

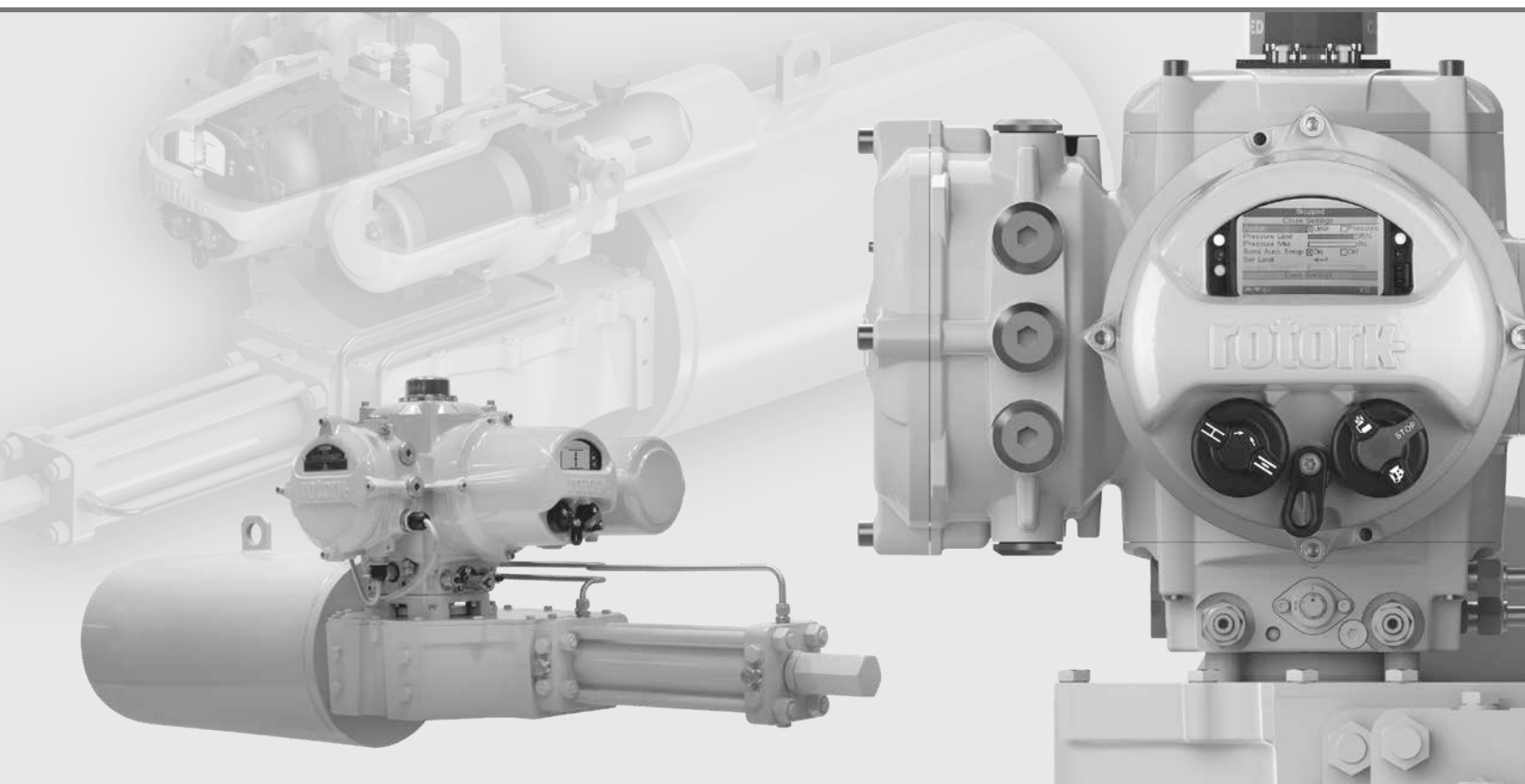
rotork®

Keeping the World Flowing
for Future Generations

Skilmatic SI Range



Full configuration, status and monitoring user manual



Electro-Hydraulic Valve Actuators



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 This manual provides instruction on the set-up and analysis of the actuator.

It is structured so that instruction on using the setting tool, navigation and password security is contained in section 1.1.

This then must be applied when changing settings and viewing information as set out in section 2 - 5.

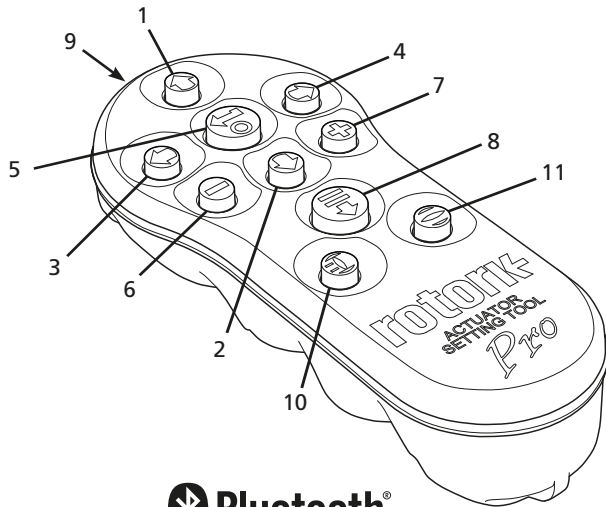
The user must therefore be familiar with the operations contained in section 1 before proceeding.

This manual should be read in conjunction with PUB021-057 SI Range Instructions for Safe Use, Installation Basic set-up and Maintenance supplied with the actuator and also available at www.rotork.com



1.1 Using the Rotork Setting Tool

The setting tool is used to connect to the actuator, navigate through menus, change settings and view information presented on the actuator display.



Name	General Operation
1. Key	Scroll up.
2. Key	Scroll down/Connect via Bluetooth®.
3. Key	Decrease value/Toggle setting/Scroll left.
4. Key	Increase value/Toggle setting/Scroll right.
5. Key	Select the highlighted item. Save the highlighted setting. Stop actuator running (when setting tool control is enabled, refer to 2.3.1).
6. Key	Return to previous menu.
7. Key	Cycle between standard and zoom view on data logger pressure graphs.
8. Key	Actions the pre-configured mission stored on the Rotork Bluetooth® Setting Tool Pro.
9. Key	Infrared transmitter window.
10. Key	Send a Close command to the connected actuator (when enabled refer to 2.3.1).
11. Key	Send an Open command to the connected actuator (when enabled refer to 2.3.1).

Navigation

To navigate through screens, menus and settings, the and keys are used. A single key press results in one movement. Holding the key will result multiple movements in succession. Menus, settings and dropdowns wrap round. This means that an item at the bottom of a screen can be accessed by pressing while at the top.

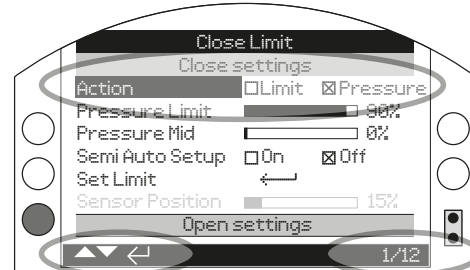
Shorthand instructions

This manual uses shorthand instruction (example): (meaning select, edit setting, save) to prompt the user with the key operations required. The display will also indicate the relevant keys at the bottom left.

Pages, functions and index

The display indicates the number of each function as it is highlighted along with the total number of functions on that page. In the example below, Action is function 1 out of a total of 12 functions within that menu.

This manual uses the display function number as a reference for instructions.



Action (highlighted) is function 1 out of a total 12 on the LIMITS page.

Selection

The key is used to select a main menu item, menu items or instruction buttons. For a setting, the key is used to select when a change is required. The first time this occurs in a communication session, a password will be requested on the screen, refer to 1.3. Subsequent changes within the same session do not require the entry of a password. When selected, a menu item will be opened or a setting/function will be highlighted.

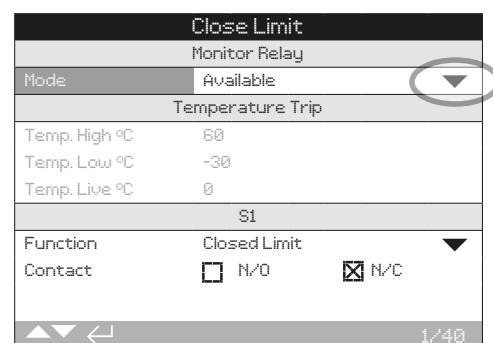
Information, instruction and password entry screens require an or button to be selected. Navigate to highlight the required button using or and press to select.

Setting controls

There are four types of setting control used. When a function is selected, the ability to change the function, setting or value is made available using drop down lists, checkboxes, slider controls or numerical values.

Drop down lists

Drop down lists are indicated by .



The example of the S1 indication contact Function (highlighted) dropdown list box is shown on the next page. When selected (password entered if applicable, refer to 1.3), the current set function will be highlighted within the drop down list.



Close Limit	
Mode	Avail
Temp. High °C	60
Temp. Low °C	-30
Temp. Live °C	0
Function	General Alarm

5/40

The symbol ▼ in the drop down box indicates more functions are available by scrolling ⬆ or ⬇.

Use ⬆ or ⬇ to scroll through the list until the required function is highlighted. Press ⬇ to select. The drop down list will close and the selected function will be saved and shown on the page.

Press ⬇ to exit without saving.

Checkboxes

Checkboxes are indicated by ☒ or ☐.

Close Limit	
Close Settings	
Action	☐ Limit ☒ Pressure
Pressure Limit	90%
Pressure Mid	0%
Semi Auto Setup	☐ On ☒ Off
Set Limit	←
Sensor Position	15%
Open Settings	

1/12

An example for the limit setting checkbox is shown.

Close Limit	
Close settings	
Action	☒ Limit ☐ Pressure
Pressure Limit	95%
Pressure Mid	0%
Semi Auto Setup	☒ On ☐ Off
Set Limit	←
Sensor Position	0%
Open Settings	

1/12

When selected (password entered if applicable, refer to 1.3), the current mode will be highlighted.

Use either the ⬆ or ⬇ to toggle between modes.

Once the required mode is checked, press ⬇ to select. The selected mode will be saved and shown as checked on the page.

Press ⬇ to exit without saving.

Slider controls

Slider controls graphically indicate the set value followed by the exact numerical value, for example:

To Position  80%

The range covered by the slider is fixed and is determined by its function.

Close Limit	
S1	
Function	Pos % Open
Contact	☒ N/O ☐ N/C
Position	 10%
S2	
Function	Open Limit
Contact	☒ N/O ☐ N/C
Position	 50%

10/40

An example of the S1 indication position value is shown above. The S1 contact function of Pos.% Open indication will show the valve position at which the contact will change state.

Press ⬇ (enter password if applicable). Use ⬆ or ⬇ to decrease or increase the value.

Slider controls wrap round so a ⬆ key press on a minimum value will wrap round and indicate the maximum value. The value step changes increase as either of the keys is held down.

Press ⬇ to exit without saving.

Numerical values

Numerical values relate to fields such as time or address - shown in the example.

Profibus	
Address	126
GSD Param.	☒ Yes ☐ No
Termination1	☐ On ☒ Off
Termination2	☐ On ☒ Off
Redundancy	☐ Flying ☒ System
Extended Diag.	☐ Yes ☒ No

1/6

Press ⬇ (enter the password if applicable). Use ⬆ or ⬇ to decrease/increase the numerical value. Press ⬇ to select when the correct value is attained.

Press ⬇ to exit without saving.



1.1 Using the Rotork Setting Tool *continued*

The Rotork Bluetooth® Setting Tool *Pro* incorporating Bluetooth wireless technology is shown below. It is identified by the key symbols and a clear band between the top and bottom casings being transparent.

The Rotork Infrared Setting Tool *Pro* is identified by solid yellow keys and a yellow band between casings:



Yellow: Rotork Infrared Setting Tool *Pro*
Clear: Rotork Bluetooth® Setting Tool *Pro*

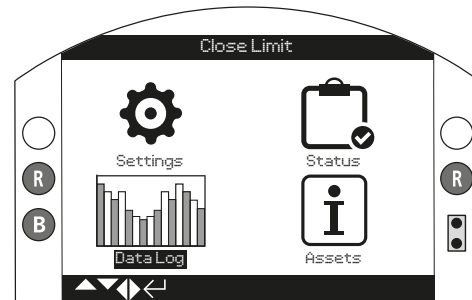
1.2 Connecting to the Actuator

Connecting to the actuator using Bluetooth

The actuator must be powered up to connect using Bluetooth. The default security set in the actuator for Bluetooth connection is by initiation using an Infrared command. This means that the user must be in close proximity and in direct line of sight of the actuator.

Point the setting tool at the Infrared sensor located at the lower right of actuator display window within a range of 0.25 m (10") and press key until the key flashes blue.

The screen will change to the Main Menu screen.



The setting tool will automatically connect using Bluetooth which takes up to 5 seconds.

Connection is indicated by a blue light on the tool and in the actuator display window. Once connected, the tool can be used without pointing it at the display window.

Bluetooth connection will be maintained while setting tool key commands are made. After a period of 5 minutes with no key commands, Bluetooth connection will be turned off and the setting tool and display blue lights will go out. To manually disconnect Bluetooth at any time, press and keys together.

Connecting to the actuator using Infrared

Infrared communication is used when:

1. Bluetooth communication has been disabled.
2. Legacy Infrared tool is used (yellow banded).

Communication is by direct line of site, within 0.25 m (10"). Keys have the same function as previously shown.

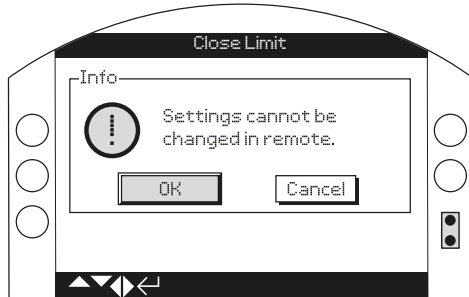
1.3 Password Security



Menus, pages and settings may be viewed when the actuator is set to Remote, Stop or Local. To change a setting, the actuator must be selected to Local or Stop using the red selector and the correct password must be entered.

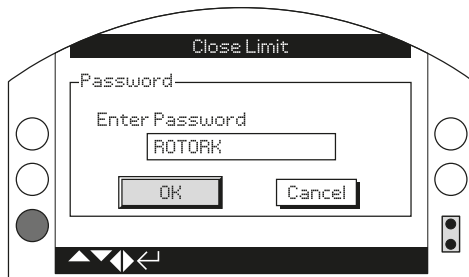
The password will be requested the first time a function is selected. Once correctly entered, other changes can be made without re-entering the password for the duration of the setting tool session with the actuator.

If the actuator is selected to Remote and a setting is selected, the following will be displayed:



Press the key to return to the previous page. Set the red selector to Local or Stop to proceed with the setting change.

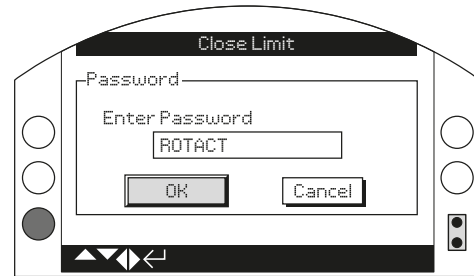
With the actuator correctly selected and when any setting function is selected, the password screen will be displayed.



The factory set default password ROTORK is displayed and the OK button is highlighted.

Press key. The setting page from which the function was selected will be displayed with the function highlighted.

If the user has set their own password the following screen will be displayed:



Enter user selected Password:

Use to highlight new password entry box and press .

Use to scroll through alphanumeric values to display required character.

Use to move to the next character.

Use to delete the highlighted character.

Use when selected password is complete.

Navigate to the OK button using then press to accept the password.

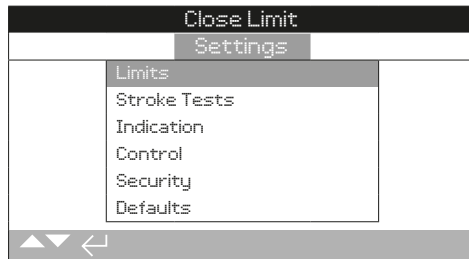
Password levels

Viewer – ROTORK

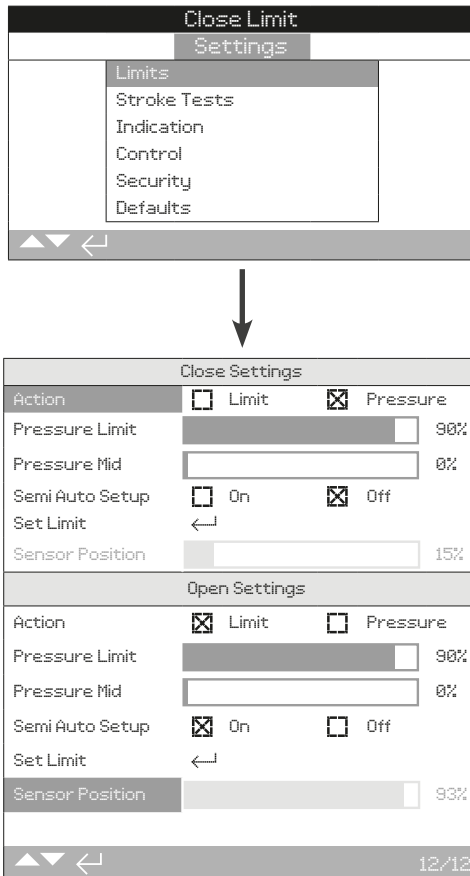
Modify – ROTACT



2. Settings



2. Settings Menu	Page
2.1 Limits	9
2.2 Stroke Tests	11
2.3 Accumulator Charge	13
2.4 Indication	14
2.4.1 Contacts	14
2.4.2 Local Display	15
2.4.3 Analogue	17
2.5 Control	17
2.5.1 Local Control	18
2.5.2 Remote Control	19
2.5.3 Temporary Loss	33
2.5.4 Stepping Control	34
2.6 Security	35
2.7 Default	36



Close Settings

1/12 Action

The actuator can be configured to Close on pressure or to Close on limit.

Pressure (default) – The actuator will move the valve to the set Closed limit and then travel to the mechanical stop.

Limit – The actuator will move the valve to the set Closed limit position and stop.

To change, press    . The check will indicate the set closing action.

2/12 Pressure Limit

Set the maximum pressure for operation beyond the electrical Closed limit position against the Closed mechanical end stop. The value is a percentage of the maximum available pressure (limited by the pressure relief valve).

Default = 90%

To change, press    . The check will indicate the set closing pressure limit.

3/12 Pressure Mid

This settings defines the maximum/minimum cut-off pressure while travelling from the Open electrical limit to the Closed electrical limit. If set to 0%, the actuator will use the same value as set for Pressure Limit 2/12.

Default = 0%

To change, press    . The slider will indicate the set Close Pressure Mid limit.

4/12 Semi Auto Setup

When set to On, the actuator Closed limit is automatically set approximately 2% of travel before the mechanical stop of the valve/actuator. The electrical limit is set before the mechanical stop to avoid faults occurring during operation. When set to Off, the actuator can operate against the mechanical stop.

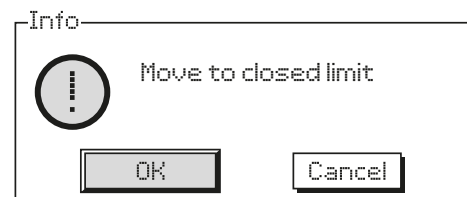
Default = ON

To change, press    . The check will indicate the Semi Auto Setup setting.

5/12 Set Limit

If the actuator has been delivered complete with the valve, the valve maker should have already set the Closed and Open limit positions, refer to testing below.

To set the actuator Closed Limit, press .



Move the actuator to the the mechanical Closed limit position and press  to set the Closed limit at the current actuator position. If not previously illuminated, the Closed limit indication LED (factory default green) will illuminate.

Testing: Confirm the limit position by operating the actuator open until the limit indication LED changes colour. Operate the actuator closed to verify the indication LED changes back to indicate the Closed limit is active.

6/12 Sensor Position

Sensor Position 15%

The Sensor Position slider shows the current sensor feedback. It must read above 5% in the Closed limit position to prevent a fault occurring.

Open settings

7/12 Action

The actuator can be configured to Open on pressure or to Open on limit.

Pressure – The actuator will move the valve to the set Open limit and then travel through to the mechanical stop.

Limit (default) – The actuator will move the valve to the set Open limit position and stop.

To change, press    . The check will indicate the set open action.

8/12 Pressure limit

Set the maximum pressure for operation beyond the electrical Open limit position against the Open mechanical end stop. The value is a percentage of the maximum available pressure (limited by the pressure relief valve).

