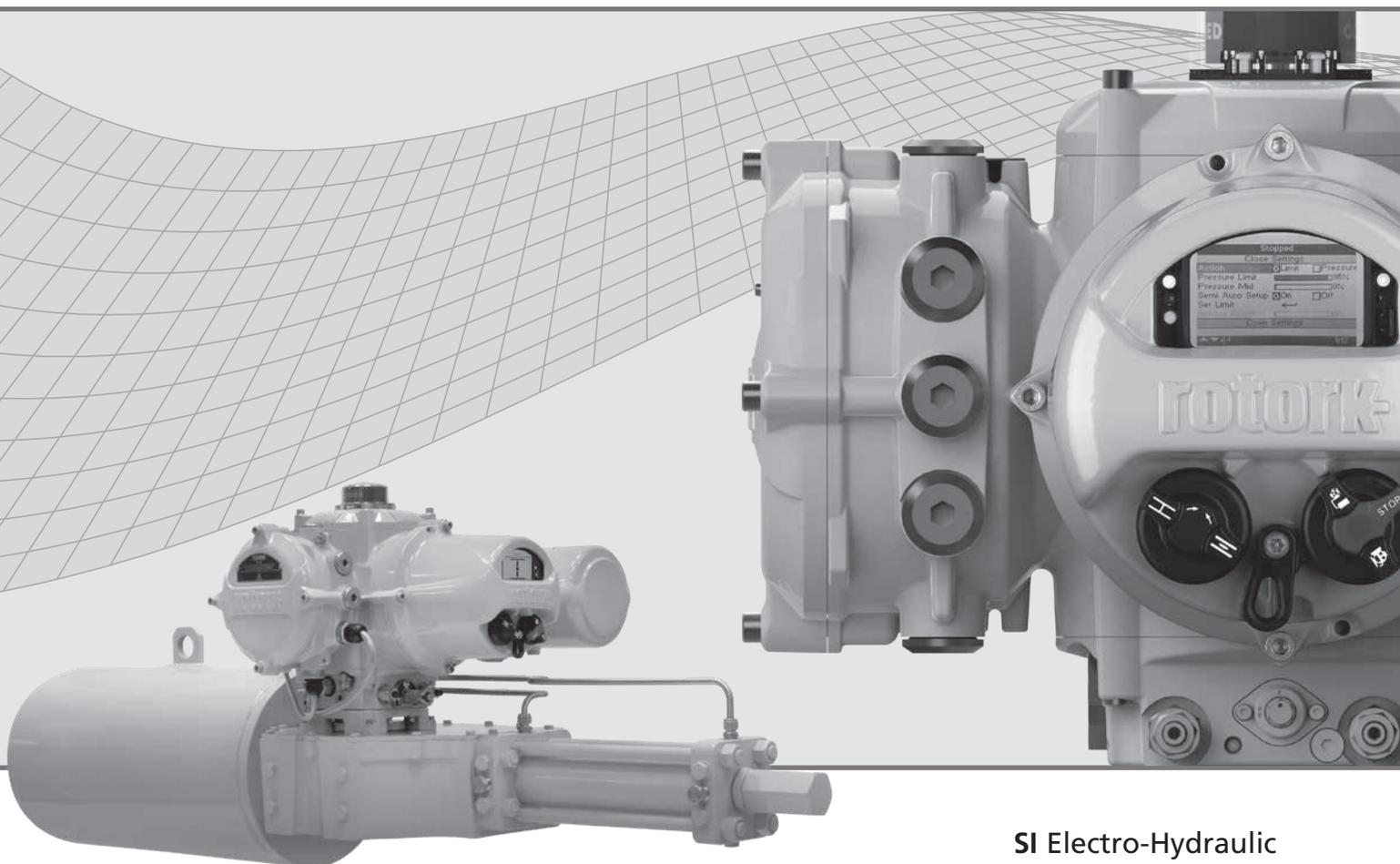


# rotork®

Keeping the World Flowing

## Skilmatic SI Range

3<sup>rd</sup> Generation Skilmatic SI  
Full configuration, status and monitoring user manual



SI Electro-Hydraulic  
Valve Actuators

CE



	<b>1. Introduction</b> _____ <b>3</b>
	1.1 Using the Rotork Setting Tool _____ 4
	1.2 Connecting to the Actuator _____ 6
	1.3 Password Security _____ 7
	<b>2. Settings</b> _____ <b>8</b>
	2.1 Settings – Limits _____ 8
	2.2 Settings – Stroke Tests _____ 11
	2.3 Settings – Indication _____ 13
	2.4 Settings – Control _____ 16
	2.5 Settings – Security _____ 35
	2.6 Settings – Default _____ 37
	<b>3. Status</b> _____ <b>38</b>
	3.1 Status – Control _____ 38
	3.2 Status – Movement _____ 42
	3.3 Status – Alarms _____ 43
	3.4 Status – Indication _____ 46
	<b>4. Data Log</b> _____ <b>48</b>
	4.1 Data Log – Service Log _____ 49
	4.2 Data Log – Life Log _____ 50
	4.3 Data Log – Pressure Profile _____ 51
	4.4 Data Log – Starts Profile _____ 51
	4.5 Data Log – Trend Logs _____ 52
	4.6 Data Log – Events Logs _____ 55
	4.7 Data Log – Alarm Log _____ 57
	4.8 Data Log – Partial Stroke _____ 58
	4.9 Data Log – Full Stroke _____ 58
	4.10 Data Log – <i>Bluetooth</i> Log _____ 59
	4.11 Data Log – Set Log Date _____ 59
	<b>5. Assets</b> _____ <b>60</b>
	5.1 Assets – Actuator _____ 61
	5.2 Assets – NAMUR 107 _____ 63
	5.3 Assets – Valve _____ 64
	5.4 Assets – Online Help _____ 65

 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.

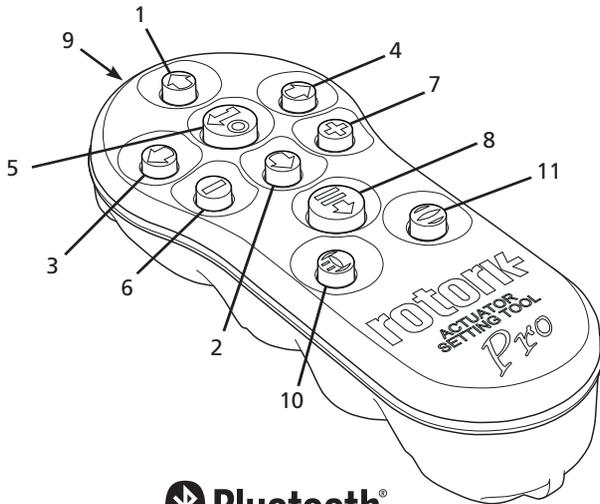
The user must therefore be familiar with the operations contained in section 1 before proceeding.

This manual should be read in conjunction with PUB21-057-00-1015 SI Range Instructions for Safe Use, Installation Basic set-up and Maintenance supplied with the actuator and also available at [www.rotork.com](http://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.	Scroll up.
2.	Scroll down/Connect via Bluetooth®.
3.	Decrease value/Toggle setting/Scroll left.
4.	Increase value/Toggle setting/Scroll right.
5.	Select the highlighted item. Save the highlighted setting. Stop actuator running (when setting tool control is enabled, refer to 2.3.1).
6.	Return to previous menu.
7.	Cycle between standard and zoom view on data logger pressure graphs.
8.	Actions the pre-configured mission stored on the Rotork Bluetooth® Setting Tool Pro.
9.	Infrared transmitter window.
10.	Send a Close command to the connected actuator (when enabled refer to 2.3.1).
11.	Send an Open command to the connected actuator (when enabled refer to 2.3.1).

### Navigation

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

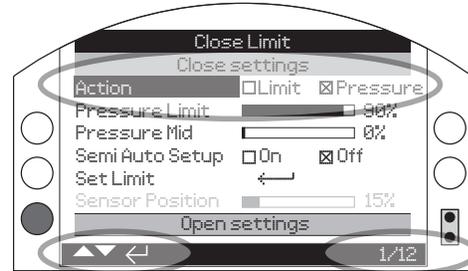
### Shorthand instructions

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.

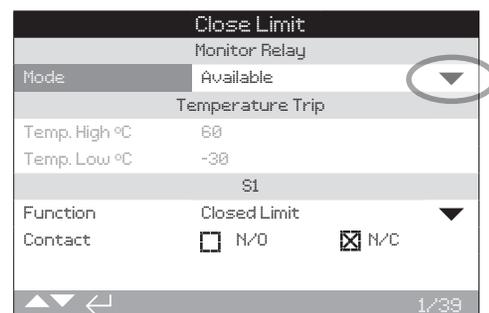
Information, instruction and password entry screens require an or button to be selected. Navigate to highlight the required button using or and press to select.

### Setting controls

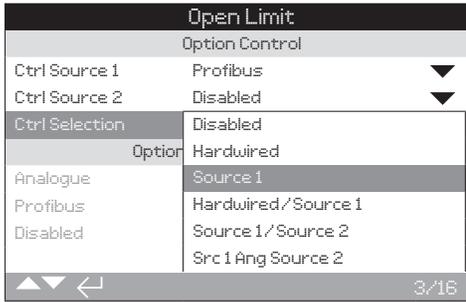
There are four types of setting control used. When a function is selected, the ability to change the function, setting or value is made available using drop down list boxes, checkboxes, slider controls or numerical values.

### Drop down list boxes

Drop down list boxes are indicated by .



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



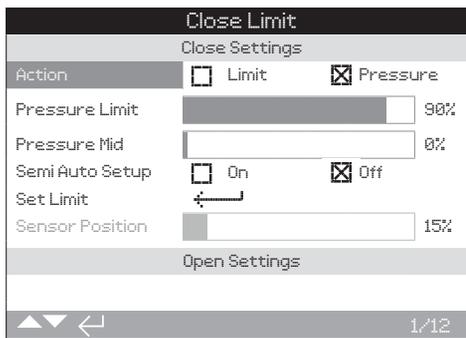
The symbol ▼ in the drop down box indicates more functions are available by scrolling ⬆ or ⬇.

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

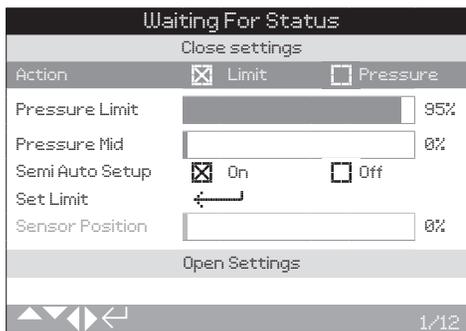
**To exit the drop down list without saving a new setting, press ⬅ to return to the page.**

**Checkboxes**

Checkboxes are indicated by  or .



An example for the limit setting checkbox is shown.



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

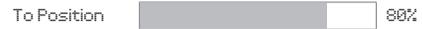
Use either the ⬆ or ⬇ to toggle between modes.

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

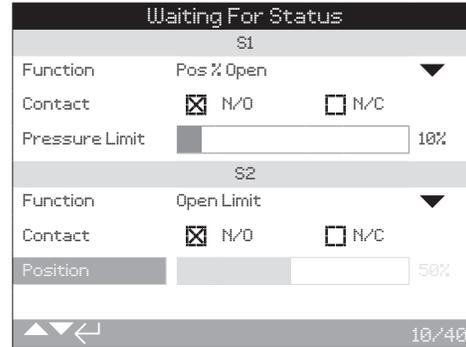
**To exit the checkbox without saving a new setting, press ⬅ to return to the page.**

**Slider controls**

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



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



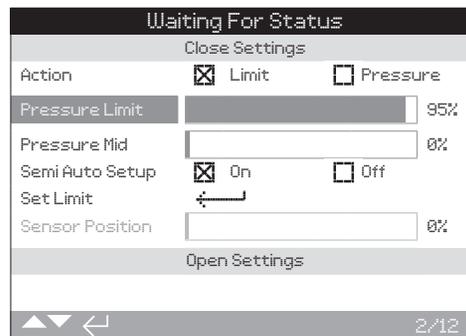
An example of the S1 indication position value is shown above. The S1 contact function of Pos.% Open indication will show the valve position at which the contact will change state.

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.

**Numerical values**

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



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

**To exit the numerical value control without saving a new value, press ⬅ to return to the previous page.**



## 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

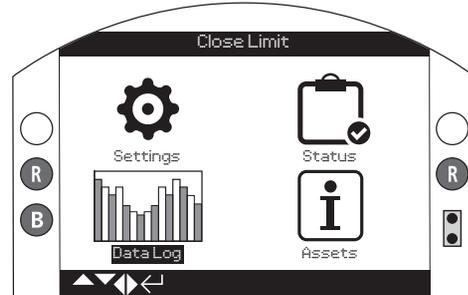
## 1.2 Connecting to the Actuator

### 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.

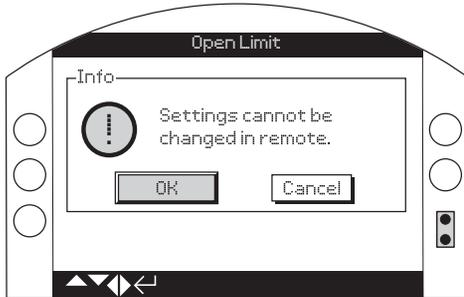
## 1.3 Password Security



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.

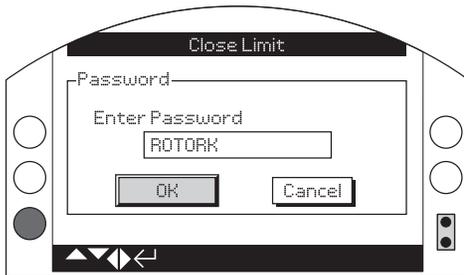
**The password will be requested the first time a function is selected. Once correctly entered, other changes can be made without re-entering the password for the duration of the setting tool session with the actuator.**

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.

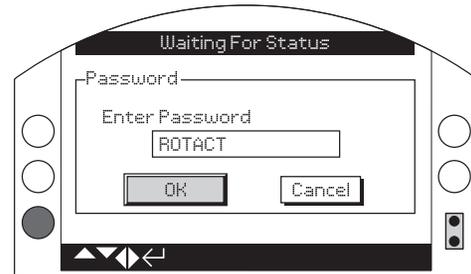
With the actuator correctly selected and when any setting function is selected, the password screen will be displayed.



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 key to highlight new password entry box and press key.

Use keys to scroll through alphanumeric values to display required character.

Use key to move to the next character.

Use key to delete the highlighted character.

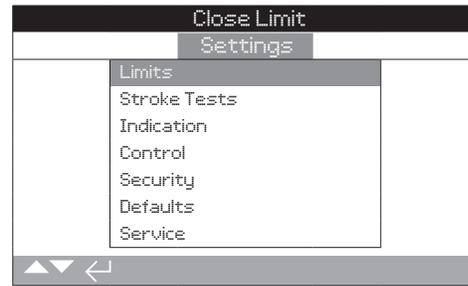
Use key when selected password is complete.

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

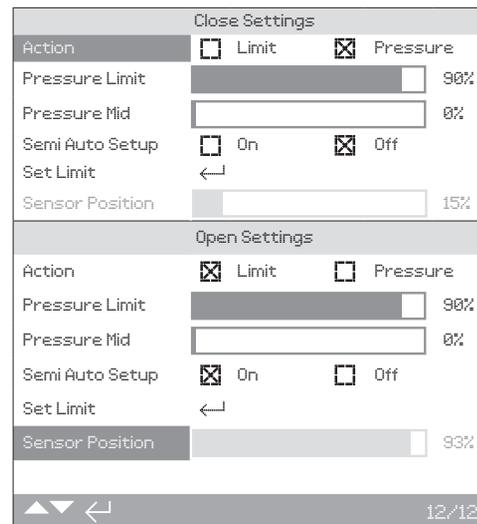
### Password levels

Viewer – ROTORK

Modify – ROTACT



2. Settings Menu	Page
2.1 Limits	8
2.2 Stroke Tests	11
2.3 Indication	13
2.3.1 Contacts	13
2.3.2 Local Display	15
2.3.3 Analogue	16
2.4 Control	16
2.4.1 Local Control	17
2.4.2 Remote Control	18
2.4.3 Temporary Loss	33
2.4.4 Stepping Control	34
2.5 Security	35
2.6 Defaults	37



#### 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    keys then  again. The checkbox will indicate the set closing direction.

##### 2/12 Pressure Limit

This setting allows the maximum cut-off pressure while travelling from the Closed electrical limit to the mechanical end stop to be set. The value is a % of the maximum available pressure, which is limited by the pressure relief valve.

Default = 90%

To change press   or  arrow key then  again. The slider will indicate the set closing pressure %. (Factory default is 90% of working pressure).

**3/12 Close Pressure Mid**

This settings allows the maximum/minimum cut-off pressure whilst travelling from the Open electrical limit to the Closed electrical limit. If the value is set for 0, on the slider this then defaults to the setting previously set for the pressure limit.

Default = 0%

To change press   or  arrow key then  again. The slider will indicate the set mid travel closing pressure %. (Factory default is 00).

