APPENDIX A

SETUP EXAMPLES

NOTE: SR44 soft starters have been discontinued. Please consider SR55 soft starters as a replacements.
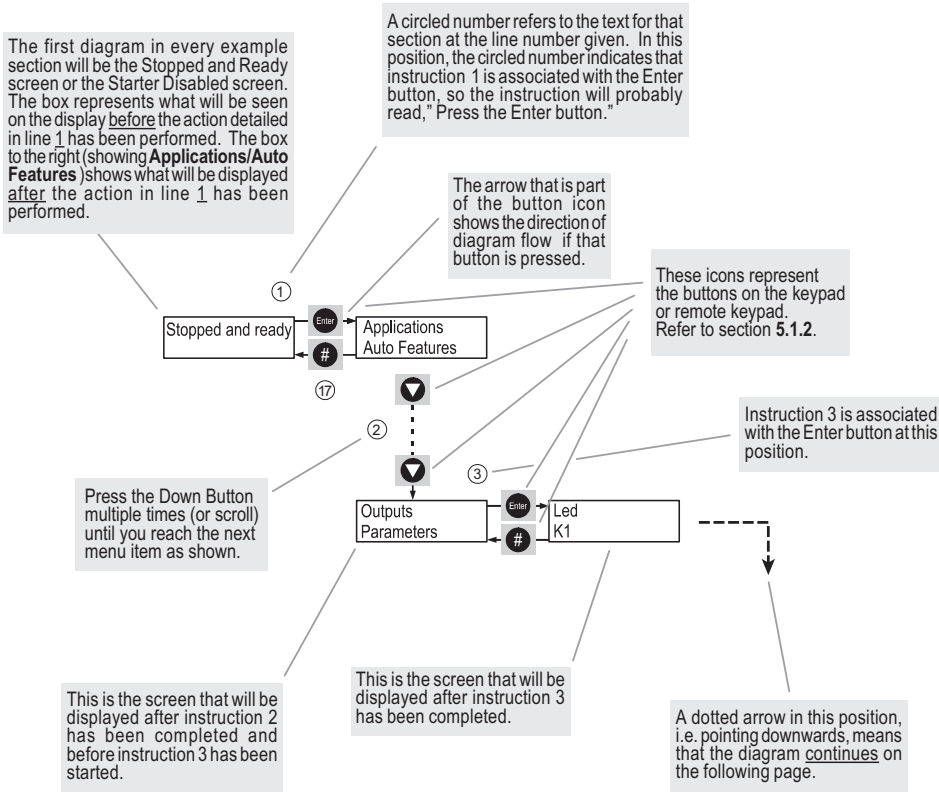
Contents of this Appendix...

A.1 – Setup Examples

This section holds common programming examples that any customer might wish to use. They explain how to set up the SR44 for common tasks. More advanced examples are given in section A.2.
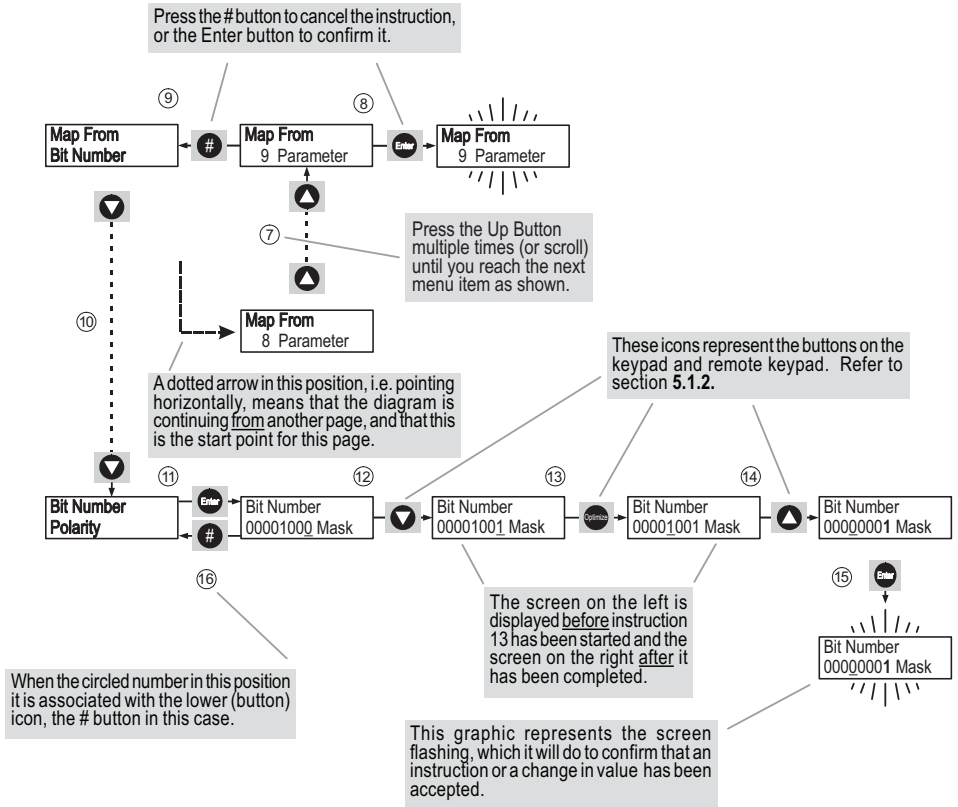
A.1.1 – How to Read the Setup Examples

Each example consists of numbered step-by-step instructions which take the user through every action needed to complete the particular programming example. In addition, there are diagrams which reference the text. The form these diagrams take are briefly explained below. (Note that the actual instructions in the diagrams in this section, A.1.1, are for display only and are not intended to make sense as instructions.)

If the unit needs to be 'Disabled' (see section A.1.2) before carrying out the instructions, the example will say so in its introduction.

A circled number refers to the text for that section at the line number given. In this position, the circled number indicates that instruction 1 is associated with the Enter button, so the instruction will probably read," Press the Enter button."

The first diagram in every example section will be the Stopped and Ready screen or the Starter Disabled screen. The box represents what will be seen on the display <u>before</u> the action detailed in line <u>1</u> has been performed. The box to the right (showing **Applications/Auto Features**)shows what will be displayed <u>after</u> the action in line <u>1</u> has been performed.

The arrow that is part of the button icon shows the direction of diagram flow if that button is pressed.

These icons represent the buttons on the keypad or remote keypad. Refer to section **5.1.2**.