Default = 90%.

To change, press    . The slider will indicate the set Open pressure limit.

9/12 Pressure Mid

This setting defines the maximum/minimum cut-off pressure while travelling from the Closed electrical limit to the Open electrical limit to be set. If set to 0%, the actuator will use the same value as set for Pressure Limit 8/12.

Default = 0%

To change, press    . The slider will indicate the set Open Pressure Mid limit.

10/12 Semi Auto Setup

When set to On, the actuator Open limit is automatically set approximately 2% of travel before the mechanical stop of the valve/actuator. The electrical limit is set before the mechanical stop to avoid faults occurring during operation. When set to Off, the actuator can operate against the mechanical stop.

Default = ON

To change, press    . The check will indicate the Semi Auto Setup setting.

11/12 Set Limit

If the actuator has been delivered complete with the valve, the valve maker should have already set the Closed and Open limit positions, refer to testing below.

To set the actuator Open Limit, press .



Move the actuator to the mechanical Open limit position and press  to set the Open limit at the current actuator position. If not previously illuminated, the Open limit indication LED (factory default red) will illuminate.

Testing: Confirm the limit position by operating the actuator Closed until the limit indication LED changes colour. Operate the actuator Open to verify the indication LED changes back to indicate the Open limit is active.

12/12 Sensor Position

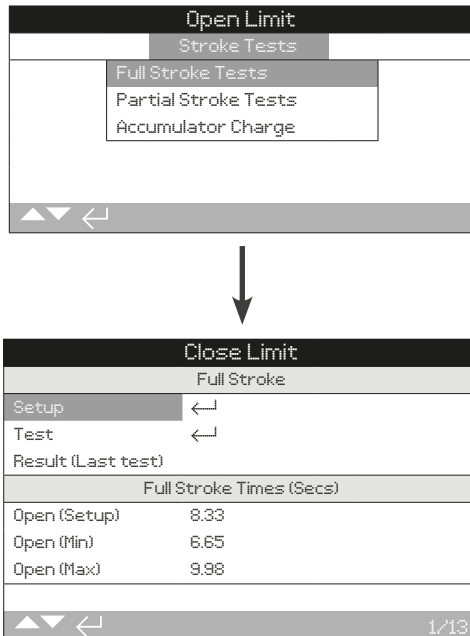
The Sensor Position slider shows the current sensor feedback. It must read above 95% in the Open limit position to prevent a fault occurring.

Sensor Position  0%

Full Stroke Tests

Full stroke testing provides a useful comparison of current operating characteristics compared to known healthy characteristics.

Before starting this process the actuator Closed and Open limits must be set.



1/13 Setup

To begin the Setup process, press . A warning will appear, set the actuator operating mode to Local and press .

The actuator will operate to the Open or Closed limit and then perform two or three complete cycles to record the full stroke characteristics. The Opening (4/13), Closing (12/13) and ESD (8/13) operating times are recorded and saved for reference to future full or partial stroke tests.

2/13 Test

To begin a full stroke test, press . A warning will appear, set the actuator operating mode to Local and press .

The actuator will operate to the Open or Closed limit and then perform two or three complete cycles to record the full stroke characteristics. The Opening (7/13), Closing (13/13) and ESD (11/13) operating times are recorded and saved for comparison to the Setup stroke test results.

3/13 Result (Last Test)

Shows a warning if the results from the last full stroke test fall beyond permissible tolerances of the saved Setup times.

4/13 Open (Setup)

Display the Open stroke time (in seconds) from the Setup (1/13) full stroke test.

5/13 Open (Min)

Displays the minimum permissible Open stroke operating time, Setup (4/13) -10%.

6/13 Open (Max)

Displays the maximum permissible Open stroke operating time, Setup (4/13) +10%.

7/13 Open (Last Test)

Display the Open stroke time (in seconds) from the Test (2/13) full stroke test.

8/13 ESD (Setup)

Display the ESD stroke time (in seconds) from the Setup (1/13) full stroke test.

9/13 ESD (Min)

Displays the minimum permissible ESD stroke operating time, ESD (9/13) -10%.

10/13 ESD (Max)

Displays the maximum permissible ESD stroke operating time, ESD (8/13) +10%.

11/13 ESD (Last Test)

Display the ESD stroke time (in seconds) from the Test (2/13) full stroke test.

12/13 Close (Setup)

Display the Close stroke time (in seconds) from the Setup (1/13) full stroke test.

13/13 Close (Last Test)

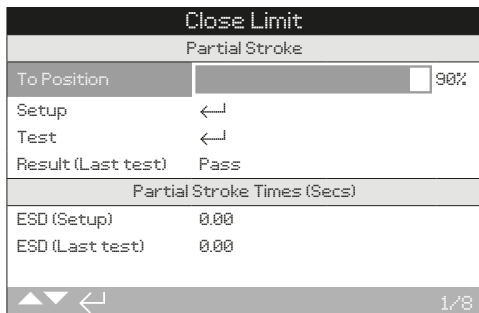
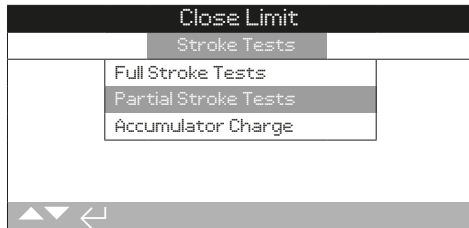
Display the Close stroke time (in seconds) from the Test (2/13) full stroke test.

Partial Stroke Tests

Partial stroke setup must be done after the full stroke set up and test have being complete.

Partial stroke testing provides a useful comparison of current valve operating characteristics compared to known healthy valve operating characteristics.

Before starting this process the actuator Closed and Open limits must be set.



1/8 To Position

Set the position that partial stroke tests will travel too. For a fail Closed actuator, each test will travel from the Open limit to the To Position (1/8) and back to the Open limit. For a fail Open actuator, each test will travel from the Closed limit to the To Position (1/8) and back to the Closed limit.

To change, press [F] [M] [M] [M]. The slider will indicate the set To Position as a percentage of actuator stroke.

2/8 Setup

To begin the Setup process, press [F]. A warning will appear, set the actuator operating mode to Local, operate the actuator to the Open limit (fail Closed actuator) or Closed limit (fail Open actuator) and press [M].

The actuator will operate to the To Position (1/8) and then back to the Open limit (fail Closed actuator) or Closed limit (fail Open actuator). The process may repeat automatically for each individual solenoid. The ESD (5/8) and Open (7/8) operating times are recorded and saved for reference to future partial stroke tests.

3/8 Test

To begin the Test process, press [F]. A warning will appear, set the actuator operating mode to Local, operate the actuator to the Open limit (fail Closed actuator) or Closed limit (fail Open actuator) and press [M].

The actuator will operate to the To Position (1/8) and then back to the Open limit (fail Closed actuator) or Closed limit (fail Open actuator). The process may repeat automatically for each individual solenoid. The ESD (6/8) and Open (8/8) operating times are recorded and saved for comparison to the Setup partial stroke test times.

4/8 Results (Last Test)

Shows a warning if the results from the last partial stroke test fall beyond permissible tolerances of the saved Setup times.

5/8 ESD (Setup)

Display the partial ESD stroke time (in seconds) from the Setup (2/8) partial stroke test.

6/8 ESD (Last Test)

Display the partial ESD stroke time (in seconds) from the Test (3/8) partial stroke test.

7/8 Open (Setup)

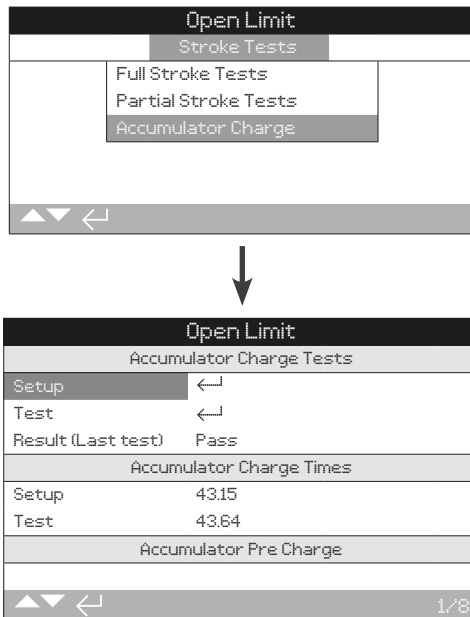
Display the partial Open stroke time (in seconds) from the Setup (2/8) partial stroke test.

8/8 Open (Last Test)

Display the partial Open stroke time (in seconds) from the Test (3/8) partial stroke test.

Applicable for SI-4 only.

Accumulator charge testing provides a useful comparison of current accumulator operating performance compared to known healthy accumulator operating performance.



Open Limit	
Stroke Tests	
Full Stroke Tests	
Partial Stroke Tests	
Accumulator Charge	

Open Limit	
Accumulator Charge Tests	
Setup	←
Test	←
Result (Last test)	Pass
Accumulator Charge Times	
Setup	43.15
Test	43.64
Accumulator Pre Charge	
1/8	

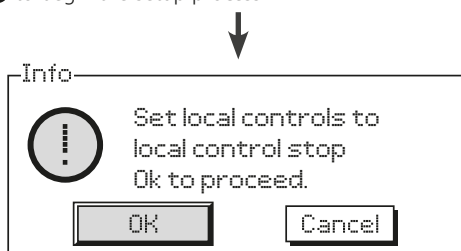
1/8 Setup

Record a healthy Accumulator Charge cycle. Setup should only be performed during initial actuator commissioning. Setup will charge the Accumulator to the Set Pressure and record the Setup Charge Time (4/8). Setup Pre-Charge (7/8) pressure is calculated. Setup is used as a healthy benchmark when performing an Accumulator Charge Test (2/8).

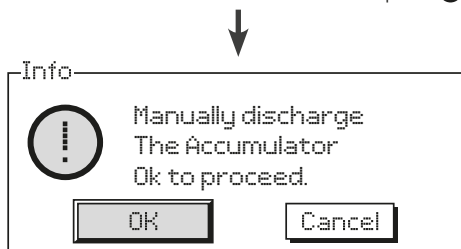
Follow the on screen prompts to progress through the accumulator charge setup test.

Select Cancel at any time or set the actuator local controls to STOP during the charge process to abort the setup.

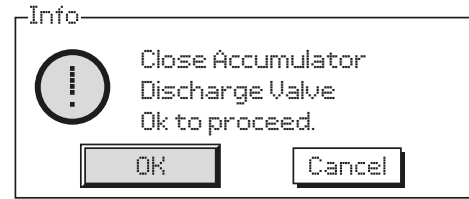
Press  to begin the setup process.



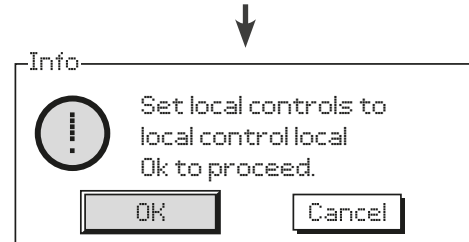
Set the local control mode selector to STOP and press .



Fully discharge the Accumulator, refer to the Hydraulic Circuit schematic. Press  when Accumulator pressure equals 0.



Manually close the Accumulator Discharge Valve and press .



Set the local control mode selector to LOCAL and press . The Accumulator will begin charging.

2/8 Test

Perform an Accumulator Charge Test. The actuator will repeat the same charge cycle as Setup (1/8). Follow the on-screen instructions to complete the Accumulator Charge Test. Test Charge Time (5/8) is recorded and Test Pre-Charge (8/8) pressure is calculated.

3/8 Result (Last Test)

Displays the result of the last Accumulator Charge Test (2/8) as a Pass or Fail. The recorded Test Charge Time (5/8) must be within $\pm 10\%$ of the Setup Charge Time (4/8) to achieve a Pass.

4/8 Setup

Displays the time (in seconds) to perform the Setup Accumulator Charge (1/8) cycle.

5/8 Test

Displays the time (in seconds) to perform the Test Accumulator Charge (2/8) cycle.

6/8 Factory

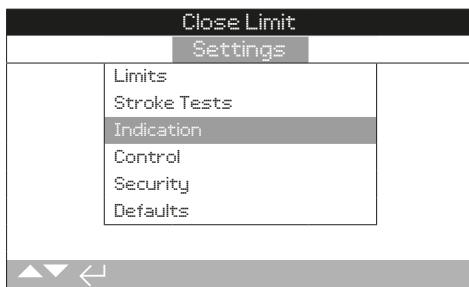
Displays the configured Factory Pre-Charge pressure (read only). Values shown are a percentage of the maximum system pressure.

7/8 Setup

Displays the calculated Setup Pre-Charge pressure (read only). Values shown are a percentage of the maximum system pressure.

8/8 Test

Displays the calculated Test Pre-Charge pressure (read only). Values shown are a percentage of the maximum system pressure.



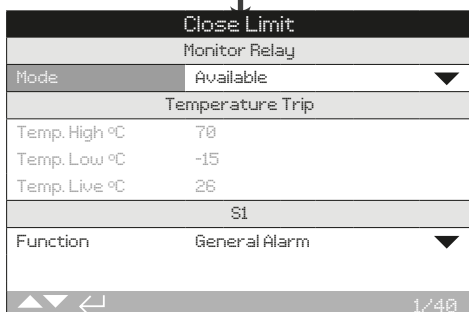
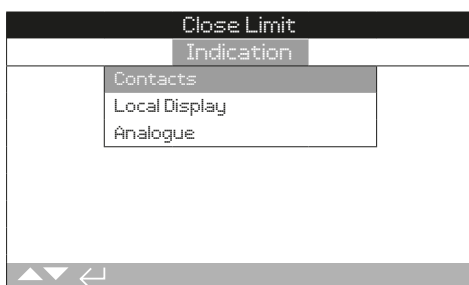
Instruction is provided on:

2.4.1 Contacts

2.4.2 Local Display

2.4.3 Analogue

2.4.1 Indication – Contacts



Refer to actuator's specific wiring diagram for available relay contacts.

2.4.1 Indication – Contacts *continued*

1/40 Monitor Relay—Mode

The monitor relay provides remote indication of actuator status. It provides a volt free change over contact, refer to actuator circuit diagram. There are 2 modes that can be set:

Available (default) – Actuator available for remote control. Monitors power supplies, motor thermostat, detected internal fault and remote control selected. A loss in one or more will cause the monitor relay to de-energise indicating “not available” for remote control.

Fault – Actuator fault. Monitors power supplies, motor thermostat and detected internal fault. A loss in one or more will cause the monitor relay to de-energise indicating “actuator fault”.

The change,    . The drop down list will close and the selected mode will be shown.

S contact function, contact type and position

Each relay contact can be set to one of the functions shown in the table below and its contact type can be set as Normally Open (NO) or Normally Closed (NC). If Pos % Open function is selected, the position at which the relay operates can be set. For all other functions the position control slider will be greyed out.

Standard contacts S1-S4, option S5-S8 and S9-S12 contacts when fitted

The method for setting all S contacts is the same. S1 to S4 are fitted as standard. A further 8 extra contacts are available as options grouped: S5 to S8 and S9 to S12, refer to actuator wiring diagram. If extra contacts are fitted their configuration screens are accessed by scrolling down. If not fitted their configuration settings will be greyed out.

2/40 Temp High °C

Available when the Temperature Trip relay function is in use. Set the temperature the actuator must rise above to cause a trip.

To change,    . The set temperature will be shown.

3/40 Temp Low °C

Available when the Temperature Trip relay function is in use. Set the temperature the actuator must drop below to cause a trip.

To change,    . The set temperature will be shown.

4/40 Temp Live °C

Displays the live temperature measured within the actuator. This is read only.

5/40 to 38/40 Function

The available contact functions included in the drop down list for each available relay function are shown in the table below.

The change,    . The drop down list will close and indicate the selected contact function.

Function	Indication:
Function	Indication
Disabled	Contact relay disabled
Closed limit	Closed limit position (exact)

2.4.1 Indication – Contacts *continued*

Function	Indication:
Open limit	Open limit position (exact)
Temperature trip	Tripped at high or low temperature
Pos % Open	Set position mid-travel – Opening and Closing
Stop selected	Red selector set to Stop
Local selected	Red selector set to Local
Remote selected	Red selector set to Remote
P-stroke active	Partial stroke underway
P-stroke pass	Partial stroke complete
P-stroke fail	Partial stroke not complete
F-Stroke active	Full stroke underway
F-Stroke pass	Full stroke complete
F-Stroke fail	Full stroke not complete
Opening	Actuator moving in the Open direction
Closing	Actuator moving in the Close direction
Moving	Actuator moving in any direction
Motor running	The motor is running
General alarm	A general alarm is present
Process alarm	A process alarm is present
Over press (MID)	Actuator over pressured mid travel
Over press (Limit)	Actuator over pressured at limit
Over press (ANY)	Actuator over pressured
Stall (MID)	Actuator stalled mid travel
Stall (LIMIT)	Actuator stalled at limit
Stall (ANY)	Actuator stalled
Motor thermostat	Motor thermostat trip
Control alarm	Control alarm present
Lost phase	Phase loss (3 phase only)
ESD active	Actuators ESD signal active
Manual reset	Manual reset is required
Manual operation	Manual operation is selected
Actuator alarm	Actuator alarm is present
Loss of HMI	HMI loss (digital display)
Bluetooth	Bluetooth comms
Customer supply	Customer supply lost

6/40 to 39/40 Form

Each relay contact can be configured to be Normally Open (make when active) or Normally Closed (break when active).

Normally Open – The contact will complete the circuit when the set function is present, Normally Open.

Normally Closed – The contact will break the circuit when the set function is present, Normally Closed.

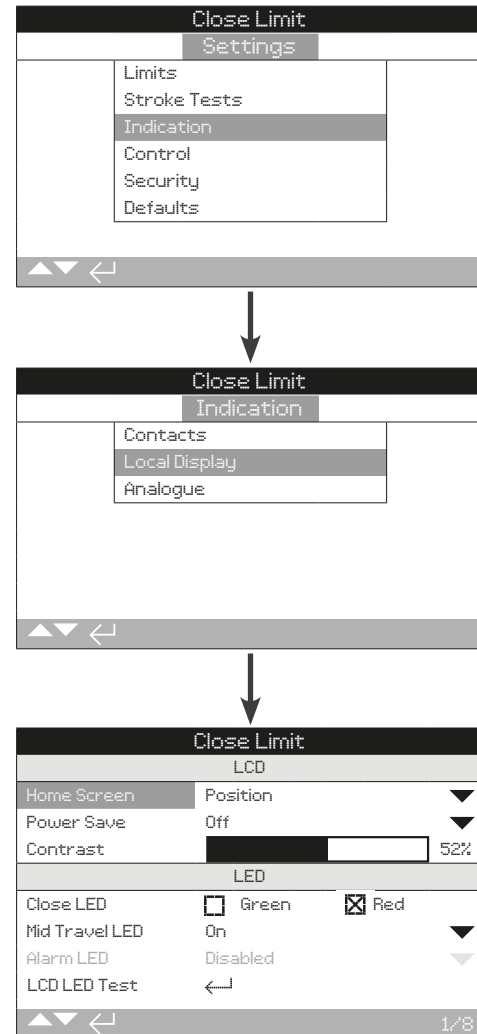
To change,   . The checkbox will indicate the selected contact type.

7/40 to 40/40 Position

If the relay function relates to an actuator position, for example Pos % Open, this setting will become available to edit. Range 0% - 100%.

To change,   . The slider control will indicate the set position value.

2.4.2 Indication – Local Display



LCD

The display home screen language can be selected and the power save mode can be activated within this section.

1/8 Home Screen

Configure the actuator home screen to show key information.

Position – Display indicates the current valve position to one decimal place. Icons are used for Closed and Open limit positions.

Pressure + Pos – Display indicates current valve position to one decimal place as Position (above) plus digital pressure indication scaled 0% to 100% of pressure.

Positioner – Used only with analogue or network position control. Display indicates current valve position to one decimal place plus the position equating to the applied demand signal. In addition, an analogue indication of demand and position is provided scaled 0% to 100% of valve position.

To set the home screen,   . The drop down list will close and indicate the set home screen.



2.4.2 Indication – Local Display *continued*

2/8 Power Save

The LCD has a white backlight to maximise contrast of the segment display and matrix characters. It may be switched off when not required or if a bright display is disruptive within its environment.

Off (default) – The display backlight is permanently illuminated when the actuator is powered up.

Low – The display backlight automatically switches off when the actuator is not operating. The segments/matrix remain on. The display backlight will switch on when the local control selectors are moved, electrical or a manual operation takes place or when the setting tool is communicating with the actuator. The backlight will switch off again approximately 5 minutes after the last activity.