**4/12 Semi Auto Set-up**

With the setting switch **On** the actuator Closed limit is initially set at the mechanical stop of the valve/actuator with the software then scaling back this setting by approximately 2% of travel, to move the electrical limit away from the mechanical stop. This prevents any issues with failure to reach the electrical limit when the actuator is in service. Switching **Off** allows the actuator to travel further.

Default = ON

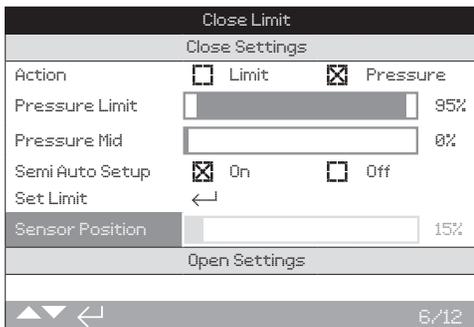
To change press   or  arrow key then  again. The checkbox will indicate the set action. (Factory default is Semi Auto set up ON).

**5/12 Set Closed Limit**

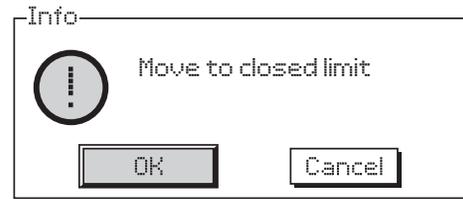
A Closed limit position cannot be set if the actuator is at the Open limit.

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.

The Closed limit is set by ensuring the actuator is at the mechanical Closed limit position and then pressing  key as below.



The actuator will then display the following instruction.



Move the actuator and valve to the Closed position and press  key to select OK. This will set the Closed limit at the current valve/actuator position and if not previously illuminated, the Closed limit indication LED (factory default green) will be illuminated.

**Testing:** The limit position can be confirmed by opening the actuator until the indication LED changes colour and then moving closed until the Closed limit position is displayed and the LED is turned on at the set Closed position.

**6/12 Sensor Position**



This slider shows the current position of the position sensor and cannot be adjusted, this setting for the Closed limit position needs to read above 5% to prevent a fault condition occurring.

**Open settings**

**7/12 Open 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   or  arrow key then  again. The checkbox will indicate the set closing action.

Continued over page

### 8/12 Pressure limit

This setting allows the maximum cut-off pressure while travelling from the Open electrical limit to the mechanical end stop limit to be set. The value set is a % of the maximum available pressure, which is limited by the pressure relief valve. Default = 90%.

To change press **⏻** or **➡** arrow key then **⏻** again. The slider will indicate the set closing pressure %.

### 9/12 Open Pressure Mid

This setting allows the maximum/minimum cut-off pressure whilst travelling from the Closed electrical limit to the Open electrical limit to be set. If the value is set to 0, on the slider, this then defaults to the setting previously set for the pressure limit.

To change press **⏻** key then either **⏻** or **➡** arrow key then **⏻** again. The slider will indicate the set closing pressure %.

Default = 0%

### 10/12 Semi Auto Set-up

With the setting switch On the actuator Closed limit is initially set at the mechanical stop of the valve/actuator with the software then scaling back this setting by approximately 2% of travel, to move the electrical limit away from the mechanical stop. This prevents any issues with failure to reach the electrical limit when the actuator is in service. Switching Off allows the actuator to travel further.

Default = ON

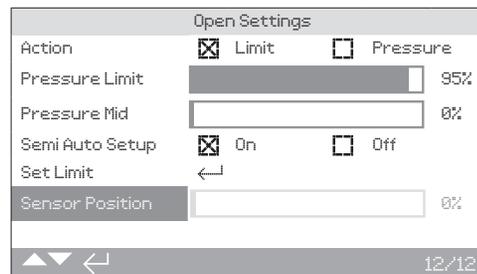
To change press **⏻** or **➡** arrow key then **⏻** again. The checkbox will indicate the set action.

### 11/12 Set Limit

An Open limit position cannot be set if the actuator is at the Closed 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.

The Open limit is set by ensuring the actuator is at the mechanical Open limit position and then pressing **⏻** key as follows.



The actuator will then display the following instruction.



Move the actuator and valve to the Open position and press **⏻** key to select OK. This will set the Open limit at the current valve/actuator position and if not previously illuminated, the Open limit indication LED (factory default red) will be illuminated.

**Testing:** The limit position can be confirmed by closing the actuator until the indication LED changes colour and then moving Open until the Open limit position is displayed and the Open LED is turned on at the set Open position.

### 12/12 Sensor Position

This slider shows the current position of the position sensor and cannot be adjusted. This setting for the Open limit position needs to be reading below 95% to prevent a fault condition occurring.

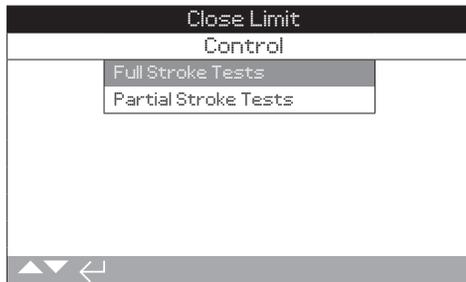
Sensor Position

## 2.2 Settings – Stroke Tests

### Full Stroke Tests

By utilising this procedure during the initial commissioning of the actuator assembly, the electronics will give a command to the actuator to perform a full stroke test from either the Closed or Open limit, recording the position and pressure against a time reference.

**Before starting this process the actuator requires the Closed and Open limits to be set.**



#### 1/13 Setup

Prior to starting the test place the remote selector switch into the local position.

Once at the Setup option, press the  key to initiate the full stroke set up, once entered the actuator will run from either the Closed or Open limit to the opposite position, returning back for two to three complete cycles. During this process the electronics will store both the Opening, Closing and ESD times. These times will be used as a reference for all subsequent full stroke tests and for setting up the partial stroke reference.

#### 2/13 Setup

To operate the full stroke test, use the *Bluetooth* setting tool and press the  key. Once this has been done the screen will give a warning that the full stroke test is about to proceed. Press the  key again to OK this. The full stroke test runs the actuator from either the Open or Closed limit. If the actuator is at the Open limit and the full stroke test is selected the actuator will run from the Open limit to the Closed limit then back to the Open limit. This will be done two to three times with the times for each Open and Closed movement are stored in a table found below this menu selection.

Close Limit	
Full Stroke	
Setup	←
Test	←
Result (Last test)	
Full Stroke Times (Secs)	
Open (Setup)	8.33
Open (Min)	6.65
Open (Max)	9.98
	

#### 3/13 Result (Last Test)

The results from the full stroke test are found below this menu. All timings including the opening time, closing time and ESD time. Also tolerances will be shown along with the most recent full stroke test times to compare. If any timing is close to, or is over the time tolerance a warning will be shown on the screen.

#### 4/13 Open (Setup)

This will show the timing of the actuator's opening speed when the first full stroke set up was complete.

#### 5/13 Open (Min)

This shows the minimum opening time allowed including the fixed 10% tolerance.

#### 6/13 Open (Max)

This shows the maximum opening time allowed including the fixed 10% tolerance.

#### 7/13 Open (Last Test)

The times shown in this menu section is the opening time that was stored from the actuator on the last test performed.

#### 8/13 ESD (Setup)

This will show the ESD time from when the actuator was first set up and a test was run.

#### 9/13 ESD (Min)

This shows the minimum time allowed for the actuator to perform an ESD including the 10% fixed tolerance.

#### 10/13 ESD (Max)

This shows the maximum time allowed for the ESD including the fixed 10% tolerance.

#### 11/13 ESD (Last Test)

This section shows the time recorded on the last full stroke ESD test performed.

#### 12/13 Close (Setup)

This section shows the closing time of the actuator when the first full stroke set up was performed.

#### 13/13 Close (Last Test)

This shows the closing time of the actuator on the most recent full stroke test operation.

Continued over page



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

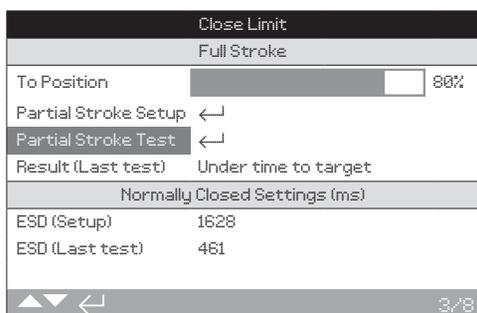
By utilising this procedure during the initial commissioning of the actuator assembly, the electronics will command the actuator to perform a partial stroke from either the closed or open limit. This procedure will Open or Close the actuator to a certain position selected by the operator with the use of a slide bar.

E.g. If the actuator is at the Open limit and a partial stroke is selected, the actuator will Close to the position setting selected then Open to 100%.

**Before starting this process the actuator requires the Closed and Open limits to be set.**

### 1/8 To Position

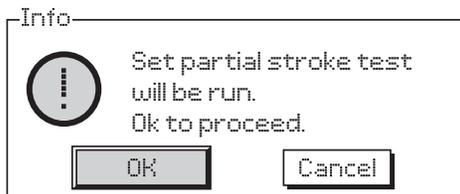
A slider bar is available on this selection to choose what position the partial stroke operates to. If 80% is selected, from the Open limit when the actuator is partial stroked it will Close to 80% then re-open.



### 2/8 Setup

To operate the partial stroke set up with the use of the *Bluetooth* setting tool scroll to the 'Partial Stroke Setup' and press the the key. You will then be asked to confirm this, press the key again and the setup will start.

When this is selected the actuator will Close to the specified position with the use of the slider bar allocated next to the 'To Position' section on the screen. The setup will partially Close then Open the actuator recording the times to compare with any partial stroke tests that are done after the initial partial stroke setup. If the actuator's solenoid redundancy is turned on, each individual solenoid will partial stroke, meaning the actuator will perform this test 2-3 times automatically. It will also perform a partial ESD stroke set up and record the time of this operation.



### 3/8 Test

When selected the actuator will need to be in the relevant position. The actuator will perform a partial stroke test moving from the Open limit to the percentage selected using the use of the slider bar. The times will be recorded and compared to the initial partial stroke setup times. If solenoid redundancy is turned on this test will be performed 2-3 times. Also a partial ESD test will be performed and the time recorded.

### 4/8 Results (Last Test)

The results from the partial stroke test are found in this menu. All operating times including the opening time, closing time and ESD time are also available. Also tolerances will be shown along with the most recent full stroke test times. If any times are close to, or is over the time tolerance a warning will be shown on the screen.

### 5/8 Open (Set Up)

This shows the time that the actuator opened in when the partial stroke was first set up.

### 6/8 Open (Last Test)

This shows the time the actuator opened in on the most recent partial stroke test.

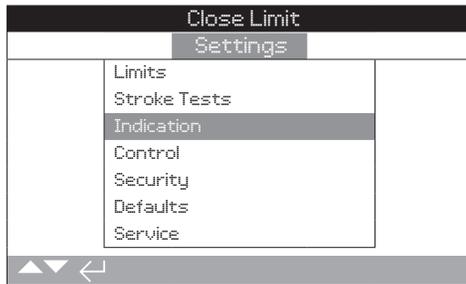
### 7/8 ESD (Setup)

This shows the actuator's ESD time when the first partial stroke was setup.

### 8/8 ESD (Last Test)

This shows the actuator's ESD time on the most recent partial stroke test.

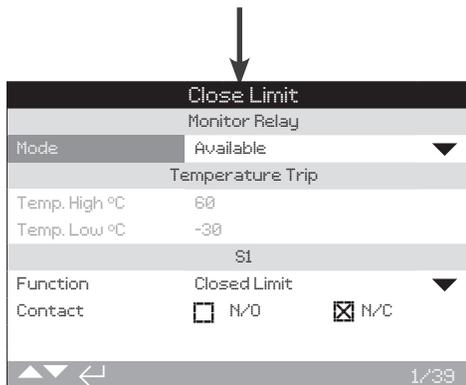
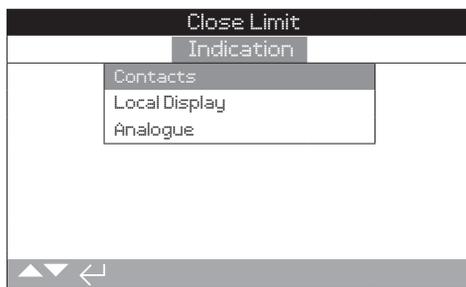
## 2.3 Settings – Indication



Instruction is provided on:

- 2.3.1 Contacts
- 2.3.2 Local Display
- 2.3.3 Analogue

### 2.3.1 Indication – Contacts



Refer to actuator's specific wiring diagram for available contact relays options.

### 2.3.1 Indication – Contacts *continued*

#### 1/4 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”.

**To change the mode press the enter button on the Bluetooth setting tool. The actuator will then ask you to enter the password. Once done use the  $\uparrow$  and  $\downarrow$  arrow keys then select the setting you require by pressing the  $\rightarrow$  key again.**

#### 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.

#### 2/4 Contact Function

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

**To change the contact function using the Bluetooth setting tool select function the relay you are wanting to change using the enter button, a drop down box will then appear, use the  $\uparrow$  and  $\downarrow$  arrow keys along with the  $\rightarrow$  key when the desired function is highlighted.**

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

Continued over page

Function	Indication:
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)
<i>Bluetooth</i>	<i>Bluetooth coms</i>
Customer supply	Customer supply lost

### 3/4 Contact Function

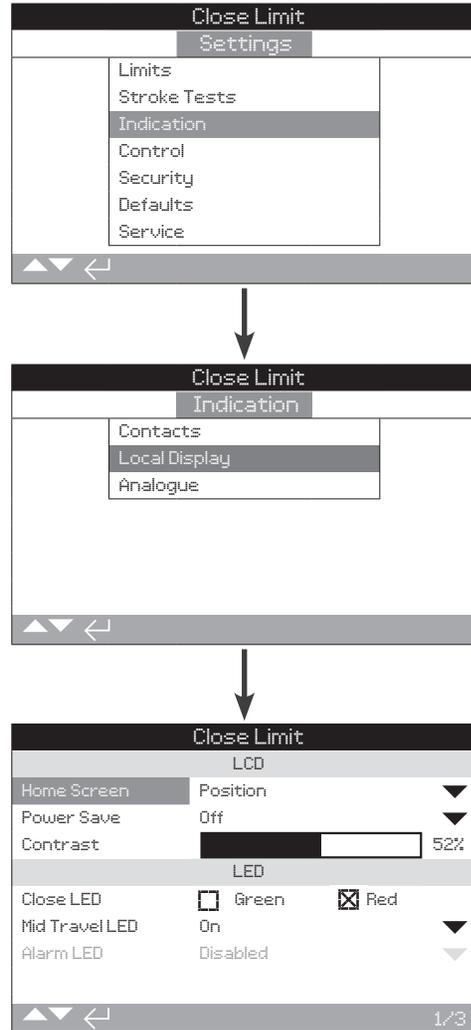
Each contact relay can be configured to be normally Open (make on conduction) or normally Closed (break on conduction).

**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.

### 4/4 Position

If the relay function relates to an actuator's position, for example Pos % Open, this setting will become available to edit with a slider bar. A range of 0-100% will be available. To adjust use the *Bluetooth* setting tool, enter button along with the left and right arrows.



### LCD

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

## 2.3.2 Indication – Local Display

### 1/8 Home Screen

Refer to publication – PUB021-057-00.

Available home screens included in the drop down box list are shown on the next page.

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

**Pressure (A)+Pos** – Display indicates current valve position to one decimal place as Position (above) plus analogue pressure indication scaled 0% to 100% of pressure, shown at the top of the display.

**Pressure (D)+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 using the Bluetooth setting tool use the enter button along with the up and down arrows to select the desired home screen.**

### 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.

**On** – 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 30 seconds after the above events have taken place.

**To change the power screen using the Bluetooth setting tool, use the enter button along with the left and right arrows. The checkbox will indicate the selected mode.**

### 3/8 Contrast

Contrast is the brightness of the screen. This can be adjusted with the use of a slider bar with values set in %.

**To change this use the Bluetooth setting tool's enter button along with the left or right arrows.**

### 4/8 Close Colour

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

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

**This can be changed using the Bluetooth setting tools enter button along with the left and right arrows to select the check box.**

### 5/8 Mid Travel LED

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

**Off** – The yellow light are off when in mid travel.

**Blinker** – The yellow light will flash at approximately 0.5 seconds 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 light 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.

### 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.

**Service** – The yellow lights indicate active service alarms only.

A service alarm indicates the actuator requires service.

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

### 7/8 Alarm LED

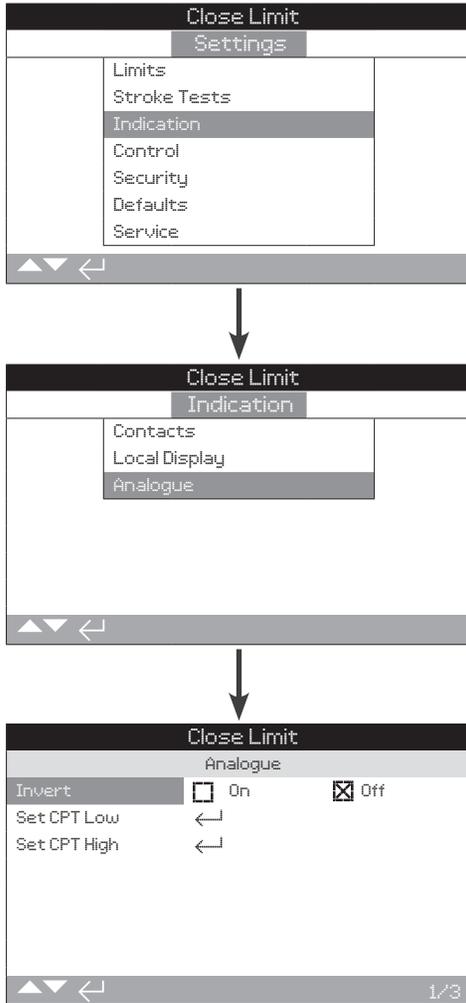
The LCD/LED test function operates a test procedure to check all of the local display functions. It will cycle periodically between screen and LED functions to provide visual indication that the display is in fully working order.