Instruction 3 is associated with the Enter button at this position.

Press the Down Button multiple times (or scroll) until you reach the next menu item as shown.

This is the screen that will be displayed after instruction 2 has been completed and before instruction 3 has been started.

This is the screen that will be displayed after instruction 3 has been completed.

A dotted arrow in this position, i.e. pointing downwards, means that the diagram <u>continues</u> on the following page.

A.1.1 – How to Read the Setup Examples (continued)

Press the # button to cancel the instruction, or the Enter button to confirm it.

⑨ Map From Bit Number ← # Map From 9 Parameter ⑧ ← Enter Map From 9 Parameter

Press the Up Button multiple times (or scroll) until you reach the next menu item as shown.

⑦ Map From 8 Parameter

⑩

A dotted arrow in this position, i.e. pointing horizontally, means that the diagram is continuing from another page, and that this is the start point for this page.

These icons represent the buttons on the keypad and remote keypad. Refer to section **5.1.2.**

⑪ Bit Number Polarity ← Enter / # → Bit Number 00001000 Mask ⑫ → Bit Number 00001001 Mask ⑬ Optimize Bit Number 00001001 Mask ⑭ → Bit Number 00000001 Mask

⑯

The screen on the left is displayed before instruction 13 has been started and the screen on the right after it has been completed.

⑮ Enter Bit Number 00000001 Mask

When the circled number in this position it is associated with the lower (button) icon, the # button in this case.

This graphic represents the screen flashing, which it will do to confirm that an instruction or a change in value has been accepted.

A.1.2 – Enabling and Disabling the SR44

The effect of this parameter is that the user cannot start the SR44 (running the motor) without enabling the unit first.

Whenever the control supply to the SR44 is turned on, the unit powers up in an enabled state, and the display will indicate whether or not the unit is enabled.

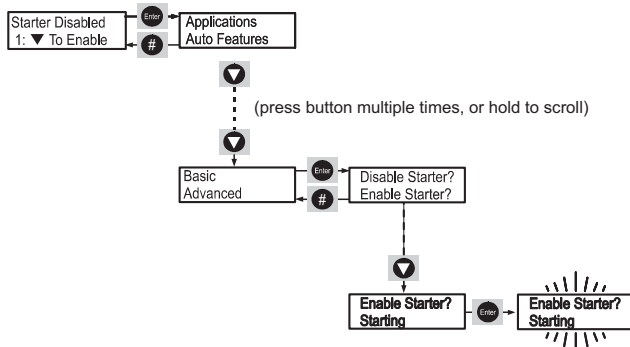If the SR44 is enabled, the display will look like this:

```
Stopped and Ready
1:
```

If the SR44 is disabled, the display will look like this:

```
Starter Disabled
1: ▼ To Enable
```

If the unit has been disabled, there are two ways to enable the unit:

1) By pressing the down button when presented with the 'Start Disabled' screen shown above.
2) By following the instructions below.

With 'Starter Disabled' on the screen, press the ENTER button once. Press the down button until 'Basic' appears on the top line of the display. Press the ENTER button once, and with 'Disable Starter?' showing press the down button once until 'Enable Starter?' is on the top line of the display. Press the ENTER button once and the display will flash once confirming the change.

There is only one menu-driven way to disable the unit, and that follows the same procedure as above, except choosing 'Disable Starter?' at the point where 'Enable Starter?' was previously chosen.

There is another situation in which the user may need to disable the starter. That is when trying to write to a parameter to which write access is denied when the unit is enabled. Given such a situation (for instance, trying to load default parameters), the unit will ask the user whether he/she wishes to disable the starter. The user must then press the pound (#) button to answer no, or the ENTER button to answer yes.

If the SR44 is disabled while running a load, it will stop running the load as soon as it is disabled.

To sum up, when the unit is disabled, all writable parameters can be written to. When the unit is enabled, most (but not all) writable parameters can be written to. Examples of parameters that cannot be written to while the unit is enabled are the Password and the currently loaded application. Also, default parameter values cannot be loaded while the unit is enabled.

Note for A.1 Setup Examples

In the following examples, the default parameters are assumed to have been loaded before the start of the example, unless otherwise stated. This is to provide a common reference point for the instructions.

A.1.3 – Loading the 'Large Pump' Application into Memory.

There are a number of pre-programmed applications included in the SR44 for speed and ease of setup. The parameters loaded by each selection characterize the standard setup of each particular application.

This example assumes that the unit has been disabled (see section A.1.2).

1. With 'Starter Disabled' shown on the display, press the ENTER button.
2. With 'Applications' shown on the top line of the display, press the ENTER button.
3. With 'Settings' shown at the top of the display press ▼ button until 'large pump' is shown at top of display.
4. Press ENTER to select 'large pump'. The display will indicate which parameters are to be changed.
5. With the top line of the display showing 'Send to store?', press ENTER to save the settings for a 'large pump'. (If the # button is pressed instead at this point the unit will flash the message 'Cancelled' three times). The display will flash the message 'Storing' twice to indicate this has been done.
6. At any of the above stages, pressing # will return the user to the previous menu. The unit will not start until the display indicates 'Stopped and ready'.

There is no need to save the changed parameter values, as they are automatically saved at instruction 5.
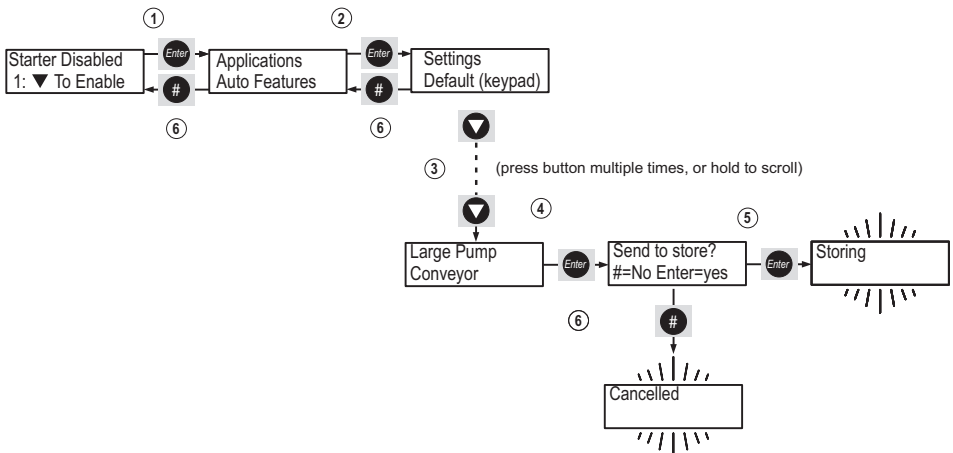
A.1.4 – Changing from 'Keypad Starting' to 'Remote Starting'

With 'Keypad Starting' set, the unit is started from the keypad or remote keypad. While 'Remote Starting' is set, the unit is started with a start signal between S0 and S1. 'Keypad Starting' is the factory default value.