Extra Low – In addition to the backlight switching off, the monitor relay is de-energised to further reduce power consumption.

To change the power save mode, . The drop down list will close and indicate the power save setting.

3/8 Contrast

Adjust the contrast of the actuator display. Contrast can be configured from 0% - 100%.

To change, . The slider control will indicate the set contrast value.

LED

The function of the display green, red and yellow LED lights can be set.

4/8 Close Colour

Green (default) – The green lights illuminate at the Closed limit position and red lights illuminate at the Open limit position.

Red – The red lights illuminate at the Closed limit position and the green lights illuminate at the Open limit position.

To change the Closed Limit position indication light, . The checkbox will indicate the selected closed colour.

5/8 Mid Travel LED

On (default) – The yellow lights will illuminate when the actuator is in mid-travel.

Off – The yellow lights are off when in mid-travel.

Blinker – The yellow lights flash at approximately 0.5 second intervals when in mid-travel (electrical or manual operation). When stationary the lights will remain on.

On/Alarm – The yellow lights are on when in mid-travel. If an alarm is active the yellow lights flash alternately at approximately 0.5 second intervals. Refer to 6/8 Alarm LED.

Off/Alarm – The yellow light are off in mid-travel. If an alarm is active the yellow lights flash alternately at approximately 0.5 second intervals. Refer to 6/8 Alarm LED.

Information regarding the nature of the alarms will be shown at the top of the display.

To change the mid-travel LED mode, . The drop down list will close and the selected mode will be shown.

6/8 Alarm LED

Alarm LED function will be greyed out unless 5/8 Mid Travel LED is set to On/Alarm or Off/Alarm.

Disabled (default) – The yellow lights do not indicate an active alarm.

Alarms – The yellow lights indicate active alarms.

Information regarding the nature of the alarm(s) will be shown at the top of the display.

To change the Alarm LED mode, . The drop down list will close and the selected mode will be shown.

7/8 LCD LED Test

The LCD/LED test function operates a test procedure to check all of the local display functions. It will cycle periodically between screen and LED functions to provide visual indication that the display is in full working order.

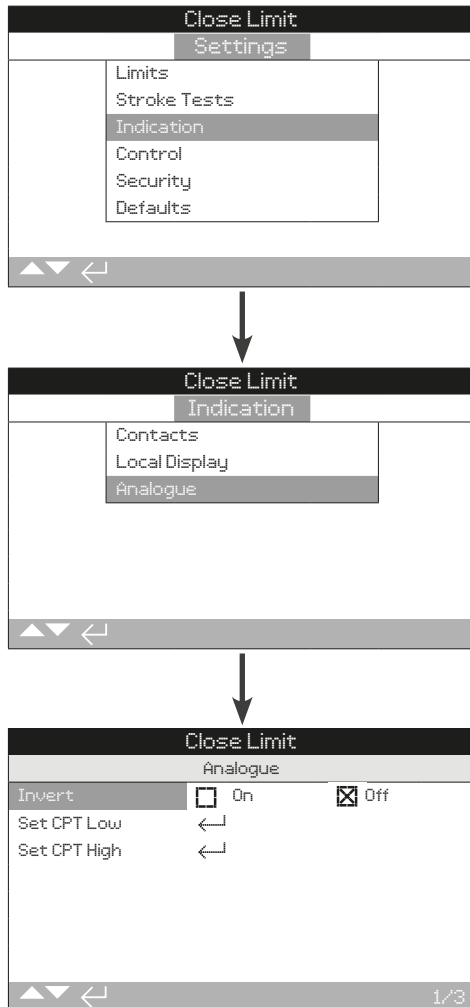
Press to begin the test. The screen will return to the local display menu once the test is complete.

8/8 Language

The language used on the display can be selected.

English (default) as standard. Other available languages may be downloaded from the Rotork website, loaded into the setting tool using Insight 2 and uploaded into the actuator. Visit www.rotork.com

To change the display language, . The drop down list will close and indicate the selected language.



Analogue position indication screen is shown above with the default setting.

Analogue position indication (4-20 mA) is an optional extra, refer to circuit diagram for inclusion. If the option is not fitted the Analogue menu item will not be present in the indication menu.

The analogue output signal auto ranges to the set limits and cannot be calibrated.

1/3 Invert

Off (default) – 4 mA output at the Closed limit position and 20 mA output at the Open limit position.

On – 4 mA output at Open limit position and 20 mA output at the Closed limit position.

To change the analogue output mode, . The checkbox will indicate the selected mode.

2/3 Set CPT Low

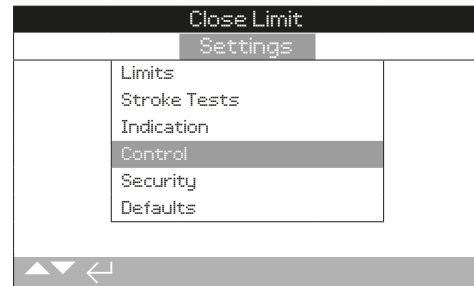
Adjust the low signal value from the actuator CPT output.

To change, press . The CPT output should be monitored using a suitable meter during adjustment.

3/3 Set CPT High

Adjust the high signal value from the actuator CPT output.

To change, press . The CPT output should be monitored using a suitable meter during adjustment.



Instruction is provided on:

2.5.1 Local control

Settings for vandal resistant build, setting tool control, maintained local control, delay control and action on loss of actuator user interface.

2.5.2 Remote Control

Settings for control source, hardwired, networks and analogue.

2.5.3 Temporary Loss

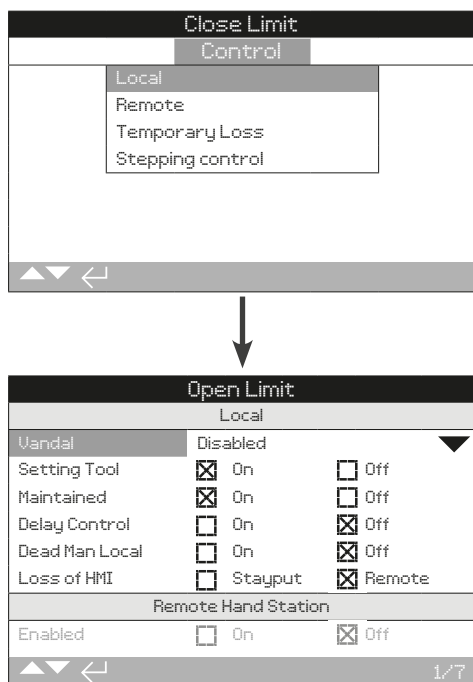
Refer to actuator wiring diagram.

Control under an ESD control signal has higher priority than local or remote Open/Closed signals. For ESD, the control signal must be maintained for the duration of the ESD action required.

2.5.4 Stepping Control

This is used to control closing and/or opening times under both local and remote control however, it can only be used on the hydraulic stroke.

Stepping control is used when the operator is required to achieve a certain time in the hydraulic stroke direction.



The local control configuration page is shown with the default settings.

1/7 Vandal

Actuators built as vandal resistant type 1 do not have the black and red control selectors fitted. Selection of local control (using the setting tool Open, Close and Stop keys) and remote control is made using the vandal setting:

Disabled (default) – Actuator is not vandal resistant build and control selectors are present.

Local – Actuator selected for Local control using the setting tool (Bluetooth or Infrared), refer to section 1.1. Infrared local control has a range of approximately 0.25 m (10") and must be in direct line of site. Bluetooth local control has a range up to approximately 10 m (30 ft.) depending on environment.

Remote – Actuator selected for Remote control. Setting tool control keys are inactive and the actuator responds only to remote control signals.

To change,    . The drop down list will close and indicate the set control mode.

2/7 Setting Tool

With control selectors fitted to the actuator, the Setting Tool Close, Open and Stop control keys can be used to operate the actuator:

On (default) – Setting tool control keys active, control is possible only when the red selector is set to Local, refer to section 1.1. Infrared local control has a range of approximately 0.25 m (10") and must be in direct line of sight. Bluetooth local control has a range up to approximately 10 m (30 ft.) depending on environment. The black Close/Open selector remains active.

Off – Setting tool Close, Open and Stop control keys are disabled. Local control is by Close/Open/Stop selectors fitted to the actuator.

To change,    . The checkbox will indicate the selected Setting Tool control mode.

3/7 Maintained

Sets the action as a response to local Open or Close control signals:

On – The actuator will self-maintain as a response to a fleeting local Open or Close control signal. It will run until it receives a Stop command, it reaches a travel limit or is reversed – maintained control.

Off (default) – The actuator will run only while a local Open or Close control signal is applied – push to run local control.

To change,    . The checkbox will indicate the selected action.

4/7 Delay Control

If there is a risk of a local Close or Open control signal being applied due to the selector moving inadvertently or by being hit momentarily, a delay can be set to help prevent an unintended operation:

On – A local Close or Open signal must be held for approximately 2 seconds before the actuator responds.

Off (default) – The actuator responds immediately to a local Close or Open control signal.

To change,    . The checkbox will indicate the selected local selector response.

5/7 Dead Man Local

Sets the action as a response to local Open or Close control signals:

On – Local control signal must be maintained, when the local controls return neutral (either Open or Close) the actuator will return to the failsafe position.

Off (default) – Actuator will respond normally to local control commands.

To change,    . The checkbox will indicate the selected dead man local setting.

6/7 Loss of HMI

The HMI consists of the actuator display and red and black selectors. If for any reason the HMI stops responding, the response of the actuator can be set.

Stay put – The actuator will stay put and alarm using the monitor relay. It will not respond to remote control signals.

Remote (default) – The actuator will alarm using the monitor relay. It will continue to respond to remote control signals.

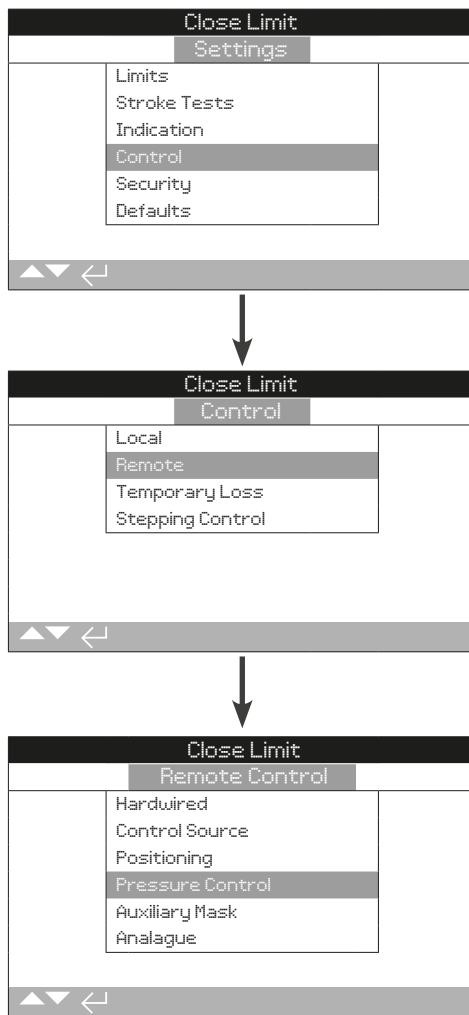
To change,    . The checkbox will indicate the selected HMI failure response.

7/7 Remote Hand Station – Enabled

When fitted, the Remote Hand Station (RHS) can be enabled by this setting.

On – RHS enabled and the sub-menus will appear in the main Control menu. Refer to PUB002-059 for full setup.

Off – RHS not activated and the sub-menus will be hidden.



The table below lists all available standard and option remote control forms. Their type and the section of this manual where instruction is provided.

Remote Control Form	Included as:	Type	Section
Hardwired	Standard	Hardwired	2.5.2-1
Control source	Standard	Software	2.5.2-2
Positioning	Option	See note	2.5.2-3
Pressure control	Standard	Software	2.5.2-4
Auxiliary mask	Option	See note	2.5.2-5
Analogue	Option	Analogue	2.5.2-6
<i>Pakscan</i> TM	Option	Network	2.5.2-7
Profibus [®]	Option	Network	2.5.2-8
HART [®]	Option	Analogue	2.5.2-9
Modbus [®]	Option	Network	2.5.2-10
Foundation Fieldbus [®] *	Option	Network	N/A
DeviceNet [®]	Option	Network	2.5.2-11

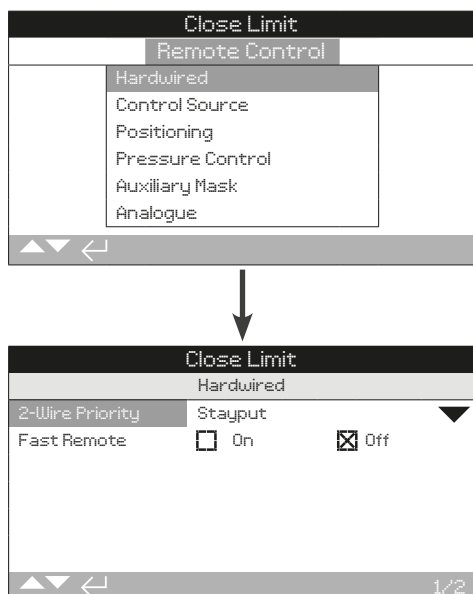
* When Foundation Fieldbus is fitted it will be included in the remote control menu for information only. The Foundation Fieldbus option is configured remotely over the Fieldbus network and therefore does not have a setup page. Control source, positioning and auxiliary mask pages will be included to allow associated setting to be made when Foundation Fieldbus is fitted.

Note: When any of the analogue or network remote control options are fitted, auxiliary mask and positioning are automatically included in the remote control menu. These items allow access to settings that are common to all fitted options.

Instruction is provided on the setup of standard hardwired and remote control options.

The remote control menu is shown above listing all possible entries. Some menu items shown are optional remote control forms requiring additional hardware to be fitted within the actuator. The menu displayed on the actuator will show only the options fitted.

Options not fitted will not be shown in the menu list. Check the actuator's specific wiring diagram for option inclusion.



2/2 Fast Remotes

Only suitable for 24 VDC control signals. Not available with AC control signals.

The setting will determine how long a signal needs to be present for it to carry out the specific command.

On – When a remote signal is given, the actuator will wait 100ms before moving.

Off – When a remote signal is given, the actuator will wait 200ms before moving.

To change,    . The checkbox will indicate the selected fast remotes setting.

1/2 2-Wire Priority

Set the action the actuator will perform when a remote Close and Open signal are both applied simultaneously. Hardwired remote control form C uses the priority action (open or closed) to set the actuator response when both signals are applied. Refer to the actuator wiring diagram for more information.

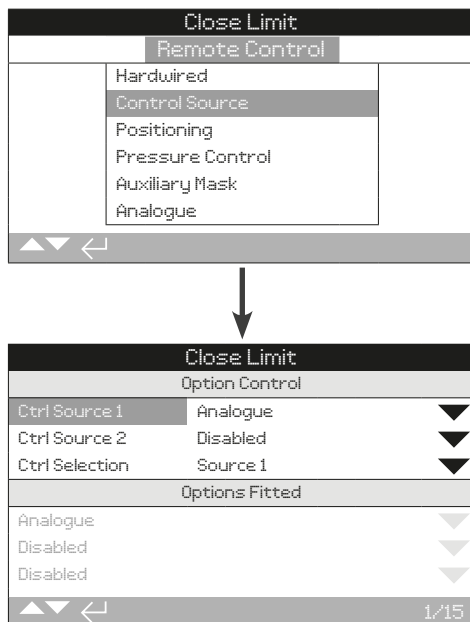
On applying hardwired Close and Open signals together the actuator will:

Open – The actuator will Open.

Stay put (default) – The actuator will not move, or will stop if the actuator is currently moving.

Close – The actuator will Close.

To change,    . The drop down list will close and the selected 2-wire control mode will be indicated.



The control source settings page shown above is an example of an actuator with the analogue remote control option. The actuator display will indicate fitted options.

Refer to wiring diagram for options fitted.

Introduction

In addition to standard hardwired control, the actuator can have up to two remote control options fitted. For most remote control systems employed by end-users, only one control option is used.

For control systems using analogue control only or where analogue and network (such as Modbus) control is used. Control (hardwired/analogue or analogue/network) can be switched by the user using the manual/auto input available with the analogue option and the settings made in control source. When analogue and network options are fitted and analogue is switched to control, the network option cannot control the actuator but will continue to report actuator status.

Rotork will configure the actuator to the fitted option(s) by default. Refer to table: Control Source Settings.

For analogue control, if both manual (hardwired control inputs) and auto (analogue control) is to be used, control selection must be set to Hardwired / Source 1. If only analogue control is required, the default settings for control source will be correct. Refer also to section 2.5.2-6.

The control source is used to:

- Control source 1/source 2 – Associate fitted control option(s) to a source of control (source 1 or source 2).
- Control selection – Set which control source (1 or 2) can control the actuator. It also defines the priority for switching control between analogue and network options.
- Lost signal – Determines the actuator response to a lost analogue signal or network communication.

Table: Control Source Settings

Control Source Settings					
Option Control					
Settings	Hard wired (No Options)	Analogue only	Analogue and Hardwired	Network Only	Analogue and Network
Ctrl Source 1	Disabled	Analogue	Analogue	Network	Analogue
Ctrl Source 2	Disabled	Disabled	Disabled	Disabled	Network
Ctrl Selection	Hardwired	Source 1	Hardwired/ Source 1	Source 1	Source 1/ Source 2
Options Fitted					
	Disabled	Analogue	Analogue	Network	Network
	Disabled	Disabled	Disabled	Disabled	Analogue
	Disabled	Disabled	Disabled	Disabled	Disabled

KEY: For "Network", display will indicate the fitted option(s): Pakscan/Profibus/Modbus/Foundation Fieldbus (FF)/HART/DeviceNet.



1/15 Control Source 1

Control source 1 will be set by Rotork for the fitted remote, Analogue or Network control option(s). Refer to table: Control Source Settings.

To change, . The drop down list will close and indicate the selected control source.

2/15 Control Source 2

Control selection defines which source controls the actuator and if any switching is permitted.

To change, . The drop down list will close and indicate the selected control source.

3/15 Control Selection

Control selection defines which source controls the actuator and if any switching is permitted.

Disabled – All remote control disabled. The actuator can only be operated using the local controls.

Hardwired – Remote control by hardwired inputs only. This setting is the default for actuators with no option cards fitted.

If a network option is fitted but is only required for monitoring, hardwired must be selected.

Source 1 – Control by the option listed for control source 1. If control source 1 is a network option, control is also subject to the Auxiliary Mask settings. Refer to 2.5.2-5.

Hardwired/Source 1 – Only suitable for switched hardwired and analogue control. Control is switched using the manual / auto input (refer to wiring diagram). Manual will enable hardwired control and auto will enable analogue control.

Source 1/source 2 – For future use with two Network control options.

To change, . The drop down list will close and indicate the selected control selection.

4/15 to 6/15 Options Fitted

Not editable. Factory set for the control options fitted. Up to 3 options can be fitted and will be indicated in the list. Unused allocations will be set to disabled.

If a control option is fitted after manufacture, the allocation will be set to the fitted option type by Rotork Service. Where the user upgrades an actuator to include a new control option using a kit supplied by Rotork, this must be set before the control mode settings can be made. Contact Rotork for access.

7/15 to 15/15 Lost Signal

Sets the actuator response when the analogue signal or network communications are lost.

There are three settings for determining the actuator's response on loss of signal. These are all common for each type of option fitted. Each group of three will be headed with the applicable option type. For actuator's including one control option, settings 7/15 to 9/15 will be available while settings 10/15 to 15/15 will be greyed out. For two options fitted, 7/15 to 12/15 will be available and so on until up to three options. This instruction is therefore common for as many options as are fitted.

7/15, 10/15, 13/15 Lost Signal Time

Sets the amount of time in seconds that a signal must be lost before the lost signal action is performed. Range, 0 to 65 seconds. Default is set as 1 second.

For the analogue option, time must be set to 0 seconds.

To change, . The value shown will apply to a lost signal condition.

8/15, 11/15, 14/15 Lost Signal Action

Sets the action to be performed when the signal is lost.

Off (Default) – the lost signal feature is disabled. An actuator with analogue control will run to the set low signal position. An actuator with network control will stay at its current position when communication is lost.

Stay put – If the actuator is not moving it will stay put. If it is moving the movement will stop in that position.

DeEnergise – All solenoids will de-energise.

Close – The actuator will run to the Closed limit.

Open – The actuator will run to the Open limit.

Position – the actuator will run to the mid travel position set for signal loss position, refer to 10/18, 14/18, 18/18.

