Technical Manual

CBS ArcSafe®

RRS-4

With SMART RACK ™ Technology

Distance Is Safety®

CBS ArcSafe®

A Group CBS Company

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RRS-1 – ***Remote Racking System for rotary type mechanisms***

The RRS-1 is a universal remote racking system capable of removing and inserting low and medium voltage draw out rotary circuit breakers while the operator remains outside the arc flash boundary. This device is portable and user friendly and requires no modifications to the existing switchgear or circuit breakers. Each system can be custom designed to fit your particular needs.

RRS-2 – ***Remote Racking System for extraction type mechanisms***

The RRS-2 is a universal remote racking system capable of removing and inserting low and medium voltage non-rotary circuit breakers while the operator remains outside the arc flash boundary. This device is portable and user friendly and requires no modifications to the existing switchgear or circuit breakers. Each system can be custom designed to fit your particular needs.

RRS-3 – ***Single Application Remote Racking System***

The RRS-3 system is a single application remote racking system which allows the operator to install and remove a breaker while standing up to 150 ft away using the included wireless radio remote control. This system is a more portable and lightweight alternative to the RRS-1/2 for users with switchgear in extremely hard to access areas.

RSO – ***Remote Switch Operator***

A remote switch operator is the power and control console for service personnel to remotely charge, close, and/or trip circuit breakers from a safe distance using a CBS ArcSafe® RSA. The RSO can be used as a stand-alone device for use with a remote switching system, or in conjunction with the CBS ArcSafe® remote racking system for complete charge, close, trip, and racking operations. Each CBS ArcSafe® remote switch operator can also be operated with an optional radio remote wireless pendant station.

RSA – ***Remote Switch Actuator***

A remote switch actuator allows service personnel to charge, close, and/or trip circuit breakers from a safe distance using a CBS ArcSafe® RSO. The remote switch actuator attaches to the circuit breaker and may mechanically assisted by magnets without the need for any modification to your switchgear. After setup and installation the RSO controls the RSA.

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About the User's Guide

This user's guide describes the functions and features of the CBS ArcSafe® RRS-4. This technical document is intended to act as a simplified reference for users of the equipment - allowing for safe, quick, and efficient use of the RRS-4 features.

Before You Begin:

DANGER!

This is a red hazard alert warning box; red hazard alert boxes contain information pointing out potential hazards to personnel and equipment.

ATTENTION

This is a green information box; green information boxes are used to place emphasis on valuable information the user will want to pay particular attention to.

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DANGER!

Ensure that personnel using this equipment are adequately trained in the operation of the switchgear they are planning to work with; that they are correctly stationed outside the arc flash boundary; and that they comply with all applicable Federal, State, Local, and In-house safety regulations and procedures. Attention should be given to distance, angle, and personal protective equipment (PPE).

DANGER!

Ensure that switchgear is properly maintained and in good working order before using the RRS-4 on your switchgear. Contact your local group CBS service provider at www.gcbs.com to assist in proper care and maintenance for your switchgear.

1.0 Getting Started

The CBS ArcSafe® RRS-4 Remote Racking System is an upgraded version of the standard RRS-1 Remote Racking System for rotary style breakers. The RRS-4 boasts many of the same structural and mechanical components as the CBS ArcSafe® RRS-1 unit, which make it the most portable, easily adjustable, and user friendly Remote Racking System in the industry today. What makes the RRS-4 different from its RRS-1 counterpart, and any other remote racking system on the market for that matter, is that it is operated using a dual mode, source programmable, Programmable Logic Controller (PLC) based control system.

This new PLC based control system offers two operating modes to choose from: CCM Mode (drive motor current sensing mode) and SEK Mode (drive motor revolution counting mode). Users are given the option of which control mode to choose upon machine startup and can switch between the two during operation of different switchgear.

CCM mode is a truly universal operating mode capable of racking virtually any rotary style breaker and requires minimal setup. In SEK mode, users create a custom profile for each breaker style being operated that includes real-time breaker location feedback. Both modes are considered “Source Programmable”, meaning that all setup and operation can be done in the field without factory assistance by following the setup procedures detailed in this manual. Each of these two modes will be discussed in greater detail later in this manual, for more specific operating information for each of these modes please see the appropriate section of the manual.

The RRS-4 is powered utilizing an AC/DC power system, meaning that the unit can be operated using standard 120VAC wall power or the internal batteries (which can provide approximately 30-60 racking operations depending on the application) when wall power is not available. The RRS-4 comes standard with both a corded 35’ pendant station (extended lengths available) and a wireless radio remote pendant station capable of operating the unit from over 100’ away.

2.0 Navigating the Display

The RRS-4 PLC based user interface is located on the top side of the control cabinet. The user can navigate this 5.6" touch-screen display by simply pressing the appropriate on-screen button. This section will detail the navigation buttons used to interface with the RRS-4 control and their functions.

2.1 Main/Startup Screen

When the main power to the RRS-4 is turned on, the screen in Figure 1 will greet the user. From this screen, the user can choose either of the two racking control options offered on the RRS-4, as well as view CBS ArcSafe® contact information for any questions they may have. The figure and descriptions below will detail the functions available to the user from this screen.

Figure 1: Main startup screen

Description:

1. **Power Indicator** – Informs the operator that the power is "ON"
2. **CCM Mode** – Selects motor current monitoring mode for the racking operation
3. **SEK Mode** – Selects motor revolution counting mode for the racking operation

2.2 Hotkeys

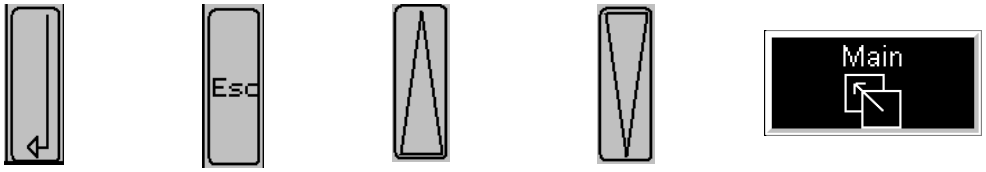
Pressing any of the “Hotkeys” located on the right side of the display will navigate the user directly to the corresponding selection regardless of the user’s current location. Please see the following figure for hotkey functions:

System:	System Settings
F1:	CCM Mode
F2:	SEK Mode
F3:	Breaker Profile Name Entry
F4:	Breaker Profile Data Entry
F5:	Blank

Figure 2: Hotkeys

2.3 Navigation Buttons

Inside many of the menus found on the RRS-4 users will find the following functions shown below. This section will describe each of the buttons and its function. NOTE: There are other navigation buttons throughout the software which serve a specific purpose; these buttons will be labeled with function name.



Return:	Escape:	Navigate Up:	Navigate Down:	Navigate to Startup:
Selects and navigates to applicable highlighted option.	Navigates the operator to the previous screen	Navigate the cursor up through a list of options	Navigate the cursor down through a list of options	Located throughout, this button will navigate the operator back to the main startup screen

Figure 3: Navigation buttons

2.4 Selection Indicators

When two options are available to choose from for many of the settings on the RRS-4, the on screen menu will list next to each of these options one of the “coils” pictured below. The shaded coil will indicate the current selection the user has chosen, while the un-shaded coil will indicate to the user an option they have the ability to choose. Please see the following figure for clarification.

	Shaded Coil	Indicates the one of two options that is selected
	Un-Shaded Coil	Indicates the one of the two options that is no selected

Figure 4: Selection indicators

3.0 CCM Mode

CCM mode allows the operator to monitor the running current (in amps) during the racking operation. Users can access the CCM Mode from the main screen or by pressing the F1 hotkey. This section will detail how to setup CCM mode for a breaker racking procedure.

ATTENTION

The RRS-4 can be controlled in CCM mode using either the hand control or radio remote pendant station. Ensure that the selector switch on the side of the control cabinet to choose between the two is set to the proper selection prior to operation.

3.1 Attention Prompts

When CCM mode is selected, a prompt will appear asking the user to verify that the breaker to be racked is open. Once the breaker status has been verified to be open, proceed to press the "OK" button.

Figure 5: Breaker status safety prompt

Next, another prompt will appear asking the user to verify that the clutch has been set properly. Once this has been done, proceed to press the "OK" button.

Figure 6: Clutch setting safety prompt

3.2 CCM Setup Main Screen

Once the user has verified both safety prompts, the CCM Setup screen will appear (Figure 6). Here, the operator can view and edit all values associated with performing a racking procedure in CCM mode. This section will detail the navigation and data entry for RRS-4 operation in CCM mode.