1. With 'Stopped and ready' shown on the display, press the ENTER.

2. With 'Applications' shown on the top line of the display, press ▼ button until 'Basic' is shown at top of display.

3. Press ENTER to select 'Basic' menu.

4. With 'Starting' shown at top of display, press ENTER to select the 'Starting' option.

5. With the display now showing 'Starting' on the top line, press ENTER to toggle the bottom line of display from 'Keypad Starting' to 'Remote Starting'.

6. At any of the above stages, pressing # will return the user to the previous menu.

7. The SR44 will now start and stop remotely from the customer's switches (see section 2.3.1 of Electrical Installation), but will return to 'Keypad Starting' if the control supply on terminals X1 and X2 is removed and a 'Save Param' has not been performed. Alternatively, to return to 'Keypad Starting', repeat the above procedure and select 'Keypad Starting' at step 5. To keep the 'Remote starting' setting after removal of the control supply, the settings must be permanently saved (See section A.1.5).
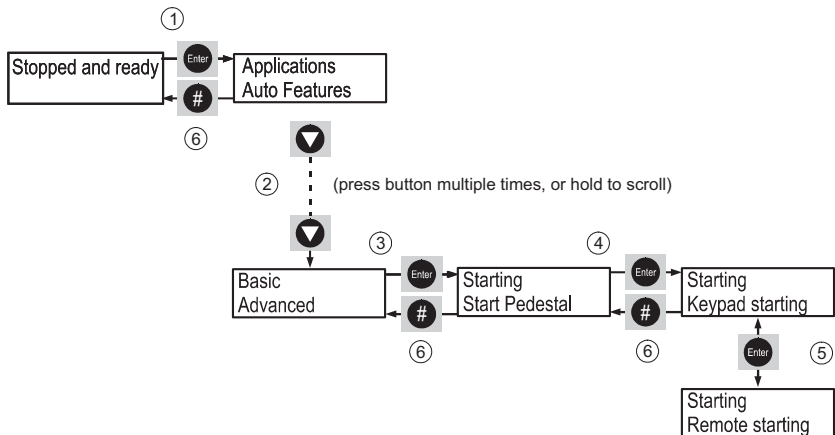
A.1.5 – Permanently Saving Parameters Set by the User

Follow this procedure to save parameters set by the customer.

This example assumes that the unit has been disabled (see section A.1.2).

1. With 'Starter Disabled' shown on the display, press ENTER button.
2. With 'Applications' shown on the top line of the display, press ▼ button until 'Permanent Store' is shown at top of display.
3. Press ENTER to select 'Permanent Store' menu.
4. With 'Save Param' shown at top of display, press ENTER to permanently save parameters. The display will flash twice to indicate this has been done.
5. At any of the above stages, pressing # will return the user to the previous menu.
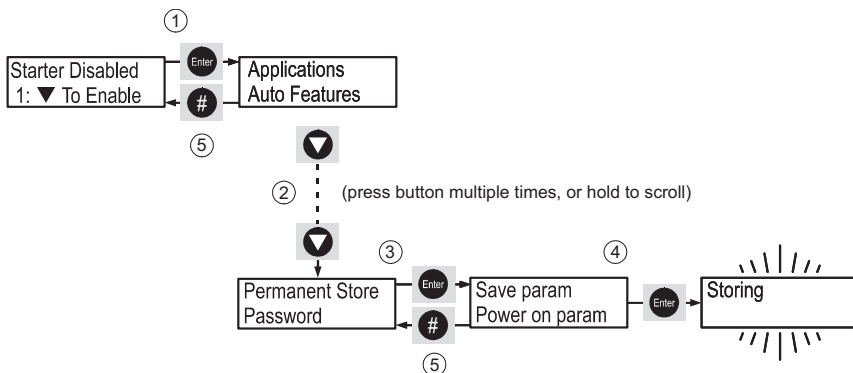
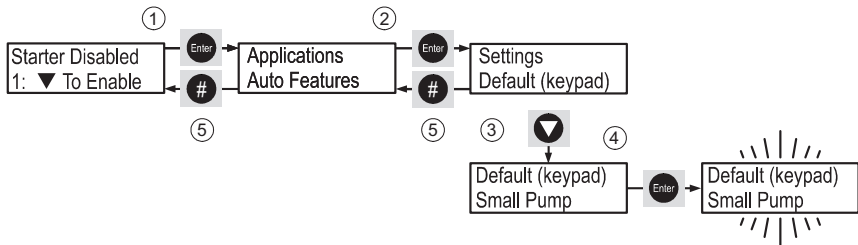## A.1.6 – Loading the Default Parameter Values with 'Keypad Starting' Option

This example assumes that the unit has been disabled (see section A.1.2).

1. With 'Starter Disabled' shown on the display, press the ENTER button.
2. With 'Applications' shown on the top line of the display, press the ENTER button again.
3. With 'Settings' on the top line of the display, press the ▼ button until 'Default (keypad)' is shown on the top line of the display.
4. Press the ENTER button, and the display will flash three times to indicate that the default parameters (with keypad starting) have been loaded.
5. Press the # button twice to return to 'Stopped and ready'.

There is no need to save the parameters, as they have automatically been saved when the system was reset to default values.

① ②

Starter Disabled	Applications	Settings
1: ▼ To Enable	Auto Features	Default (keypad)

Enter #   Enter #

⑤   ⑤   ③ ▼   ④

Default (keypad)	Default (keypad)
Small Pump	Small Pump

Enter

### A.1.7 – Loading the Default Parameter Values with 'Remote Starting' Option

This example assumes that the unit has been disabled (see section A.1.2).

1. With 'Starter Disabled' shown on the display, press the ENTER button.
2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Permanent Store' is on the top line of the display.
3. Press the ENTER button.
4. Press the ▼ button until 'Default Param' is shown on the top line of the display.
5. Press the ENTER button, and the display will flash indicating that default parameters have been loaded. The display will then show the selected starting option ('Remote'), and the selected protection option ('Full + Optimise') before returning 'Default Param' to the top line of the display.
6. Press the # button twice to return to 'Starter Disabled'.