Press the enter button on the *Bluetooth* setting tool to begin the test.

### 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](http://www.rotork.com)



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.

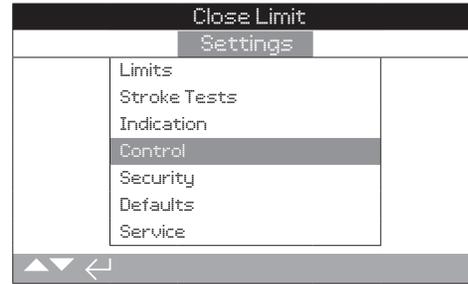
The analogue output signal auto ranges to the set limits and cannot be calibrated.

#### 1/1 Invert

**Off (default)** – 4 mA output at the Closed limit position and 20mA 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 this with the use of the *Bluetooth* setting tool, use the enter button  along with the left and right arrows   to check the checkbox of the required mode.



Instruction is provided on:

#### 2.4.1 Local control

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

#### 2.4.2 Remote Control

Settings for control source, hardwired, networks, analogue and partial stroke setup.

#### 2.4.3 Temporary Loss

Refer to actuator wiring diagram.

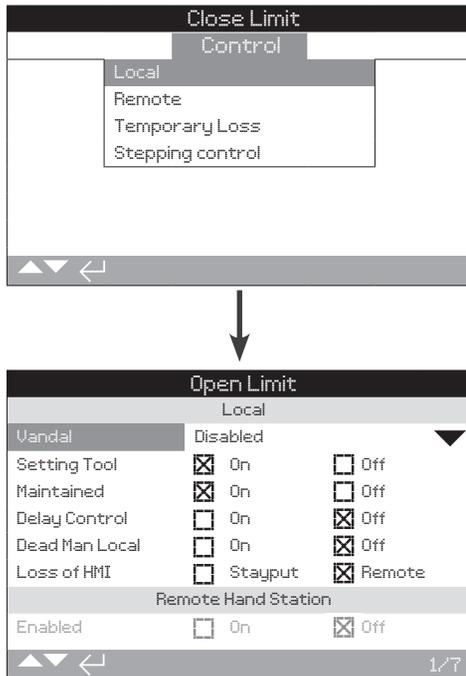
Control under an ESD control signal has higher priority than local or remote Open/Closed signals. For ESD, the control signal must be maintained for the duration of the ESD action required.

#### 2.4.4 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.

## 2.4.1 Control – Local Control



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

### 1/7 Vandal

Actuator's 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 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.

### 2/7 Setting Tool

With control selectors fitted to the actuator, the *Bluetooth* 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 1.1 – Using the setting tool. 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. 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.

### 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 an Open or Close control signal is applied – push to run local control.

### 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 (default)** – A local Close or Open signal must be held for approximately 2 seconds before the actuator responds.

**Off** – The actuator responds immediately to a local Close or Open control signal.

### 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.

### 6/7 Loss of Human Machine Interface (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.

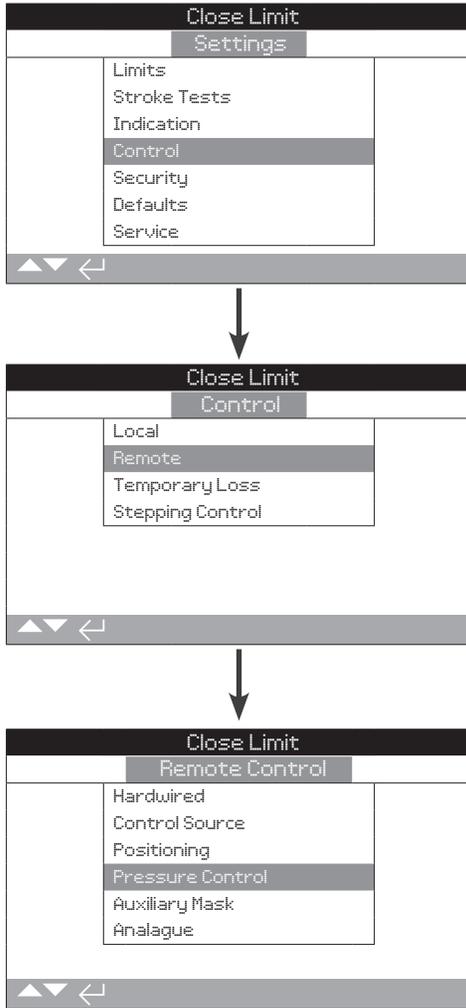
**To change this setting with use of the *Bluetooth* setting tool use the enter button  along with the left and right buttons  .** The checkbox will indicate the selected HMI failure response.

### 7/7 Remote Hand Station

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

**Enabled – No (default)** – RHS not activated and the sub-menus will be hidden.

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



**Throughout this section instruction is provided on the set up of standard, hard wired 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 or included in the menu list. Check the actuator's specific wiring diagram for option inclusion.

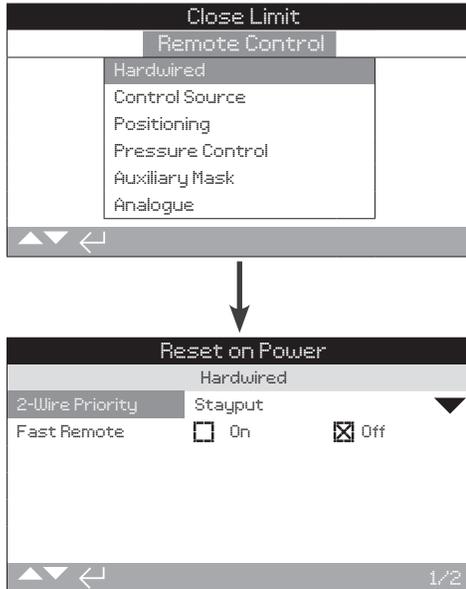
The table on the right lists all available standard and option remote control forms. Their type and the section of this manual where instruction is provided.

Remote Control Form	Included as:	Type	Section
Hardwired	Standard	Hardwired	2.4.2-1
Control source	Standard	Software	2.4.2-2
Positioning	Option	See note	2.4.2-3
Pressure control	Standard	Software	2.4.2-4
Auxiliary mask	Option	See note	2.4.2-5
Analogue	Option	Analogue	2.4.2-6
<i>Pakscan</i>	Option	Network	2.4.2-7
Profibus	Option	Network	2.4.2-8
HART	Option	Analogue	2.4.2-9
Modbus	Option	Network	2.4.2-10
Extra I/O*	Option	Hardwired	2.4.2-11
Foundation Fieldbus*	Option	Network	N/A
Device Net	Option	Network	N/A

\* 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.

\* Extra I/O is an option card providing additional digital inputs to the standard build. Inputs may be control or indication (configurable).

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.



**2/2 Fast Remotes**

This is only available on a 24 VDC signal NOT on AC inputs.

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.

**1/2 2-Wire Priority**

This sets the action that the actuator will perform when a Closed and Open signal are both applied simultaneously. Hardwired remote control form C uses the priority action (Open or Closed) to set the actuator’s response when two signals are applied. Refer to the actuator’s wiring diagram and its referenced RWS control diagram.

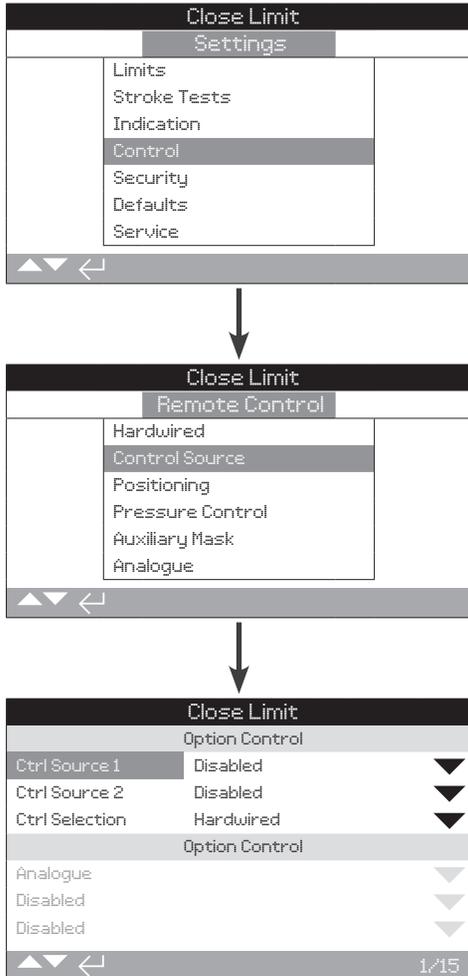
On applying hardwired Close and Open signals together the actuator will:

**Open** – The actuator will move Open.

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

**Close** – The actuator will move Closed.

**To change this setting, with the Bluetooth setting tool use the enter button along with the up and down arrows to select.**



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.

**The control source will be set by Rotork to the defaults required for the option(s) fitted. Refer to table: Control Source Settings.**

**For analogue control, if both manual (hardwired control inputs) and auto (analogue control) is to be used, the control selection will require re-setting. If only analogue control is required, the default settings for control source will be correct. Refer also to 2.3.2-6.**

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) has priority when manual/auto input is used to switch between analogue and network option source.

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
	Disabled	Disabled	Disabled	Disabled	Disabled

### 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.

### 2/15 Control Source 2

Control source 2 will be set by Rotork for the fitted remote, analogue or network control option(s). Refer to table: Control Source Settings.

### 3/15 Ctrl Selection

Control selection is used to select the control source. Also if required, for analogue with network options, allowing hardwired switching between sources using the manual/auto input.

**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 actuator's 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 will be via its auxiliary mask inputs. Refer to 2.4.2-5.

**Hardwired/Source 1** – Control availability only when analogue option is fitted. This mode enables users to select between control by hardwired inputs or source 1 (analogue) control by applying or removing a signal to the manual/auto input (refer to wiring diagram). Manual will enable hardwired control and auto will enable source 1 control.

**If an analogue option is fitted and manual/auto switching is required, hardwired/source 1 will be required to be selected.**

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

### 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 for when the analogue signal or network communications of the control source 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 8/15 will be available while settings 10/15 to 15/15 will be greyed out. For two options fitted, 7/15 to 13/15 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 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 this using the Bluetooth setting tool use the enter button  along with the left and right  followed by the enter arrow  as select. The time set after which the lost signal action will be implemented as indicated.**

### 8/15 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/signal 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 solenoid will de-energise.

**Close** – The actuator will run to the Closed limit.

**Open** – The actuator will run to the Open limit.

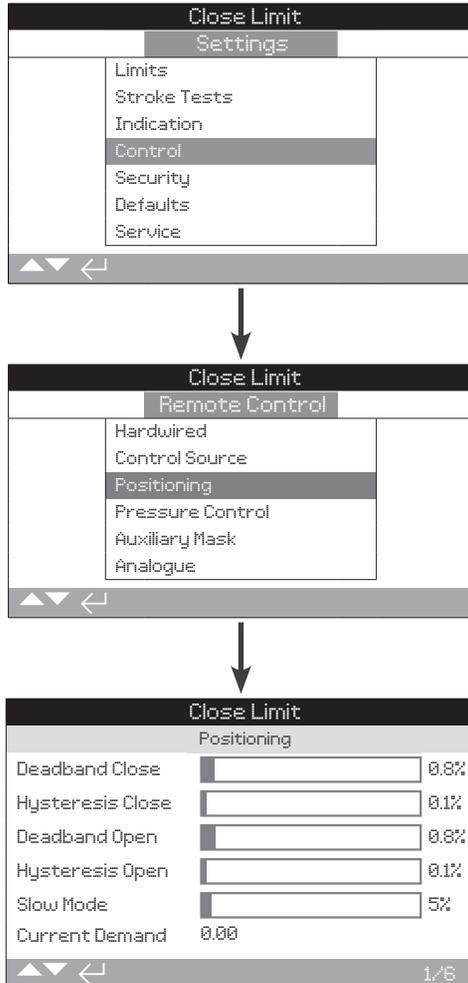
**Position** – the actuator will run to the mid travel position set for signal loss position, refer to 9/15.

**To change these settings using the Bluetooth setting tool press the enter button  along with the up and down arrows  until the required selection on the drop down box is highlighted. Follow up with the enter button . The selected action will be indicated.**

### 9/15 to 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 2.4.2-3.



The positioning option settings page with its default settings is 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.

Deadband and hysteresis are combined to set positioning accuracy.

Low/high signal position sets the range of the valve stroke where positioning is required.

### 1/6 Deadband Close/Open

**Range – 0% to 10% Defaults = 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 whilst maintaining good control in order to protect the mechanical valve from excessive wear and/or to keep the actuator within its electrical rating.

Deadband setting should be combined with 2/5 hysteresis setting. 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 new desired position outside the deadband. Refer to figure 2.4-1.

**To change settings using the *Bluetooth* setting tool use the enter button  along with the left and right arrows   with the use of a slider bar until the desired % is found. Use the enter button to  select.**

### 2/6 Hysteresis Close/Open

**Range 0% – 10% Default setting = 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 setting should be combined with 1/5 deadband setting. 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 new desired position outside the deadband. Refer to figure 2.4-1.

**To change settings using the *Bluetooth* setting tool use the enter button  along with the left and right arrows   with the use of a slider bar until the desired % is found. Follow up with enter  as the select button.**

**3/6, 4/6, 5/6, 6/6 Deadband, Hysteresis, Slowband & Current Demand Example**

Selectable slowband, deadband and hysteresis values are used to determine how closely the actuator position will match the demand signal. Proper 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 'DB', hysteresis 'HS' and slowband 'SL'. The chart below shows how the slowband, deadband and hysteresis settings effect control of the actuator.

A slowband of 8%, deadband of 5% and hysteresis of 2% is shown with a demand position of 50%. If the actuator is started at 40%, the controller will command it to move in the Open direction until it reaches 42% (demand-slowband). It will then move Open at a slower rate until it reaches 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 deadband position. If the deadband was smaller, it would be possible for the actual stopped position to have fallen the other side of the deadband in which case, the actuator would be commanded to move in the opposite direction to meet the demand. This would result in hunting as the actuator oscillated around the demand point. By increasing the deadband and also increasing the amount of hysteresis, the actual demand position can be met without hunting occurring. Outside of the slowband (<42% & >58%) normal fast operation should occur.

**To change with the Bluetooth setting tool use the enter button  along with the left and right arrows   to select the desired position on the slider bar.**

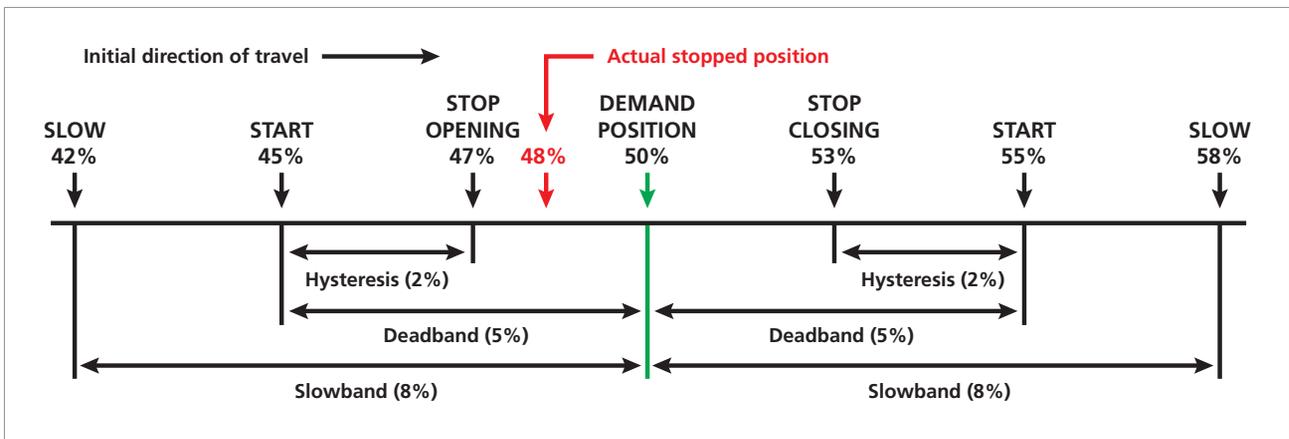
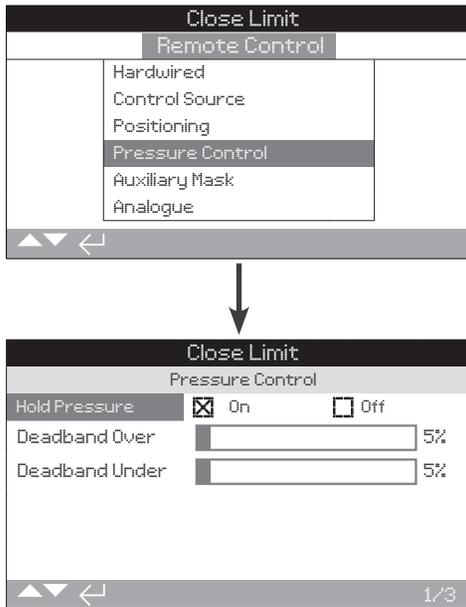


Figure 2.4-1 Example of Positioning Control using Slowband (8%), Deadband (5%) and Hysteresis (2%)



### 1/3 Hold Pressure

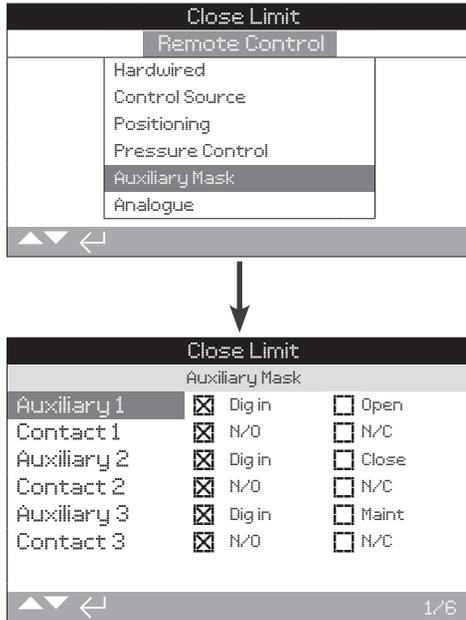
This setting allows the user to decide what action the actuator should take if it drifts from its current position (across the full actuator stroke), until another command to move is given. This feature will compensate for any drift that occurs in either direction by operating either the pump or solenoid to maintain position.