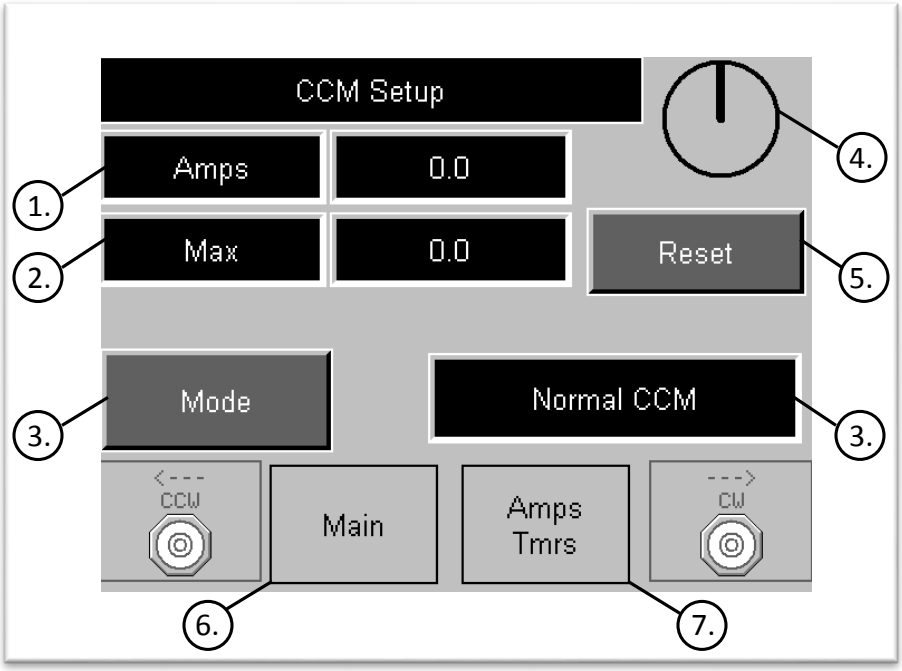


Figure 7: CCM setup main

1. **Amps** – Displays the instantaneous running current of the drive motor at any given time
2. **Max** – Displays the maximum current recorded during the present motor cycle
3. **Mode** – Press to switch between "Normal CCM" and "Manual"
    - **Normal CCM** – After the initial command is given, the drive motor will run in the direction chosen by the user without interruption until motor current exceeds a set value for a set amount of time
    - **Manual** – The drive motor will run without interruption until the command is released
4. **Direction Indicator** – During drive motor operation, the "hand" will rotate in the direction that the motor is currently rotating in
5. **Reset** – Resets the stored value of "Max" to zero. Can be used to zero the value before, during, or after motor cycle
6. **Main** – Returns operator to startup screen
7. **Amps/Tmrs** – Navigates to the screen where values are set for both rotational directions for maximum allowable current and maximum allowable time over current value.

3.1.1 Amps Tmrs

The “Amps Tmrs” button (Figure 6.7) navigates the operator to the screen previewed below in Figure 7. Amps Tmrs allows the operator to make modifications to install/remove amperages and timers that govern the CCM operation.

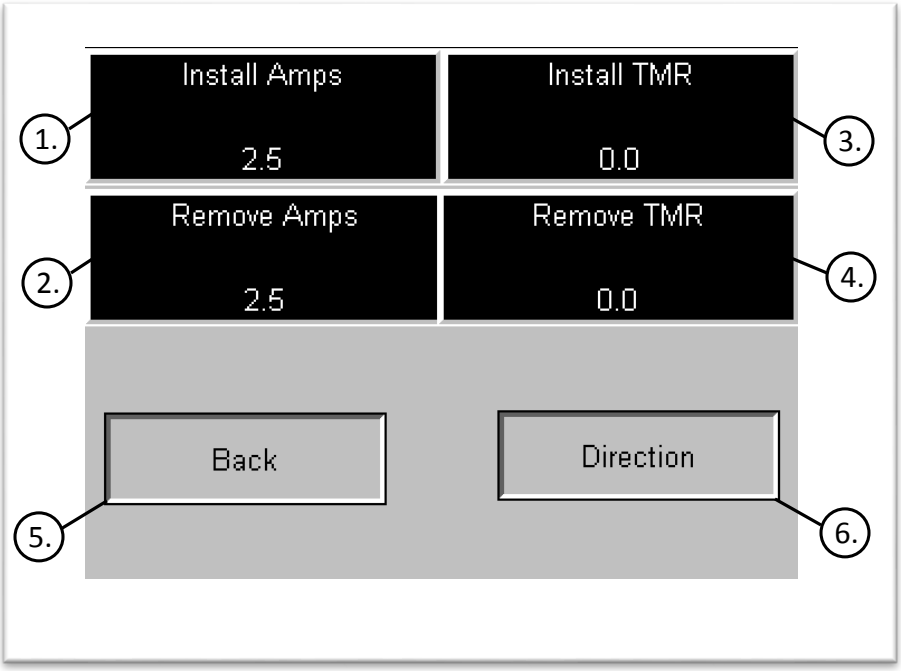


Figure 8: Amps Tmrs modifications screen

1. **Install Amps** – Sets the value for the maximum allowable drive motor running current in the install direction
2. **Remove Amps** – Sets the value for the maximum allowable drive motor running current in the remove direction
3. **Install TMR** – Sets the value for the maximum allowable time that the install current can be greater than the set value
4. **Remove TMR** – Sets the value for the maximum allowable time that the remove current can be greater than the set value
5. **Back** – Returns to CCM mode home
6. **Direction** – Navigates to the Install and Remove direction screen

3.1.2 Mode

Under CCM Setup, pressing "Mode" (Figure 6.3) allows the operator to switch from "Normal CCM" and "Manual".