There is no need to save the parameters, as they have automatically been saved when the system was reset to default values.
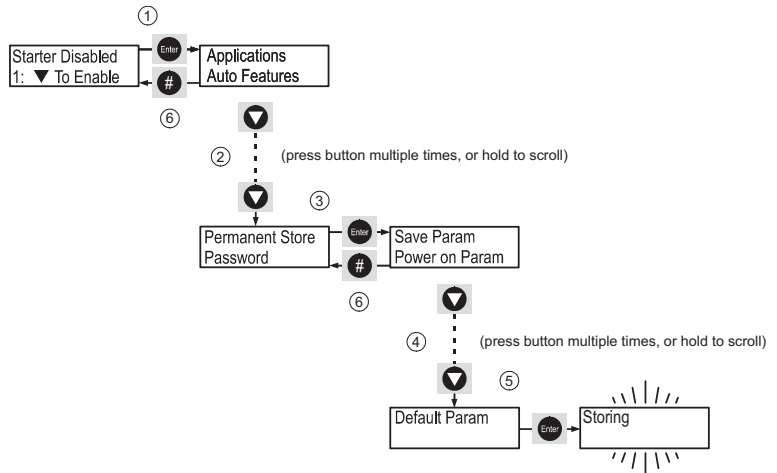
A.1.8 – Viewing Basic Operating Parameter Values via the Settings Menu Option

1. With 'Stopped and Ready' shown on the display, press the ENTER button.

2. With 'Applications' shown on the top line of the display, press the ENTER button again.

3. With 'Settings' on the top line of the display, press the ENTER button and a downwards pointing arrow will appear on the right hand-side of the top line. While this icon is displayed, the bottom line of the display will show a brief list of some of the basic parameters and their current values, including: the firmware version numbers; the starting option ('Remote' or 'Keypad'); the current protection mode; the selected application (if none, the lower line of the display will remain blank for a moment); and whether any derating has been applied to the unit (if none, the lower line of the display will remain blank for a moment). When the arrow icon has disappeared, the report showing the basic parameters has finished and the user is the back in Menu Navigation mode, (see section 5.4.2).

4. This menu item is read-only.

5. Press the # button twice to return to 'Stopped and ready'.

Since this menu item is read-only, it cannot be saved.
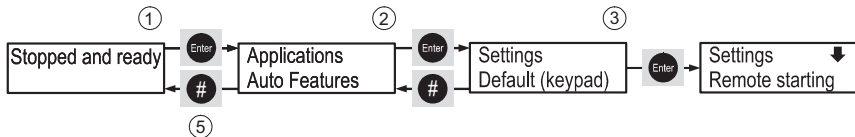
A.1.9 – Changing a Password

This example assumes that the unit has been disabled (see section A.1.2) and, if necessary, has already been unlocked (see section A.1.10).

1. With 'Starter Disabled' displayed, press the ENTER button.
2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Password' takes its place on the top line.
3. Press the ENTER button to select the 'Password' menu.
4. Press the ▼ button, and 'Change Password' will be displayed on the top line.
5. Press ENTER to select 'Change Password'. A cursor will be visible on the bottom line of the display.
6. Use the ▲ or ▼ button to enter a new password number.
7. Press the ENTER button once.
8. The display will flash 'New Password!' twice to confirm that the change has been made.
9. Press the # button three times to return to 'Starter Disabled'.

Notes:
1) The unit must be unlocked (section A.1.10) in order to change the password.
2) Setting the password to zero (0) deletes any set password, and leaves the unit unlocked AFTER the control supply has been cycled or the keypad / remote keypad has been reset.
3) It is not necessary to save the password since it is stored automatically every time that its value is changed.
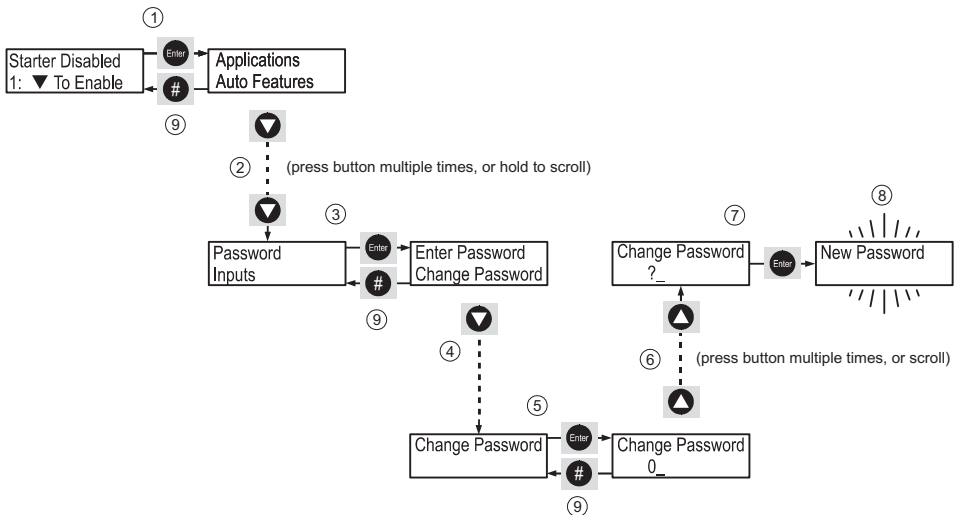
A.1.10a – Unlocking and Locking the Keypad

1. With 'Stopped and ready' displayed, press the ENTER button once.
2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Password' takes its place on the top line.
3. Press ENTER once to select the 'Password' menu.
4. Press ENTER with 'Enter Password' shown on the top line of the display. The unit will display its security status, 'Locked' on the bottom line of the display. A cursor will also be visible on the bottom line of the display.
5. Use the ▲ or ▼ button to enter the password.
6. Press the ENTER button once.
7. If the correct password has been entered, the unit will display its security status, 'Unlocked' on the bottom line of the display. To lock the unit again, simply use the ▲ or ▼ buttons to enter any value, apart from zero (0), and the password. Press the ENTER button once and the display will now say that it is 'Locked'.
8. Press the # button three times to return to 'Stopped and ready'.