### 2/3 Deadband Over

This feature is used for pressure compensation to vent the internal hydraulic pressure in the actuator in the event of thermal expansion due to temperature fluctuations. Factory default setting is 10% with it being selectable between 0% - 25%.

### 3/3 Deadband Under

This feature is used for pressure compensation to increase the internal hydraulic pressure in the event of the pressure falling to a set defined value while the actuator is at a position limit. This type of compensation is to allow for thermal contraction again due to temperature fluctuations, with the default setting being 5%.



The auxiliary mask setting page is shown above.

**Introduction**

When a network option is fitted (*Pakscan/Profibus/Modbus/Foundation Fieldbus or 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 whose status is reported over the option network. It is also possible to have a combination of both supplementary remote control and digital inputs to provide. For example, Open and Closed control. As well as 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. Refer to auxiliary input setup.

**Auxiliary Input Setup**

Input	Auxiliary 1	Auxiliary 2	Auxiliary 3
Control	Open	Closed	Stop / maintain
Indication	Dig	Dig	Dig
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 is required. Use auxiliary 2 to 4 for Close or Stop/maintain.

To change with the use of the *Bluetooth* setting tool, use the enter button  along with the left and right arrows  . The checkbox indicates the set auxiliary 1 input function.

**2/6 Contact 1**

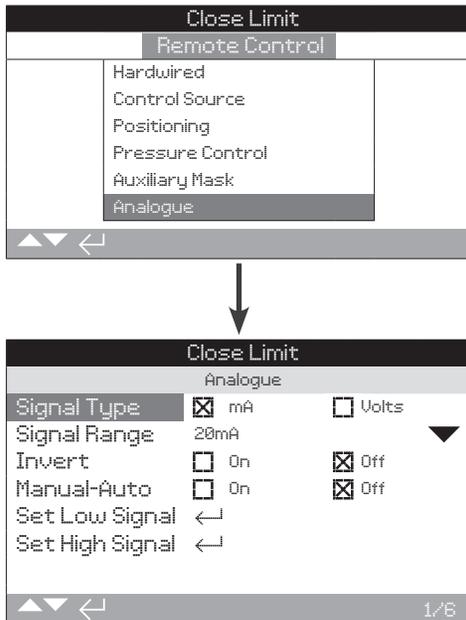
Refer to auxiliary input setup.

**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 with the use of the *Bluetooth* setting tool, use the enter button  along with the left and right arrows  . The checkbox indicates the set contact 1 input type.

Continued over page



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; deadband, hysteresis and positioning settings, refer to 2.4.2-3.**

### 1/6 Signal Type

**mA (default)** – Set for current (mA) Analogue control signal.

**Volts** – Set for voltage analogue control signal.

To change using the *Bluetooth* setting tool press the enter button  along with the left and right arrows   to find the desired setting within the checkboxes.

### 2/6 Signal Range

Available ranges: 5 mA, 10 mA or 20 mA (default). 5 V, 10 V or 20 V range for voltage control. For analogue signal using 4 mA to 20 mA range, set 20 mA.

To change using the *Bluetooth* setting tool use the enter button  along with the up and down arrows   to select the desired setting in the drop down box.

### 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 using the *Bluetooth* setting tool press the enter button along with the left and right arrows to find the desired setting within the checkboxes.

### 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 and referenced RWS 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 using the *Bluetooth* setting tool press the enter button  along with the left and right arrows   to find the desired setting within the checkboxes.

### 5/6 Set Low Signal

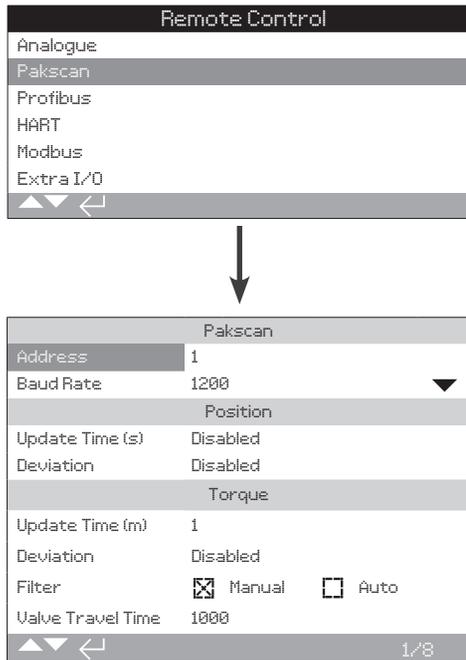
The actuator must be calibrated to the Low Analogue signal value. By measuring this signal it will then be able to control the actuator by moving it to the Set Low Signal position, refer to 2.4.2-3.

**APPLY THE LOW ANALOGUE SIGNAL and select. The signal will be measured and set as the Close signal position value.**

### 6/6 Set High Signal

The actuator must be calibrated to the High Analogue signal value. By measuring this signal it will then be able to control the actuator by moving it to the Set High Signal position, refer to 2.3.2-3.

**APPLY THE HIGH ANALOGUE SIGNAL and select. The signal will be measured and set as the High signal position value.**



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

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

2.4.2-3 Positioning

2.4.2-5 Auxiliary Mask

**1/8 Address**

The **Pakscan** field control unit option must be allocated a unique loop node address. Change made to the address will take effect immediately. The range of address is 1 - 240.

**2/8 Baud Rate**

The actuator **Pakscan** Field control unit option must be set to the loop baud rate. For **Pakscan** 2-wire control loop the selected baud rate must be common in the master station and all the field units included in the loop. Changes made to baud rate will take immediate effect. The baud rate is selectable using the drop down list box and the selections are: 110, 300, 600, 1200 and 2400.

**3/8 Update Time(s)**

**Range 0 (disabled) to 255 seconds.**

Set when mid-travel positioning control is required. Update time in seconds is the set period for updating the master station with position. Refer to 4/8 deviation. The valve position will be reported at time intervals equating to the set update time. If the FCU updates to deviation whilst the valve is moving then the update time should be set to approximately 10 times the loop scan time. If the actuator is not used for mid-travel positioning (i.e. isolating duty) then the update time should be turned off by setting the time to zero (disabled).

**4/8 Deviation (%)**

**Range 0 (disabled) to 225 seconds.**

This is set when mid travel positioning is required. Deviation is the set amount of change that has to occur before the position data is reported to the master station. Whilst the valve is in motion, reports about its position will be made each time the position changes by more than the deviation setting. The recommended value is 5% where positioning data is required. If the actuator is not used for mid-travel positioning (i.e. isolating duty), then the deviation should be turned off by setting it to zero (disabled).

Continued over page



### 5/8 Update Time (m)

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

Pressure update time (minutes) value is refreshed from a stationary actuator. If pressure data is not required then its update time should be disabled.

### 6/8 Deviation

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

Set for amount of change in actuator measured pressure that has to occur before pressure data is reported to the master station. During valve travel pressure reporting will be made each time the pressure changes more than the deviation setting. Where continuous pressure data is required the recommended value is 5%. If pressure data is not being used then the deviation should be set to disabled.

### 7/8 Filter

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

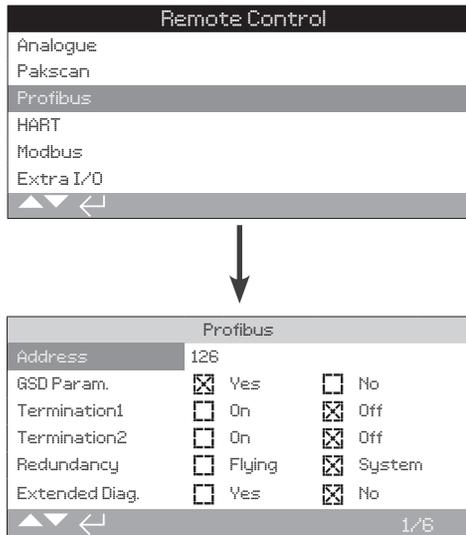
**Auto** – The *Pakscan* option will automatically report the 6 historical pressure logs for each direction once the actuator has stopped at limit. The historical log will contain the instantaneous value of pressure for both Closing and Opening pressure logs.

**Manual** – The historical pressure logs are not automatically updated. 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 18000 seconds.**

Valve travel time should be set at a value that is 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 raised via the *Pakscan* network.



The Profibus control option settings page is shown above with the default settings. Profibus is a control option and is available in single and dual versions.

Refer to wiring diagram.

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

2.4.2-3 - Positioning

2.4.2-5 - Auto Mask

**1/6 Address**

The actuator Profibus module must be allocated a unique address in the Profibus system. Changes made to the address will take effect immediately. The range of address is 1 to 126 (default 126). Refer also to redundancy.

**1/6 GSD Parameter**

If the user parameterisation date is to be setup using FDT, EDDL or the actuator’s menu, setting the menu item to No will ensure that the user parameterisation data sent to the Profibus card during the parameterisation of the Profibus network with the GSD file will be ignored. The setting previously made will not be overwritten. Default this is Yes to ensure that the Profibus card will be parameterised by the GSD user parameterisation data.

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

**No** – Parameterisation by GSD file is disabled.

**3/6 to 4/6 Termination 1 – Termination 2**

Profibus networks require active termination at each end of the highway. Profibus option has active termination (2 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.

**5/6 Redundancy**

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

**System (default)** – System redundancy means that there are two completely separate Profibus highways in the network system and that each highway is connected to one of the Profibus channels. In this mode the address of both Profibus channels are identical.

**Flying** – Flying redundancy means that there is one highway that is connected to both channels, in this mode the address of the channels must be different to avoid both channels responding to the same message. In flying redundancy channel two address will be channel one address plus 64.

**If flying redundancy is used, the address for 1/6 must not exceed 62.**

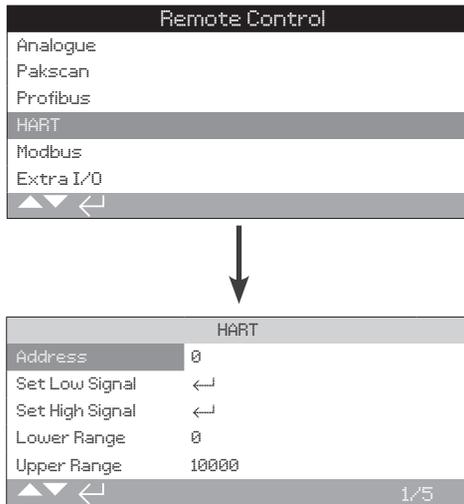
**6/6 Extended Diagnostics**

This is used for the dual Profibus option (redundant) only. Refer to wiring diagram.

The slave redundancy specification from the PNO describes extended diagnostics that are available in the redundant card. These messages describe, for example, the state of the back-up channel. Diagnostics message can be turned off in the PLC to which the module is connected.

**No (default)** – Diagnostics message turned off.

**Yes** – Diagnostics messaging turned on.



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

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

2.4.2-3 Positioning

2.4.2-5 Auxiliary Mask

### 1/5 Address

The HART option must be allocated a unique address in the HART system. Changes made to this parameter will take effect immediately. The range of address is 0 – 63 (default 0).

To change with the *Bluetooth* setting tool use the enter button  along with the left and right arrows   to select the desired setting.

### 2/5 Set Low Signal

The actuator must be calibrated to the low analogue signal value. By measuring this signal it will then be able to control the actuator by moving it to the set low signal position, refer to 2.4.2-3 Positioning.

Apply the low analogue signal and select enter . The signal will be measured and used to send the actuator to the set low signal position.

### 5/6 Set High Signal

The actuator must be calibrated to the high analogue signal value. By measuring this signal it will then be able to control the actuator by moving it to the set high signal position, refer to 2.4.2-3 Positioning.

Apply the high analogue signal and select enter . The signal will be measured and used to send the actuator to the set high signal position.

### 5/6 Lower Range

Range 0% to 100% Open positions.

This setting is used to set the position the actuator will move to when the low analogue signal is applied for HART control. 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 with use of the *Bluetooth* setting tool, press the enter button  along with the left and right arrows   using the slider bar.

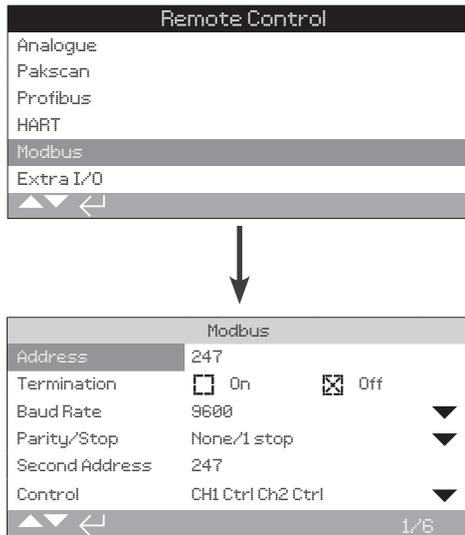
### 6/6 Upper Range

Range 0% to 100% Open positions.

This setting is used to set the position the actuator will move to when the high analogue signal is applied for HART control. 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 with use of the *Bluetooth* setting tool press the enter button  along with the left and right arrows   using the slider bar.

## 2.4.2-10 Remote Control – Modbus



The Modbus Control option settings page is shown above with its default settings. Modbus is a control option and is available in single or dual channel versions, refer to wiring diagram.

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

2.4.2-3 Positioning

2.4.2-5 Auxiliary Mask

### 1/6 Address

The Modbus option must be allocated a unique address in the system to which it is attached. Changes made to this parameter will take effect immediately. The address range is 1 – 247 (default 247).

To change using the *Bluetooth* setting tool press the enter button  along with the left and right arrows  . The set address will be indicated.

### 2/6 Termination

Modbus networks require termination resistors at each end of the highway. The Modbus option has a passive (120 Ohms) termination resistor (2 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. In a dual channel Modbus option, when ON is selected the termination resistors will be switched in for both channels

To change using the *Bluetooth* setting tool, press the enter button  along with the left and right arrows  . The checkbox will indicate the selected termination mode.

### 3/6 Baud Rate

The Modbus option must be set to the RS485 highway baud rate. Changes made to this parameter will take immediate effect. The baud rates selectable using the drop down box are 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200.

To change using the *Bluetooth* setting tool press the enter button along with the up and down arrows. The drop down list will Close and the selected baud rate will be indicated once selected.

### 4/6 Parity / Stop

Where Modbus parity bit detection is used, the module must be set with the same parity settings as the host. The choices of parity are, none, even and odd. This item also allows selection for the number of stop bits as 1 or 2. The drop down box requires selection of the parity and stop bits together.

To change using the *Bluetooth* setting tool, press the enter button  along with the up and down arrows  . The drop down list will close and the selected parity and stop bit will be indicated once selected.

### 5/6 Second Address

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

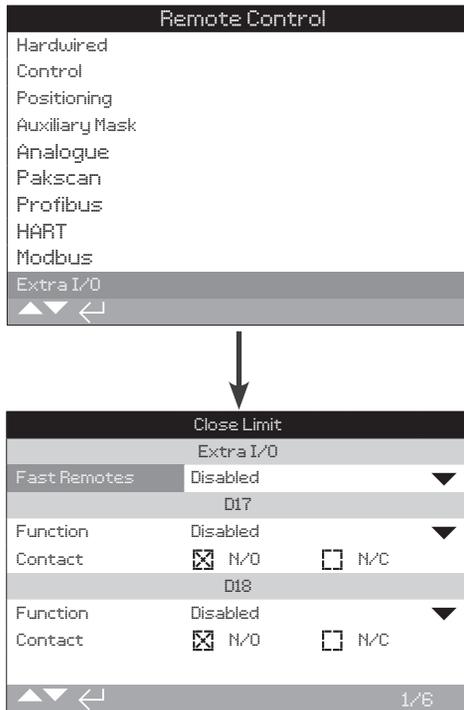
A dual Modbus card has two channels available for connection to separate or the same highway. The second channel address is set up with this setting. It may be identical or different to the first channel depending on the requirement of the system.