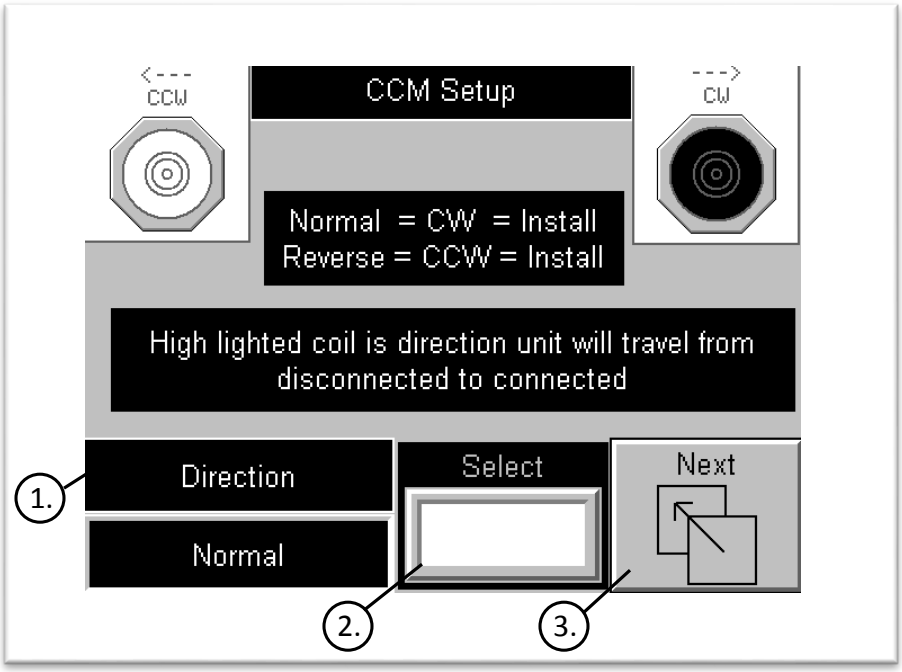


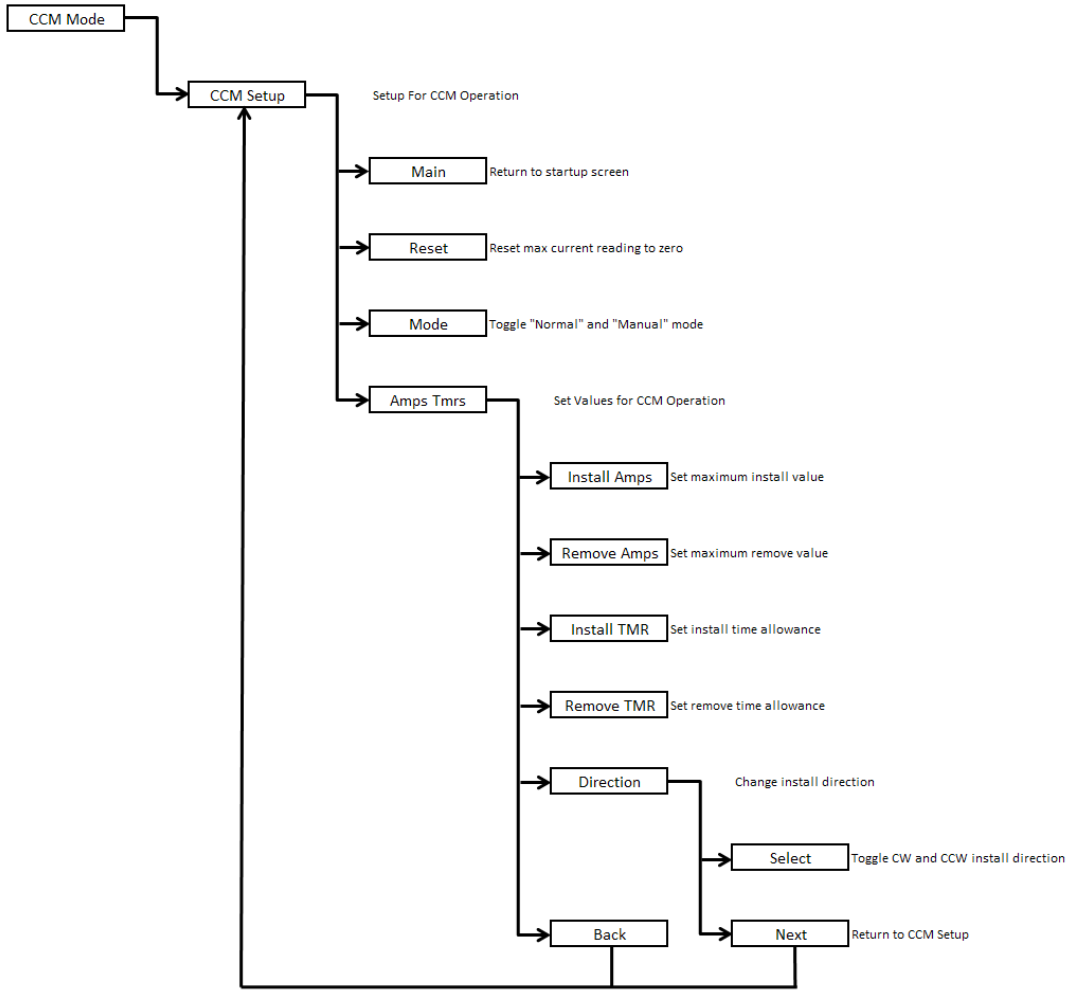
Figure 9: CCM Mode setup screen

1. **Direction** – Indicates to the user the direction the drive motor will rotate when an install command is given
    - **Normal** – The motor will turn clockwise when an install command is given. The motor will turn counterclockwise when a remove command is given
    - **Reverse** – The motor will turn counterclockwise when an install command is given. The motor will turn clockwise when a remove command is given.
2. **Select** – Press to toggle between “Normal” and “Reverse” motor rotation
3. **Next** – Navigates to the CCM home screen

When "Normal CCM" is selected, the operator sets the amp values for the unit to shut off. When the operation starts, the unit will run until reaching the amp value and shutoff.

Operating under "Manual", the operator must hold down the operation button and release it when the breaker is in its desired place. In this mode, even though the breaker may be fully installed or uninstalled, the unit will still continue to run if the operator is still pressing down after the breaker is fully in desired location. The operator will see that the Torque Guard clutch is not turning. This will be his indication to stop the operation.

3.3 CCM Flowchart of Operations



4.0 SEK Mode

SEK Mode allows the operator to monitor the rotations during operation. The SEK Mode may be accessed through the main screen or by pressing F2. The radio remote is required for SEK Mode; the pendant works only in CCM Mode. Once entering the SEK mode, the screen will prompt to make sure the breaker is open.

ATTENTION

SEK Mode requires the radio remote. While operating in SEK Mode, the pendant remote will not operate. Ensure that the selector switch on the side of the control cabinet to choose between the two is set to the proper selection prior to operation.

When SEK mode is selected, a prompt (Figure 9) will appear asking the user to verify that the breaker to be racked is open. Once the breaker status has been verified to be open, proceed to press the “OK” button.

Figure 10: Breaker status safety prompt

4.1 Breaker Select

Breaker names (section 5.0) and their individual data settings (in Breaker Data section 6.0) available for selection are displayed similarly to figure 10. The operator may select a breaker saved in the RRS-4 for servicing. The SEK Mode gives the user space to define 12 different styles of breakers. To select the breaker model to be serviced, press on the breaker model name to select it.

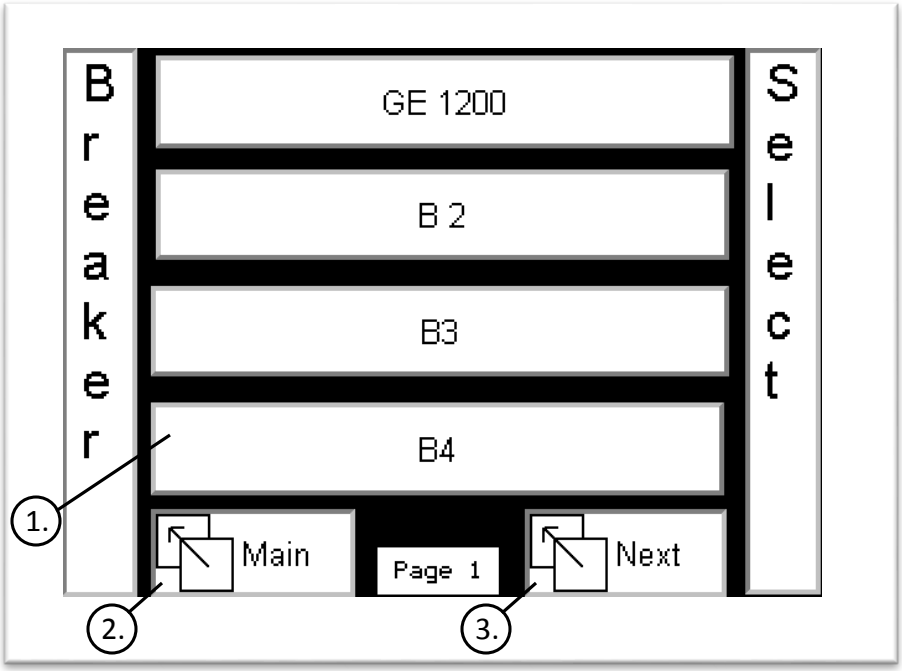


Figure 11: Breaker selection lists

1. **Breaker Model** – One of four breaker models shown in figure 9. Press on breaker model to be serviced
2. **Main** – Returns operator to startup screen
3. **Next** – Continue to next Breaker Select list page

A prompt like figure 11 will next appear to verify that the clutch has been set properly. The operator may adjust the clutch setting (in pounds) by selecting the numerical box and changing the number via the keypad provided after selection. Once the clutch setting displayed is appropriate to the operation, press “OK” to continue.

Figure 12: Clutch setting safety prompt

4.1.1 Main Type 1

Once successfully selecting the breaker model to be serviced, the selected breaker, along with the data previously entered for that specific model (see section 6.0), will be loaded. The selected breaker model (GE 1200 used in this example) is displayed above the mode (12.2).

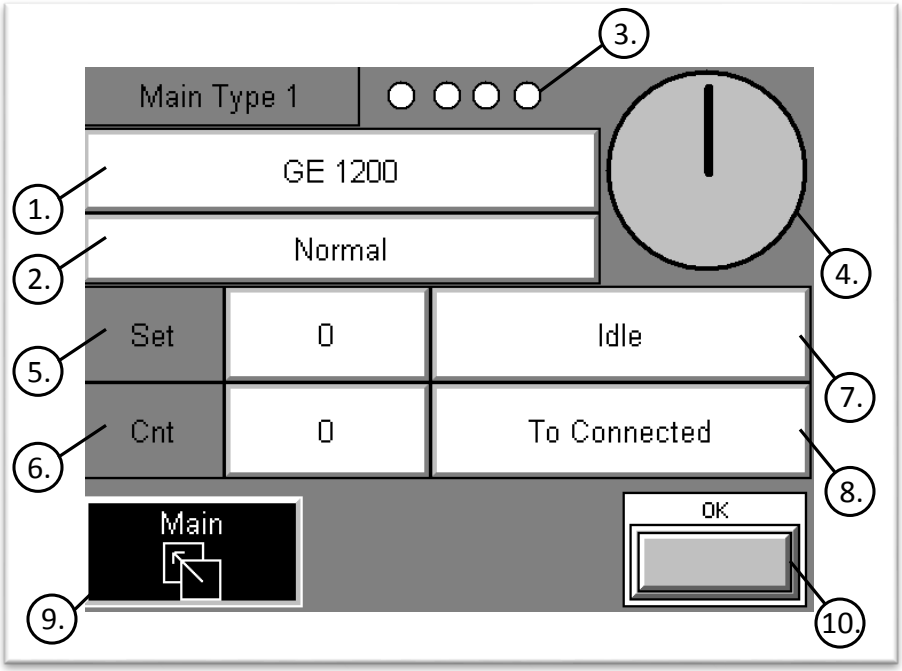


Figure 13: Main Type 1 data screen

1. **Breaker Model** – Breaker model selected from the Breaker Select screen to be serviced
2. **Mode** – directional mode of rotation (Normal=CW, Reverse=CCW)
3. **Status Loading Bar** – Loading bar indicating operation completion percentage
4. **Direction Indicator** – During drive motor operation, the "hand" will rotate in the direction that the motor is currently rotating in
5. **Set** – Value of counts set previous by the operator (8 counts = 1 complete rotation)
6. **Cnt** – Up-to-date count number the RRS-4 is on
7. **Idle** – Motor status (in Figure 12, shows as idle/not running)

8. **Operation** – Operation to be performed. Figure 11 shows that the breaker to be serviced will be moved to the connected position
9. **Main** – Returns operator to startup screen
10. **OK** – Press “OK” to preview the breaker settings that have been previously saved to the breaker model by the operator.