If the control supply on an un-locked unit (i.e., the password has been set previously and then entered to unlock the unit) is cycled, upon reboot the unit will be in a locked state.
Conversely, if the password has never been "Changed" from zero, cycling power will unlock the SR44.
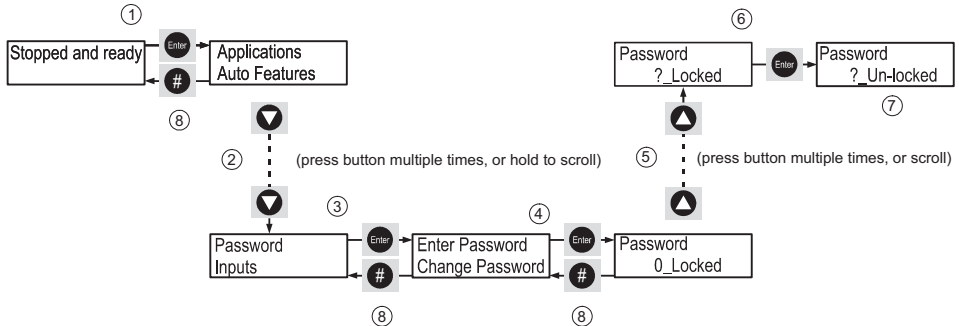
A.1.10b – Clearing the Password

1. Press the ▲ and ▼ buttons simultaneously to reset the password.
2. Once the display has flashed, press and hold the ▼ button until '# to reset' is displayed. **Do NOT press '# to reset'.**
3. Press the ▲ button once.
4. Press the ▼ button once.
5. Press ENTER.
6. Display shows 'BingoØ?'.
7. Press ENTER.
8. Display will show 'Comms Failure'.
9. Cycle power to the SR44, and all parameters will be reset to factory defaults.

A.1.11 – Using the Pre-programmed Relay Options

This example shows the user how to program any relay on the unit via the pre-programmed options. The option shown in the example below is the 'Alarm', but the instructions apply to all of the pre-programmed relay options (see section 5.4.10), and for all of the relays since they are all programmable.

1. With 'Stopped and ready' shown on the display, press the ENTER button.
2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Outputs' is shown at the top of the display.
3. Press ENTER to select the 'Outputs' menu.
4. With 'K1' on the top line of the display, press the ▼ button until 'K2' is shown at the top of the display.
5. Press ENTER to select 'K2'.
6. With 'Map From' on the top line of the display, press the ▼ button until 'K=Alarm' is shown on the top line of the display.
7. Press ENTER to select 'K=Alarm'. The display will flash twice to confirm the user's selection.
8. Press the # button three (3) times to return to 'Stopped and ready'.

To keep the above settings, they must be permanently saved. See section A.1.5
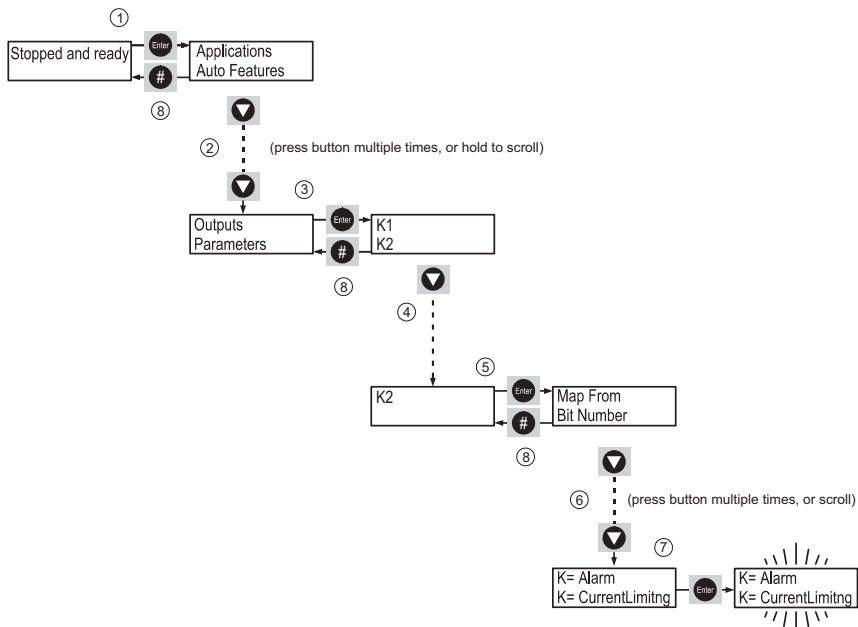
A.1.12 – Setting the Low Amps Level and Using the K2 Relay to Display the Status of Low Current Bit

This example shows the user how to set the Low Amps Level, and how to monitor the status of the Low Current bit via the K2 relay (see section 5.4.5).

1. With 'Stopped and ready' shown on the display, press the ENTER button.

2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Advanced' is shown on the top line.

3. Press the ENTER button to select the 'Advanced' menu.

4. With 'Current' on the top line of the display, press ENTER to select the 'Current' menu.

5. With 'Rated Current' on the top line of the display, press the ▼ button until 'Low Amps Level' is shown on the top line.

6. With 'Low Amps Level' on the top line of the display, press ENTER.
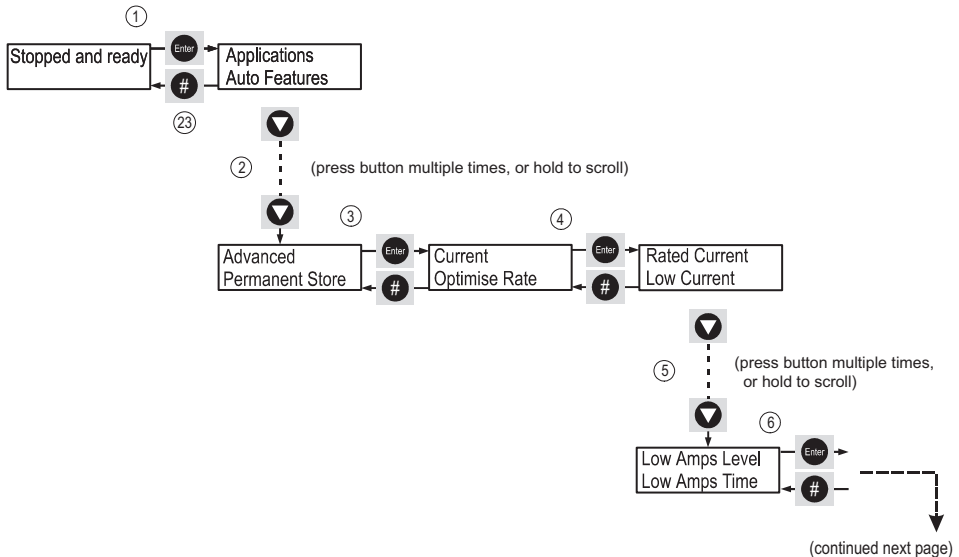
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A.1.12 – Setting the Low Amps Level and
Using the K2 Relay to Display the Status of Low Current Bit (continued)

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7. With 'Low Amps Level' showing on the top line, press the ▲ or ▼ buttons until the required level is set.