To change using the *Bluetooth* setting tool, press the enter button  along with the left and right arrows  . The set address will be indicated.

### 6/6 Control

Not editable. For dual Modbus option (redundant) only. Refer to wiring diagram.

Setting will indicate that control is available on both channels 1 and 2.



The DIO adds additional digital inputs and outputs to the actuator.

### Fast Remotes

Fast remotes are for modulating applications (24 VDC signals only).

- Disabled
- Enabled

### Functions

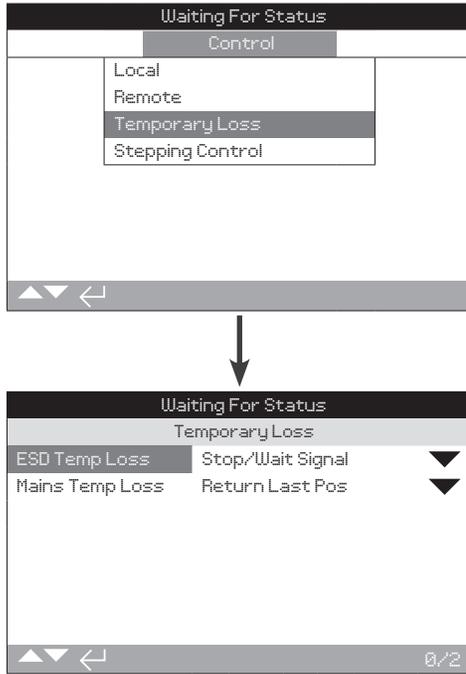
Available Functions for each I/O:

- Disabled
- Remote Open
- Remote Closed
- Remote Maintained
- Remote ESD
- Open Interlock
- Close Interlock
- Net Disable
- Partial Stroke
- Hand Auto
- Velan Rest
- Conditional Open
- Conditional Close

### Contact

Available Contact positions which the user can set:

- N/O – Normally Open Contact
- N/C – Normally Closed Contact



**Emergency shut down (ESD) is a standard feature.**

Refer to actuator’s 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.

ESD control will operate under both the local and remote control selection. ESD can also be set to operate an actuator selected to local stop, refer to override 4/7.

**1/2 Temp loss**

**Stop/wait signal** – Stop and wait for a new command.

**Continue ESD** – Continue with the ESD action even in the event of the ESD being reset before the actuator completes the set ESD function.

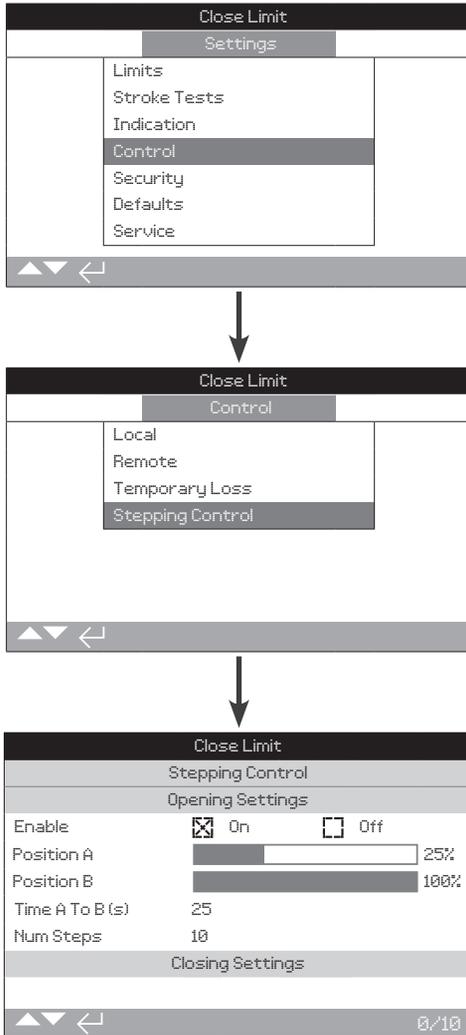
**Return last position** – Stop and return to its last position on the ESD signal being reset.

**To change with the Bluetooth setting tool press the enter button  along with the up and down arrows  .** The drop down list will close and the selected option will be indicated.

**2/2 Manual Reset**

This feature is to allow the actuator to be prevented from normal operational commands after an ESD event until a manual reset has been performed. The manual reset of the actuator is performed by rotating the red local control knob to the Stop position then either to local or remote position. Once the reset has been performed the actuator can be operated by either remote or local command. This reset can be selected to operate on either loss of ESD, loss of mains supply or on loss of either.

**To change with the Bluetooth setting tool press the enter button  along with the up and down arrows  .** The drop down list will close and the selected ESD manual reset will be indicated.



### Introduction

The stepping control allows the valve operating time to be increased. This feature is used, for example, to prevent hydraulic shock when closing or to prevent surges when opening a valve. The stepping control is active in both local and remote control. The stepping control can only be used on the hydraulic stroke.

#### 1/5 Enable

**On** – This will enable the stepping control for the actuator.

**Off (default)** – This will disable the stepping control for the actuator.

#### 2/5 Position A (position C in Close settings)

The position where the stepping control will start its time operation. This can be adjusted from 0% to 100%, default setting is 25% in the Open setting and 100% in the Close setting.

#### 3/5 Position B (position D in Close settings)

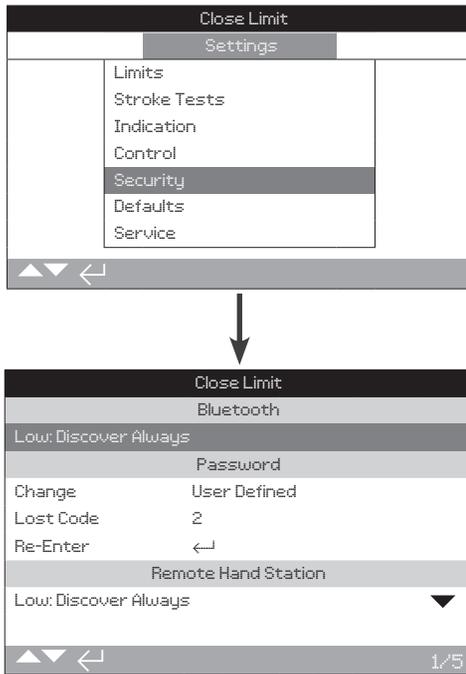
The position where the stepping control will stop its timed operation. This can be adjusted from 0% to 100%, default setting is 100% in the Open settings and 25% in the Closed settings.

#### 4/5 Time A to B (time C to D in Closed settings)

This is the actuator run time during the timed operation. Range 0 to 3600 seconds.

#### 5/5 Number Steps

This is for the amount of steps the actuator will do in the allocated time during the timed operation. Range 0 to 100 steps.



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. The Local/Stop/Remote selector can be padlocked in all three positions. Communication with the *Bluetooth* Setting Tool Pro is available.

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

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

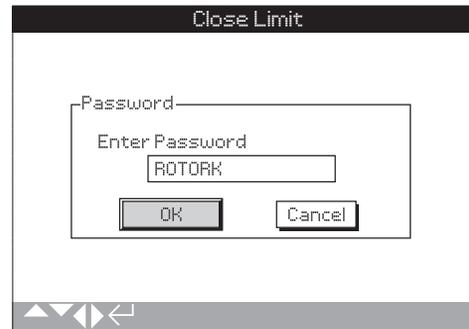
To change settings using the *Bluetooth* setting tool press the enter button  along with the up and down arrows . The level of *Bluetooth* security will be indicated.

**2/5 Change**

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

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

To set a user selected password press the enter button , the change password display will be shown.



**Enter user selected password:**

Use the left arrow  to highlight new password entry box and press enter .

Use the up and down arrows  to scroll through alphanumeric values to display the required character.

Use the right arrow  to move to the next character.

Use the left arrow  to delete the previous character.

Use the enter button  when the selected password is complete.

Navigate to the OK button using the down arrow  and press enter . The user selected password is now active. Refer to 1.3 2/5 change password will then indicate: User. The lost code characters will change. Refer to 3/5.

**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 to overcome this issue.

**4/5 Re-Enter**

The re-enter password control is used when high level access is required by Rotork Service or by a user requiring high level access in order to make other settings available. Contact Rotork for user high level password

Enter the provided higher access password, refer to 1.3.

Once correctly entered, access to higher level settings will be made available for the user.

Continued over page



### 5/5 Remote Hand Station

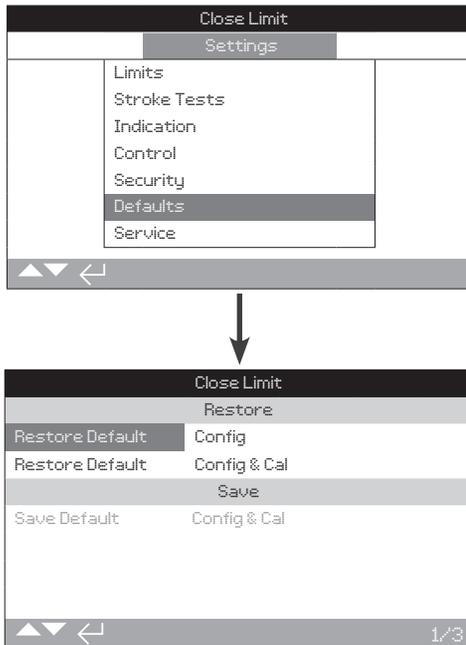
**Low: Discover always (default)** – The actuator is available for *Bluetooth* communications using a PC running Insight 2 at all times. This setting provides convenient connection when using Insight 2. Communication with the *Bluetooth* Setting Tool Pro is always available in this setting.

**Medium: Discover in local and stop** – The actuator is available for *Bluetooth* connection using a PC running Insight 2 when the local controls are in local or STOP. Connection is unavailable in the remote option. The Local/Stop/Remote selector can be padlocked in all three positions. Communication with the *Bluetooth* Setting Tool Pro is available.

**High: Infrared initiation only** – The actuator is not available for *Bluetooth* communication with a PC using Insight 2. Communication with the *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 *Bluetooth* Setting Tool Pro only. Refer to 1.2.

**To change these settings use the enter button along with the left and right arrows to select the desired *Bluetooth* security level. Once highlighted press the enter button to select. The *Bluetooth* security level selected will be indicated.**



Allows default settings and factory set limits to be restored.

Settings

**1/3 Restore the 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 any work takes place at either the valve maker or on site commissioning, any settings entered will overwrite the factory default settings and will become the current settings used in operation along with the remaining unadjusted defaults.

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

**(Standard default settings are indicated within this manual).**

To restore default settings press the enter button , a warning screen will appear, press the enter button  to continue.

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

**2/3 Restore the Default Configuration & Calibration**

This setting will do the same as 1/3—restore the default configuration, however will also reset all calibrated options including limits and modulating inputs (4-20mA).

Once this has been selected these options will need to be re-calibrated and all limits reset for valve/actuator operation.

**3/3 Save the Current Configuration & Calibration**

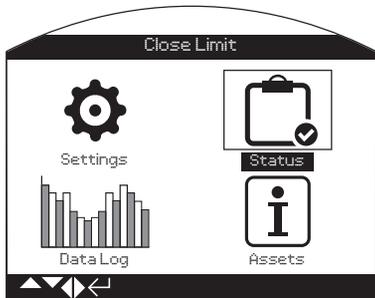
Once the actuator has been commissioned and is set up to a satisfactory position, the current settings can be copied to become the new default settings. In future, after pressing the save option, restoring the default settings will return the actuator configuration to its site commissioned setup. Refer to 1/3 restore. If Rotork is contracted to commission the actuator, on completion and agreement current settings will be copied to default.



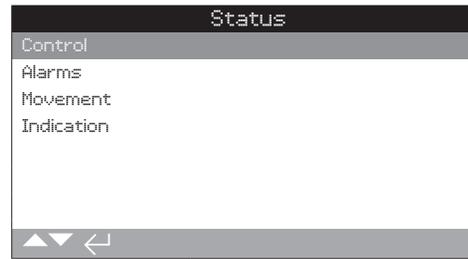
### 3. Status

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.

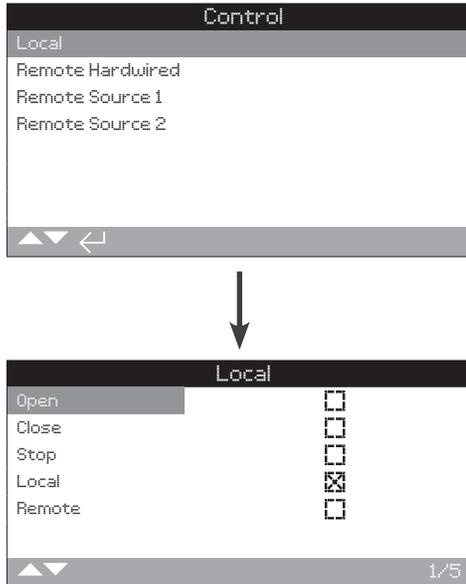
Refer to section 1.2 for connecting to the actuator. Once connected, navigate to the main icon menu and using the four directional arrows, highlight and select the status icon:



### 3.1 Status – Control



3. Status menu	Page
3.1 Control	38
3.1.1 Local	39
3.1.2 Remote Hardwired	40
3.1.3 Remote Source 1	41
3.1.4 Remote Source 2	41
3.2 Movement	42
3.3 Alarms	43
3.3.1 Process	43
3.3.2 Control	44
3.3.3 Actuator – Hardware	44
3.3.4 Actuator – Electronics	45
3.3.5 Actuator – Option Card	45
3.4 Indication	46
3.4.1 Relays	46
3.4.2 Monitor Relay	47



**Local Control Status**

This screen displays the signal statuses from each of the local controls. As the local controls are operated the corresponding signals are produced. The checkbox indicates a signal is being received, which is useful in testing the operation of the local controls. Movement may occur during testing of the local controls. If this is not desired, select STOP on the local selector.

To scroll through this information use the up and down arrows  on the *Bluetooth* setting tool.

**1/5 Open**

Displays the current local Open signal status. When active, this indicates the local controls have been turned to Open and a local control Open signal is being received.

**2/5 Close**

Displays the current local Close signal status. When active, this indicates the local controls have been turned to Close and a local control Close signal is being received.

**3/5 Stop**

Displays the current local stop signal status. When active, this indicates the local controls have been set to Stop and a local control stop signal is being received.

When the local controls have been set to Stop, the actuator will not move to position regardless of the local or remote control signals that it receives.

The ESD function has the ability to override the local STOP. Refer to 2.4.

**4/5 Local**

Displays the current local signal status. When active, this indicates the local controls have been set to Local and a local control signal is being received.

When the local controls have been set to Local, the Open/Close control will operate the actuator, which will run to its limit unless interrupted by selecting local Stop. Any remote signal received will not operate the actuator while the local controls are set to Local.

An ESD signal will still trigger the emergency shutdown action when local is selected.

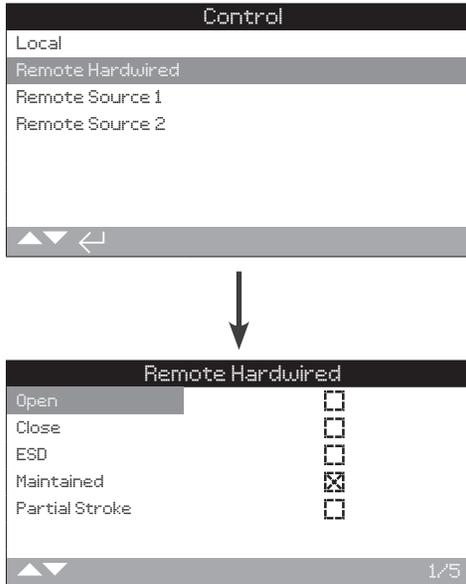
**5/5 Remote**

Displays the current remote signal status. When active this indicates that the local controls have been set to Remote and a signal is being received.

When the local controls have been set to Remote, the control signals from remote hardwired controls and remote source 1 and 2 will operate the actuator. Any local control signals received will not operate the actuator while the local controls are set to Remote.



### 3.1.2 Control – Remote Hardwired



#### 4/5 Maintained

Displays the current remote hardwired maintained signal status. When active, this indicates that a maintained signal is being received from the remote hardwired control.

If the signal is present the actuator will self-maintain as a response to a fleeting Open or Close control signal and will run until the maintain line is broken, it reaches its limit or is reversed.

#### 5/5 Partial Stroke

Displays the current remote hardwired partial stroke signal status. When active, this indicates that a partial stroke signal is being received from the remote hardwired control.

#### Remote Hardwired Status

This screen displays the signal statuses from the remote hardwired controls. As the remote hardwired controls are operated, the corresponding signals are produced. The checkbox indicates a signal is being received. This is useful in testing the operation of the remote control signals. Valve movement may occur during testing. If this is not desirable, select STOP on the local controls.

To scroll through this information use the up and down arrows  on the *Bluetooth* setting tool.