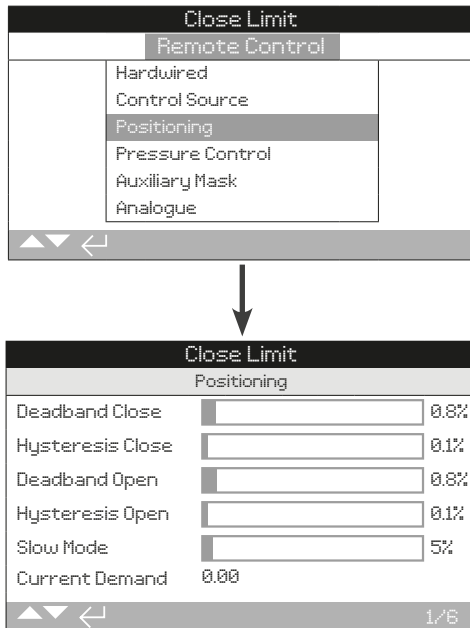
To change, . The drop down list will close and indicate the selected lost signal action.

9/15, 12/15, 15/15 Lost Signal Position

When the lost signal action is set to Position the actuator will run to the mid-travel position set. Range is 0% (Closed limit) to 100% (Open limit). This control should be used if a lost signal position in mid-travel is required.

Whenever the actuator is running under positioning mode, the parameters in the positioning menu will apply. Refer to 2.5.2-3.

To change, . The slider bar will indicate the set mid-travel position.



Default positioning settings are shown above.

Applicable for analogue and HART control options and also for all network control options where positioning control is required. Settings are used to tune the actuator positioning response.

1/6, 3/6 Deadband Close/Open

Range: 0% to 10%. Default: 1%.

Affects positioning accuracy as a response to the process control system desired value (DV) signal position. A smaller deadband increases accuracy, however the widest deadband should be set while maintaining good control in order to protect the mechanical valve from excessive wear and/or to keep the actuator within its electrical rating.

Deadband settings should be combined with hysteresis settings for optimal process control. The actuator will run towards the DV position until the actual position is within the set deadband minus the hysteresis setting. This has the effect of the actuator stopping nearer to the DV position. The actuator will not restart unless it overshoots and runs outside the deadband or a new command places the desired position outside the deadband. Refer to figure 2.5-1.

To change,    . The slider control will indicate the deadband setting.

2/6, 4/6 Hysteresis Close/Open

Range: 0% to 10%. Default: 0.5%.

Hysteresis affects positioning accuracy as a response to the process control system desired value (DV) signal position. A larger hysteresis setting will increase accuracy but the value set must not be greater than that set for deadband.

Hysteresis settings should be combined with deadband settings for optimal process control. The actuator will run towards the DV position until the actual position is within the set deadband minus the hysteresis setting. This has the effect of the actuator stopping nearer to the DV position. The actuator will not restart unless it overshoots and runs outside of the deadband or a new command places the desired position outside the deadband. Refer to figure 2.5-1.

To change,    . The slider control will indicate the hysteresis setting.

5/6 Slow Mode

Range: 0% to 100%. Default: 5%.

Slow mode reduces the actuator operating speed within a set portion of travel around the process control system desired value (DV) signal position. The slower operating speed reduces overrun due to inertia and reaction delay from system components.

To change,    . The slider control will indicate the slow mode setting.

6/6 Current Demand

Displays the current desired value (DV) from the connected process control system.

Deadband, Hysteresis, Slow Mode & Current Demand Example

Configurable slow mode, deadband and hysteresis values determine how closely the actuator position will match the demand signal. Correct calibration settings provide accurate positioning, prevent the system from hunting and reduce the number of pump/motor starts. Some understanding of the operational design parameters is required to optimally set deadband, hysteresis and slow mode. The chart below shows how slow mode, deadband and hysteresis settings effect control of the actuator.

An 8% slow mode, 5% deadband and 2% hysteresis is shown below with a 50% demand position. Assuming a 30% start position, the actuator will operate from 30% to 42% (demand - slow mode) at normal operating speed. At 42% it will operate at slower speed to 47% (demand - (deadband - hysteresis)).

Momentum/solenoid response time within the system may cause the actuator to continue moving after the Stop command has been issued, as shown by the 'actual stopped position' at 48%. Movement is not commanded again until the measured position falls outside of the deadband on either side of the demand position. If the deadband was smaller and the actual stopped position fell outside of the deadband, the actuator would be commanded to move in the opposite direction to meet the demand. The actuator will then 'hunt' around the demand position as it overshoots in both directions. Increasing the deadband and hysteresis ensures the demand position can be met without hunting occurring. Outside of slow mode (<42% and >58%) the actuator will operate at normal speed.

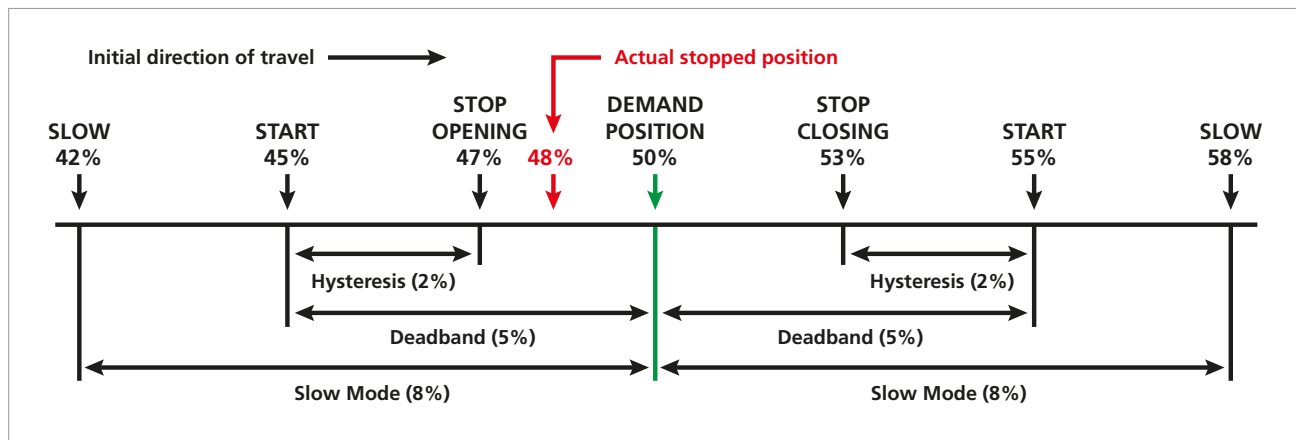
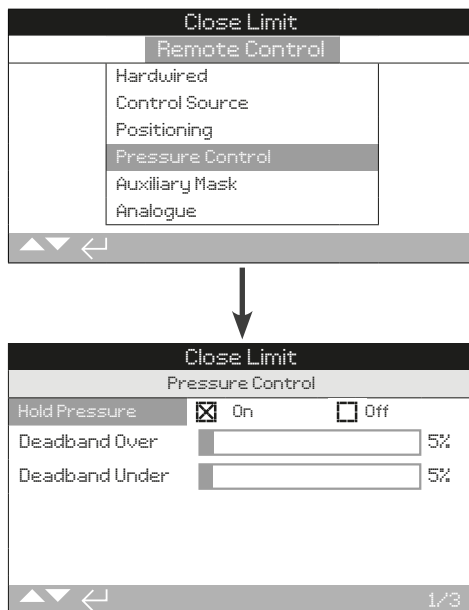


Figure 2.5-1 Example of Positioning Control using Slowband (8%), Deadband (5%) and Hysteresis (2%)



The diagram illustrates the navigation process. At the top, a 'Close Limit' menu is shown with options: Remote Control, Hardwired, Control Source, Positioning, Pressure Control, Auxiliary Mask, and Analogue. An arrow points down to the 'Pressure Control' settings screen. This screen has a title bar 'Close Limit' and a sub-header 'Pressure Control'. It contains three settings: 'Hold Pressure' with a checkbox set to 'On' (with 'Off' as an alternative), 'Deadband Over' with a slider set to 5%, and 'Deadband Under' with a slider set to 5%. Navigation icons are at the bottom left, and '1/3' is at the bottom right.

1/3 Hold Pressure

The actuator can apply additional pressure to maintain position if the actuator drifts before a new operation command is issued.

On – The actuator will automatically adjust pressure by operating the pump or solenoid to maintain position.

Off – The actuator will do nothing if position drift occurs.

To change,    . The checkbox will indicate the hold pressure setting.

2/3 Deadband Over

Range: 0% to 25%. Default: 10%.

Use this feature to compensate for pressure fluctuations due to thermal expansion. Define the deadband applied before an over pressure condition is observed and excess pressure is vented from the actuator.

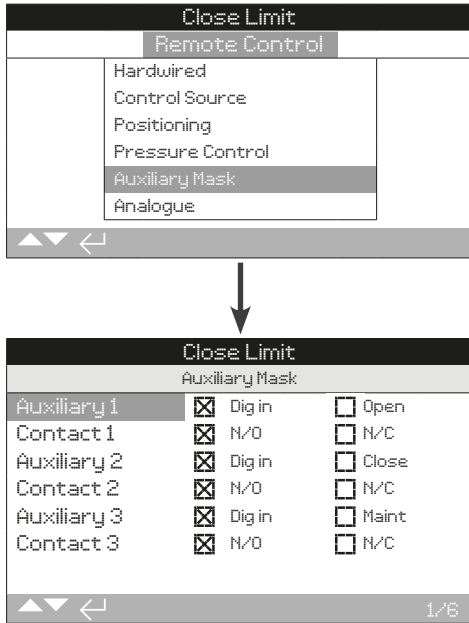
To change,    . The slider control will indicate the deadband over setting.

3/3 Deadband Under

Range: 0% to 25%. Default: 5%.

Use this feature to compensate for pressure fluctuations due to thermal expansion. Define the deadband applied before an under pressure condition is observed and pressure is increased within the actuator.

To change,    . The slider control will indicate the deadband under setting.



The auxiliary mask setting page is shown above.

Introduction

When a network option is fitted (*Pakscan/Profibus/Modbus/Foundation Fieldbus/DeviceNet/HART*) a facility to accept three auxiliary inputs is available. Auxiliary inputs can be set as supplementary control for the actuator (Open, Close, Stop / maintain) or as digital indication inputs reported over the option network. It is also possible to have a combination of both supplementary remote control and digital inputs. For example, Open and Closed control plus high and low tank level alarm indication from external level transducers.

Auxiliary inputs are in addition to the standard control and feedback features incorporated into a network option. Auxiliary inputs are connected to the standard Open, Close and Stop / maintain inputs. Refer to wiring diagram.

Each auxiliary input can be set for the type of contact connected.

Auxiliary Input Setup

Input	Auxiliary 1	Auxiliary 2	Auxiliary 3
Control	Open	Closed	Stop / maintain
Indication	Digital Input	Digital Input	Digital Input
Contact type	Contact 1	Contact 2	Contact 3
Normally Open	N/O	N/O	N/O
Normally Closed	N/C	N/C	N/C

A Normally Open contact is considered to be in the active state when the contact is Closed. A Normally Closed contact is considered to be in the active state when the contact is Open.

Using Auxiliary 1 and Contact 1 as an example:

1/6 Auxiliary 1

Refer to Auxiliary Input Setup.

Dig in (default) – Network option will report digital input status: 1 or 0.

Open – Hardwired Open command signal.

To change,    . The checkbox indicates the set auxiliary input function.

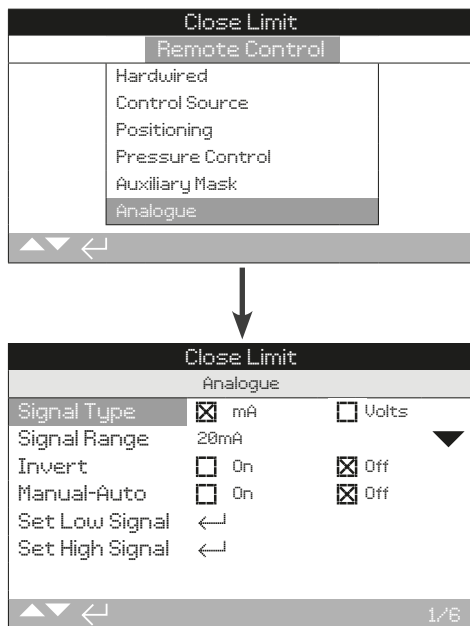
2/6 Contact 1

Refer to Auxiliary Input Setup.

N/O (default) – A Normally Open contact is used to derive input.

N/C – A Normally Closed contact is used to derive input.

To change,    . The checkbox indicates the set auxiliary input contact form.



The analogue option setting page is shown above.

The analogue menu item and its associated settings page will only be shown when the analogue option is fitted. Refer to wiring diagram. The analogue option settings page allows the option to be set for the applied signal type and range. Signal low and high values can also be calibrated.

For analogue options; positioning settings apply, refer to 2.5.2-3.

1/6 Signal Type

mA (default) – Set for current (mA) analogue control signal.

Volts – Set for voltage analogue control signal.

To change,    . The checkbox indicates the set analogue signal type.

2/6 Signal Range

Set the analogue signal range from 0 to the set value: 5 mA, 10 mA or 20 mA (default) for current control and 5 V, 10 V or 20 V for voltage control.

Set 20 mA for analogue signal range 4-20 mA.

To change,    . The drop down list will close and indicate the set signal range.

3/6 Invert

Off (default) – Low analogue signal will move the actuator in the Close direction.

On – High analogue signal will move the actuator in the Close direction.

To change,    . The checkbox indicates the invert setting.

4/6 Manual-Auto

With the analogue control option it is possible to have manual/auto control by a user supplied remote switch selection.

	Analogue Option Fitted	Analogue and Network Options fitted
Manual	Hardwired	Network
Auto	Analogue	Analogue

When analogue and network options are fitted and auto is selected, the network option fitted will continue to report actuator status.

Hardwired ESD is available in both manual or auto. When applied, ESD will override all other control signals.

For manual auto control, refer to wiring diagram.

Off (default) – Manual/auto control is not used. Actuator will be controlled by the analogue signal. Where a Network option is also fitted, the network option will report the actuator's status only.

On – The actuator can be controlled by hardwired contacts or the network (as applicable) or by the analogue signal.

To change,    . The checkbox indicates the manual/auto setting.

5/6 Set Low Signal

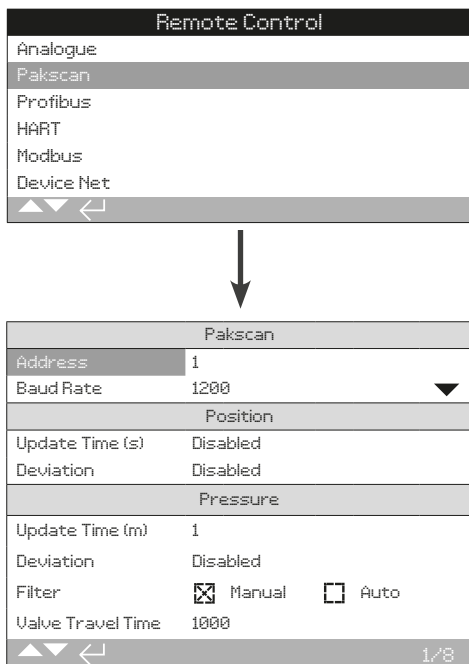
The actuator must be calibrated to the Low Analogue signal value. Measuring the actual control signal ensures the low signal set point matches the signal provided by the process control system.

APPLY THE LOW ANALOGUE SIGNAL and press . The signal will be measured and set as the low signal position value.

6/6 Set High Signal

The actuator must be calibrated to the High Analogue signal value. Measuring the actual control signal ensures the high signal set point matches the signal provided by the process control system.

APPLY THE HIGH ANALOGUE SIGNAL and press . The signal will be measured and set as the high signal position value.



The **Pakscan** control option settings page is shown above. **Pakscan** is a control option, refer to wiring diagram.

Depending on the **Pakscan** control scheme, other related settings may be required, refer to:

2.5.2-3 Positioning

2.5.2-5 Auxiliary Mask

1/8 Address

Range: 1 - 240

The **Pakscan** field control unit option must be allocated a unique loop node address. Changes made to the address will take effect immediately.

To change,    . The address setting will be shown.

2/8 Baud Rate

Configurable to: 110, 300, 600, 1200 or 2400.

The baud rate setting for Pakscan devices must match the operating baud rate of the connected Pakscan 2-wire control loop and the controlling master station. Changes made to baud rate will take immediate effect.

To change,    . The drop down list will close and indicate the set baud rate.

3/8 Update Time(s)

Range: 0 (disabled) to 255 seconds.

Define the time period that actuator position is reported on the Pakscan network. Only set this above 0 (disabled) when mid-travel positioning control is required. Also see 4/8 Deviation. If actuator position is reported as a result of deviation, the update time should be set to approximately 10 times the loop scan time.

To change,    . The update time setting will be shown.

4/8 Deviation (%)

Range: 0 (disabled) to 225 seconds.

Define the amount of travel change required before position is reported on the Pakscan network. Only set this above 0 (disabled) when mid-travel positioning control is required. While the actuator is in motion, position will be reported when position changes by the deviation amount. Rotork recommend a 5% deviation setting when mid-travel positioning data is required.

To change,    . The deviation setting will be shown.

5/8 Update Time (m)

Range: 5 to 255 minutes. Setting below 5 will indicate disabled.

Define the time period that stationary actuator pressure is reported on the Pakscan network. Set to disabled if pressure data is not required.

To change,    . The update time for pressure will be shown.

6/8 Deviation

Range: 5% to 99%. Setting below 5% will indicate disabled.

Define the amount of pressure change required before pressure is reported on the Pakscan network. Set to disabled if pressure data is not required.

To change,    . The deviation setting for pressure will be shown.

7/8 Filter

Set to enable or disable auto reporting of the historical pressure logs.

Auto – The actuator will automatically report the 6 historical pressure logs for each direction once the actuator has stopped at limit. The historical log will contain the instantaneous value of pressure for both Closing and Opening pressure logs.

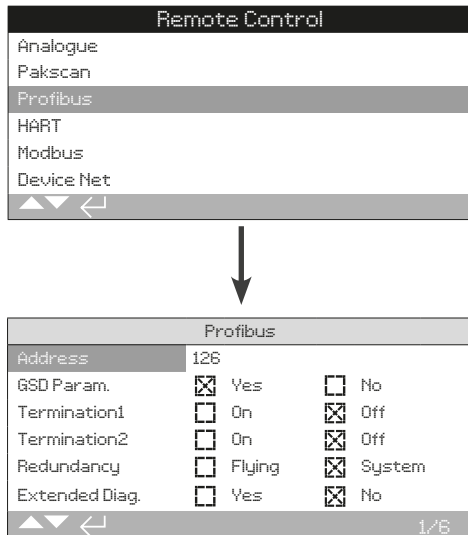
Manual – The historical pressure logs are not automatically reported. Historical logs are read on demand using the master station command. In manual, the historical logs will contain the averaged (or filtered) pressure logs, i.e. the data from the actuator's average pressure logs.

8/8 Valve Travel Time

Range: 0 to 18,000 seconds.

Valve travel time should be set 10% greater than the actual valve travel stroke time (i.e. Open to Close). If the valve travel time is exceeded, an alarm will be reported on the network loop.

To change,    . The set valve travel time will be shown.



The Profibus setting screen is shown above. Profibus is a control option and is available as a single channel or dual channel option.

Refer to wiring diagram.

Depending on the Profibus control scheme. Other related settings may be required, refer to:

2.5.2-3 - Positioning

2.5.2-5 - Auxiliary Mask

1/6 Address

Range: 1 to 126. Default: 126

The actuator must be allocated a unique address on the Profibus network. Changes made to the address will take effect immediately. If flying redundancy is set (5/6) address must not exceed 62.

To change,    . The set address will be shown.

1/6 GSD Parameter

Profibus allows device settings to be configured individually for each device or collectively using a GSD file. If GSD parameterisation is enabled, actuator settings are set by the host controller from the GSD file each time a power cycle occurs.

Yes (default) – Parameterisation by GSD file is enabled.

No – Parameterisation by GSD file is disabled.

To change,    . The checkbox will indicate the GSD parameterisation setting.

3/6 Termination 1

Profibus networks require active termination at each end of the highway. Profibus option has active termination (two sets for dual) built in, which can be switched in or out of the circuit.

Off (default) – termination resistors switched out.

On – termination resistors switched in.

To change,    . The checkbox will indicate the set termination mode.

4/6 Termination 2

Profibus networks require active termination at each end of the highway. Profibus option has active termination (two sets for dual) built in, which can be switched in or out of the circuit.

Off (default) – termination resistors switched out.

On – termination resistors switched in.

To change,    . The checkbox will indicate the set termination mode.