8. Press ENTER to confirm the change. The display will flash to confirm that the change has been made.

9. Press the # button twice to return to the 'Advanced' menu.

10. With 'Advanced' on the top line of the display, press the ▼ button until 'Outputs' is displayed on the top line.

11. Press the ENTER button to select 'Outputs'.

12. Press the ▼ button until 'K2' is shown on the top line of the display.

13. Press the ENTER button to select 'K2'.

14. With 'Map From' on the top line of the display, press ENTER.

15. With '8 Parameter' showing, press the ▲ button until '112 Parameter' is displayed.

16. Press the ENTER button to confirm the change, and the display will flash once.

17. Press the # button once to return to 'Map From'.
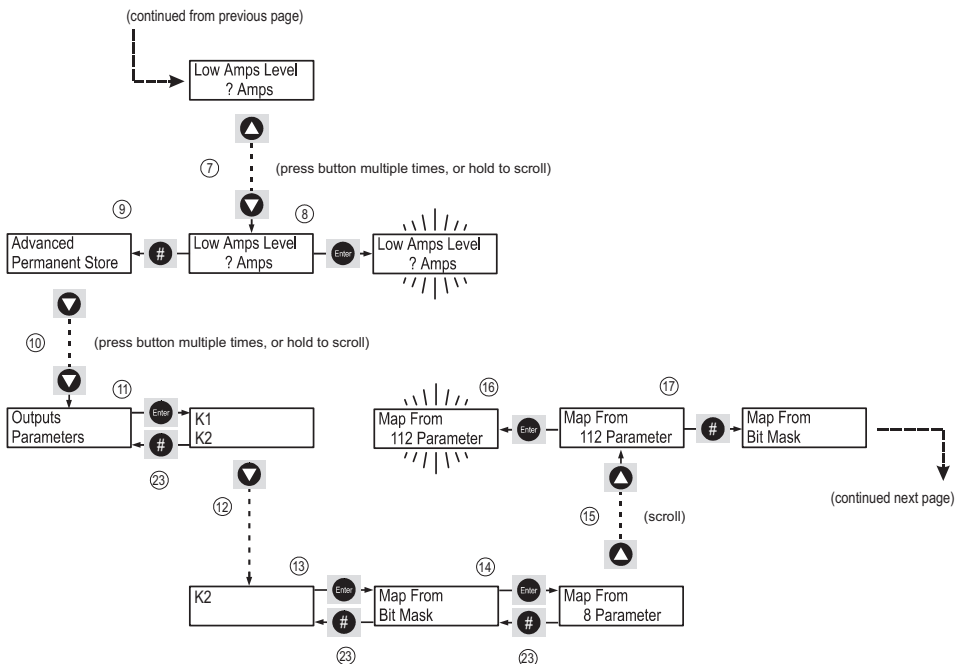
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A.1.12 – Setting the Low Amps Level and
Using the K2 Relay to Display the Status of Low Current Bit (continued)
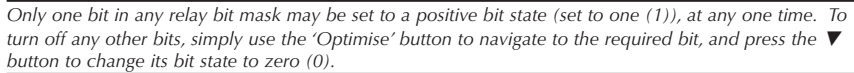
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18. With 'Map From' on the top line of the display, press the ▼ button.

19. Press the ENTER button to select 'Bit Number'.

20. Press the 'Optimise' button to move the cursor to bit 3.

21. Press the ▲ button to change the bit state to one (1). (This may not be necessary; bit 3 may already be a one).

Only one bit in any relay bit mask may be set to a positive bit state (set to one (1)), at any one time. To turn off any other bits, simply use the 'Optimise' button to navigate to the required bit, and press the ▼ button to change its bit state to zero (0).

22. Press the Enter button to confirm any changes, the display will flash.

23. Press the # button four times to return to Stopped and ready.

To keep the above settings, they must be permanently saved. See section A.1.5
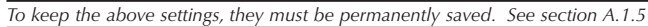
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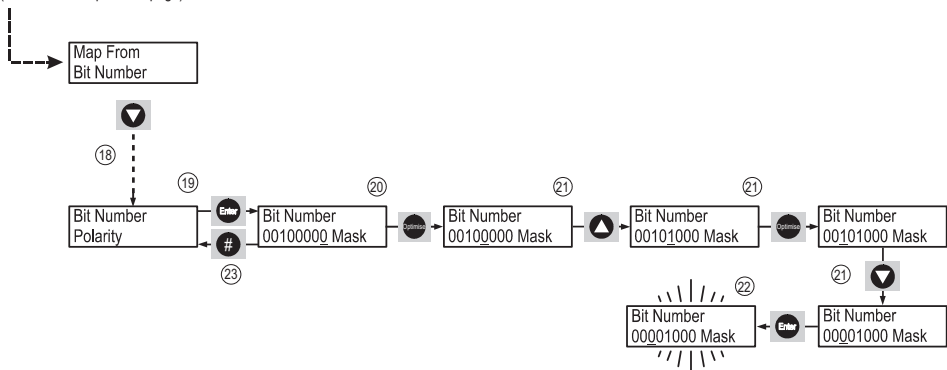
A.1.13 – Using the K2 Relay to Mimic Programmable Input 1

This example shows the user how to energize a relay via the start signal.

1. With 'Stopped and Ready' shown on the display, press the ENTER button.

2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Outputs' is shown at the top of the display.

3. Press ENTER to select the 'Outputs' menu.

4. With 'K1' on the top line of the display, press the ▼ button until 'K2' is shown at the top of the display.

5. Press the ENTER button to select 'K2'.

6. With 'Map From' on the top line of the display, press ENTER.

(continued next page)

① Stopped and ready → [Enter] → Applications / Auto Features ← [#]

⑰ ▼

② (press button multiple times, or hold to scroll)

▼ ③

Outputs / Parameters → [Enter] → K1 / K2 ← [#]

⑰ ▼

④

⑤ ⑥

K2 → [Enter] → Map From / Bit Number → [Enter] →

⑰ [#] [#]

(continued next page)

A.1.13 – Using the K2 Relay to Mimic Programmable Input 1 (continued)

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7. With '8 Parameter' showing, press the ▲ button until '10 Parameter' is displayed.