ATTENTION

Breaker settings may not be modified under this mode. See Breaker Data Entry (section 6.0) to make any necessary changes to the breaker data.

4.1.2 Selected Breaker Data Preview

Once navigating through the breaker data and pressing "OK" (Figure 12.10), data (such as seen in Figure 13) specific to that breaker model's service operations will be displayed. Again, these data screens are for preview only; to alter breaker data, the operator must go to the Breaker Data Entry section (6.0).

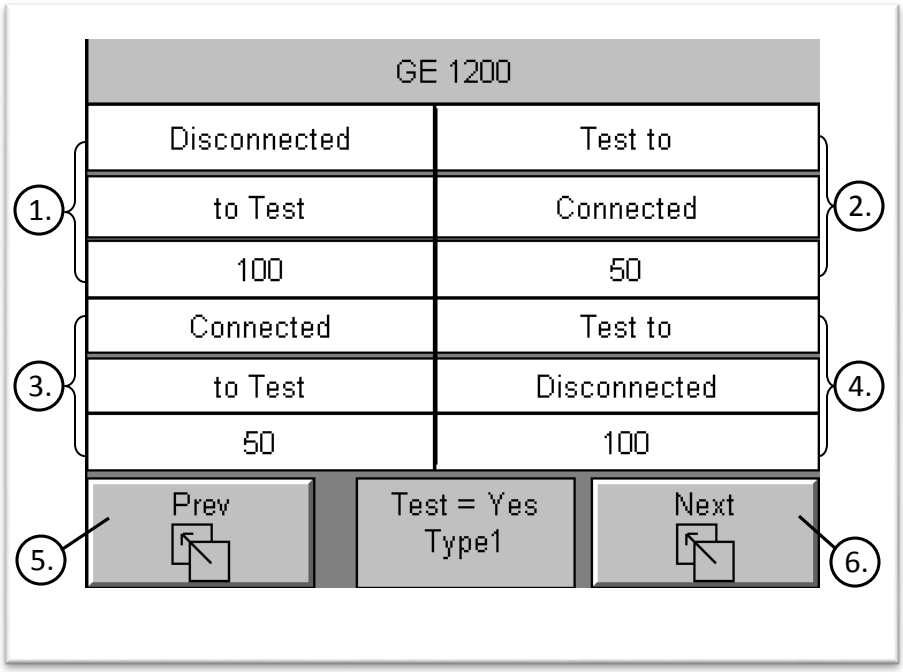


Figure 14: Screen preview of breaker operation settings

1. **Disconnect to Test** – Value previously set by operator for racking the selected breaker from disconnect to test position
2. **Test to Connected** – Value previously set by operator for racking the selected breaker from test to connected position
3. **Connected to Test** – Value previously set by operator for racking the selected breaker from Connected to Test position
4. **Test to Disconnected** – Value previously set by operator for racking the selected breaker from Test to Disconnected position
5. **Prev** – Navigate to the previous screen, Main Type 1
6. **Next** – Navigate to the selected breaker's operation settings governing the operation rotation

4.1.3 Selected Breaker Direction Preview

Once finished looking over the operation settings, the operator may press “Next” (Figure 13.6) to navigate to a separate screen displaying the mode previously specified to that breaker by the operator. Rotation mode screen is displayed as shown in figure 14. In the example shown, the mode had been previously set to the normal/CW installation direction.

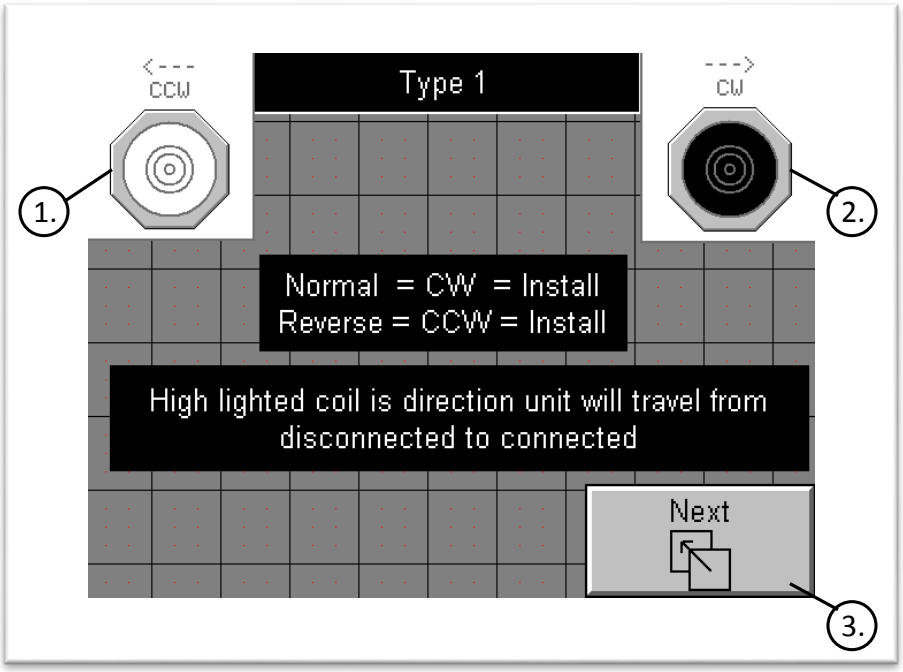


Figure 15: Type 1 screen displaying direction of installation rotation

1. **CCW** – Counter-clock wise, also designated as Reverse direction of installation
2. **CW** – Clock wise, also designated as Normal direction of installation
3. **Next** – Pressing “Next” will navigate the operator back to the Main Type 1 home screen

4.2 Failed to Count

In SEK Mode, the screen on the RRS-4 will display “Failed to Count” (Figure 16) because one of two problems; the clutch has slipped and may need to be tightened or the count of rotations is set incorrectly (more rotations than required) for the breaker being serviced.