#### 1/5 Open

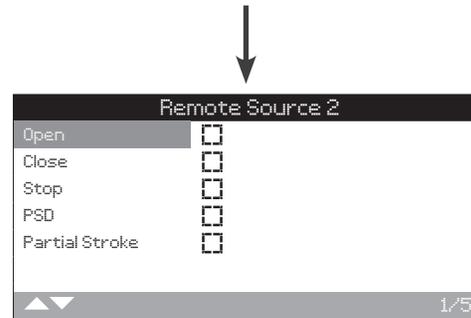
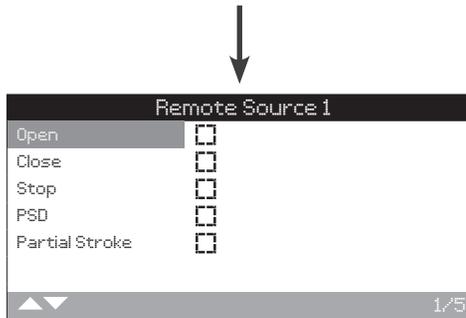
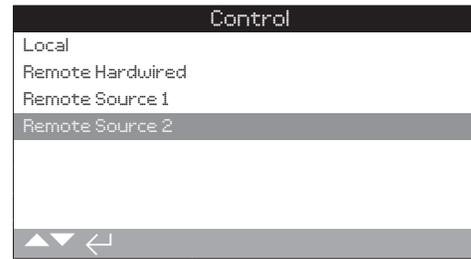
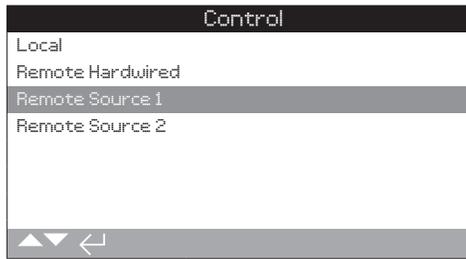
Displays the current remote hardwired Open signal status. When active, this indicates the Open signal is being received from the remote hardwired control.

#### 2/5 Close

Displays the current remote hardwired Close signal status. When active, this indicates that a Close signal is being received from the remote hardwired control.

#### 3/5 ESD

Displays the current remote hardwired ESD signal status. When active, this indicates that a ESD signal is being applied from the remote hardwired control.

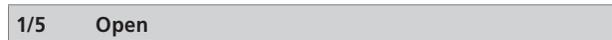


**Remote Source 1 Status**

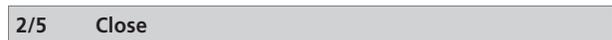
This screen displays the signal statuses from remote source 1. The checkbox indicates a signal is being received.

Note: Only digital remote control options are able to report a control status. For analogue control, please use the position home screen to view demand and position values.

To scroll through this information use the up and down arrows on the *Bluetooth* setting tool.



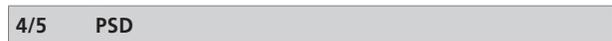
Displays the current remote source 1 Open signal status. When active, this indicates that an Open signal is being received from source 1.



Displays the current remote source 1 Close signal status. When active, this indicates that a Close signal is being received from source 1.



Displays the current remote source 1 Stop signal status. When active, this indicates that remote source 1 has been set to Stop.



Displays the current remote source 1 PSD signal status. When active, this indicates that a PSD (process shut down) signal is being received from remote source 1.



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

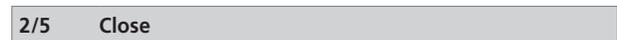
**Remote Source 2 Status**

This screen displays the signal status from remote source 2. The checkbox indicates a signal is being received.

To scroll through this information use the up and down arrows on the *Bluetooth* setting tool.



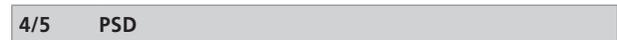
Displays the current remote source 2 Open signal status. When active, this indicates that an Open signal is being received from source 2.



Displays the current remote source 2 Close signal status. When active, this indicates that a Close signal is being received from source 2.



Displays the current remote source 2 Stop signal status. When active, this indicates that remote source 2 has been set to Stop.



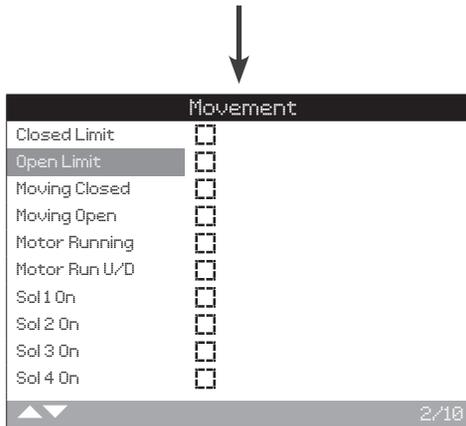
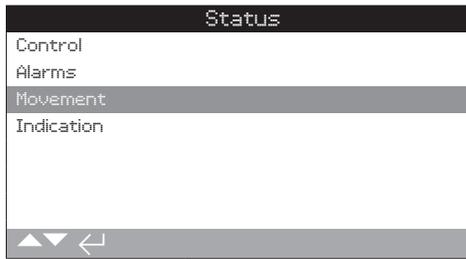
Displays the current remote source 2 PSD signal status. When active, this indicates that a PSD (process shut down) signal is being received from remote source 2.



Displays the current remote source 2 partial stroke signal status. When active, this indicates that a partial stroke signal is being received from remote source 2.



## 3.2 Status – Movement



### 1/10 Closed Limit

Displays the Closed limit status. When active, this indicates that the actuator is at its Closed limit.

### 2/10 Open Limit

Displays the Open limit status. When active, this indicates that the actuator is at its Open limit.

### 3/10 Moving Closed

Displays the moving Closed status. When active, this indicates that the actuator is moving in the Closed direction.

### 4/10 Moving Open

Displays the moving Open status. When active, this indicates that the actuator is moving in the Open direction.

### 5/10 Motor Running

Displays the motor running status. When active, this indicates that the actuator's motor is running.

### 6/10 Motor Run U/D

Displays the motor run U/D status. When active this indicates that the actuator's motor is running up or down.

### 7/10 Solenoid 1

Displays the solenoid 1 status. When active, this indicates that solenoid 1 is energised.

### 8/10 Solenoid 2

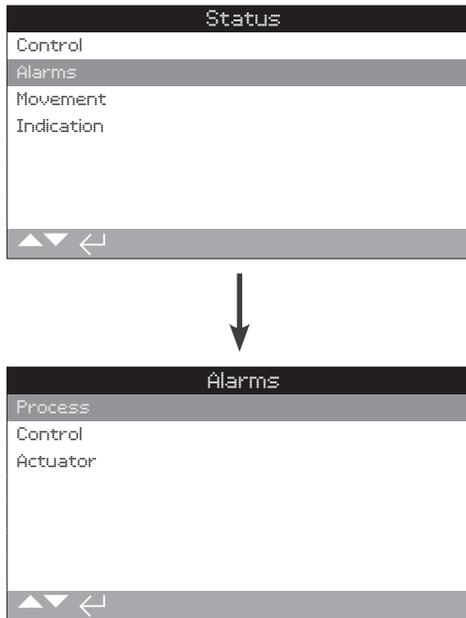
Displays the solenoid 2 status. When active, this indicates that solenoid 2 is energised.

### 9/10 Solenoid 3

Displays the solenoid 3 status. When active, this indicates that solenoid 3 is energised.

### 10/10 Solenoid 4

Displays the solenoid 4 status. When active, this indicates that solenoid 5 is energised.



#### 3.3.1 Alarms – Process

Within the Process alarms menu there are several different checkboxes available that show what alarms are raised on the actuator. If the checkbox is crossed, this shows that there is a fault with the marked box option. E.g. Over press, limit checkbox crossed, shows there is a over pressure fault and one limit (Open or Closed).

##### 1/7 Over Press, Limit

Displays over pressure limit status. When active this indicates when an over pressure trip has occurred at its Open or Closed limit.

##### 2/7 Over Press, Mid

Displays over pressure mid status. When active, this indicates when an over pressure trip has occurred during the travel of the actuator.

##### 3/7 Stall Limit

Displays stall limit status. When active, this indicates the actuator has stalled at its Open or Closed limit.

#### 3.3.1 Alarms – Process *continued*



##### 4/7 Stall Mid

Displays stall mid status. When active, this indicates that the actuator has stalled during its travel.

##### 5/7 Stall Slow Mode

Displays stall slow mode status. When active, this indicates that the actuator has stalled while travelling in slow mode.

##### 6/7 Wrong Direction

Displays wrong direction status. When active this indicates that the actuator is running in the wrong direction from the signal received.

##### 7/7 Motor thermostat

Displays motor thermostat status. When active this indicates that the actuator has tripped on motor temperature.



### 3.3.2 Alarms – Control

---

#### 1/9 Mains Fail

Displays the mains fail status. When active, this indicates a power supply failure has occurred. If the back light is still present it is likely that the third phase has been lost.

#### 2/9 Phase Loss

Displays the phase loss status. When active, this indicates when a phase has been lost on the mains supply. Only the third phase is monitored so again, if the back light is present, a check of the third phase is necessary. If the back light is not present, all the phases should be checked.

#### 3/9 Phase Rotated

Displays the phase rotated status. When active, this indicates when two phases are terminated the incorrect way around.

#### 4/9 ESD Active

Displays the ESD active status. When active, this indicates when an ESD (emergency shutdown) has occurred.

#### 5/9 Reset on ESD

Displays the reset on ESD status. When active, this indicates that a manual rest has occurred upon an ESD fault.

#### 6/9 Reset on Power

Displays the reset on power status. When active, this indicates that a manual reset has occurred upon a loss of power fault.

#### 7/9 Demand Loss

Displays the demand loss status, When active, this will indicate that a demand loss has occurred.

#### 8/9 Net Com's Loss

Displays Net com's loss status. When active this indicates that communication to a network has been lost.

#### 9/9 Manual Operation

Displays manual operation status. When active this indicates that the manual operation switch has been selected to manual.

### 3.3.3 Alarms – Actuator – Hardware

---

#### 1/7 Solenoid Driver

Displays the solenoid driver status. When active, this indicates that a solenoid driver fault has occurred.

#### 2/7 Position Sensor

Displays the position sensor status. When active this indicates that a position sensor error has occurred.

#### 3/7 Pressure Sensor A

Displays the pressure sensor A status. When active this indicates that an error has occurred with pressure sensor A.

#### 4/7 Pressure Sensor B

Displays the pressure sensor B status. When active this indicates that an error has occurred with pressure sensor B.

#### 5/7 Pressure Sensor Accumulator

Displays the accumulator pressure sensor status. When active this indicates that an error has occurred with the accumulator pressure sensor.

#### 6/7 Temperature Sensor

Displays the temperature sensor status. When active this indicates that an error has occurred with the temperature sensor.

#### 7/7 Accumulator Charge Error

Displays the accumulator charge error status. When active this indicates that an error has occurred with the charging of the accumulator.

### 3.3.4 Alarms – Actuator – Electronics

#### 1/6 Local Controls

Displays local controls status. When active, this indicates that a fault has occurred with the local controls on the actuator.

#### 2/6 EEPROM Fault

Displays the EEPROM fault status. When active, this indicates that the EEPROM has a fault. The EEPROM stores all the actuator's settings. If the EEPROM is physically missing, please contact ROTORK for assistance.

#### 3/6 EEPROM missing

Displays EEPROM missing status. When active, this indicates that the EEPROM is missing from the actuator. The EEPROM stores all the actuator's settings. If the EEPROM is physically missing, please contact ROTORK for assistance.

#### 4/6 Power Board

Displays power board status. When active, this indicates that a fault has occurred on the power board.

#### 5/6 Bluetooth Module

Displays *Bluetooth* module status. When active, this indicates that a fault has occurred with the actuator's *Bluetooth* module.

#### 6/6 Customer Supply

Displays the customer supply status. When active, this indicates that a fault has occurred on the customer supply.

### 3.3.5 Alarms – Actuator – Option Card



#### 1/6 Option 1 Missing

Displays the option 1 missing status. When active, this indicates that option card 1 is not fitted.

#### 2/6 Option 2 Missing

Displays the option 2 missing status. When active, this indicates that option card 2 is not fitted.

#### 3/6 Option 3 Missing

Displays the option 3 missing status. When active, this indicates that option card 3 is not fitted.

#### 4/6 Option 1 Error

Displays option 1 error status. When active, this indicates that option card 1 has an error.

#### 5/6 Option 2 Error

Displays option 2 error status. When active, this indicates that option card 2 has an error.

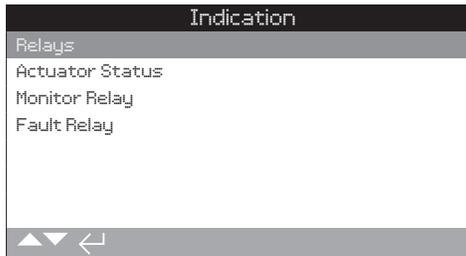
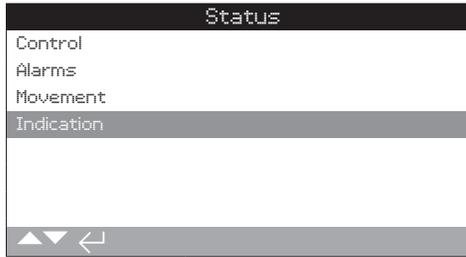
#### 6/6 Option 3 Error

Displays option 3 error status. When active, this indicates that option card 3 has an error.

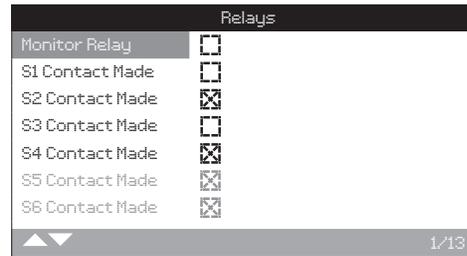
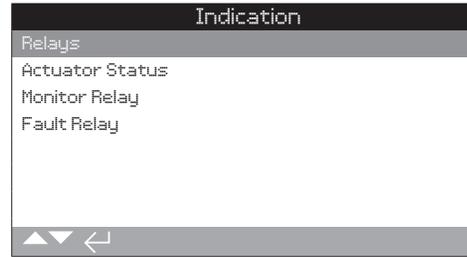




### 3.4 Status – Indication



### 3.4.1 Indication – Relays



#### Indication status

This screen displays the indication relays statuses. The checkbox indicates that the relay is energised.

The monitor relay and relays S1-S4 are provided as standard, relays S5-S8 and relays S9-S12 are available options that are greyed out if the options are not present.

To scroll through use the up and down arrows on the *Bluetooth* setting tool.

#### 1/13 Monitor Relay

Displays the monitor relays status. A checked checkbox shows the relay is active, whilst an unchecked checkbox represents inactive.

When the monitor relay is used in availability mode, an inactive relay status indicates that the actuator is set to remote control. There are no detected internal failures and the actuator is powered on. A active relays status indicates that the actuator is not available for remote control.

When the monitor relay is used in fault mode, an inactive relay status indicates that there are no detected internal failures and the actuator is powered on. An active relay status indicates the actuator has a fault present and the actuator is not available for remote control.

#### 2/13 S1

Displays the S1 relay status. When active, this indicates that relay S1 is energised.

#### 3/13 S2

Displays the S2 relay status. When active, this indicates that relay S2 is energised.

#### 4/13 S3

Displays the S3 relay status. When active, this indicates that relay S3 is energised.

#### 5/13 S4

Displays the S4 relay status. When active, this indicates that relay S4 is energised.

### 3.4.1 Indication – Relays *continued*

#### 6/13 S5

Displays the S5 relay status. When active, this indicates that relay S5 is energised.

#### 7/13 S6

Displays the S6 relay status. When active, this indicates that relay S6 is energised.

#### 8/13 S7

Displays the S7 relay status. When active, this indicates that relay S7 is energised.

#### 9/13 S8

Displays the S8 relay status. When active, this indicates that relay S8 is energised.

#### 10/13 S9

Displays the S9 relay status. When active, this indicates that relay S9 is energised.

#### 11/13 S10

Displays the S10 relay status. When active, this indicates that relay S10 is energised.

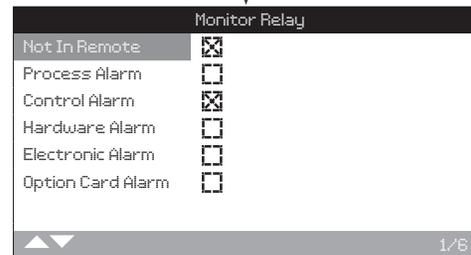
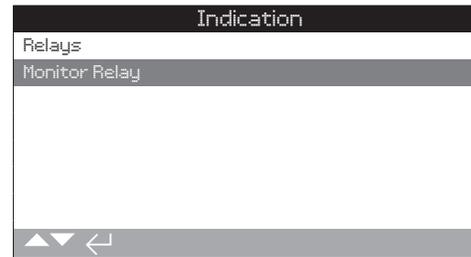
#### 12/13 S11

Displays the S11 relay status. When active, this indicates that relay S11 is energised.

#### 13/13 S12

Displays the S12 relay status. When active, this indicates that relay S12 is energised.

### 3.4.2 Indication – Monitor Relay



#### 1/6 Not in Remote

Displays the not in remote status. When active, the checkbox will be marked when the actuator is either in local or stop.