8. Press ENTER to apply the change.

9. Press # once to return to 'Map From'.

10. With 'Map From' on the top line of the display, press ▼ button until 'Bit Number' is displayed.

11. Press ENTER to select 'Bit Number'.

12. Press the 'Optimise' button three times so the cursor is displayed on bit 3.

13. Press the ▼ button to change the bit state to zero (0).

14. Press the 'Optimise' button once so the cursor is displayed on bit 4.

15. Press the ▲ button once to change the bit state to one (1).

16. Press ENTER once to accept the change.

17. Press # four times to return to 'Stopped and Ready'.

To keep the above settings, they must be permanently saved. See section A.1.5

A.2 – Advanced Setup Examples

A.2.1 – Using an Alternative Parameter Group

For applications that require the control of two motors, or where the user requires different control characteristics for a single motor at different stages of the duty cycle, the SR44 Soft Starter offers two parameter groups. The Primary parameter group holds the parameters considered necessary for motor starting and stopping, and it is this group to which the starter defaults. The Secondary parameter group is a mirror of the parameters in the first parameter group, but NOT necessarily a mirror of the values in the first parameter group. The parameters in each group are shown in Table A.2.1.

Table A.2.1 – Primary and Secondary Parameter Groups		
Parameter	**Primary Group**	**Secondary Group**
Protection Mode	P7	P78
Start Pedestal	P11	P79
Start Time	P12	P80
Kick Pedestal	P13	P81
Kick Time	P14	P82
Dwell Time	P15	P83
Stop Pedestal	P16	P84
Stop Time	P17	P85
Auto Config	P18	P86
Low Current Level	P28	P87
Low Current Time	P29	P88
Current Limit Level	P30	P89
Current Limit Time	P31	P90
Shearpin Level	P32	P91
Shearpin Time	P33	P92
Overload Level	P34	P93
Overload Delay	P35	P94
User Flags 1	P51	P95
User Flags 2	P52	P96

The Primary group parameters can also be changed via the menu structure. However, the Secondary group parameters can only be changed via the dedicated parameter numbers. As a default, the Soft Starter uses the Primary group of parameters. The user can select either group from the keypad or by using one of the programmable control inputs.

A.2.2 – Changing the Parameter Group After the Unit Has Passed Top of Ramp

In this example the user is shown how to change parameter groups while running. This could be useful, for example, if two overload values were required; one for starting and the other for running.

1. With 'Stopped and ready' shown on the display, press the ENTER button once.
2. With 'Applications' shown on the top line of the display, press the ▼ button until 'Parameters' is shown at the top of the display.
3. Press ENTER once to select the 'Parameters' menu.
4. With 'P1 - P20' shown on the display, press the ▼ button until 'P81 - P100' is shown at the top of the display.
5. Press ENTER to select 'P81 - P100'.
6. With 'P81 Kick Ped 2' at the top of the display, press the ▼ button until 'P97 U1 I/P srce' is shown on the top line of the display.
7. Press ENTER to select 'P97 U1 I/P srce'.

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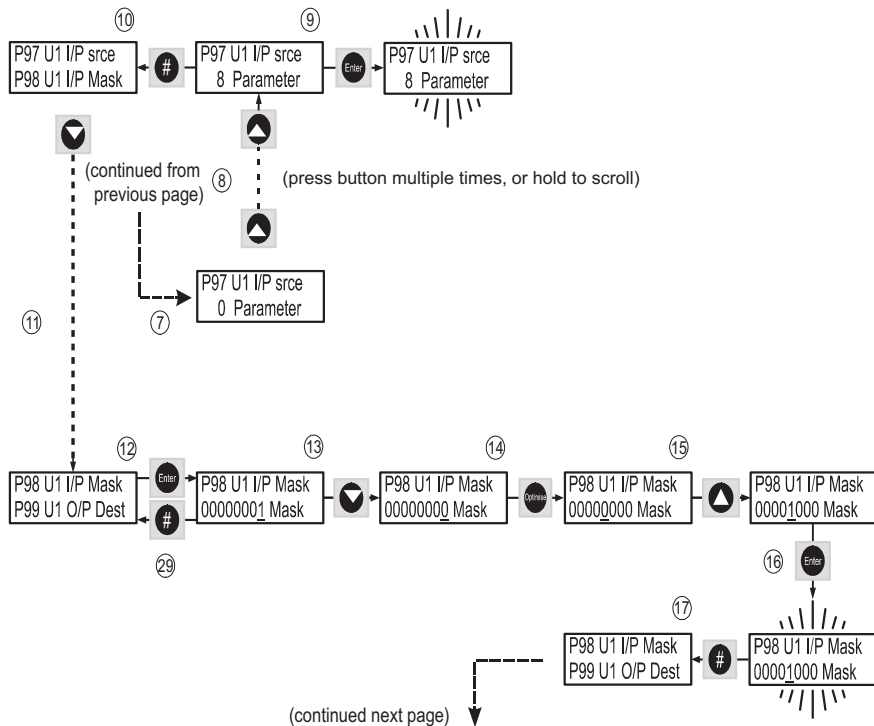

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A.2.2 – Changing the Parameter Group After the Unit Has Passed Top of Ramp (continued)

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8. With '0 Parameter' shown on the display, press the ▲ button until '8 Parameter' is displayed.