5/6 Redundancy

Used for dual Profibus option (redundant) only. Refer to wiring diagram.

System (default) – System redundancy uses two completely separate Profibus highways in the network system. Each highway is connected to one of the Profibus channels. The address for both Profibus channels is identical.

Flying – Flying redundancy uses one Profibus highway, connected to both channels. The address for both Profibus channels must be different to avoid duplicate responses on the highway. Channel two should be set to channel 1 address + 64.

To change,    . The checkbox will indicate the redundancy setting.

6/6 Extended Diagnostics

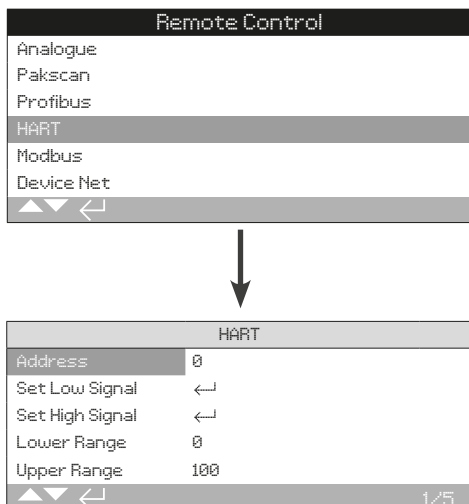
Used for dual Profibus option (redundant) only. Refer to wiring diagram.

The slave redundancy specification from the Profibus User Organisation (PNO) describes extended diagnostics that are available in the redundant card. These messages describe, for example, the state of the back-up channel. Diagnostic message can be turned off.

No (default) – Diagnostic messages turned off.

Yes – Diagnostic messages turned on.

To change,    . The checkbox will indicate the diagnostics setting.



The HART settings screen is shown above. HART is a control option, refer to wiring diagram.

For HART control options, other related settings are required, refer to:

2.5.2-3 Positioning

2.5.2-5 Auxiliary Mask

1/5 Address

Range: 0 - 63. Default: 0.

The actuator must be allocated a unique address on the HART network. Changes made to this parameter will take effect immediately.

To change,   . The set address will be shown.

2/5 Set Low Signal

The actuator must be calibrated to the low analogue signal value. Measuring the actual control signal ensures the low signal set point matches the signal provided by the process control system.

APPLY THE LOW HART ANALOGUE SIGNAL and press . The signal will be measured and set as the low signal position value.

3/5 Set High Signal

The actuator must be calibrated to the high analogue signal value. Measuring the actual control signal ensures the high signal set point matches the signal provided by the process control system.

APPLY THE HIGH HART ANALOGUE SIGNAL and press . The signal will be measured and set as the high signal position value.

4/5 Lower Range

Range: 0% to 100% position.

Define the actuator position that corresponds to the low HART signal (2/5). Normally this will be set at Closed limit position (0%), unless positioning is required over a reduced portion of full valve travel, for example, to prevent full closure where valve throttling is required.

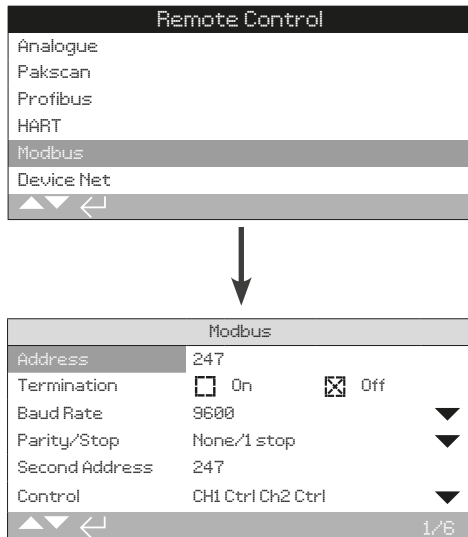
To change,   . The lower range setting value will be shown.

5/5 Upper Range

Range: 0% to 100% position.

Define the actuator position that corresponds to the high HART signal (3/5). Normally this will be set at Open limit position (100%), unless positioning is required over a reduced portion of full valve travel, for example, to increase positioning resolution for a butterfly valve where positioning is required from Closed limit position to 60% Open position.

To change,   . The higher range setting value will be shown.



The top screenshot shows the 'Remote Control' menu with options: Analogue, Pakscan, Profibus, HART, **Modbus**, and Device Net. An arrow points down to the 'Modbus' settings screen.

The 'Modbus' settings screen displays the following fields:

Modbus	
Address	247
Termination	☐ On ☒ Off
Baud Rate	9600
Parity/Stop	None/1 stop
Second Address	247
Control	Ch1 Ctrl Ch2 Ctrl

Navigation arrows and a '1/6' indicator are at the bottom of the settings screen.

The Modbus settings screen is shown above. Modbus is a control option and is available as a single channel or dual channel option. Refer to wiring diagram.

Depending on the Modbus control scheme, other related settings may be required, refer to:

2.5.2-3 Positioning

2.5.2-5 Auxiliary Mask

1/6 Address

Range: 1 - 247. Default: 247.

The actuator must be allocated a unique address on the Modbus network. Changes made to this parameter will take effect immediately.

To change,    . The set address will be shown.

2/6 Termination

Modbus networks require termination at each end of the highway. The Modbus option has a passive (120 Ohm) termination resistor built in (two for dual channel), which can be switched in or out of the circuit.

Off (Default) – Termination resistors switched out.

On – Termination resistors switched in. In a dual channel Modbus option, when ON is selected the termination resistors will be switched in for both channels.

To change,    . The checkbox indicates the termination mode.

3/6 Baud Rate

Range: 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.

The baud rate must be set to match the connected RS485 highway. Changes made to this parameter will take effect immediately.

To change,    . The drop down list will close and indicate the set baud rate.

4/6 Parity / Stop

Parity: none, even, odd. Stop: 1, 2.

If Modbus parity bit detection is being used, configure this setting to match the host controller.

To change,    . The drop down list will close and indicate the parity/stop setting.

5/6 Second Address

Range: 1 -247. Default: 247.

Used for dual Modbus option (redundant) only. Refer to wiring diagram.

Dual channel Modbus has two communication channels that can be connected to the same highway or separate highways. The second channel address is configured with this setting. It can be identical or different to the first channel address (1/6). Changes made to this parameter will take effect immediately.

To change,    . The set address will be shown.

6/6 Control

Configure the Modbus channels for control, monitoring or off.

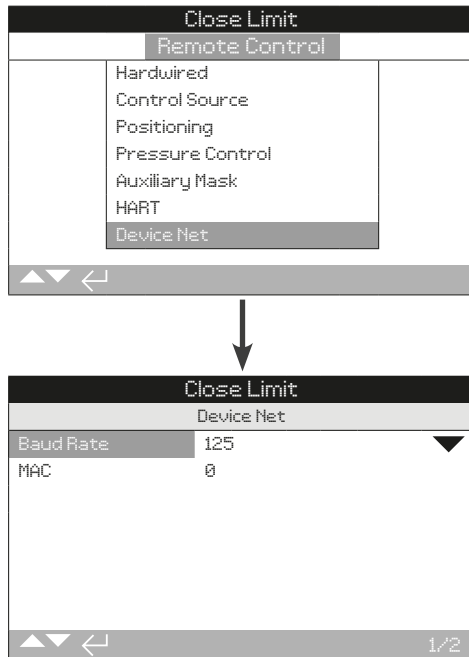
Ch1 Ctrl Ch2 Ctrl – Channel 1 and channel 2 are controlling the actuator.

Ch1 Ctrl Ch2 On – Channel 1 is controlling the actuator and channel 2 is monitoring only.

Ch2 Ctrl Ch1 On – Channel 2 is controlling the actuator and channel 1 is monitoring only.

Ch1 On – Channel 1 is controlling the actuator and channel 2 is off.

Ch2 On – Channel 2 is controlling the actuator and channel 1 is off.



The Device Net settings screen is shown above. Device Net is a control and feedback option, refer to wiring diagram.

1/2 Baud Rate

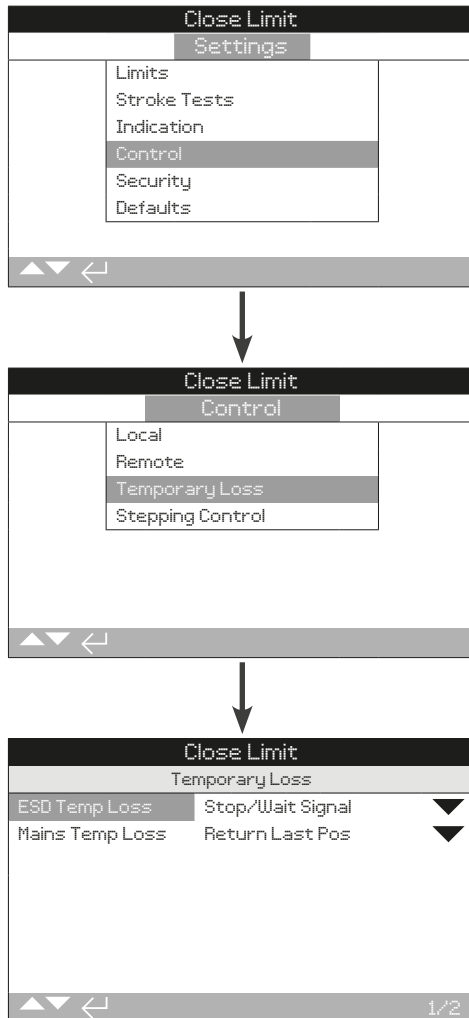
Configure the Device Net communication baud rate to 125, 250 or 500. This setting must match the connected network speed.

To change,   . The drop down list will close and indicate the set baud rate.

2/2 MAC (Address)

Configure the actuator MAC for communication on the network. The MAC setting can be 0 – 63 and must be a unique address for the connected network.

To change,   . The set MAC address will be shown.



Temporary loss defines what action should occur if a fleeting ESD or mains power failure occurs.

ESD has a higher priority than local or remote Open/Closed signals. For ESD, the control signal must be maintained for the duration of the ESD action.

ESD control will operate in local and remote operating modes.

1/2 ESD Temp Loss

Define what occurs in the event of a fleeting ESD signal.

Stop/Wait Signal – Stop moving and wait for a new command.

Return Last Pos – Stop moving then return to the last position before the ESD temporary loss occurred.

Cont/Wait Signal – Continue performing the ESD action then wait for a new command.

Cont/Man Reset – Continue performing the ESD action then prevent further option until a manual reset is performed.

To change,    . The drop down list will close and indicate the ESD temporary loss setting.

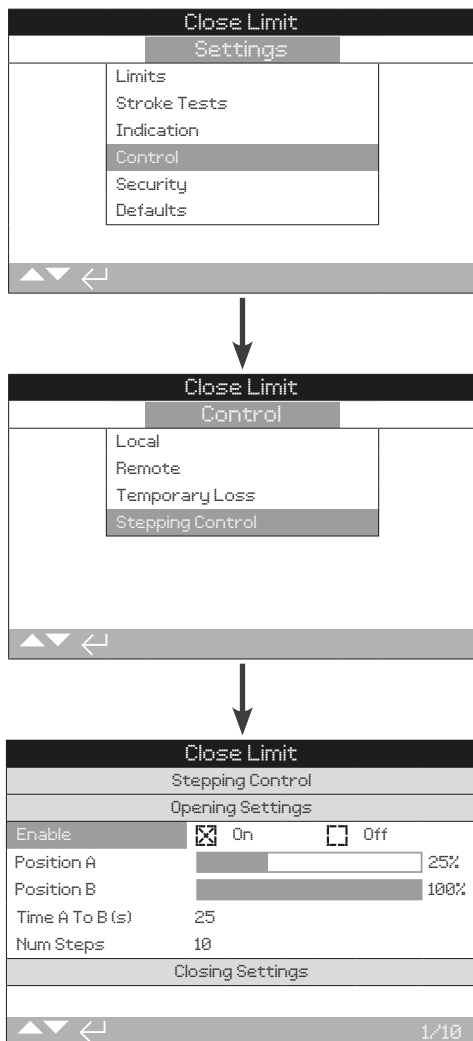
2/2 Mains Temp Loss

Define what occurs in the event of a fleeting mains power failure.

Return Last Pos – Once power is restored, return to the last position prior to the mains failure.

Cont/Man Reset – Continue performing the failure action then prevent further option until a manual reset is performed.

To change,    . The drop down list will close and indicate the mains temporary loss setting.



The diagram illustrates the navigation path through the 'Close Limit' settings. It starts with the 'Settings' menu, which includes 'Limits', 'Stroke Tests', 'Indication', 'Control', 'Security', and 'Defaults'. The 'Control' option is selected, leading to a sub-menu with 'Local', 'Remote', 'Temporary Loss', and 'Stepping Control'. The 'Stepping Control' option is selected, leading to the 'Stepping Control' settings screen. This screen is divided into 'Opening Settings' and 'Closing Settings' sections. The 'Opening Settings' section includes an 'Enable' checkbox (checked), 'Position A' (25%), 'Position B' (100%), 'Time A To B (s)' (25), and 'Num Steps' (10). The 'Closing Settings' section is currently empty.

Introduction

Stepping control allows the valve operating time to be increased. This feature is commonly used to prevent hydraulic shock when closing or to prevent surges when opening a valve. Stepping control is active in both local and remote control modes.

Stepping control only applies to the hydraulic stroke.

Opening Settings

1/10 Enable

On – Enable stepping control in the open direction.

Off (default) – Disable stepping control in the open direction.

To change,    . The checkbox indicates the open stepping control setting.

2/10 Position A

Range: 0% to 100%. Default 25%.

Define the position where stepping control will begin in the open direction.

To change,    . The slider control indicates the start position.

3/10 Position B

Range: 0% to 100%. Default: 100%.

Define the position where stepping control will stop in the open direction.

To change,    . The slider control indicates the stop position.

4/10 Time A to B

Range: 0 to 3,600 seconds.

Set the stepping control run time from Position A (2/10) to Position B (3/10).

To change,    . The set run time value will be shown.

5/10 Number Steps

Range: 0 to 100 steps.

Set the number of steps the actuator will perform between Position A (2/10) and Position B (3/10) in the configured time (4/10).

To change,    . The set number of steps will be shown.

Closing Settings

6/10 Enable

On – Enable stepping control in the close direction.

Off (default) – Disable stepping control in the close direction.

To change,    . The checkbox indicates the close stepping control setting.

7/10 Position C

Range: 0% to 100%. Default 100%.

Define the position where stepping control will begin in the close direction.

To change,    . The slider control indicates the start position.

8/10 Position D

Range: 0% to 100%. Default: 25%.

Define the position where stepping control will stop in the close direction.

To change,    . The slider control indicates the stop position.

9/10 Time C to D

Range: 0 to 3,600 seconds.

Set the stepping control run time from Position C (7/10) to Position D (8/10).

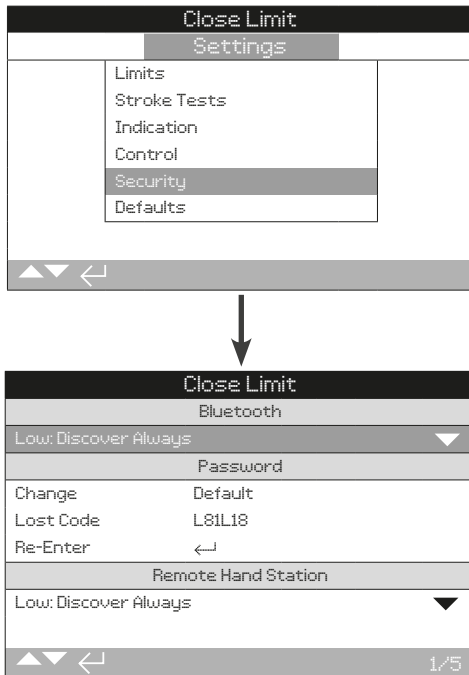
To change,    . The set run time value will be shown.

10/10 Number Steps

Range: 0 to 100 steps.

Set the number of steps the actuator will perform between Position C (7/10) and Position D (8/10) in the configured time (9/10).

To change,    . The set number of steps will be shown.



Sets Bluetooth communication and password security levels.

1/5 Bluetooth

Low: Discover Always – The actuator will be discoverable and available for Bluetooth communications using a PC running Insight 2 at all times. This setting provides convenient connection when Insight 2 is used. Communication with the Bluetooth Setting Tool *Pro* is also available.

Medium: Discover in Local and Stop – The actuator is discoverable and available for Bluetooth communication using a PC running Insight 2 when local or stop has been selected using the red selector. Connection is unavailable in remote. Communication with the Rotork Bluetooth® Setting Tool *Pro* is available.

High: Infrared Initiation Only (default) – The actuator is not discoverable or available for Bluetooth communication using a PC running Insight 2. Communication with the Rotork Bluetooth® Setting Tool *Pro* is available using the quick connect method. Refer to 1.2.

Very High: Disabled. Infrared Only – All Bluetooth communications are disabled. Communication is by Infrared commands from the Rotork Bluetooth® Setting Tool *Pro* only. Refer to 1.2.

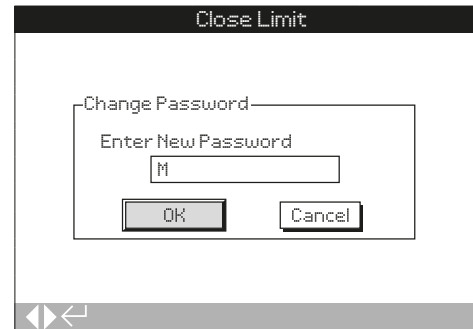
To change,    . The drop down list will close and indicate the set Bluetooth security.

2/5 Change

This default password is **ROTORK** (Viewer) **ROTACT** (User), Change (2/5) will indicate: Default.

This can be changed to a new password selected by the user.

To set a user selected password press . The change password display will be shown.



Enter user selected password:

Use  to highlight new password entry box and press .

Use   to scroll through alphanumerical values to display the required character.

Use  to move to the next character.

Use  to delete the previous character.

Use  when the selected password is complete.

Navigate to the OK button using . Press .

The user selected password is now active. Refer to 1.3.

Change (2/5) will indicate User Defined.

The lost code (3/5) characters will change to reflect the new password.

3/5 Lost Code

Non editable. Lost code is used if a user password has been set and then lost or forgotten.

Contact Rotork quoting the code as read from the display. After caller verification, Rotork can then provide the user set password.

4/5 Re-Enter

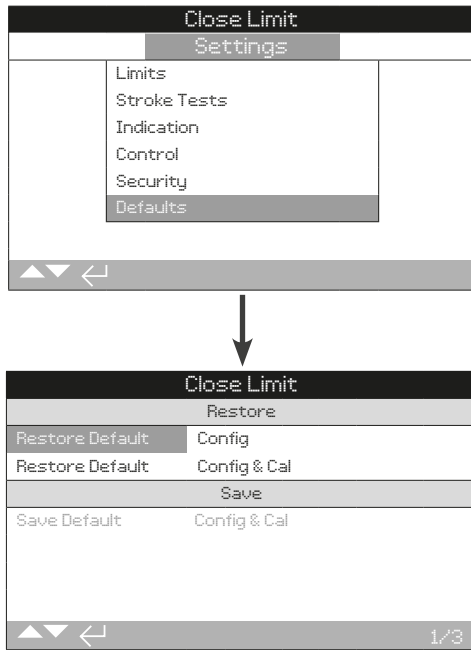
The Re-Enter password setting allows an operator to change permission level during the same communication session.

Enter the different password, refer to 1.3.

5/5 Remote Hand Station

The Bluetooth security for the Remote Hand Station (if connected) is configurable to the same settings as the actuator Bluetooth security. The settings can be different to meet operating requirements. Refer to Bluetooth (1/5).

To change,    . The drop down list will close and indicate the set Remote Hand Station Bluetooth security.



Allows default settings and factory set limits to be restored.

1/3 Restore Default Configuration

All SI functions are configured to Rotork default settings before dispatch. If requested at the time of order, alternative user specified settings will be set.

When valve maker and site commissioning takes place, any setting entered will overwrite the factory default settings and will be the current settings used in operation along with the remaining unadjusted defaults.

Should difficulty be encountered during commissioning, default settings can be restored, returning the actuator configuration back to its default settings.

Standard default settings are indicated within this manual.

To restore the default settings, press . A warning will appear, press  to continue.

 All settings must then be checked/set as required for valve operation and process control/indication.

2/3 Restore Default Configuration & Calibration

Restoring default configuration and calibration applies the default settings (refer to 1/3) and also resets all calibrated options such as position limits and modulating inputs (4-20 mA).

To restore defaults, press . A warning will appear, press  to continue.

When configuration and calibration is restored to defaults, all settings must be checked/set as required for valve operation and process control/indication.