#### 2/6 Process Alarm

Displays process alarm status. When active, the checkbox will be marked when a process alarm has been detected.

#### 3/6 Control Alarm

Displays control alarm status. When active, the checkbox will be marked when a control alarm has been detected.

#### 4/6 Hardware Alarm

Displays hardware alarm status. When active, the checkbox will be marked when a hardware alarm has been detected.

#### 5/6 Electronic Alarm

Displays Electronic alarm status. When active, the checkbox will be marked when an electronics fault has been detected.

#### 6/6 Option Card Alarm

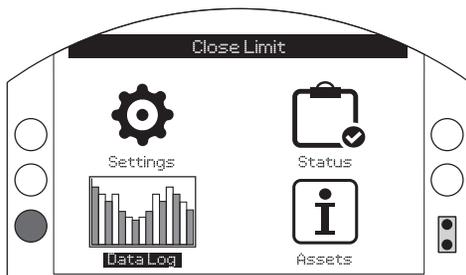
Displays option card alarm. When active, the checkbox will be marked when a option card alarm has been detected.



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.

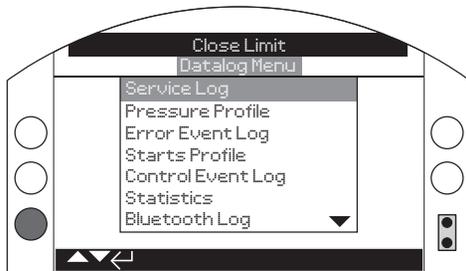
Refer to section 1.2 for connecting to the actuator. Once connected, use the four directional arrows to navigate to the main icon menu, from here you can highlight and select the data log icon.



### 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 4.11 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
4.2	Life Log	50
4.3	Pressure Profile	51
4.4	Starts Profile	51
4.5	Trend Logs	52
4.5.1	Temperature	52
4.5.2	Vibration Average	53
4.5.3	Vibration Peak	53
4.5.4	Average Position and Pressure	54
4.6	Event Logs	55
4.6.1	Event Logs Filtered	55
4.7	Alarm Log	57
4.8	Partial Stroke	58
4.9	Full Stroke	58
4.10	<i>Bluetooth</i> Log	59
4.11	Set Log Date	59

Close Limit	
Operation	
Average Pressure	31
Close Starts	1170
Open Starts	3782
Motor Run Time	00:05:49:04
Max Starts/Hr	239
Date	21:11:09 05/02/2015
Last Close Limit	09:54:36 10/03/2015

Close Limit	
Temperature	
Maximum C	32
Date	22:27:31 05/02/2015
Minimum C	01:26:25 06/02/2015
Power	
Power Ups	71
Max On Time	207:18:48:08

**Operation**

Within the operations section the below displays are available.

- Average pressure reading
- Number of Close starts
- Number of Open starts
- Motor run time (Hrs/mins/secs)
- Maximum starts per hour
- Date that the max starts was recorded
- When the actuator was last at the Close limit

**Temperature**

Within the temperature section, this displays the following

- Maximum internal temperature in °C
- Date that maximum temperature occurred
- Minimum internal temperature in °C
- Date that minimum temperature occurred

Close Limit	
Close Pressure	
Max Value %	100
Date	00:31:35 06/02/2015
Last Pressure Trip	---:--- --/--/--
Open Pressure	
Max Value %	100
Date	15:50:31 05/02/2015
Last Pressure Trip	19:19:21 05/02/2015

Close Limit	
Temperature	
Maximum C	32
Date	22:27:31 05/02/2015
Minimum C	01:26:25 06/02/2015
Power	
Power Ups	71
Max On Time	207:18:48:08

**Close Pressure**

Within the Close pressure section, this displays the following

- Max valve pressure
- Date of last Close command
- Date of last pressure trip to occur

**Power**

Within the power section, this displays the following

- Number of power ups of the actuator
- Maximum time the power has been ON
- Maximum time the power has been OFF

**Open Pressure**

Within the Open pressure section, this displays the following

- Max valve pressure
- Date of last Open command
- Date of last pressure trip to occur

**Service**

Within the service section, this displays the following

- Last date the actuator was serviced

Close Limit	
Operation	
Average Pressure	31
Close Starts	1170
Open Starts	3782
Motor Run Time	005:49:04
Max Starts/Hr	239
Date	21:11:09 05/02/2015
Last Close Limit	09:54:36 10/03/2015

Close Limit	
Temperature	
Maximum C	32
Date	22:27:31 05/02/2015
Minimum C	01:26:25 06/02/2015
Power	
Power Ups	71
Max On Time	207:18:48:08

### Operation

Within the operations section the below displays are available.

Average pressure reading

Number of Open starts

Number of Close starts

Motor run time (Hrs/mins/secs)

Maximum starts per hour

When the actuator was at its last Open limit

When the actuator was last at Close limit

Close Limit	
Close Pressure	
Max Value %	100
Date	00:31:35 06/02/2015
Last Pressure Trip	----- --/--/--
Open Pressure	
Max Value %	100
Date	15:50:31 05/02/2015
Last Pressure Trip	19:19:21 05/02/2015

### Open Pressure

Within the Open pressure section, this displays the following

Max valve pressure

Date of last Close command

Last pressure trip to occur

### Close Pressure

Within the Close pressure section, this displays the following

Max valve pressure

Date of last Open command

Last pressure trip to occur

### Temperature

Within the temperature section, this displays the following

Maximum internal temperature in °C

Date that maximum temperature occurred

Minimum internal temperature in °C

Date that minimum temperature occurred

Close Limit	
Temperature	
Maximum C	32
Date	22:27:31 05/02/2015
Minimum C	01:26:25 06/02/2015
Power	
Power Ups	71
Max On Time	207:18:48:08

### Power

Within the power section, this displays the following

Number of power ups of the actuator

Maximum time the power has been ON

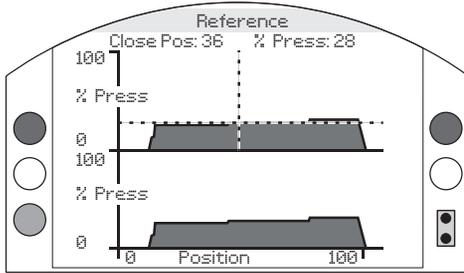
Maximum time the power has been OFF

### Service

Within the service section, this displays the following

Last date the actuator was serviced

### 4.3 Data Log – Pressure Profile



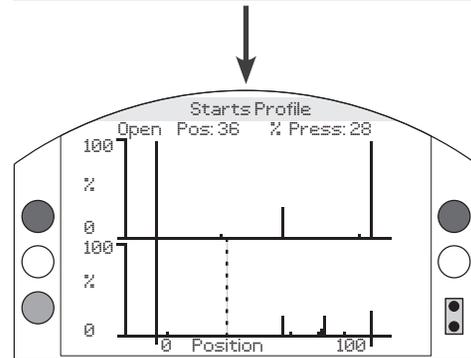
To access the pressure profile section, with the use of the *Bluetooth* setting tool press the enter button when the pressure profile is highlighted within the menu.

The top graph shows closing pressure and the bottom shows the opening pressure with a range of 0% and 100%. The pressure being logged is live and will adjust/update when the actuator is being operated.

Pressing the up and down arrows moves the cursor between both top and bottom graphs.

Pressing the left and right arrows moves the cursor along at 1% position increments.

### 4.4 Data Log – Starts Profile

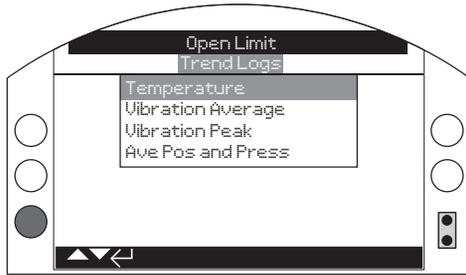


#### Starts Profile

This section of the data log shows the total number of motor starts in both the Open and Closed directions. The screen will display two separate graphs showing the percentage of total motor starts against the actuator position in the Open and Closed directions. Due to the screen's resolution, the percentages can only be displayed in 1% increments. For isolating duty it is normal to see 100% of starts at each end of travel but for modulating duty the graph will be spread as in the example above. To prevent the scaling of the display exceeding the LCD capability, all percentages of starts are referenced to the highest number of starts for any given position and all other positions will show a percentage of the peak. This means however, for repeated equal pulsing throughout travel (e.g. regulating 0%-25%-50%-75%-100%) the percentage of starts will be 100% for each position. The graph is designed to give the user a quick visual indication of the starts profile. For accurate number of starts, please refer to section 4.1 Service Log.

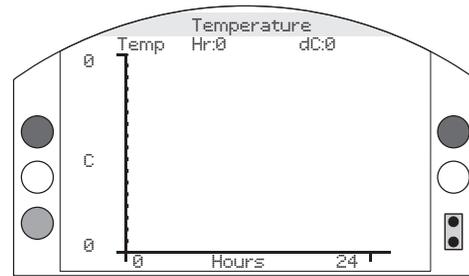
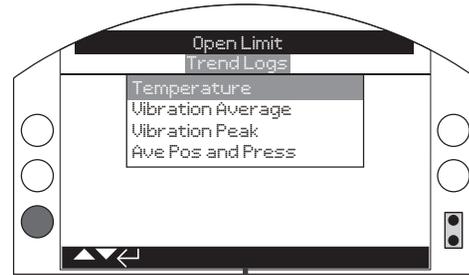
Pressing the up and down arrows on the *Bluetooth* setting tool will move the cursor between graphs.

Pressing the left and right arrows will move the cursor along at 1% position increments.



### Trend Logs

Press the enter button  on the *Bluetooth* setting tool to select the highlighted trend log.



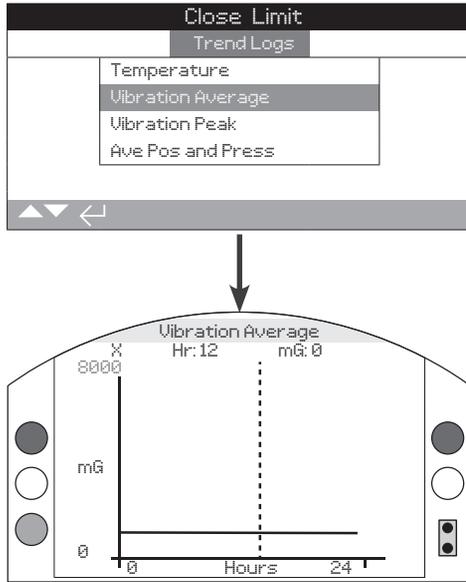
### Actuator Temperature

This graph displays a temperature reading over the last 24 hours / 30 days / 12 months / 10 years. The temperature is taken from an internal sensor on the circuit boards and can be affected by the heating effect of internal components. It may not reflect external ambient temperatures. It can be used to monitor changes in temperature which may have an effect on operational conditions.

Pressing the left or right arrows   on the *Bluetooth* setting tool moves the cursor along the graph by 1 hour/1 day/1 month/1 year increments.

Pressing the  key cycles through the timescales of 24 hours / 30 days / 12 months / 10 years.

## 4.5.2 Trend Logs – Vibration Average



### Vibration Average

This screen displays average vibration levels (in mG) over the last 24 hours/30 days/12 months/10 years. The sensor is located on the circuit board and can detect vibration (forces) in three axes. In the normal mounting position (handwheel pointing up) you could expect to see around 980 mG constantly acting in the Y axis. With other mounting orientations, the forces measured will be different. Vibration analysis graphs may help the user understand how plant induced vibration affects actuator/valve operation.

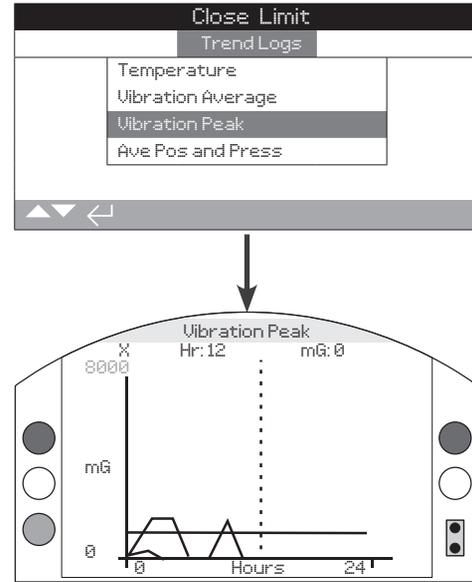
The average vibration graph is intended to measure the vibrational forces over time in order to assist in identifying problematic vibration and is not intended for accurate vibration analysis.

Pressing the up and down arrows **⬆️⬇️** will cycle through the X, Y and Z axis.

Pressing the left and right arrow keys **⬅️➡️** moves the cursor along the graph by 1 hour/1 day/1 month/1 year increments.

Pressing the **⏪** key cycles through the timescales of 24 hours/30 days/12 months/10 years.

## 4.5.3 Trend Logs – Vibration Peak



### Vibration Peak

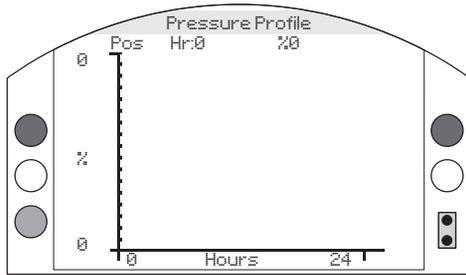
This screen displays peak vibration levels over the last 24 hours / 30 days/12 months/10 years. The level shown will be the highest recorded for that period.

The peak vibration graph is intended to measure the highest vibrational forces over time in order to assist in identifying problematic vibration and is not intended for accurate vibration analysis.

Pressing the up and down arrows **⬆️⬇️** cycles through the X, Y and Z axis.

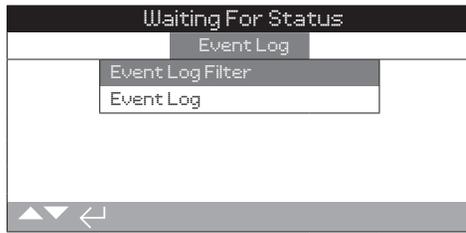
Pressing the left and right arrows **⬅️➡️** moves the cursor along the graph by 1 hour/1 day/1 month/1 year increments.

Pressing the **⏪** key cycles through the timescales of 24 hours/30 days/12 months/10 years.



This graph shows the average position that the actuator is in along with the average pressure that is within the actuators hydraulic system over a 24 hour period.

**Using the down arrow key  swaps between position and pressure graph average.**



### Event Log filter

This menu contains a list of all the possible parameters that can be shown in the control event log. In order to make the viewing easier, the user can select the parameters they are interested in viewing. Once selected, these parameters will be listed in the events log screen.

The checkbox indicates the parameter will be displayed.

To scroll and select the parameters use the up and down arrows. To toggle between show/hide parameter press enter along with the left and right arrow followed by enter to select.

Default = all options selected.

### Event Log

This menu selection gives a list view of all the events that have occurred on the actuator. This is capped at 3000 events. Once the 3000th event occurs the first event that was seen will be replaced by the latest. Use the events log filtered option to show / hide any specific events.



### Event Log Filtered

#### 1-5 User Interface

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

#### 6-10 Remote hardwired control

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

#### 11-15 Remote source 1

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

#### 16-20 Remote source 2

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

Continued over page



## 4.6.1 Events Log – Event Log Filtered *continued*

### 21-31 Status

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

### 32-46 Alarms

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

### 47-58 Switch Contacts

- 47/64 **S1 Cont made** – Shows/Hides contact S1 status
- 48/64 **S2 Cont made** – Shows/Hides contact S2 status
- 49/64 **S3 Cont made** – Shows/Hides contact S3 status
- 50/64 **S4 Cont made** – Shows/Hides contact S4 status
- 51/64 **S5 Cont made** – Shows/Hides contact S5 status
- 52/64 **S6 Cont made** – Shows/Hides contact S6 status
- 53/64 **S7 Cont made** – Shows/Hides contact S7 status

- 54/64 **S8 Cont made** – Shows/Hides contact S8 status
- 55/64 **S9 Cont made** – Shows/Hides contact S9 status
- 56/64 **S10 Cont made** – Shows/Hides contact S10 status
- 57/64 **S11 Cont made** – Shows/Hides contact S11 status
- 58/64 **S12 Cont made** – Shows/Hides contact S12 status

### 59-62 Stroke Tests

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

### 63-64 General

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

## 4.6.1 Events Logs – Event Log

Close Limit			
Time: 01:01:13	17/11/2027	Event:2999	
Pos: 0	Dem: 0	P: 0	Tmp: 22
Local Open	<input type="checkbox"/>	Local Close	<input type="checkbox"/>
Local Stop	<input type="checkbox"/>	Local	<input checked="" type="checkbox"/>
Remote	<input type="checkbox"/>	Hwired Open	<input type="checkbox"/>
Hwired Close	<input type="checkbox"/>	Hwired ESD	<input type="checkbox"/>
Hwired Maint	<input checked="" type="checkbox"/>	Hwired PStroke	<input type="checkbox"/>
Source1 Close	<input type="checkbox"/>	Source1 Open	<input type="checkbox"/>
Scroll ▲▼ Event ◀▶			0/26

### Event Log

This screen contains a list of all the possible parameters that can be shown in the control event log. In order to make the viewing easier, the user can select the parameters they are interested in viewing. Once selected, these parameters will be listed in the events log screen.

