to meet the following standards:

Please refer to the product specification data sheets for full details and temperature options.

Hazardous area

ATEX (European):	ATEX II 2G c Ex db[1] IIB T4 / Ex db[1] IIC T4
IEC Ex (International):	Ex db[1] IIB T4/ Ex db[1] IIC T4
cCSAus (USA):	Class 1, Division 1, Groups B, C & D Class 1-Zone 1 AEx d IIB T4 / AEx d IIC T4
CSA (Canadian):	Class 1, Division 1, Groups B, C & D Ex d IIB T4/ Ex d IIC T4
EAC (Russia):	TRTS - Ex d[1] IIB T4 / Ex d[1] IIC T4

[1] *"e" added on versions with increased safety terminal enclosure*

The Rotork *Bluetooth*® Setting Tool Pro is certified Intrinsically Safe permitting power-on commissioning in hazardous areas.

Hazardous area approvals for other country standards are available; please contact Rotork.

rotork®

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www.**rotork**.com

A full listing of our worldwide sales and service network is available on our website.

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