3/3 Save Configuration & Calibration

Once satisfactorily commissioned and tested, the current settings can be saved as the new defaults.

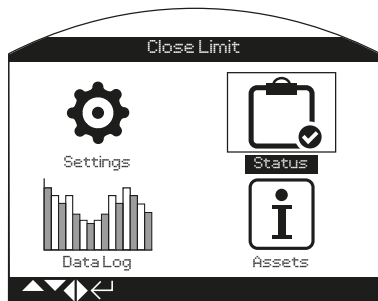
To save defaults, press . A warning will appear, press  to continue.

If Rotork commission the actuator, on completion and agreement, current settings will be saved as defaults.

3. Status

Status screens on the SI display are provided to assist diagnostics. The displayed information is live data taken from the main data log processor and can be used to view control signals, alarms and movement.

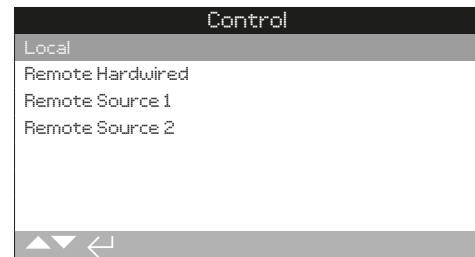
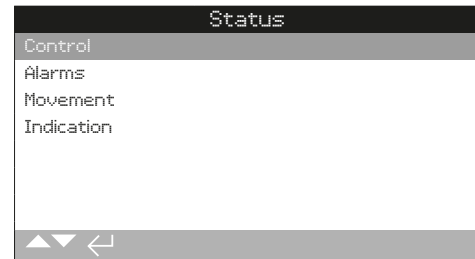
Refer to section 1.2 for connecting to the actuator. Once connected, navigate to the main icon menu and select the status icon:



3. Status menu

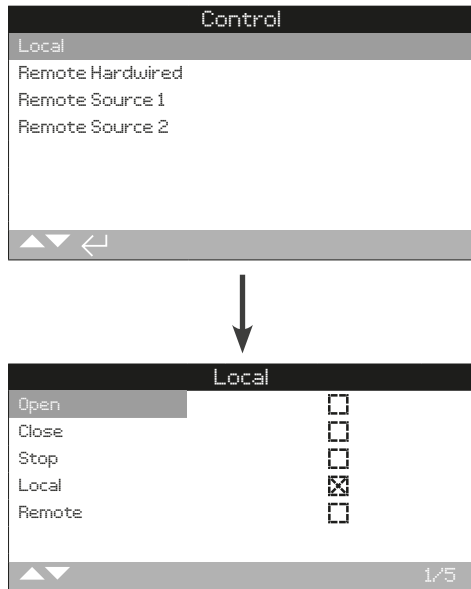
	Page
3.1 Control	37
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3.1 Status – Control





3.1.1 Control – Local



Local Control Status

View the signal status for each of the local selector inputs. As the local controls are operated, the corresponding checkbox will show an active signal. Confirming healthy local selector operation is useful when diagnosing fault conditions.

Movement may occur during testing of the local control selectors. To prevent movement, set the operating mode to STOP.

1/5 Open

Displays the current local Open signal status. A check indicates the local Open/Close selector is in the Open position and the command is recognised by the controller.

2/5 Close

Displays the current local Close signal status. A check indicates the local Open/Close selector is in the Close position and the command is recognised by the controller.

3/5 Stop

Displays the current local stop signal status. A check indicates the Local/Stop/Remote mode selector is in the Stop position and the command is recognised by the controller.

In Stop mode, the actuator will not move. All local and remote control signals will be ignored except for ESD if it configured to override Stop, refer to 2.4.

4/5 Local

Displays the current local signal status. A check indicates the Local/Stop/Remote mode selector is in the Local position and the command is recognised by the controller.

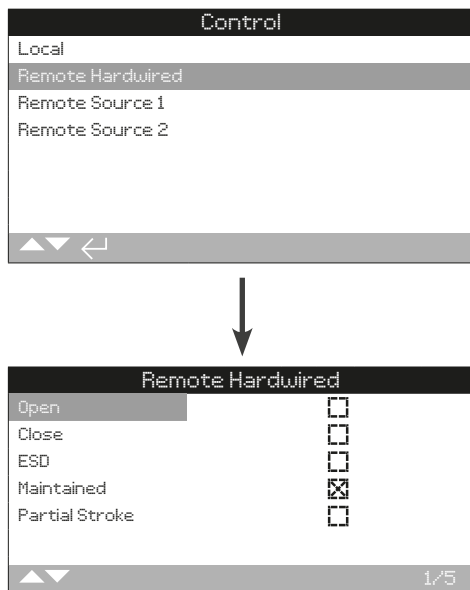
In Local mode, the Open/Close selector will operate the actuator in the selected direction. Remote control signals will be ignored except for ESD.

ESD will still operate the actuator in Local mode.

5/5 Remote

Displays the current remote signal status. A check indicates the Local/Stop/Remote mode selector is in the Remote position and the command is recognised by the controller.

In Remote mode, the actuator will respond to signals from the hardwired inputs, control source 1 or control source 2. Local control signals will be ignored.



4/5 Maintained

Displays the current remote hardwired maintained signal status. A check indicates a signal is applied to the Maintain hardwired input and the command is recognised by the controller.

When a Maintain signal is present, the actuator will self-maintain a fleeting Open or Close control signal. Operation will continue until the Maintain signal is removed, a limit position is reached or a command is issued to reverse direction.

5/5 Partial Stroke

Displays the current remote hardwired partial stroke signal status. A check indicates a signal is applied to the Maintain hardwired input and the command is recognised by the controller.

Remote Hardwired Status

View the signal status for each of the remote hardwired inputs. As remote signals are applied, the corresponding checkbox will show an active signal.

Movement may occur during testing of the remote hardwired inputs. To prevent movement, set the operating mode to STOP.

1/5 Open

Displays the current remote hardwired Open signal status. A check indicates a signal is applied to the Open hardwired input and the command is recognised by the controller.

2/5 Close

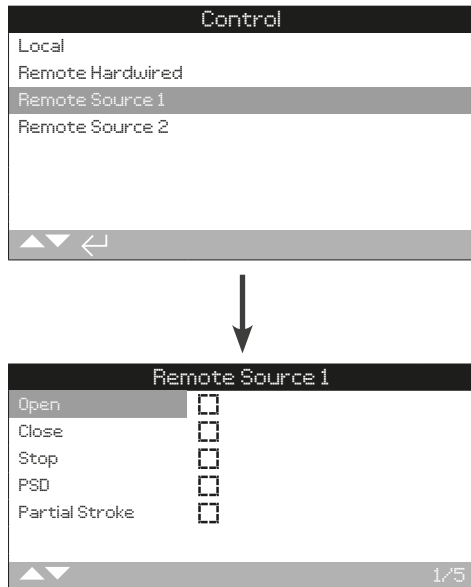
Displays the current remote hardwired Close signal status. A check indicates a signal is applied to the Close hardwired input and the command is recognised by the controller.

3/5 ESD

Displays the current remote hardwired ESD signal status. A check indicates a signal is applied to the ESD hardwired input and the command is recognised by the controller.



3.1.3 Control – Remote Source 1



Remote Source 1 Status

View the signal status for Remote Source 1 inputs, refer to 2.5.2-2. As remote signals are applied, the corresponding checkbox will show an active signal.

Only digital remote control options will report a control status. Analogue control must be checked using the Positioner home screen, refer to 2.4.2.

Movement may occur during testing of the remote hardwired inputs. To prevent movement, set the operating mode to STOP.

1/5 Open

Displays the remote Source 1 Open signal status. A check indicates an Open Source 1 signal is present and the command is recognised by the controller.

2/5 Close

Displays the remote Source 1 Close signal status. A check indicates a Close Source 1 signal is present and the command is recognised by the controller.

3/5 Stop

Displays the remote Source 1 Stop signal status. A check indicates a Stop Source 1 signal is present and the command is recognised by the controller.

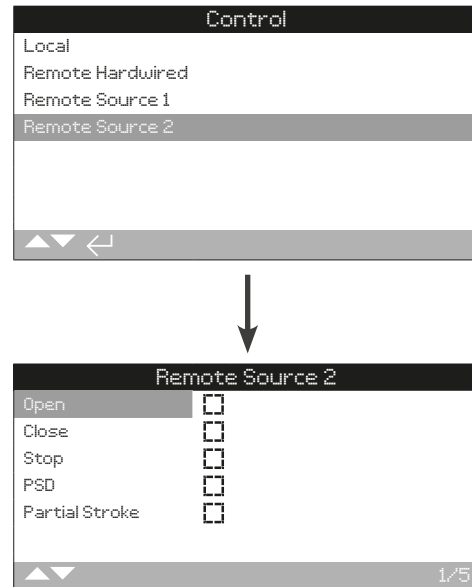
4/5 PSD

Displays the remote Source 1 PSD signal status. A check indicates a PSD (process shut down) Source 1 signal is present and the command is recognised by the controller.

5/5 Partial Stroke

Displays the remote Source 1 partial stroke signal status. When active, this indicates that a partial stroke signal is being received from remote source 1.

3.1.4 Control – Remote Source 2



Remote Source 2 Status

View the signal status for Remote Source 2 inputs, refer to 2.5.2-2. As remote signals are applied, the corresponding checkbox will show an active signal.

Only digital remote control options will report a control status. Analogue control must be checked using the Positioner home screen, refer to 2.4.2.

Movement may occur during testing of the remote hardwired inputs. To prevent movement, set the operating mode to STOP.

1/5 Open

Displays the remote Source 2 Open signal status. A check indicates an Open Source 2 signal is present and the command is recognised by the controller.

2/5 Close

Displays the remote Source 2 Open signal status. A check indicates a Close Source 2 signal is present and the command is recognised by the controller.

3/5 Stop

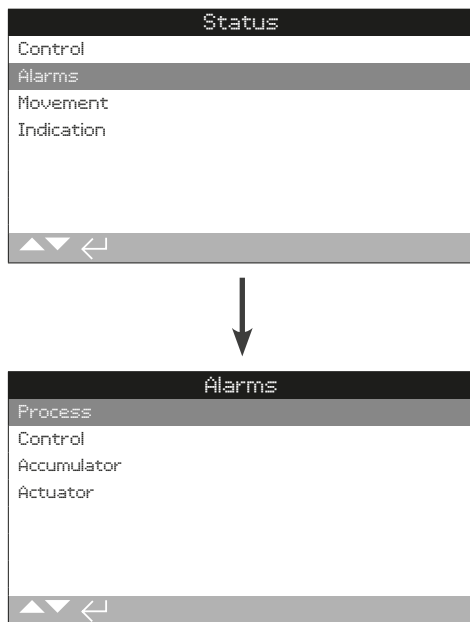
Displays the remote Source 2 Stop signal status. A check indicates a Stop Source 2 signal is present and the command is recognised by the controller.

4/5 PSD

Displays the remote Source 2 PSD signal status. A check indicates a PSD (process shut down) Source 2 signal is present and the command is recognised by the controller.

5/5 Partial Stroke

Displays the remote Source 2 partial stroke signal status. A check indicates a Partial Stroke Source 2 signal is present and the command is recognised by the controller.



The Process Alarms menu includes conditions that are directly triggered by the operating process. A checked checkbox means the condition is currently active.

Process	
Over Press Limit	☐
Over Press Mid	☐
Stall Limit	☐
Stall Mid	☐
Stall Slow Mode	☐
Wrong Direction	☐
Motor Thermostat	☐

1/7 Over Press, Limit

Displays over pressure limit status. A check indicates an over pressure condition is active at the Open or Closed limit.

2/7 Over Press, Mid

Displays over pressure mid status. A check indicates an over pressure condition is active at an intermediate travel position.

3/7 Stall Limit

Displays stall limit status. A check indicates a stall condition is active at the Open or Closed limit.

4/7 Stall Mid

Displays stall mid status. A check indicates a stall condition is active at an intermediate travel position.

5/7 Stall Slow Mode

Displays stall slow mode status. A check indicates a stall condition is active during slow mode.

6/7 Wrong Direction

Displays wrong direction status. A check indicates operation in the opposite direction to the signal received.

7/7 Motor thermostat

Displays motor thermostat status. A check indicates a motor thermostat trip condition is active.



3.2.2 Alarms – Control

Control	
Mains Fail	☐
Phase Loss	☐
Phase Rotated	☐
ESD Active	☐
Reset on ESD	☐
Reset on Power	☐
Demand Loss	☐

1/9 Mains Fail

Displays the mains fail status. A check indicates the mains power supply has failed. If the display backlight is illuminated it may also indicate the third phase is missing.

2/9 Phase Loss

Displays the phase loss status. A check indicates one of the power supply phases is missing. Check the status of all three supply phases.

3/9 Phase Rotated

Displays the phase rotated status. A check indicates phase rotation is actively switching two phases.

4/9 ESD Active

Displays the ESD active status. A check indicates ESD is actively controlling the actuator.

5/9 Reset on ESD

Displays the reset on ESD status. A check indicates manual reset must be performed to continue operating the actuator.

6/9 Reset on Power

Displays the reset on power status. A check indicates manual reset must be performed to continue operating the actuator.

7/9 Demand Loss

Displays the demand loss status. A check indicates a loss of demand signal to the actuator.

8/9 Net Coms Loss

Displays Net coms loss status. A check indicates network communication is lost.

9/9 Manual Operation

Displays manual operation status. A check indicates the manual operation switch is set to manual mode.

3.2.3 Alarms – Accumulator

Accumulator	
Acc OK	☐
Charging	☐
Discharging	☐
High Pressure	☐
Low Pressure	☐
Mvmt Disabled	☐
Pressure Error	☐

1/8 Acc OK

Displays the Accumulator status. A check indicates the Accumulator is OK.

2/8 Charging

Displays the Accumulator charging status. A check indicates the Accumulator is actively charging.

3/8 Discharging

Displays the Accumulator discharging status. A check indicates the Accumulator is actively discharging.

4/8 High Pressure

Displays the Accumulator pressure status. A check indicates the Accumulator pressure is too high.

5/8 Low Pressure

Displays the Accumulator pressure status. A check indicates the Accumulator pressure is too low.

6/8 Mvmt Disabled

Displays the movement disabled status. A check indicates no Accumulator movement is permitted.

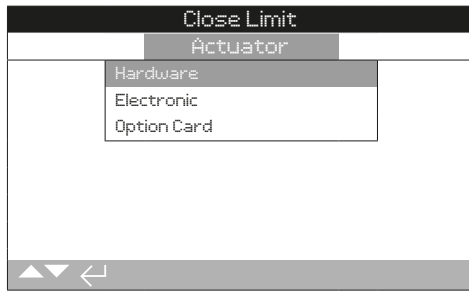
7/8 Pressure Error

Displays the pressure transducer error status. A check indicates an Accumulator pressure transducer error is active.

8/8 Config Error

Displays the Accumulator setting error status. A check indicates an Accumulator configuration error is active.

3.2.4 Alarms – Actuator



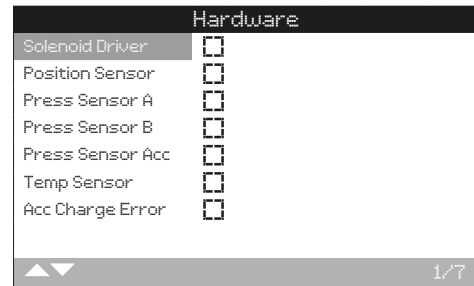
SI range products consist of three main parts; hydraulic actuator, electrical controller and installed option cards. This section provides details for the following:

3.2.4-1 Hardware

3.2.4-2 Electronics

3.2.4-3 Option Cards

3.2.4-1 Alarms – Actuator – Hardware



1/7 Solenoid Driver

Displays the solenoid driver status. A check indicates the solenoid driver is in a fault condition.

2/7 Position Sensor

Displays the position sensor status. A check indicates the position sensor is in a fault condition.

3/7 Pressure Sensor A

Displays the pressure sensor A status. A check indicates pressure sensor A is in a fault condition.

4/7 Pressure Sensor B

Displays the pressure sensor B status. A check indicates pressure sensor B is in a fault condition.

5/7 Pressure Sensor Accumulator

Displays the Accumulator pressure sensor status. A check indicates the Accumulator pressure sensor is in a fault condition.

6/7 Temperature Sensor

Displays the temperature sensor status. A check indicates the temperature sensor is in a fault condition.

7/7 Accumulator Charge Error

Displays the Accumulator charge error status. A check indicates Accumulator charging has stopped due to a fault condition.



3.2.4-2 Alarms – Actuator – Electronic

Electronic	
Local Controls	☐
EEPROM Fault	☐
EEPROM Missing	☐
Power Board	☐
Bluetooth Module	☐
Customer Supply	☐

1/6

1/6 Local Controls

Displays local controls status. A check indicates the local controls are in a fault condition.

2/6 EEPROM Fault

Displays the EEPROM fault status. A check indicates the EEPROM is in a fault condition.

3/6 EEPROM missing

Displays EEPROM missing status. A check indicates the EEPROM is missing. Contact Rotork if the EEPROM is physically missing.

4/6 Power Board

Displays power board status. A check indicates the power board is in a fault condition.

5/6 Bluetooth Module

Displays Bluetooth module status. A check indicates the Bluetooth module is in a fault condition.

6/6 Customer Supply

Displays the customer supply status. A check indicates the customer supply from the actuator is in a fault condition.

3.2.4-3 Alarms – Actuator – Option Card

Option Card	
Option 1 Missing	☐
Option 2 Missing	☐
Option 3 Missing	☐
Option 1 Error	☐
Option 2 Error	☐
Option 3 Error	☐

1/6

1/6 Option 1 Missing

Displays the option 1 missing status. A check indicates option 1 is configured but missing.

2/6 Option 2 Missing

Displays the option 2 missing status. A check indicates option 2 is configured but missing.

3/6 Option 3 Missing

Displays the option 3 missing status. A check indicates option 3 is configured but missing.

4/6 Option 1 Error

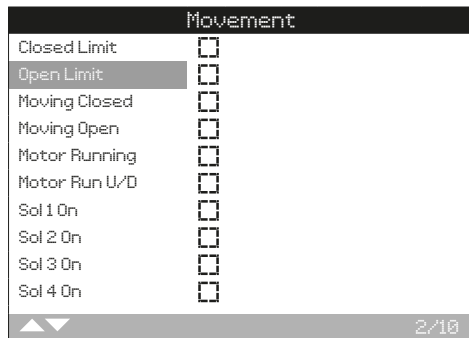
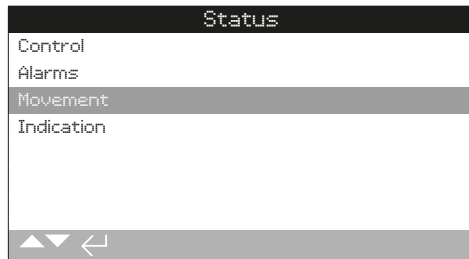
Displays option 1 error status. A check indicates option 1 is in a fault condition.

5/6 Option 2 Error

Displays option 2 error status. A check indicates option 2 is in a fault condition.

6/6 Option 3 Error

Displays option 3 error status. A check indicates option 3 is in a fault condition.



7/10 Solenoid 1

Displays the solenoid 1 status. A check indicates solenoid 1 is energised.

8/10 Solenoid 2

Displays the solenoid 2 status. A check indicates solenoid 2 is energised.

9/10 Solenoid 3

Displays the solenoid 3 status. A check indicates solenoid 3 is energised.

10/10 Solenoid 4

Displays the solenoid 4 status. A check indicates solenoid 4 is energised.

1/10 Closed Limit

Displays the Closed limit status. A check indicates the actuator is at the Closed limit position.

2/10 Open Limit

Displays the Open limit status. A check indicates the actuator is at the Open limit position.

3/10 Moving Closed

Displays the moving Closed status. A check indicates the actuator is moving Closed.

4/10 Moving Open

Displays the moving Open status. A check indicates the actuator is moving Open.

5/10 Motor Running

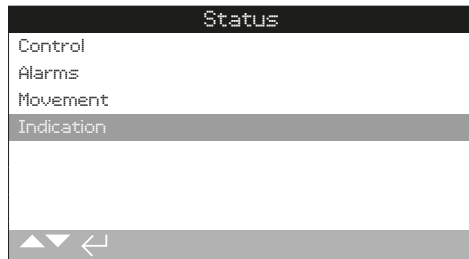
Displays the motor running status. A check indicates the the actuator motor is running.