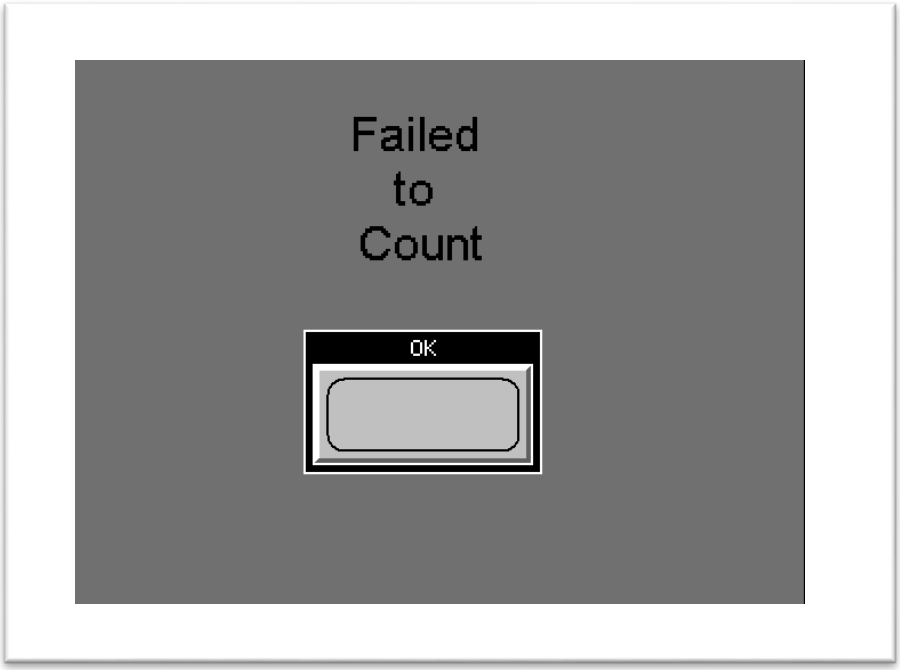
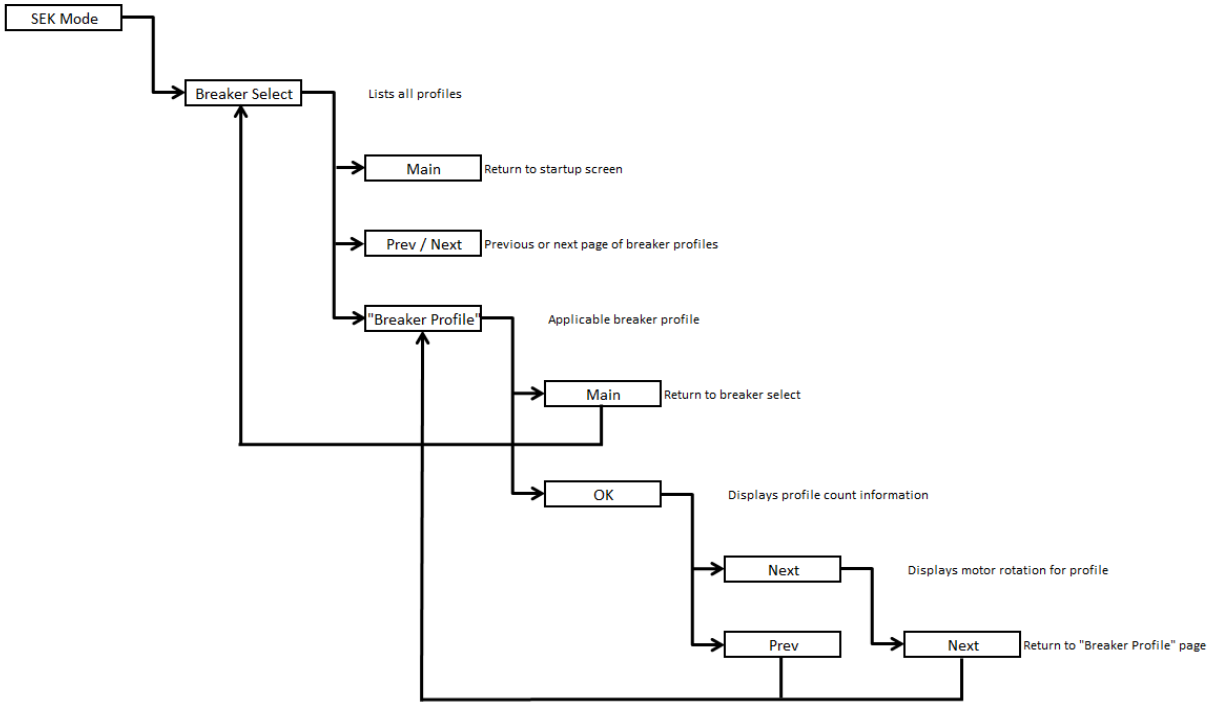


Figure 16: Failed to Count indicating slipped clutch or incorrect count input

4.3 SEK Flowchart of Operations



5.0 Breaker Name Entry

Press F3 to enter the Breaker Name Entry screen. Under this option the operator may input and save breaker names for current and future breaker operations specific to that breaker. The maximum number of characters/letters per entry is 14.

The operator will be prompted to enter a password (shown in figure 17) for access to the Breaker Name screens. The default password is "222".

Figure 17: Breaker Name password prompt

5.1 Breaker Names

Once gaining access to the Breaker Names screen, you may now change or add names of breakers stored in the RRS-4 unit. Navigate with the up and down arrow keys or simply press on the breaker name of your choosing. Once the required breaker or create breaker is selected press the bottom enter arrow key " ↵ ".

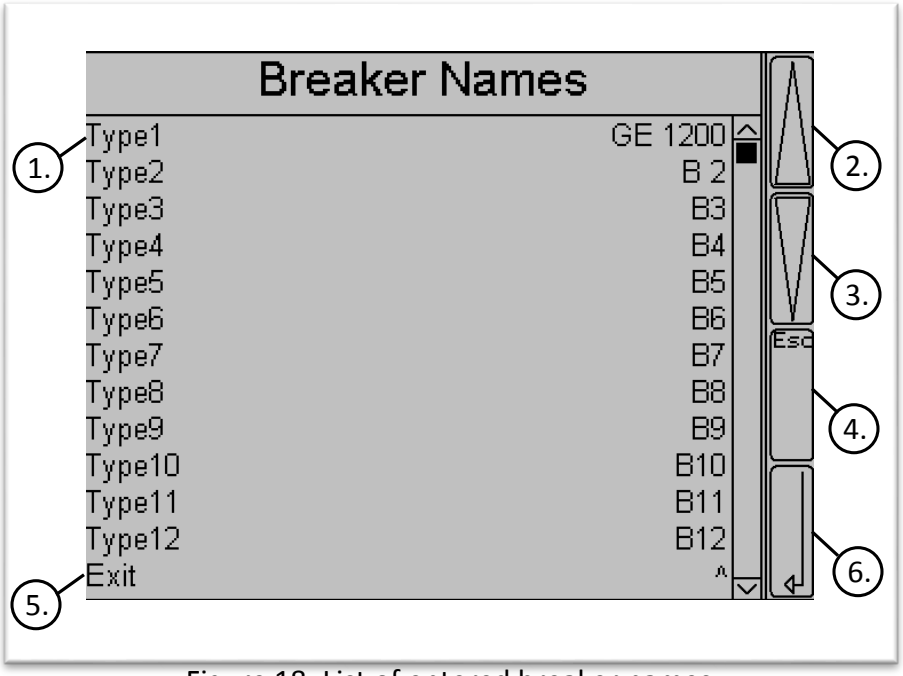
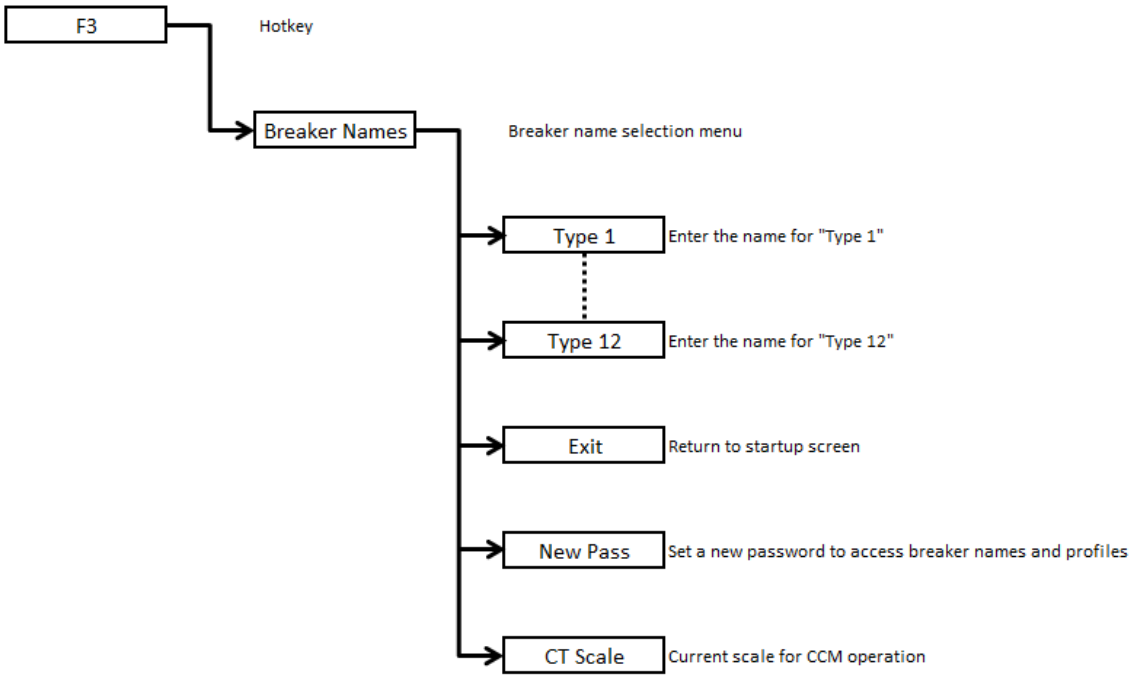


Figure 18: List of entered breaker names

1. **Type 1** – Indicates breaker in the list selected. (I.e. breaker name Type 1 is the corresponding breaker information for GE 1200.)
2. **Up Arrow** – Navigates the cursor up the list
3. **Down Arrow** – Navigates the cursor down the list
4. **Esc** – Navigates the operator back to previous screen
5. **Exit** –Exits the Breaker Names screen
6. **Left Arrow/ Enter** – Selects highlighted option chosen by the operator

After a breaker name is selected, the operator will be navigated to a screen with a touch-keyboard allowing modifications to the breakers name. When finished, press enter to return to the main Breaker Names screen. To leave Breaker Names, use the down arrow (figure 18.3) to scroll down to “Exit”. Once “Exit” is highlighted, press the enter arrow (figure 18.6) to select “Exit” and navigate back to the main screen display.

