

rotork® Fluid Systems

Introducing the new Skilmatic Range SI and EH *Pro* actuators

The Skilmatic range of self-contained electro-hydraulic actuators, combine the simplicity of electrical operation with the precision of hydraulic control and the reliability of mechanical fail-safe action.

The new highly intelligent SI/EH *Pro* control and monitoring system is based on the well proven Rotork IQ *Pro* actuator. SI/EH *Pro* actuators provide the ideal solution for two position control, critical safety shutdown or precise modulating control.

SI/EH *Pro* provides the benefits of reliable valve actuation by combining existing proven Skilmatic features with new text displays, performance monitoring and datalogging - including valve signature profiles. In combination with Rotork's non-intrusive intrinsically safe Bluetooth™ Setting Tool *Pro*, the actuator configuration and datalogger files can be transferred from the field to the office for download, analysis and storage.

SI/EH *Pro* – Improved monitoring and control:

- Datalogger – Recording events, trends and alarms.
- Bluetooth Setting Tool *Pro* – Data download and upload between SI/EH actuators InSight II software.
- Semi-automatic position limit calibration.
- Partial stroke – Activated remotely or locally with the Setting Tool *Pro*.
- Optional ESD manual reset – To restrict the actuator from operating until locally reset when the process is in a safe condition.
- Independent deadband and hysteresis – Improved position control for analogue modulating applications.
- Valve flow characterisation – For modulating control with various valves characteristics such as linear, equal % or quick opening trim.
- Optional over pressure & under pressure hysteresis adjustment.
- Manual override detection.
- Position maintained – in any position for digital control and network options.
- CPT output can be configured to provide a 4-20 mA output signal for valve position or actuator hydraulic pressure.
- Three independent alarm output relays – Selectable alarm and monitoring function.
- Temperature sensor – Monitoring the internal temperature of the actuator.

The **SKILMATIC**
Range



Skilmatic *Pro* Range

Reliable, Intelligent
Electro-Hydraulic Actuators

SI *Pro* and EH *Pro* offer a range of enhanced features:

- Larger clearer dual display with 32 character text.
- Customer configurable multilingual text capability.
- Valve torque / thrust signature and profile measured and recorded in the form of actuator hydraulic back pressure.
- Status & monitoring diagnostics.
- Improved data download and transfer speed via Bluetooth.
- Compatible with Rotork InSight II software.
- Compatible with Rotork network communication cards – Pakscan, Profibus, Foundation, Devicenet and Modbus.
- Existing SI and EH actuators (pre-2011) can be upgraded.

Power saving and cost reduction benefits:

- Staggered solenoid valve switching means no requirement for large localised field power supply.
- Optional linkage error compensation for standard rotary potentiometers in place of expensive linear transducer.

Established Leaders in Actuation Technology

Skilmatic Pro Range

Rotork Fluid Systems Skilmatic range of actuators offer a unique and reliable solution for electric fail safe and modulating control for both quarter-turn and linear valves and damper.

The Rotork philosophy of continuous product innovation based on customer feedback has led to the development of a new HMI, monitoring and communications interface for the existing SI and EH range of Electro Hydraulic actuators.

The Rotork Fluid Systems SI/ EH Pro provides a reliable solution for fail-safe two position and modulating control for all major control valves and ¼ turn valves. The actuators blend the simplicity of hydraulic control with today's advanced electronic technology.

The SI Pro are compact and robust self-contained actuators, utilising an internal spring-return mechanism to provide the most reliable means of positioning a valve to a safe condition. They can be fail-safe to close, open or lock in position on power, ESD or system failure.

EH actuators offer the flexibility of customisation to suit the application, featuring an integrated control module; a hydraulic manifold; and a power unit consisting of a motor, hydraulic pump and reservoir. They are available in double-acting or spring-return configurations for larger valve applications.

The SI Pro control module allows Rotork to meet the most demanding customer requirements; these include Fieldbus digital control systems, enabling the unit to be integrated into the majority of field network systems, including Pakscan, DeviceNet, Modbus, Profibus and Foundation Fieldbus.

SI Pro actuators provide simple, safe and rapid non-intrusive commissioning with infra-red and Bluetooth control. Settings such as internal hydraulic pressure, position, limits, control, alarm and indication functions can be accessed and adjusted using the standard Rotork "point and shoot" Setting Tool Pro.

Actuator status, control and alarm icons are provided on the easy to read illuminated LCD display which also gives access to comprehensive, real-time information, such as pressure, diagnostics and help screens.

Safety features have been incorporated to make the SI/EH Pro one of the most reliable and user friendly actuator ranges available. Designed to SIL 3 standards for use on safety critical applications, the actuators are also capable of partial stroking, thus enabling isolating valves to be tested without affecting the process, something of particular importance on emergency shutdown applications. Further enhancements include preventative maintenance features such as local and remote fault detection.