6/10 Motor Run U/D

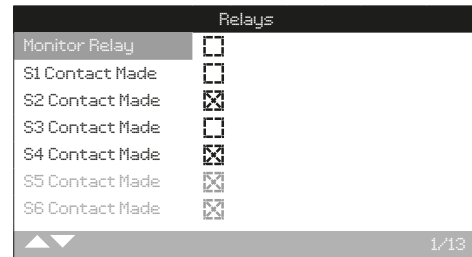
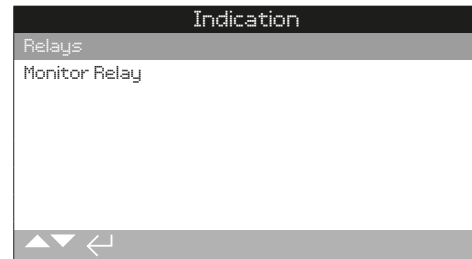
Displays the motor run U/D status. A check indicates the actuator motor is starting operation in either direction.



3.4 Status – Indication



3.4.1 Indication – Relays



Indication status

SI range actuators include a number of different relay outputs to satisfy site indication requirements. This section provides details for the following:

3.4.1 Indication Relays

3.4.2 Monitor Relay

1/13 Monitor Relay

Displays the monitor relay status. A check indicates the configured relay function is active.

The monitor relay is a change-over contact providing wiring connection to both sides of the relay. Always consider the connection terminals used when comparing remote indication against the on screen status checkbox.

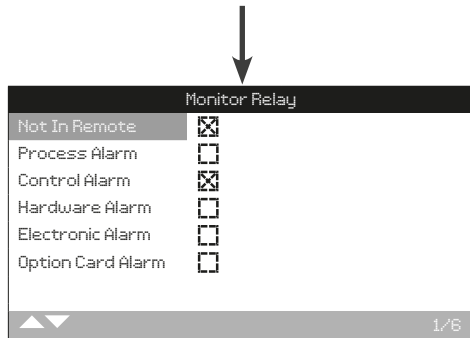
Monitor relay functionality is configurable, refer to 2.4.1.

2/13 to 13/13 S1 to S12

Displays the S1-12 relay status. A check indicates the configured relay function is active.

S contact relay functionality is configurable, refer to 2.4.1.

3.4.2 Indication – Monitor Relay



1/6 Not in Remote

Displays the not in remote status. A check indicates the actuator is not in remote mode on the Local/Stop/Remote selector.

2/6 Process Alarm

Displays process alarm status. A check indicates a process alarm is active.

3/6 Control Alarm

Displays control alarm status. A check indicates a control alarm is active.

4/6 Hardware Alarm

Displays hardware alarm status. A check indicates a hardware alarm is active.

5/6 Electronic Alarm

Displays electronic alarm status. A check indicates an electronic alarm is active.

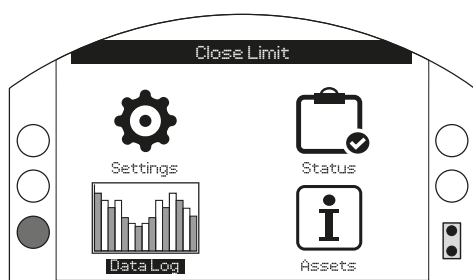
6/6 Option Card Alarm

Displays option card alarm status. A check indicates an option card alarm is active.

Data logs, which are able to store vast amounts of operational and environmental information, are provided as standard on the SI. Due to the nature of the graphical display, information can be displayed locally at the actuator using the supplied Rotork Bluetooth® Setting Tool *Pro*.

The stored information can be used to view, diagnose and trend any type of operational condition that may affect the valve, actuator or process. With asset management becoming preferred, the data log helps to achieve goals set out by process conditions.

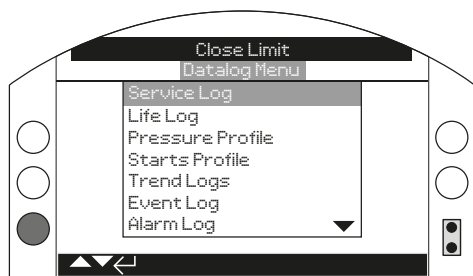
Refer to section 1.2 for connecting to the actuator. Once connected, use the four directional arrows to navigate to the main icon menu, from here you can highlight and select the data log icon.



Main Menu

The first time you enter the data log menu, you will be given the opportunity to set the current time and date. This time and date is ONLY for the local display and does not affect the dates when the data log file is downloaded for viewing with the use of Insight 2. If you want to set the current time and date please refer to section 4.12 of the data log section.

Once the time and date is set the below screen will appear.



4. Data Log	Page
4.1 Service Log	49
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4.5 Trend Logs	52
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4.11 Set Log Date	59

Close Limit	
Operation	
Average Pressure	31
Open Starts	1170
Close Starts	3782
Motor Run Time	00:05:49:04
Max Starts/Hr	239
Date	21:11:09 05/02/2019
Last Open Limit	09:54:36 10/03/2019
▲▼⏪ 1/22	

Operation

1/22 Average Pressure – Shown as a percentage of maximum pressure.

2/22 Open Starts – The total number of starts in the Open direction.

3/22 Close Starts – The total number of starts in the Close direction.

4/22 Motor Run Time – The total cumulative time the actuator motor has been running (days:hours:minutes:seconds).

5/22 Max Starts/Hr – The maximum number of recorded starts within an hour period during actuator service.

6/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Max Starts/Hr (5/22) occurred.

7/22 Last Open Limit – The time (hours:minutes:seconds) and date (day/month/year) the actuator most recently reached the Open limit.

8/22 Last Close Limit – The time (hours:minutes:seconds) and date (day/month/year) the actuator most recently reached the Closed limit.

Close Limit	
Open Pressure	
Max Value %	100
Date	00:31:35 06/02/2019
Last Pressure Trip	07:35:12 17/02/2019
Close Pressure	
Max Value %	100
Date	15:50:31 05/02/2019
Last Pressure Trip	19:19:21 05/02/2019
▲▼⏪ 14/22	

Open Pressure

9/22 Max Valve % – The maximum opening pressure observed during service, shown as a percentage of maximum pressure.

10/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Max Valve % (9/22) occurred.

11/22 Last Pressure Trip – The time (hours:minutes:seconds) and date (day/month/year) the most recent open pressure trip occurred.

Close Pressure

12/22 Max Valve % – The maximum closing pressure observed during service, shown as a percentage of maximum pressure.

13/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Max Valve % (12/22) occurred.

14/22 Last Pressure Trip – The time (hours:minutes:seconds) and date (day/month/year) the most recent close pressure trip occurred.

Close Limit	
Temperature	
Maximum C	28
Date	03:03:29 17/01/2019
Minimum C	18
Date	00:51:22 17/01/2019
Power	
Power Ups	6
Max On Time	00:03:32:58
▲▼⏪ 20/22	

Temperature

15/22 Maximum °C – The maximum recorded actuator temperature in Celsius.

16/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Maximum °C (15/22) occurred.

17/22 Minimum °C – The minimum recorded actuator temperature in Celsius.

18/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Minimum °C (17/22) occurred.

Close Limit	
Temperature	
Minimum C	18
Date	00:51:22 17/01/2019
Power	
Power Ups	6
Max On Time	00:03:32:58
Max Off Time	46:51:42:07
Service	
Last Service	01:50:46 17/01/2019
▲▼⏪ 22/22	

Power

19/22 Power Ups – The total number of actuator power ups during service.

20/22 Max On Time – The longest time (days:hours:minutes:seconds) the actuator is powered up in one instance.

21/22 Max Off Time – The longest time (days:hours:minutes:seconds) the actuator is powered off in one instance.

Service

22/22 Last Service – The most recent service time (hours:minutes:seconds) and date (day/month/year).

Close Limit	
Operation	
Average Pressure	31
Open Starts	1170
Close Starts	3782
Motor Run Time	005:49:04
Max Starts/Hr	239
Date	21:11:09 05/02/2019
Last Open Limit	09:54:36 10/03/2019
▲▼⏪ 1/22	

Close Limit	
Temperature	
Maximum C	28
Date	03:03:29 17/01/2019
Minimum C	18
Date	00:51:22 17/01/2019
Power	
Power Ups	6
Max On Time	00:03:32:58
▲▼⏪ 20/22	

Operation

1/22 Average Pressure – Shown as a percentage of maximum pressure.

2/22 Open Starts – The total number of starts in the Open direction.

3/22 Close Starts – The total number of starts in the Close direction.

4/22 Motor Run Time – The total cumulative time the actuator motor has been running (days:hours:minutes:seconds).

5/22 Max Starts/Hr – The maximum number of recorded starts within an hour period during actuator service.

6/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Max Starts/Hr (5/22) occurred.

7/22 Last Open Limit – The time (hours:minutes:seconds) and date (day/month/year) the actuator most recently reached the Open limit.

8/22 Last Close Limit – The time (hours:minutes:seconds) and date (day/month/year) the actuator most recently reached the Closed limit.

Close Limit	
Open Pressure	
Max Value %	100
Date	00:31:35 06/02/2019
Last Pressure Trip	07:35:12 17/02/2019
Close Pressure	
Max Value %	100
Date	15:50:31 05/02/2019
Last Pressure Trip	19:19:21 05/02/2019
▲▼⏪ 14/22	

Open Pressure

9/22 Max Valve % – The maximum opening pressure observed during service, shown as a percentage of maximum pressure.

10/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Max Valve % (9/22) occurred.

11/22 Last Pressure Trip – The time (hours:minutes:seconds) and date (day/month/year) the most recent open pressure trip occurred.

Close Pressure

12/22 Max Valve % – The maximum closing pressure observed during service, shown as a percentage of maximum pressure.

13/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Max Valve % (12/22) occurred.

14/22 Last Pressure Trip – The time (hours:minutes:seconds) and date (day/month/year) the most recent close pressure trip occurred.

Temperature

15/22 Maximum °C – The maximum recorded actuator temperature in Celsius.

16/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Maximum °C (15/22) occurred.

17/22 Minimum °C – The minimum recorded actuator temperature in Celsius.

18/22 Date – The time (hours:minutes:seconds) and date (day/month/year) that Minimum °C (17/22) occurred.

Close Limit	
Temperature	
Minimum C	18
Date	00:51:22 17/01/2019
Power	
Power Ups	6
Max On Time	00:03:32:58
Max Off Time	465:14:26:07
Service	
Last Service	01:50:46 17/01/2019
▲▼⏪ 22/22	

Power

19/22 Power Ups – The total number of actuator power ups during service.

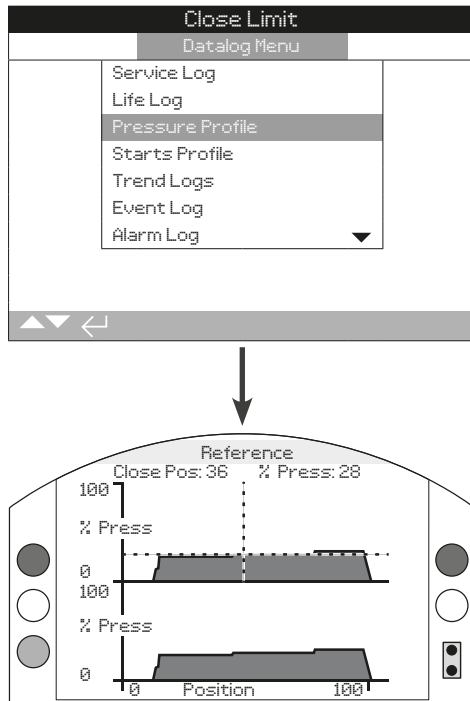
20/22 Max On Time – The longest time (days:hours:minutes:seconds) the actuator is powered up in one instance.

21/22 Max Off Time – The longest time (days:hours:minutes:seconds) the actuator is powered off in one instance.

Service

22/22 Last Service – The most recent service time (hours:minutes:seconds) and date (day/month/year).

4.3 Data Log – Pressure Profile



Pressure Profile

The actuator pressure profile shows how much pressure is required to operate the valve in each direction. The top graph shows the closing pressure profile and the bottom graph shows the opening pressure profile.

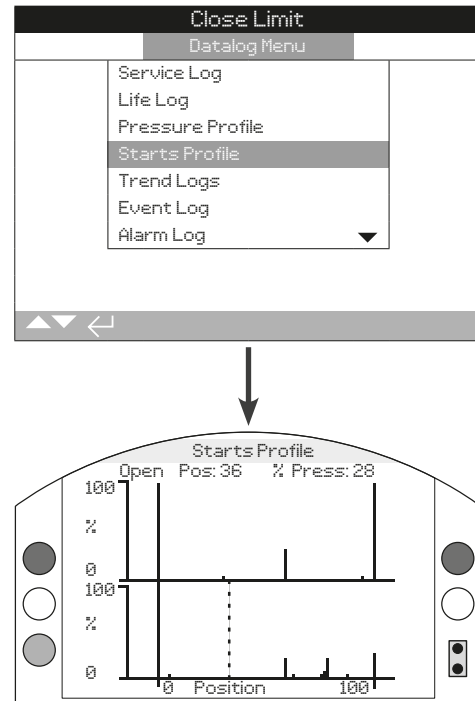
Pressure is shown as a percentage of maximum system pressure. Position is shown as a percentage of valve travel (0% is Closed and 100% is Open).

Pressing **↺** **↻** moves the cursor between the closing and opening graphs.

Pressing **➡** **➡** moves the cursor along at 1% position increments.

Pressure shown in the profile graphs is live and will update as the actuator is operated. No data is permanently stored on this screen.

4.4 Data Log – Starts Profile



Starts Profile

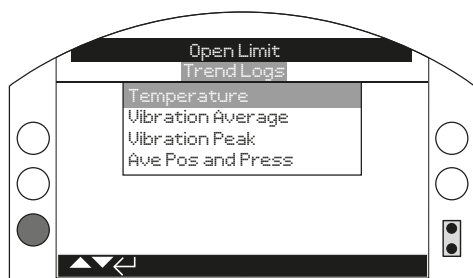
The actuator starts profile shows the total number of actuator starts in both the Open and Close directions for each percentage of valve travel. Each graph scales the starts from 0% to 100% where 100% is equal to the largest count at any valve position for the respective direction.

The starts profile is designed to give the user a quick visual indication of high wear positions in the valve stroke. For an accurate number of starts, refer to 4.1 and 4.2.

Pressing **↺** **↻** will move the cursor between the closing and opening graphs.

Pressing **➡** **➡** will move the cursor along at 1% position increments.

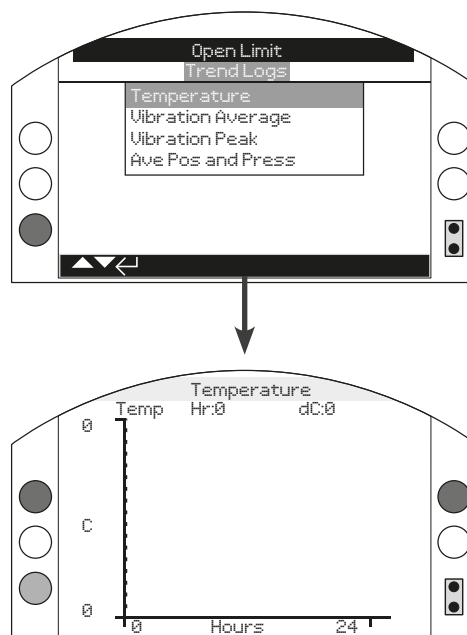
4.5 Data Log – Trend Logs



Trend Logs

Press  to select the highlighted trend log.

4.5.1 Trend Logs – Temperature



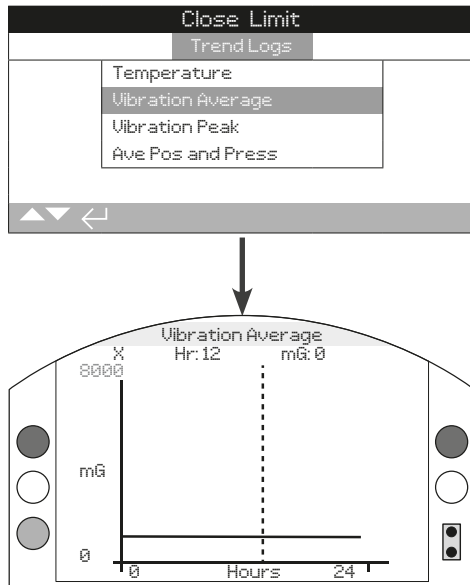
Temperature

The temperature trend log shows the average actuator temperature (degrees Celsius) recorded for a time period. Temperature is measured by an internal sensor. It may not match ambient temperature of the actuator operating environment.

Pressing   moves the cursor along the graph by 1 hour/1 day/1 month/1 year increments.

Pressing  changes the X axis timescale to 24 hours/30 days/12 months/10 years.

4.5.2 Trend Logs – Vibration Average



Vibration Average

The vibration average trend log shows the average actuator vibration (mG) recorded for a time period. Vibration is measured by an internal sensor with three operating axes. It is normal to observe 1000 mG constantly acting in the Y axis due to the effects of gravity. This may be split between axes or apply to a different axis depending on actuator orientation.

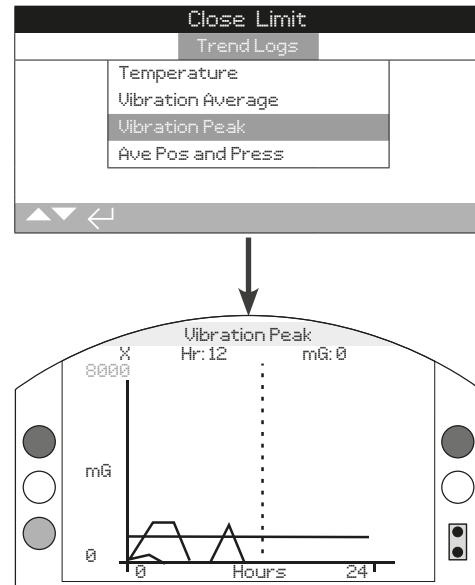
The vibration average trend log is designed to easily identify persistent vibration that could cause actuator or equipment problems.

Pressing **⬅ ➡** will cycle through the X, Y and Z axis.

Pressing **⏮ ⏭** moves the cursor along the graph by 1 hour / 1 day / 1 month / 1 year increments.

Pressing **⏴** changes the X axis timescale to 24 hours / 30 days / 12 months / 10 years.

4.5.3 Trend Logs – Vibration Peak



Vibration Peak

The vibration peak trend log shows the peak actuator vibration (mG) recorded for a time period.

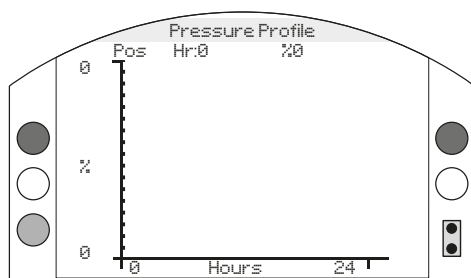
The vibration peak trend log is designed to easily identify excessive vibration that could cause actuator or equipment problems.

Pressing **⬅ ➡** cycles through the X, Y and Z axis.

Pressing **⏮ ⏭** moves the cursor along the graph by 1 hour / 1 day / 1 month / 1 year increments.

Pressing **⏴** changes the X axis timescale to 24 hours / 30 days / 12 months / 10 years.

4.5.4 Trend Logs – Average position and pressure



Average Position and Pressure

View the average actuator position or the average actuator pressure over a 24 hour period. Position is shown as a percentage of valve travel. Pressure is shown as a percentage of maximum system pressure.

Press   to switch between position and pressure graphs.

4.6 Data Log – Event Logs



Event Log Filter

This menu contains a list of all the possible parameters that can be shown in the control event log. Each parameter can be shown or hidden to provide improved visibility of key events of interest to the operator.

A check in the checkbox indicates the parameter will be displayed in the Event Log.

Press to navigate between parameters.

Press to show or hide the selected parameter.

Default: all parameters are shown.

Event Log

This menu selection shows the most recent actuator events (up to 3,000 total). New events will overwrite the oldest events to ensure the latest 3,000 events are always available.