5.2 Breaker Name Entry Flowchart of Operations



6.0 Breaker Data Entry

To enter the Breaker setup screens, press F4.

You will be prompted to enter a password (See Figure 97); enter your password in the numerical keypad given to you to access breaker setup. Once entering the password, the display will allow access to the Unit Setup screen. The default password is "222".

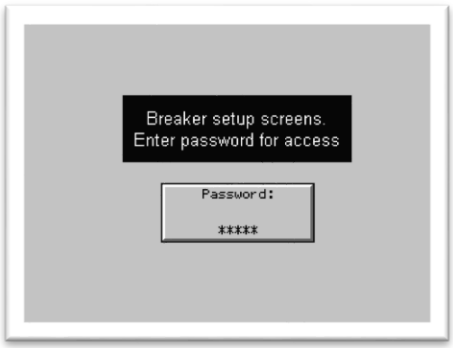


Figure 19: Breaker Setup Password Prompt

6.1 Unit Setup

Here the operator will select a breaker previously created/named to make modifications to data controlling how the RRS-4 unit will operate the breaker type to be serviced. This RRS-4 option allows quick and easy servicing to breaker models that require different RRS-4 operation specifications. Select the required breaker name and press "Next" to continue. Press "Main" to return to the main display screen.

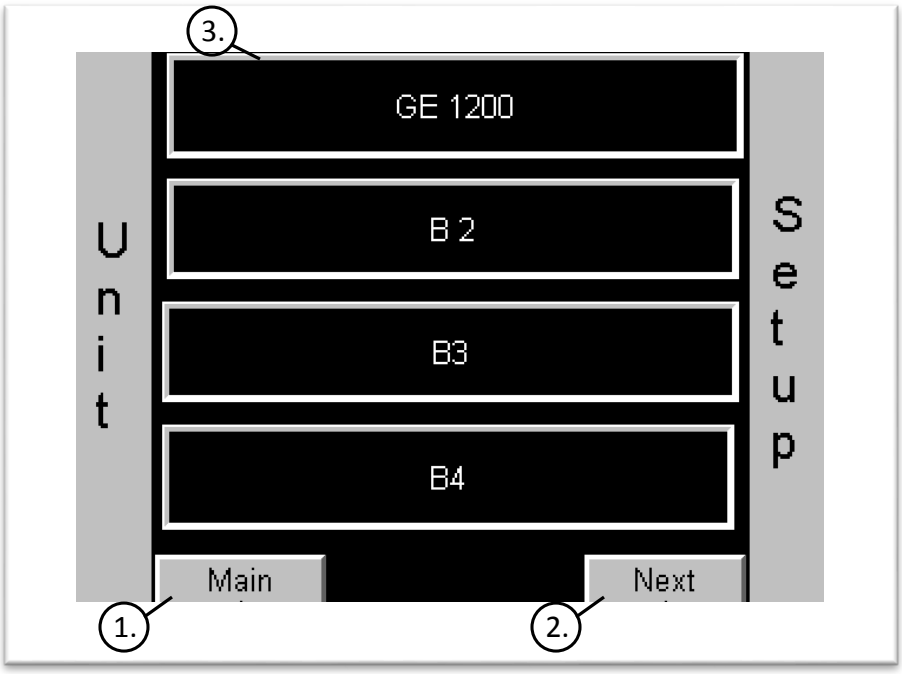


Figure 20: Unit Setup breaker selection list

1. **Main** – Returns operator to startup screen
2. **Next** – Navigates the operator to a screen for test operation modifications
3. **GE 1200** – List of breaker names entered into the system available for modifications; breaker name GE 1200 is topmost on the breaker names list

6.1.1 Unit Setup Test/No Test Position Configuration

Once selecting a breaker under unit setup (for example purposes GE 1200 has been selected), the operator will be navigated to a screen displaying the chosen breaker and the option to make modifications to the information specific to the Test or No Test position.

To edit or enter data for the unit operating the breaker in the Test position, ensure 'Test' is highlighted then press "Configure". For example purposes, the Test position has been selected.

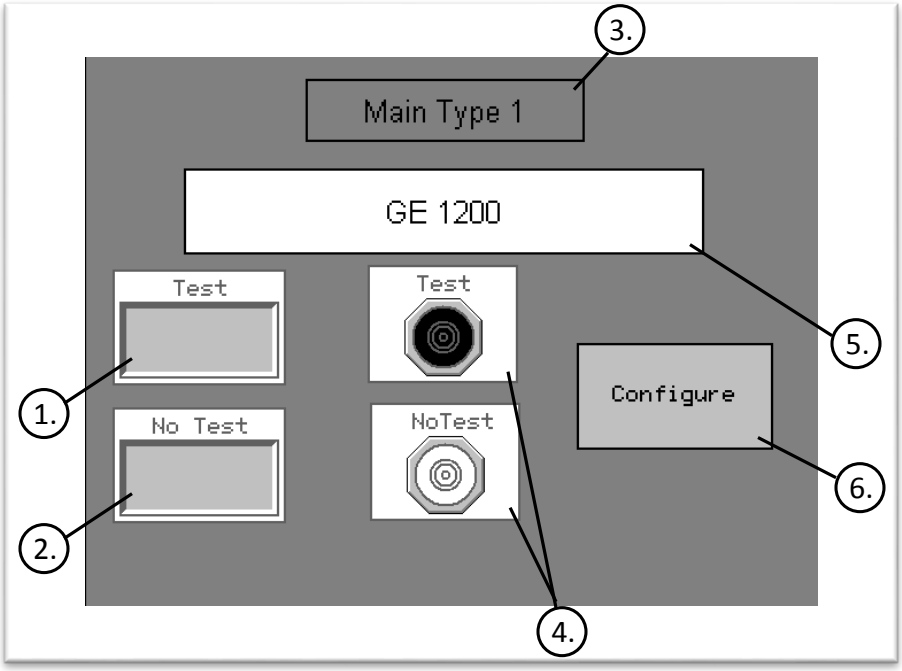


Figure 21: Unit Setup test options

1. **Test** – When pressed, the Test button highlights the Test Selection Indicator (as shown in Figure 21 for example) allowing configurations in the Test position; Some switchgear have a mandatory hard stop for test position; these breaker styles require this mode of operation
2. **No Test** – When pressed, the No Test button highlights the No Test Selection Indicator allowing configurations in the No Test position; this will allow the breaker to rack Dis.-Connect in one operation
3. **Main Type 1** – Breaker name 1 from list of all breaker names

4. **Test/No Test Selection Indicators** – The two indicators shown in Figure 21 allow the operator a quick and easy way of knowing which of the Test and No Test options are selected; In Figure 21, the Test indicator is highlighted signaling that the Test operation is selected
5. **GE 1200** – The name of the selected breaker is displayed here; in Figure 21, the selected breaker for data modifications is GE 1200
6. **Configure** – Navigates the operator to data modification options pertaining to operator's selection of Test/No Test; in Figure 21, the operator would be modifying data related to the Test position

6.1.2 Unit Setup Configuration Data for the Test/No Test Position

In the next screen (Figure 22) all options available while in the test position are displayed in a list. Navigate to the required option via the up/down arrows or press it to make it highlighted. Continue to that option by pressing the enter arrow at the bottom. Press "Esc" to go back.