9. Press ENTER once to accept the change.

10. Press # once to return to 'P97 U1 I/P srce'.

11. Press the ▼ button once until 'P98 U1 I/P Mask' is shown at the top of the display.

12. Press ENTER to select 'P98 U1 I/P Mask'.

13. Press the ▼ button once to change the bit state of bit 0 to zero (0).

14. Press the OPTIMISE button three times so that the cursor is displayed on bit 3.

15. Press the ▲ button once to change the bit state of bit 3 to one (1).

16. Press ENTER once to confirm the changes.

17. Press # once to return to 'P98 U1 I/P Mask'.

(continued next page)

A.2.2 – Changing the Parameter Group After the Unit Has Passed Top of Ramp (continued)

(continued from previous page)

17. Press the ▼ button once so that 'P99 U1 O/P Dest' is shown at the top of the display.

18. Press ENTER to select 'P99 U1 O/P Dest'.

19. With '0 Parameter' shown on the display, press the ▲ button until '52 Parameter is displayed'.

20. Press ENTER once to accept the change.

21. Press # once to return to 'P99 U1 O/P Dest'.

22. Press ▼ once until 'P100 U1 O/P Mask' is shown at the top of the display.

23. Press ENTER to select 'P100 U1 O/P Mask'.

24. Press the OPTIMISE button six times so that the cursor is displayed on bit 6.

25. Press the ▲ button once to change the bit state of bit 6 to one (1).

26. Press ENTER once to accept the change.

27. Press # four times to return to 'Stopped and Ready'.

To keep the above settings, they must be permanently saved. See section A.1.5

(continued from previous page)
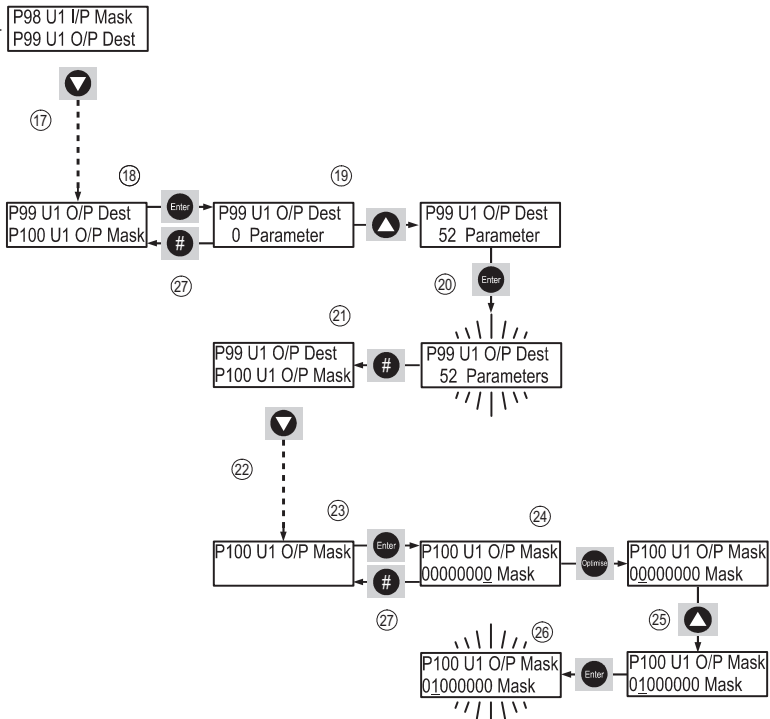
A.2.3 – (Reserved for Future Use)

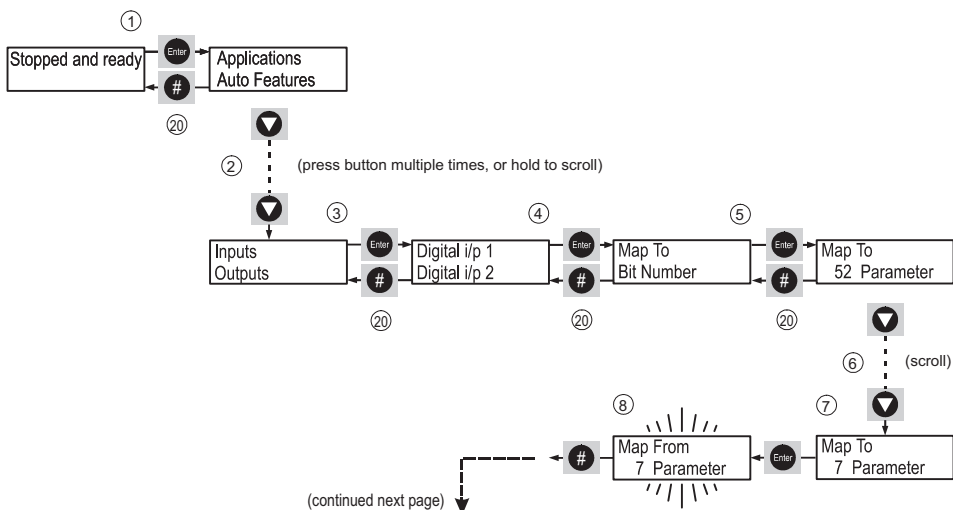### A.2.4 – Selecting Optimizing with Programmable Input 1

This example programs the S1 input to turn the Optimizing function Off and On. When the specified voltage is applied to and removed from the S1 input, the energy optimizing function is turned Off and On (note the inverse action).

If input S1 is assigned to toggle the Optimizing function, it toggles with inverse action.
Voltage applied to S1 = Optimizing Off; No voltage at S1 = Optimizing On.

1. With 'Stopped and Ready' shown on the display, press ENTER button once.
2. With 'Applications' shown on the top line of the display, press ▼ button until 'Inputs' is shown at the top of the display.
3. Press ENTER once to select the 'Inputs' menu.
4. With 'Digital i/p 1' on the top line of the display, press ENTER once.
5. With 'Map To' on the top line of the display, press ENTER once.
6. With '52 Parameter' showing, press the ▼ button until '7 Parameter' is displayed.
7. Press ENTER once to accept the change.
8. Press # once to return to 'Map To'.

(continued next page)

A.2.4 – Selecting Optimizing with Programmable Input 1 (continued)

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9. With 'Map To' on the top line of the display, press the ▼ button once until 'Bit Number' is displayed.

10. Press ENTER once to select 'Bit Number'.

11. Press the OPTIMISE button four times so that the cursor moves to bit 4.

12. Press the ▼ button once to change the bit state of bit 4 to zero (0).

13. Press the OPTIMISE button three times so the cursor moves to bit 7.

14. Press the ▲ button once to change the bit state of bit 7 to one (1).

15. Press ENTER once to accept the change. The display will flash once to confirm that the change has been accepted.

16. Press # once to return to 'Bit Number'.

17. With 'Bit Number' on the top line of the display, press the ▼ button until 'Polarity' is displayed on the top line.

18. Press ENTER once to select 'Polarity'.

19. With 'Positive Logic' displayed, press ENTER once to change to 'Inverse Logic'. The display will flash once to confirm that the change has been accepted.

20. Press # four times to return to 'Stopped and ready'.

To keep the above settings, they must be permanently saved. See section A.1.5

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