4.6.1 Events Log – Event Log Filter



Event Log Filter

User Interface

- 1/64 Local Open** – Show/hide local Open events
- 2/64 Local Close** – Show/hide local Close events
- 3/64 Local Stop** – Show/hide local Stop events
- 4/64 Local** – Show/hide all local control events
- 5/64 Remote** – Show/hide all remote control events

Remote hardwired control

- 6/64 Hardwired Open** – Show/hide remote hardwired control Open events
- 7/64 Hardwired Closed** – Show/hide remote hardwired control Close events
- 8/64 Hardwired ESD** – Show/hide remote hardwired control ESD events
- 9/64 Hardwired maintained** – Show/hide remote hardwired control maintained events
- 10/64 Hardwired PStroke** – Show/hide remote hardwired control partial stroke events

Remote source 1

- 11/64 Source 1 Closed** – Show/hide remote source 1 control Closed events
- 12/64 Source 1 Open** – Show/hide remote source 1 control Open events
- 13/64 Source 1 Stop** – Show/hide remote source one control Stop events
- 14/64 Source 1 PSD** – Show/hide remote source 1 control PSD events
- 15/64 Source 1 PST** – Show/hide remote source 1 control PST events

Remote source 2

- 16/64 Source 2 Closed** – Show/hide remote source 2 control Closed events
- 17/64 Source 2 Open** – Show/hide remote source 2 control Open events
- 18/64 Source 2 Stop** – Show/hide remote source 2 control Stop events
- 19/64 Source 2 PSD** – Show/hide remote source 2 control PSD events
- 20/64 Source 2 PST** – Show/hide remote source 2 control PST events

Status

- 21/64 Moving Open** – Show/hide Moving Open events
- 22/64 Moving Closed** – Show/hide moving Closed events
- 23/64 Open limit** – Show/hide Open limit events
- 24/64 Closed limit** – Show/hide Closed limit events
- 25/64 Motor running** – Show/hide motor running events
- 26/64 Motor run U/D** – Show/hide motor run up/down events
- 27/64 Motor thermostat** – Show/hide motor thermostat events
- 28/64 Sol 1 on** – Show/hide solenoid 1 on events
- 29/64 Sol 2 on** – Show/hide solenoid 2 on events
- 30/64 Sol 3 on** – Show/hide solenoid 3 on events
- 31/64 Sol 4 on** – Show/hide solenoid 4 on events

Alarms

- 32/64 Over pressure limit** – Show/hide over pressure at limit alarm events
- 33/64 Over pressure mid** – Show/hide over pressure mid position events
- 34/64 Stall limit** – Show/hide stall at limit alarm events
- 35/64 Stall mid** – Show/hide stall in mid position alarm events
- 36/64 Mains fail** – Show/hide mains fail alarm events
- 37/64 Phase Loss** – Show/hide phase loss alarm events
- 38/64 Phase Rotated** – Show/hide phase rotated alarm events
- 39/64 ESD active** – Show/hide ESD active alarm events
- 40/64 Reset on ESD** – Show/hide reset on ESD alarm
- 41/64 Reset on power** – Show/hide reset on power alarm events
- 42/64 Demand loss** – Show/hide demand loss alarm events
- 43/64 Net Coms Loss** – Show/hide net coms loss alarm events
- 44/64 Manual Operation** – Show/hide manual operation alarm events
- 45/64 Hardware Fault** – Show/hide hardware alarm events
- 46/64 Monitor relay** – Show/hide monitor relay alarm events

Switch Contacts

- 47/64 S1 Cont made** – Show/hide contact S1 status
- 48/64 S2 Cont made** – Show/hide contact S2 status
- 49/64 S3 Cont made** – Show/hide contact S3 status
- 50/64 S4 Cont made** – Show/hide contact S4 status
- 51/64 S5 Cont made** – Show/hide contact S5 status
- 52/64 S6 Cont made** – Show/hide contact S6 status
- 53/64 S7 Cont made** – Show/hide contact S7 status
- 54/64 S8 Cont made** – Show/hide contact S8 status
- 55/64 S9 Cont made** – Show/hide contact S9 status
- 56/64 S10 Cont made** – Show/hide contact S10 status
- 57/64 S11 Cont made** – Show/hide contact S11 status
- 58/64 S12 Cont made** – Show/hide contact S12 status

Stroke Tests

- 59/64 PStroke Pass** – Show/hide partial stroke pass events
- 60/64 PStroke Fail** – Show/hide partial stroke fail events
- 61/64 FStroke Pass** – Show/hide full stroke pass events
- 62/64 FStroke Fail** – Show/hide full stroke fail events

General

- 63/64 Power Up** – Show/hide power up events
- 64/64 Log Time Invalid** – Show/hide log time invalid events.

4.6.1 Event Logs – Event Log

Close Limit				
Time: 01:01:13	17/11/2027	Event: 2999		
Pos: 0	Dem: 0	P: 0	Tmp: 22	
Local Open	☐	Local Close	☐	
Local Stop	☐	Local	☒	
Remote	☐	Hwired Open	☐	
Hwired Close	☐	Hwired ESD	☐	
Hwired Maint	☒	Hwired PStroke	☐	
Source1 Close	☐	Source1 Open	☐	
Scroll ▲▼ Event ◀▶				0/28

Event Log

Shows the most recent actuator events (up to 3,000 total). New events will overwrite the oldest events to ensure the latest 3,000 events are always available.

A new event is recorded whenever a parameter change occurs. Simultaneous parameter changes are recorded in the same event.

Only parameters checked in the Event Log Filter are shown in the Event Log.

Each event is time and date stamped to easily understand the series of events. The event number (1 to 3000) only indicates the position of the specific event within the current log. New events may cause the event number of existing events to change.

Position, demand, pressure and temperature are always shown at the top of the screen.

Key	Parameter
Pos: xxx	= Position in %
Dem: xxx	= Demand in %
P: xxx	= Pressure in %
Tmp: xxx	= Temperature in Deg C

A check indicates the parameter was active for the shown event.

Press to scroll through the filtered parameters.

Press to navigate to the previous or next event.

4.7 Data Log – Alarm Log



Close Limit		
Fault	Count	Time
Over Press Limit	2	21:31:45 1
Over Press Mid	0	----
Stall Limit	4	18:37:20
Stall Mid	0	----
Stall Slow Mode	0	----
Wrong Direction	15	21:33:30
Step Ctrl Err	0	----

Alarm Log

The Alarm Log shows a list of fault conditions. Each fault condition displays the number of occurrences with a time and date stamp for the last occurrence.

Refer to 3.2 for explanation of fault conditions.

Faults

Over Pressure Limit

Over Pressure Mid

Stall Limit

Stall Mid

Stall Slow Mode

Wrong Direction

Step control Error

Motor Thermostat

Mains Fail

Phase Loss

Phase rotation

ESD Active

Reset On ESD

Reset On Power

Demand Loss

Net Coms Loss

Manual Operation

Solenoid Driver

Position Sensor

Pressure Sensor A

Pressure Sensor B

Pressure Sensor Accumulator

Temp Sensor

Local Controls

EEPROM Fault

EEPROM Missing

Power Board

Bluetooth Module

Customer Supply

Option 1 Missing

Option 2 Missing

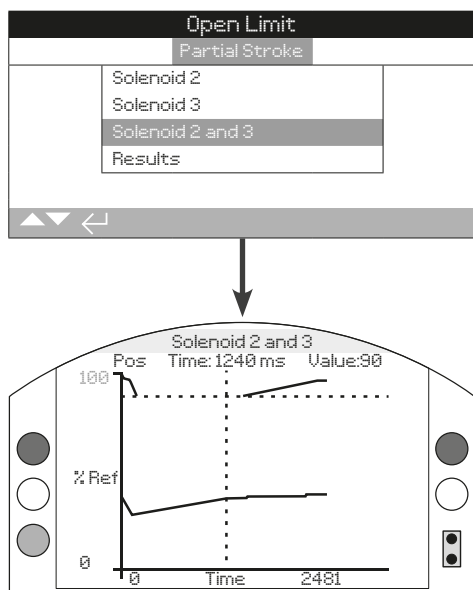
Option 3 Missing

Option 1 Error

Option 2 Error

Option 3 Error

4.8 Data Log – Partial Stroke



Partial Stroke

Solenoid 2

Included for all SI range actuators.

Solenoid 2 shows two pressure profile graphs from the limit position to the partial stroke position. One for each direction of travel. Pressure and time are recorded for the partial stroke test.

Solenoid 3

If fitted, Solenoid 3 shows two pressure profile graphs from the limit position to the partial stroke position. One for each direction of travel. Pressure and time are recorded for the partial stroke test.

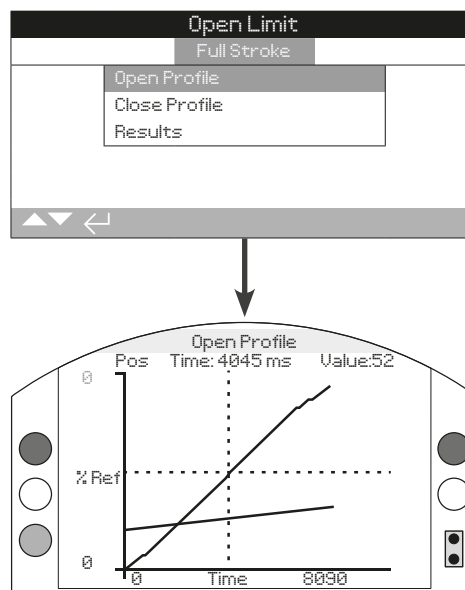
Solenoid 2 and 3

Only available if Solenoid 3 is fitted and solenoid redundancy is turned ON. Shows two pressure profile graphs from the limit position to the partial stroke position. One for each direction of travel. Pressure and time are recorded for the partial stroke test.

Results

Shows a list view of all partial stroke tests. The list is in chronological order with the latest test shown at the top. Each entry includes a time and date stamp plus the result of the partial stroke test.

4.9 Data Log – Full Stroke



Full Stroke

Open Profile

Shows the time taken and a pressure profile for the opening stroke of the last full stroke test.

Close Profile

Shows the time taken and a pressure profile for the closing stroke of the last full stroke test.

Results

Shows a list view of all full stroke tests. The list is in chronological order with the latest test shown at the top. Each entry includes a time and date stamp plus the result of the full stroke test.

4.10 Data Log – Bluetooth Log

Open Limit		
Time		Name
17:19:04	07/11/2019	BST 1000E8D29131
16:47:25	07/11/2019	BST 1000E8D29131
21:39:01	06/11/2019	GBLEE-L-3MWLJ0
18:43:45	06/11/2019	NLR0T0-L-724FS30
18:36:30	06/11/2019	GBLEE-L-3MWLJ0
18:31:34	06/11/2019	GBLEE-L-3MWLJ0
18:26:01	06/11/2019	GBLEE-L-3MWLJ0

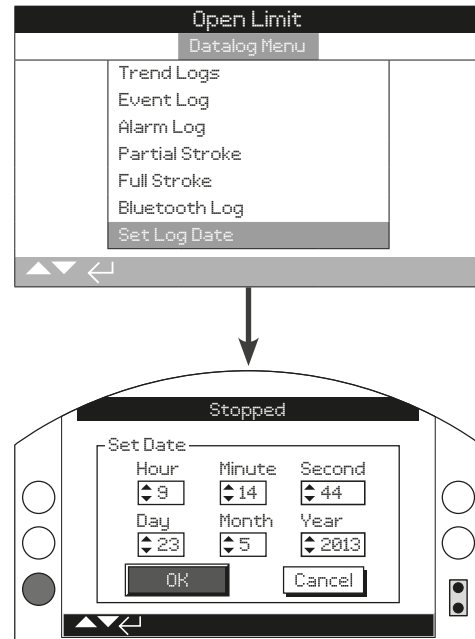
Bluetooth Log

The Bluetooth log shows a chronological list of devices that have connected to the actuator. Each connection includes the time and date, Bluetooth friendly name, access level and MAC address.

Press **⬆** **⬆** to scroll through connection entries.

Press **⬆** **⬆** to view additional information for the selected connection.

4.11 Data Log – Set Log Date



Set Log Date

All time and date stamps viewed on the actuator display use the Set Log Date information as a reference. Time and date stamps are only accurate if the time and date is configured correctly.

Data log information extracted and viewed using Rotork Insight 2 PC software will use the PC clock to determine accurate time and date information.

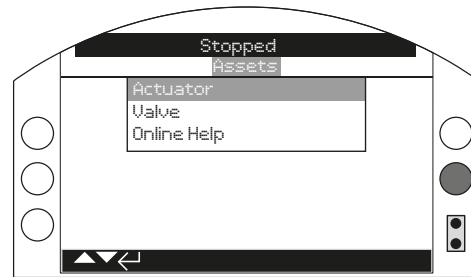
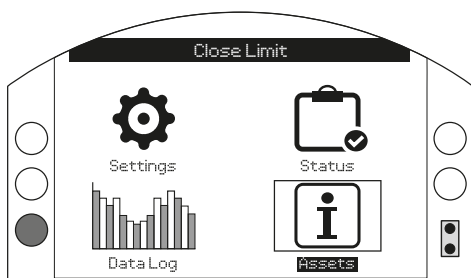
Press **⬆** **⬆** to navigate through the time and date fields.

Press **⬆** **⬆** **⬆** **⬆** to edit, adjust and save the new time or date value.

Asset management is an increasingly desirable requirement in process industries and can be used to manage valve asset performance, availability and maintenance schedules. Information regarding the process, valve and actuator can be stored in the SI. In addition, installation and commissioning dates can be recorded.

Stored asset information can be shown on the actuator's display using the supplied Rotork Bluetooth® Setting Tool *Pro*. When the actuator configuration file is downloaded, using the Bluetooth setting tool or by a PC running Insight 2, asset data is appended along with the actuator build and configuration data. The actuator configuration and asset data can be exported as a CSV file from Insight 2.

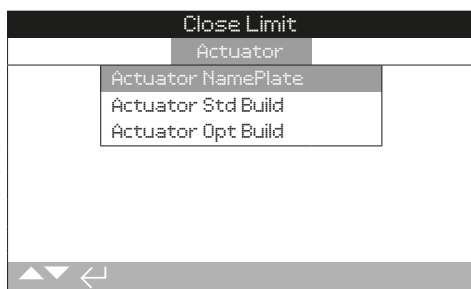
It is important that data regarding the valve-actuator tag, valve details and process information are populated by the user or their agent. Rotork will populate the actuator build data automatically. Other applicable data will be populated when contracted to commission or upon service of the actuator.



Main Menu

The asset menu is split into different categories for each type of data. The full asset menu structure is shown below:

5. Assets menu structure	Page
5.1 Actuator	61
5.1.1 Actuator Nameplate	61
5.1.2 Actuator Std Build	62
5.1.3 Actuator Opt Build	62
5.2 Valve	63
5.3 Online Help	63



Actuator Assets

SI range actuators are fully configurable with a large number of optional extras or build variants. Actuator information is split to improve visibility of relevant information to the operator.

5.1.1 Actuator Nameplate

5.1.2 Actuator Standard Build

5.1.3 Actuator Option Build



Actuator Name Plate Information

Data on this screen will match the physical nameplate of the actuator. The digital nameplate provides a backup of information should the physical nameplate be damaged during service. Information is read only unless specified.

Press **⏮** **⏭** to scroll through nameplate information.

1/13 Serial Number

Displays the actuator serial number. This should always be quoted when making an enquiry to Rotork or an agent.

2/13 Model Number

Displays the actuator model code.

3/13 Wiring Diagram Number

Displays the actuator wiring diagram number.

4/13 Supply Voltage

Displays the actuator mains supply voltage.

5/13 Supply Rating

Displays the actuator maximum VA rating.

6/13 Hydraulic Diagram

Displays the actuator hydraulic diagram number.

7/13 Oil Type

Displays the type of oil used within the actuator.

8/13 Max Pressure

Displays the max pressure within the actuator hydraulic system.

9/13 Max Torque / Thrust

Displays the actuator maximum torque/thrust output.

10/13 Seat Torque / Thrust

Displays the actuator maximum seating torque/thrust.

11/13 Build Date

Displays actuator manufacture date.

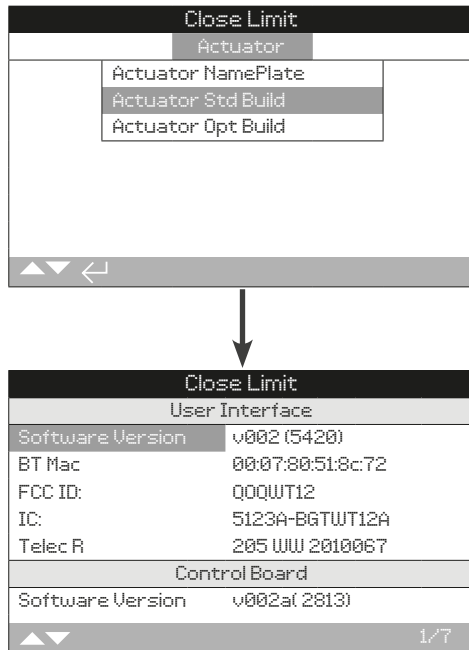
12/13 IP Rating

Displays the actuator ingress protection rating.

13/13 Unit Weight

Displays the actuator weight.

5.1.2 Actuator – Actuator Std Build



Actuator standard build information

View technical build information for standard actuator components. Information is read only.

User Interface

1/7 Software Version – Displays the software version of the user interface module.

2/7 BT Mac – Displays the Bluetooth MAC address of the user interface module.

3/7 FCC ID – Displays the user interface module Federal Communications Commission Bluetooth identification.

4/7 IC – Displays the user interface module Industry Canada Bluetooth identification.

5/7 Telec R – Displays the user interface module Telecom Engineering Centre Bluetooth identification.

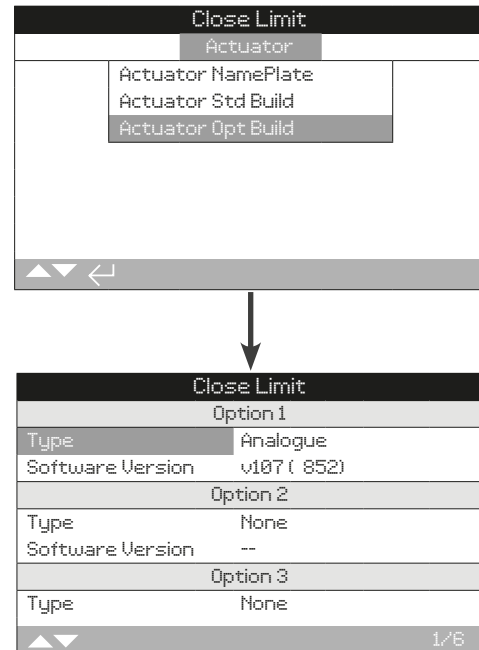
Control Board

6/7 Software Version – Displays the software version of the control board.

Power Module

7/7 Software Version – Displays the software version of the power module.

5.1.3 Actuator – Actuator Opt Build



Actuator Option Build Information

View technical build information for installed actuator options. Information is read only.

Option 1

1/6 Type – Displays the type of option fitted and configured for Option 1.

2/6 Software version – Displays the software version of the option fitted and configured for Option 1.

Option 2

3/6 Type – Displays the type of option fitted and configured for Option 2.

4/6 Software Version – Displays the software version of the option fitted and configured for Option 2.

Option 3

5/6 Type – Displays the type of option fitted and configured for Option 3.

6/6 Software Version – Displays the software version of the option fitted and configured for Option 3.

5.2 Assets – Valve

Close Limit	
Valve	
Tag	Skilmatic-SI3
Serial No	Valve Ser
Manufacturer	Valve Manf
Type	Valve Type
Size / DN	Valve Size

1/5

Valve Information

The valve asset menu includes fields to enter valve information. It is not mandatory to populate this information but could be useful as a digital backup of valve details or to record a matched valve and actuator assembly.

Press to navigate through the settings.

Press to edit the selected setting.

Press to scroll through alphanumeric characters.

Press to move to the next character.

Press to delete the current character.

Press to save the new setting value.

Press to escape without saving.

1/5 Tag – Displays the valve tag.

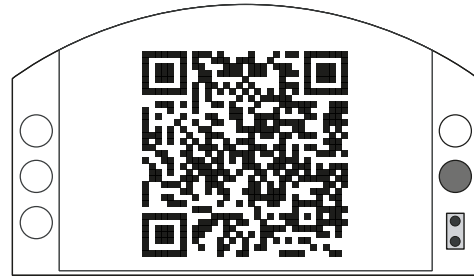
2/5 Serial Number – Displays the valve serial number.

3/5 Type – Displays the valve type.

4/5 Size/DN – Displays the valve size.

5/5 Manufacturer – Displays the valve manufacturer.

5.3 Assets – Online Help



Rotork Support

This help screen displays a QR code to direct users to the support section of the Rotork website. This page enables the user to source documents, software and training resources for Rotork products.

A grayscale world map is centered in the background of the lower half of the page. Overlaid on the map are several concentric, wavy lines that radiate outwards from the center, creating a sense of global connectivity or signal transmission.

www.rotork.com

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

UK
Rotork plc
tel +44 (0)1225 733200
fax +44 (0)1225 333467
email mail@rotork.com

PUB021-069-00
Issue 09/20

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