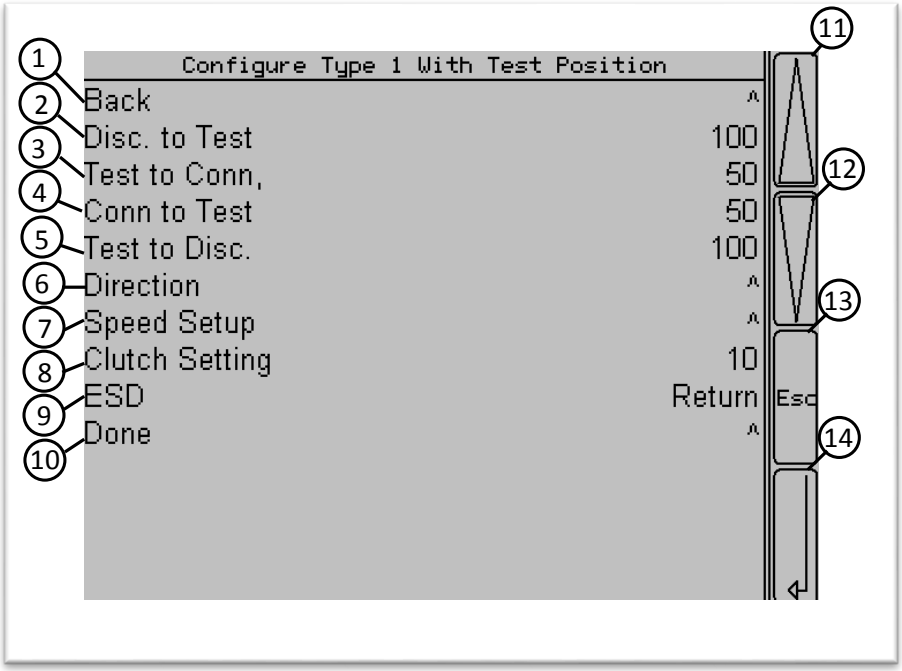


Figure 22: Data configurations for the Test position

1. **Back** – Navigates operator back to the Test/No Test position screen
2. **Disc. To Test** – Navigates operator to the Disconnect to Test position operation data modification screen
3. **Test to Conn** – Navigates operator to the Test to Connect position operation data modification screen
4. **Conn to Test** – Navigates operator to the Connect to Test position operation data modification screen
5. **Test to Disc.** – Navigates operator to the Test to Disconnect position operation data modification screen
6. **Direction** – Navigates operator to install/remove direction modification screen
7. **Speed Setup** – Navigates operator to modifying the unit speed of operation
8. **Clutch Setting** –Navigates operator clutch setting modifications
9. **ESD** – Emergency Stop Depress
10. **Done** – Navigates the operator to Breaker Select once all required data modifications to Unit Setup are made
11. **Up Arrow** – Navigates selection bar up through list of options
12. **Down Arrow** – Navigates selection bar down through list of options
13. **Esc** – Navigates the operator back a screen
14. **Enter Arrow** – Selects highlighted option chosen by the operator

6.1.3 Breaker Select

Breaker Select allows the operator to save breaker information and modifications to separate breakers the RRS-4.

To make modifications to breaker information, follow the prompt and verify the clutch settings (in pounds).

Figure 23: Verify clutch settings

Once verifying the correct clutch setting, press "OK". Modify the setting by pressing on the numerical box displayed.

Once the clutch has been modified, the operator will be navigated to the Breaker Select screen (Figure 24). Select the breaker to be modified by pressing on the Breaker's name from the list. If the breaker requiring modification is not displayed in the list on the screen, press "Next" (Figure 24.4) to view the breakers listed on page 2. Press "Main" (Figure 24.2) to navigate out of Breaker Select and back to the Main Display Screen.

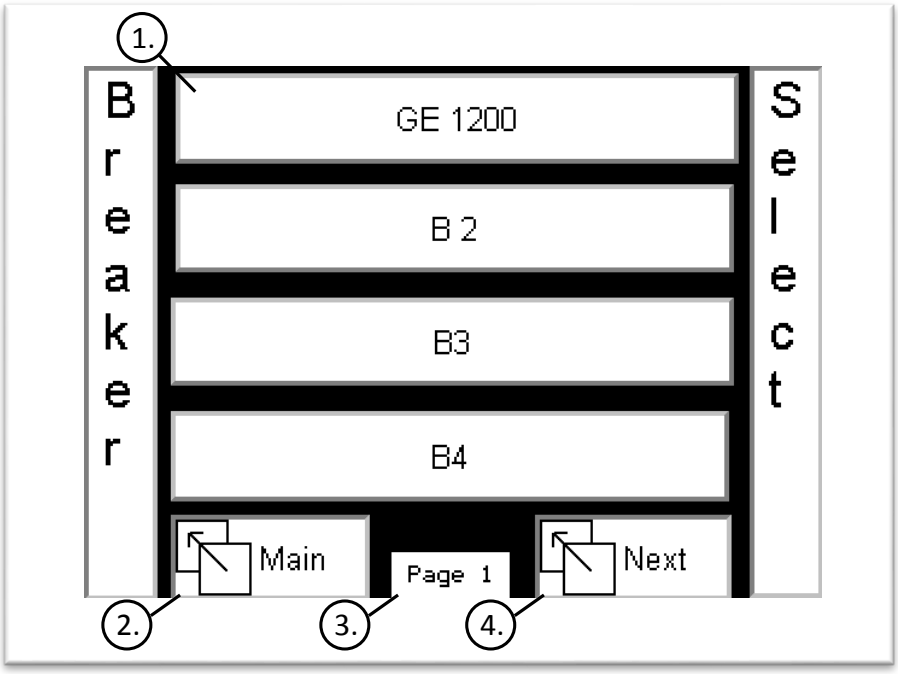


Figure 24: Breaker Selection screen

1. **GE 1200** – One of the available breakers for information modification
2. **Main** – Navigate back to the Main Setup screen
3. **Page 1** – Page number currently being viewed out of total breaker list pages
4. **Next** – Navigates the operator to the next page of breakers listed

6.1.4 Breaker Test/ No Test Position Configurations

Once selecting a breaker under Breaker Select (for example purposes, GE 1200 has been selected), the operator will be navigated to a screen displaying the chosen breaker and the option to make modifications to the information specific to the Test or No Test position.

To edit or enter data for the unit operating the breaker in the Test position, ensure 'Test' is highlighted then press "Configure". For example purposes, the Test position has been selected.

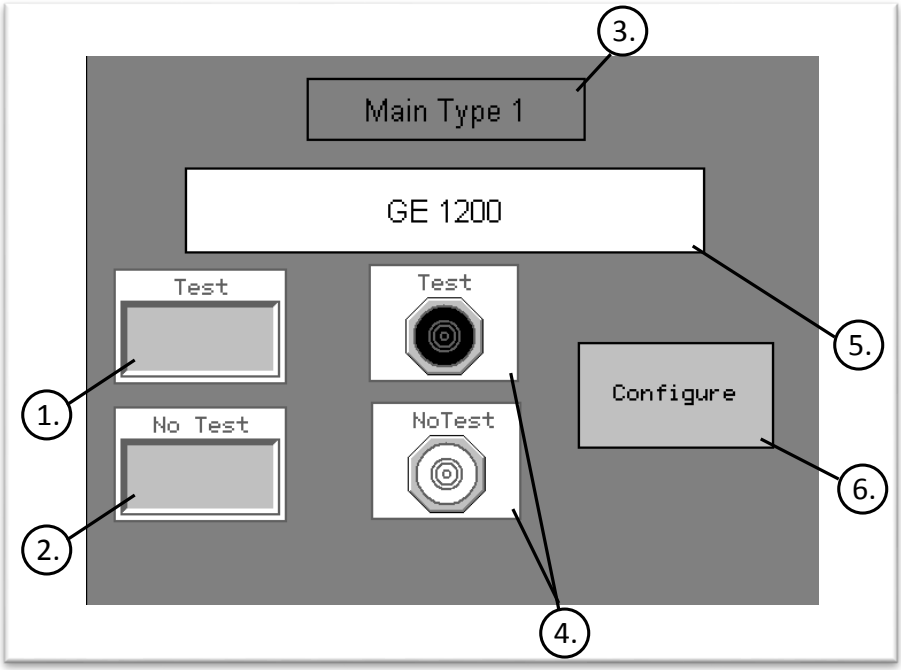


Figure 25: Breaker Test/ No Test position configurations

1. **Test** – When pressed, the Test button highlights the Test Selection Indicator (as shown in Figure 25 for example) allowing configurations in the Test position
2. **No Test** – When pressed, the No Test button highlights the No Test Selection Indicator allowing configurations in the No Test position
3. **Main Type 1** – Breaker name 1 from list of all breaker names
4. **Test/No Test Selection Indicators** – The two indicators shown in Figure 25 allow the operator a quick and easy way of knowing which of the Test and No Test options are selected; In Figure 25, the Test indicator is highlighted signaling that the Test operation is selected
5. **GE 1200** – The name of the selected breaker is displayed here; in Figure 25, the selected breaker for data modifications is GE 1200

6. **Configure** – Navigates the operator to data modification options pertaining to operator's selection of Test/No Test; in Figure 25 , the operator would be modifying data related to the Test position

6.1.5 Breaker Setup Configuration Data for the Test/No Test Position

In the next screen (Figure 26), all options available while in the Test position (No Test, if selected) are displayed in a list. Navigate to the required option via the up/down arrows (Figure 26.11/12) or simply press the option to highlight it. Select the option by pressing the enter arrow (Figure 26.14) at the bottom. Press "Esc" (Figure 26.13) to go back.