Position and Hydraulic Pressure Display



Position – Closed Limit



Rotork Bluetooth™ Setting Tool Pro features include:

- Non-intrusive, Infra red and Bluetooth communication
- Intrinsically safe for use in hazardous areas
- On site actuator configuration and data download
- Data transfer from actuator to PC with free Rotork Insight II software
- Capacity for multiple configurations and datalogger files
- Multiple configuration capability
- Compatible with all SI and EH actuators pre-2011 using infra red communications only

Skilmatic *Pro* Range

Reliable, Intelligent
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New Pro Features and Benefits

Datalogger

The datalogger will record configuration settings, the last 1024 events with 32 bits of status for each event along with analogue traces for demand, position and pressure.

Bluetooth™ Setting Tool *Pro*

The new intrinsically safe Bluetooth Setting Tool *Pro* allows for downloading or uploading of data from SI/EH actuators. The setting tool will operate within a range of 10 meters of the actuator and will transfer the data for a number of actuators to a Bluetooth enabled PC running Rotork InSight II software.

Dual LCD display

Provides actuator enhanced status indication and alarm with a 32 character text and multilingual capability. The display will indicate position, pressure, commands, alarms and help screens.

Partial stroke

Partial stroking allows the actuated valve to be functionally tested without affecting the process. Confirms availability and minimises plant shutdowns for maintenance. The test can be initiated remotely or locally through the Setting Tool *Pro*.

The partial stroke test is based on moving the actuator to a preset position and the time taken will be measured and compared to the original time recorded at the commissioning stage. A pass or fail will be displayed and the alarm will be activated if enabled.

Three independent alarm and status relays

Three volt free output relays can be configured to customer specific alarm and status requirements or for general group alarms. A monitor relay is also provided to monitor the power supply and any hardware errors.

Optional ESD manual reset

After an emergency shutdown the actuator will return to the predetermined safe position and will be ready to operate on the next command when the ESD signal is reinstated. An optional ESD manual reset can be enabled to restrict the actuator from operating until locally reset at the actuator or through an externally mounted switch.

Manual override detection

Should an optional manual override be installed the actuator can detect and alarm if the actuator is not at the fail-safe position when re-powered after a shutdown.

Temperature sensor

To detect any excess temperature an internal temperature sensor with a range of -50 to +85 °C will measure and record the temperature within the electronic enclosure.

Display test

The LCD display segments and the limit LED's can be manually tested.

CPT

Current transmitter output can be configured to provide a 4-20 mA output signal for valve position or actuator hydraulic pressure. The transmitter can be internal or externally powered.

Optional hardware Inputs

Four isolated volt free inputs are provided for optional external devices including manual override switch, external manual reset, motor thermostat and accumulator pressure switch (EH only).

Rotork InSight software

Files can be uploaded on to a PC with InSight II software for review of the settings and analysis of events and trends. Allowing for easy analysis of actuator settings, performance and environmental conditions.

Semi-automatic end of travel limit calibration

The electrical limits are set at the preset mechanical limits and will automatically be calibrated through the software based on the overall span.

Independent deadband and hysteresis

For modulating control the deadband and hysteresis can be independently adjusted in both the open and closed direction. To optimise the control in both directions with various return speeds to meet the specific application and thereby providing precise positioning control.

Flow characterisation for analogue control

The actuator position against demand profile can be tailored to suit the valve flow characteristics for valves with linear, equal % quick opening characteristics.

Position maintained

When enabled will automatically maintain the open, closed or a desired mid position for digital control and network options.

Over pressure and under pressure hysteresis

An optional hysteresis adjustment for over and under pressure can be enabled, to compensate for hydraulic expansion or contraction due to ambient temperature changes at the open and closed limits.

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Performance Data

Actuator	Spring end		Spring Speeds			
	Torque / Thrust		Hydraulic Direction		Spring Direction	
	From	To	From	To	From	To
Quarter-Turn						
SI-1-Q	65 Nm	480 Nm	15 sec	95 sec	1.5 sec	30 sec
SI-2.1Q	380 Nm	4,400 Nm	14 sec	110 sec	8 sec	110 sec
EH-Q-SR*	4,000 Nm	210,000 Nm	5 sec	425 sec	2 sec	200 sec
EH-Q-DA**	1,000 Nm	600,000 Nm	5 sec	325 sec	N/A	N/A
Linear						
SI-1-L	1.7 kN	10 kN	4 mm/sec	0.6 mm/sec	40 mm/sec	1.62 mm/sec
SI-2.1L	10 kN	61 kN	4.2 mm/sec	0.8 mm/sec	14 mm/sec	0.8 mm/sec
EH-L-SR*	25 kN	150 kN	300 mm/sec	0.5 mm/sec	300 mm/sec	0.5 mm/sec
EH-L-DA**	10 kN	5,500 kN	300 mm/sec	0.5 mm/sec	N/A	N/A

* SR = Spring-Return
** DA = Double-Acting

For further details on the Skilmatic range please see publication F700E.
For full specifications see product specification sheets.

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

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Fluid Power Actuators and Control Systems

Controls
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Gears
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