The checkbox indicates the parameter will be displayed.

To scroll and select the parameters use the up and down arrows. To toggle between show/hide parameter press enter along with the left and right arrow followed by enter to select.

As each event is viewed, the parameters selected will report its status along with the current position, demand, pressure and temperature.

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

The checkbox indicates the event has occurred.

To scroll through the control parameters use the up and down arrow keys   on the *Bluetooth* setting tool.

To scroll through the event log use the left and right arrows   on the *Bluetooth* setting tool.

## 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

This section of the data log shows the different alarms that can occur within the actuator. The alarms show what time, date, how many occasions of each in particular alarm have occurred and when it last occurred.

#### 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**

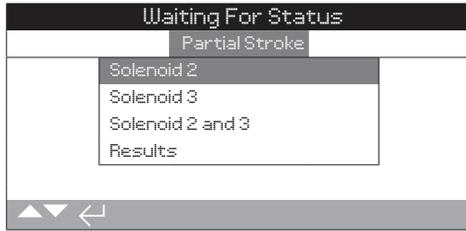
**Option 3 Missing**

**Option 1 Error**

**Option 2 Error**

**Option 3 Error**

## 4.8 Data Log – Partial Stroke



### Partial Stroke

#### Solenoid 2

This is fitted as standard in every SI actuator.

When this option is selected within the menus it will open a graph showing the actuator leaving its limit, to the selected partial stroke closing position, then back to the Open limit. This record the pressure within the system and the time taken to complete the partial stroke test.

#### Solenoid 3

If fitted, When this option is selected within the menus it will open a graph showing the actuator leaving its limit, to the selected partial stroke closing position, then back to the Open limit. This records the pressure within the system and the time taken to complete the partial stroke test.

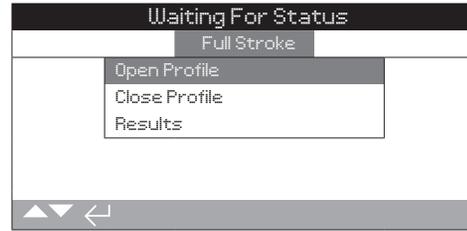
#### Solenoid 2 and 3

If both fitted. When this option is selected within the menus it will open a graph showing the actuator leaving its limit, to the selected partial stroke closing position, then back to the Open limit. This records the pressure within the system and the time taken to complete the partial stroke test. This option will only be applicable if solenoid redundancy is turned ON.

#### Results

The results show the date and time of the latest partial stroke at the top working down to the previous partial stroke action. This will also give a result of if the partial stroke test passed or failed.

## 4.9 Data Log – Full Stroke



### Full Stroke

#### Open Profile

When this is selected a graph will show with the results of the time taken for the latest full stroke test to be completed. It will also show what pressure was within the actuator's system through the full stroke test.

#### Close Profile

When this is selected a graph will show with the results showing the time taken for the latest full stroke test to be completed. It will also show what pressure was within the actuator's system through the full stroke test.

#### Results

When date and time test was undertake. No pass or fail results will be displayed.

## 4.10 Data Log – Bluetooth Log

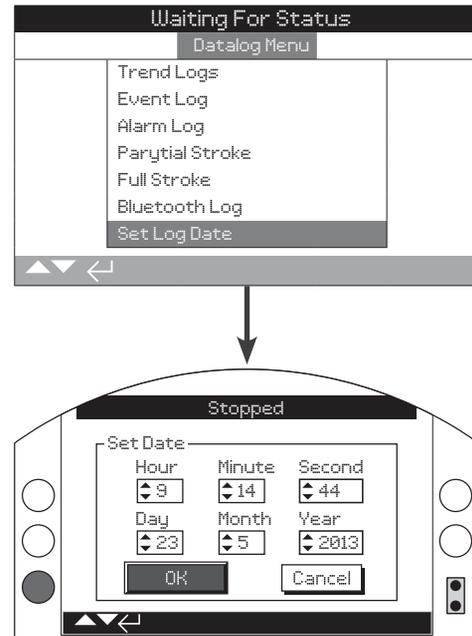
Open Limit		
Time		Name
17:19:04	07/11/2091	BST 1000E8D29131
16:47:25	07/11/2091	BST 1000E8D29131
21:39:01	06/11/2091	GBLEE-L-3MWLJ0
18:43:45	06/11/2091	NLRDT0-L-724FS30
18:36:30	06/11/2091	GBLEE-L-3MWLJ0
18:31:34	06/11/2091	GBLEE-L-3MWLJ0
18:26:01	06/11/2091	GBLEE-L-3MWLJ0

### ***Bluetooth Log***

This screen displays a log of all *Bluetooth* device connections. Each device that has successfully connected leaves a footprint of its device name, MAC address and access level, along with a time and date stamp.

To scroll through the *Bluetooth* log use the up and down arrow keys   along with the left and right arrow keys  .

## 4.11 Data Log – Set Log Date



### **Set Log Date**

This section allows the user to locally set the current date and time for the date log. This time and date is only used for local indication and does not affect the stored data when downloaded to a PC device when viewing within Rotork Insight 2 software.

To select the date and time fields use the left and right arrow keys  .

To change the selected date and time fields use the up and down arrow keys  .

To confirm the changes select OK and press the enter key .

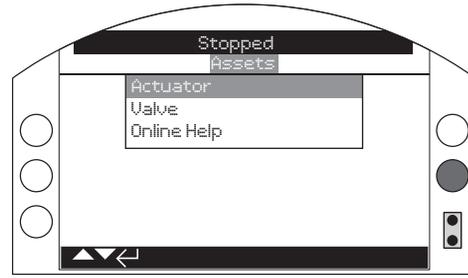
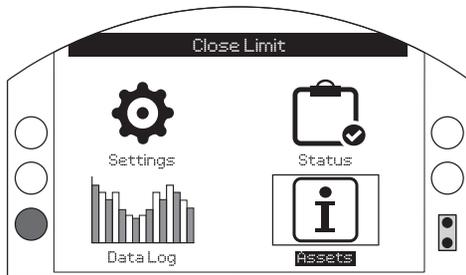


## 5. Assets

Assets 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 to this the installation and commissioning dates along with the service history of the actuator can be recorded. Asset management alarms can be set to indicate possible maintenance required.

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*.

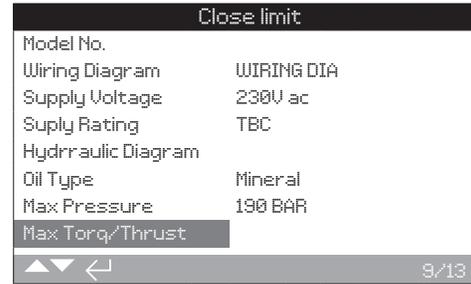
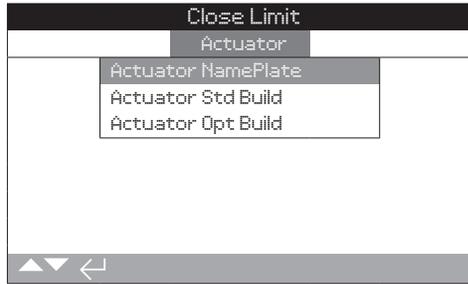
It is therefore important that data regarding the valve-actuator tag, valve details and process information are populated by the user or their agent. Rotork will populate the actuator build data automatically on manufacture. Other applicable data will be populated when contracted to commission or upon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



### Main Menu

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

5.0 Assets menu structure	Page
5.1 Actuator – data regarding the actuator and its build	61
5.1.1 Actuator Nameplate	61
5.1.2 Actuator Std Build	62
5.1.3 Actuator Opt Build	63
5.2 NAMUR 107	63
5.3 Valve – data regarding the valve and process	64
5.4 Online Help – QR code link	65



**Actuator Name Plate Information**

This screen displays the nameplate information of the actuator. Should the physical nameplate become damaged or lost, this information for the actuator will remain accessible. The information shown is read only with exception of the actuator tag which can be edited by the user after entering a password.

**To change with use of the *Bluetooth* setting tool, press the enter button to select the highlighted field. Use the up and down arrows to scroll through alphabetical and numerical figures to display the required character.**

**Use the right arrow to move to the next character and the left arrow to delete the previous character.**

**Press the enter button to save the information.**

**1/13 Serial Number**

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

**2/13 Model Number**

Displays the actuator’s model code description.

**3/13 Wiring Diagram Number**

Displays actuators wiring diagram number.

**4/13 Supply Voltage**

Displays actuators mains supply voltage.

**5/13 Supply Rating**

Displays actuators max VA rating.

**6/13 Hydraulic Diagram**

Displays the actuators 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 actuators hydraulic system.

Continued over page



## 5.1.1 Actuator – Actuator Nameplate *cont.*

Close limit	
Model No.	
Wiring Diagram	WIRING DIA
Supply Voltage	230V ac
Suply Rating	TBC
Hydraulic Diagram	
Oil Type	Mineral
Max Pressure	190 BAR
Max Torq/Thrust	

### 9/13 Max Torque / Thrust

Displays actuators max torque/thrust output.

### 10/13 Seat Torque / Thrust

Displays actuators maximum seating torque/thrust.

### 11/13 Build Date

Displays the actuators date of manufacture.

### 12/13 IP Rating

Displays ingress protection rating of the actuator.

### 13/13 Unit Weight

Displays the weight of the actuator

## 5.1.2 Actuator – Actuator Std Build

Close Limit	
Actuator	
Actuator NamePlate	
Actuator Std Build	
Actuator Opt Build	

Close Limit	
User Interface	
Software Version	v002 (5420)
BT Mac	00:07:80:51:8c:72
FCC ID:	00QWT12
IC:	5123A-BGTWT12A
Telec R	205 WW 2010067
Control Board	
Software Version	v002a( 2813)

### Actuator standard build information

This screen allows the user to view the standard build details of the actuator. All information shown is read only and is not editable.

#### 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 modules federal communications commission *Bluetooth* identification.

**4/7 IC** – Displays the user interface modules industry Canada *Bluetooth* identification.

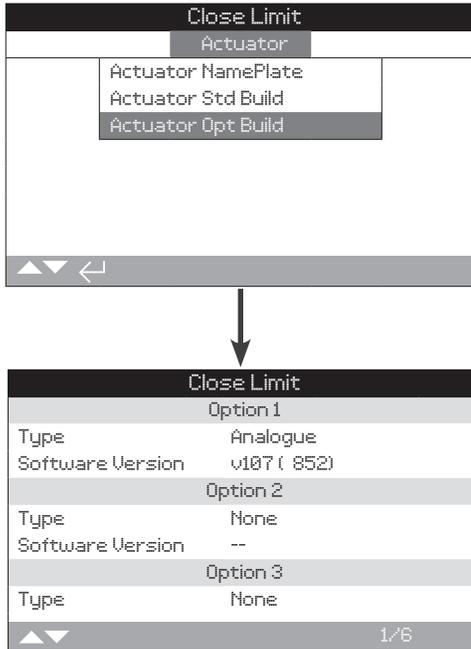
**5/7 Telec R** – Displays the user interface modules Telecom Engineering Centre *Bluetooth* identification.

#### Control Board

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

#### Power Module

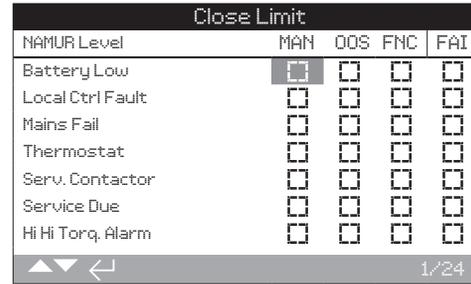
**7/7 Software version** – Displays the software version of the power module.



**Actuator Option Build Information**

This screen allows the user to view the details for any options fitted to the actuator. Up to three options can be fitted to the SI (this is dependent on the number of terminals available and inter-option compatibility).

- Option 1**  
**1/6 Type** – Displays the type of option fitted  
**2/6 Software version** – Displays the software version of the option fitted.
- Option 2**  
**3/6 Type** – Displays the type of option fitted.  
**4/6 Software Version** – Displays the software version of the option fitted.
- Option 3**  
**5/6 Type** – Displays the type of option fitted.  
**6/6 Software Version** – Displays the software version of the option fitted.



**NAMUR 107 Settings**

This screen allows the user to view alarms for NAMUR 107 recommendations and set these alarms once a valid password has been entered. NAMUR 107 diagnostics framework splits actuator condition statuses into four groups. This is based on the outcome severity of an active condition on the type of condition shown. The four settings available for NAMUR 107 diagnostics are:

NAMUR Allocation	Description	Alarm
MAN	Maintenance required	N107 Maintenance
OOS	Out of specification	N107 Out of Specification
FNC	Function check	N107 Function Check
FAI	Failure	N107 Failure

NAMUR 107 alarms are meant for indication only and will alert the user to potential operational issues with the actuator/valve.

Alarms can be set to activate when a condition has occurred. For remote monitoring, an output relay can be set to indicate an N107 alarm type is still active. The NAMUR 107 system enables multiple actuator conditions to be monitored through one relay output remotely. This will initiate further investigation into the root cause of the problem.

**Typical Uses**

For example, a process controller required detailed NAMUR 107 diagnostics to integrate a new process into an existing NAMUR 107 system. Particular actuator conditions will be monitored and assigned to user specified NAMUR 107 alarms for monitoring. Each NAMUR 107 alarm can be allocated to a relay output to provide remote diagnostics for various actuator conditions.

The service due and hi pressure alarm conditions are assigned to the NAMUR 107 maintenance category. Should one of these conditions become active, an output relay, correctly configured for the NAMUR 107 maintenance alarm, will indicate a maintenance issue. The operator will then be able to check the status of the actuator to determine which of the three allocated conditions are active and find the appropriate solution.

Other conditions can be configured to the remaining NAMUR 107 categorised and integrated into the system appropriately.

To edit information use and to highlight the required field.

To change, press to select/deselect the field.



## 5.2 Assets – NAMUR 107 *continued*

- 1/18 Local Control Fault** – Allows the user to set NAMUR 107 diagnostics for a fault occurring with the local controls.
- 2/18 Mains Fail** – Allows the user to set NAMUR 107 diagnostics for mains power failure.
- 3/18 Thermostat** – Allows the user to set NAMUR 107 diagnostics for a thermostat trip occurring.
- 4/18 Service Due** – Allows the user to set NAMUR 107 diagnostics for actuator service due.
- 5/18 Hi Pressure Alarm** – Allows the user to set NAMUR 107 diagnostics for the HI pressure alarm.
- 6/18 Motor Starts** – Allows the user to set NAMUR 107 diagnostics for motor starts.
- 7/18 Monitor Relay** – Allows the user to set NAMUR 107 diagnostics for monitor relay.
- 8/18 Control Fail** – Allows the user to set NAMUR 107 diagnostics for control failure.
- 9/18 Actuator Fail** – Allows the user to set NAMUR 107 diagnostics for actuator failure.
- 10/18 Comms Loss** – Allows the user to set NAMUR 107 diagnostics for communications loss.
- 11/18 Opt Not Detect** – Allows the user to set NAMUR 107 diagnostics for option card not detected.
- 12/18 PStroke Fail** – Allows the user to set NAMUR 107 diagnostics for partial stroke failure.
- 13/18 Valve Obstructed** – Allows the user to set NAMUR 107 diagnostics for valve obstructed.
- 14/18 Valve Jammed** – Allows the user to set NAMUR 107 diagnostics for valve jammed.
- 15/18 Net. Card Fault** – Allows the user to set NAMUR 107 diagnostics for network card fault.
- 16/18 Cust. Sup. Fail** – Allows the user to set NAMUR 107 diagnostics for customer supply failure.
- 17/18 Valve Travel time** – Allows the user to set NAMUR 107 diagnostics for valve travel time.
- 18/18 Wrong Dir. Det.** – Allows the user to set NAMUR 107 diagnostics for wrong direction detected.

## 5.3 Assets – Valve

Waiting For Status	
Valve	
Tag	Skilmatic-SI3
Serial No	Valve Ser
Manufacturer	Valve Manf
Type	Valve Type
Size/DN	Valve Size

### Valve Information

This screen allows the user to view and edit information about the attached valve, once a valid password has been entered. This may be useful for displaying the valve details if the valve tag plate is missing or for matching a specific valve to an actuator after valve/actuator repairs.

To change with use of the *Bluetooth* setting tool, press the enter button to select the highlighted field. Use the up and down arrows to scroll through alphabetical and numerical figures to display the required character.

Use the right arrow to move to the next character and the left arrow to delete the previous character.

Press the enter button to save the information.

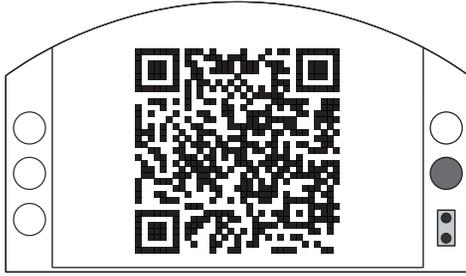
**1/5 Tag** – Displays the valve tag number.

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

**3/5 Type** – Displays the type of valve.

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

**5/5 Manufacturer** – Displays the valve manufacturer.



### 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.

# rotork®

Keeping the World Flowing



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

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