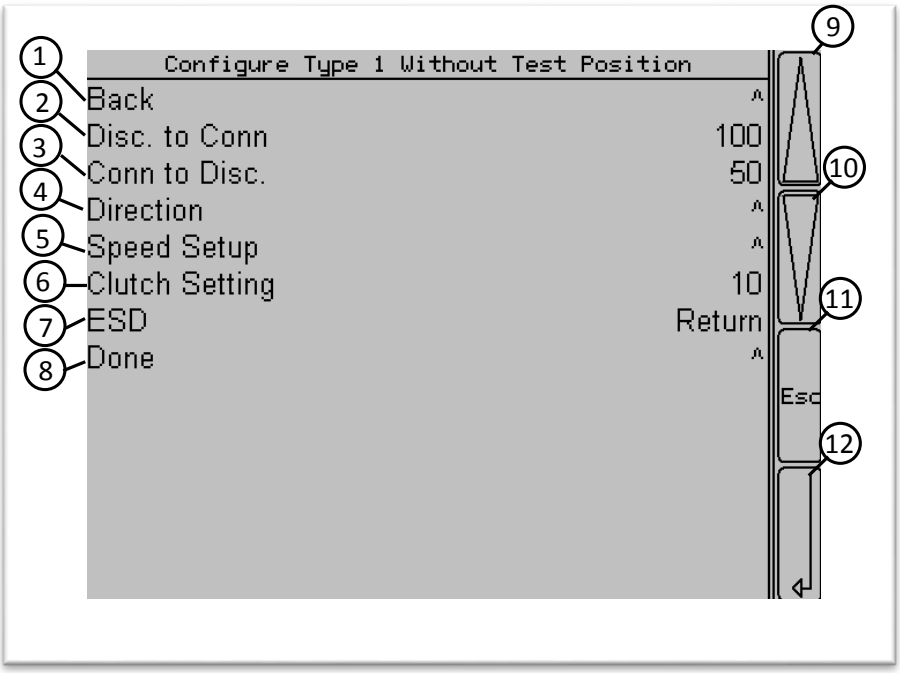
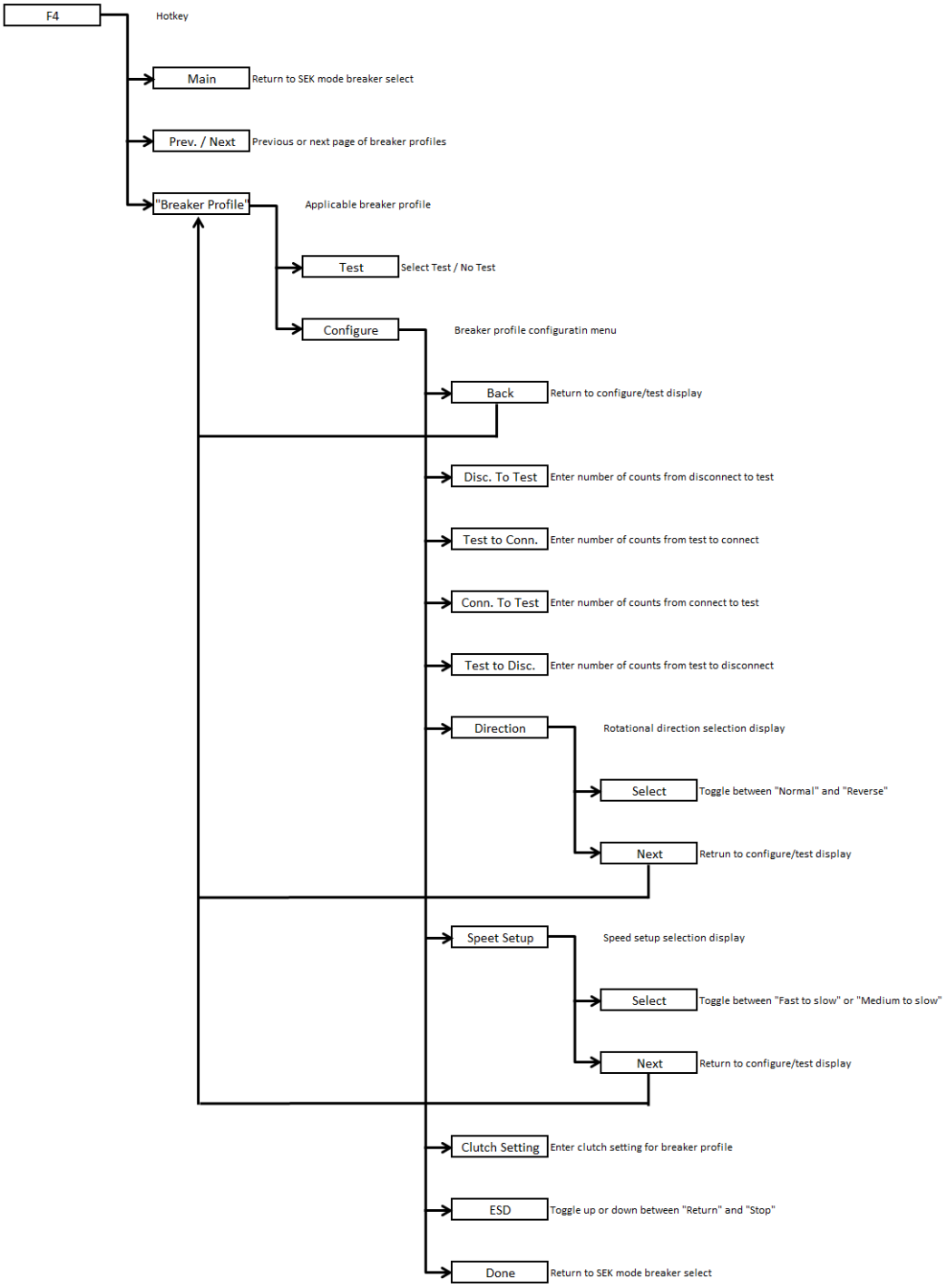


Figure 26: Data configurations for the Test position

1. **Back** – Navigates operator back to the Test/No Test position screen
2. **Disc. To Conn** – Navigates operator to the Disconnect to Connect position operation data modification screen
3. **Conn to Disc.** – Navigates operator to the Connect to Disconnect position operation data modification screen
4. **Direction** – Navigates operator to install/remove direction modification screen
5. **Speed Setup** – Navigates operator to modifying the unit speed of operation
6. **Clutch Setting** –Navigates operator clutch setting modifications
7. **ESD** – Emergency Stop Depress

8. **Done** – Navigates the operator to Breaker Select once all required data modifications to Unit Setup are made
9. **Up Arrow** – Navigates selection bar up through list of options
10. **Down Arrow** – Navigates selection bar down through list of options
11. **Esc** – Navigates the operator back a screen
12. **Enter Arrow** – Selects highlighted option chosen by the operator

6.2 Unit and Breaker Setup Flowchart of Operations



7.0 Troubleshooting Guide

Symptom	Problem	Solution
Screen message shows up displaying “Failed to Count”	The rotation count has not reached the end of its full cycle due to improper count settings in SEK Mode	Ensure the number of rotations operating from connect to disconnect/ disconnect to connect are properly set
	The clutch is slipping	Tighten the clutch on the RRS-4

Distance Is Safety®

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DANGER!

Ensure that personnel using this equipment are adequately trained in the operation of the switchgear they are planning to work with; that they are correctly stationed outside the arc flash boundary; and that they comply with all applicable Federal, State, Local, and In-house safety regulations and procedures. Attention should be given to distance, angle, and personal protective equipment (PPE).

Guarantee: Equipment is guaranteed free of inherent electrical or mechanical defects for one (1) year from date of shipment, and to perform according to ratings, under normal conditions and with competent supervision. Our obligation is limited to repair or replacement of defective parts, FOB our plant, Denton, TX. We're not responsible for consequential damage, for repairs or replacement made by others except when agreed to in writing.

WARRANTY REGISTRATION – CBS ArcSafe® Products

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IMPORTANT: Complete and mail this warranty registration form as soon as possible.

Warranty: Equipment is guaranteed free of inherent electrical or mechanical defects for one (1) year from date of shipment, and to perform according to ratings, under normal conditions and with competent supervision. Our obligation is limited to repair or replacement of defective parts, FOB our plant, Denton, TX. We're not responsible for consequential damage, for repairs or replacement made by others except when agreed to in writing.

Date: _____

CBS ArcSafe® Serial Number: _____

Company: _____

Address 1: _____

City: _____ **State/Province:** _____ **Zip/Postal Code:** _____

Country: _____

Telephone and Fax: _____

Contact Person (please print): _____

Please mail or fax warranty registration to:

CBS ArcSafe®
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Argyle, TX 76226