

DID YOU KNOW?

NO: 264

JUNE 11, 2014

ALLEN-BRADLEY MICROLOGIX 1400 MEMORY MODULE - PROPER USE

Overview

The Allen-Bradley MicroLogix 1400 Programmable Logic Controller (PLC) used in the PRIMUS PSS9 Controller incorporates an add-on Memory Module (MM).

The Allen-Bradley MM is an **EEPROM** (Electrically Erasable Programmable Read Only Memory) module which is plugged into the MicroLogix 1400 PLC.

PRIMUS places a copy of the factory software used to program the MicroLogix 1400 into the MM. The EEPROM serves as a convenient backup for the PLC program which can be reloaded into the PLC in the event of a non-recoverable fault condition or the rare case when the program becomes corrupted in the PLC memory.

The MM not only serves as a backup for the PLC program, it can also be used as a mechanism to get updates and/or fixes to the program from PRIMUS while the sterilizer continues to operate at the end user's facility.

The MM can be removed while the PLC is running without damaging anything and sent to PRIMUS to program.

Important!!!

The MM program backup contains a copy of the program as loaded during factory installation. Any changes made at the end user's facility are NOT automatically captured to the MM. If the PLC is reloaded from the MM, all user settings will be lost and the PLC will be reset to the factory configuration!

This is a design constraint from Allen-Bradley and is not under program control. Thus, if the PLC has to be reloaded in the field, any on-site modifications made by the end user such as site specific passwords, calibration data, and cycle parameters will be reset to the factory configuration.

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It is possible, however, to preserve the end user's settings using a manual procedure. The procedure requires placing a copy of the PLC's current internal memory into the MM, thus overwriting the factory program. This manual action should be done only after the end user has made all desired changes and run the sterilizer to ensure correct operation.

This new copy would then provide a direct copy of the PLC program and all the end user's settings, which could then be reloaded in the event of a major problem from the MM back into the PLC.

Remember, the PLC program and data reloaded into the PLC from the MM will be current as of the date the MM was reloaded. Any changes made after that date will be lost.

If the site administrator wishes to have a copy of the changes made on site, PRIMUS recommends purchasing a second MM and using the new module to store the site's data while preserving a baseline copy of the factory supplied PLC software. This second backup MM can be used if anything goes wrong during the loading of the MM.

Procedures

The following two procedures illustrate how to store a copy of the PLC's current settings into a MM and how to load software from the MM back into the PLC's internal memory.

A brief overview of the MicroLogix 1400 programmable controller's operational controls is presented for reference.

1. The MicroLogix 1400 PLC (shown in Figure 1 MicroLogix 1400 1766-L32BWAA PLC) has an LCD display and a multifunction LCD keypad which is used to interact with the controller.



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LCD and Keypad

Feature	Description
10	LCD
5	LCD Screen Keypad (ESC, OK, Up, Down, Left, and Right Buttons)

Figure 1 MicroLogix 1400 1766-L32BWAA PLC



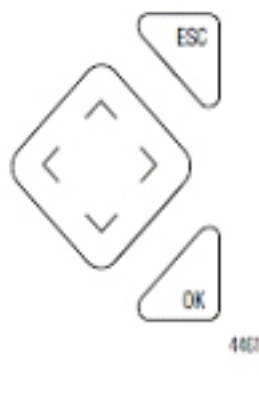
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Operating Buttons



Button	Function
Cursor Buttons	Move cursor
	Select menu item
	Choose file numbers, values, etc.
OK	Next menu level, store your entry, apply the changes
ESC	Previous menu level, cancel your entry

Figure 2-1 Keypad Operating Buttons Functions

Using Menus to Choose Values




Press	To
 44613	<ul style="list-style-type: none">• Go to next menu level.• Store your entry.• Apply the changes.
 44614	<ul style="list-style-type: none">• Go to previous menu level.• Cancel your entry since the last <i>Ok</i>.• Press repeatedly to go to the main menu.
 44615	<ul style="list-style-type: none">• Change menu item.• Change value.• Change position.

Figure 2-2 Keypad Operating Buttons for Menu Selection

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2. The diamond-shaped multi-function key serves as the Up and Down and Left and Right keys. The various functions and operations the LCD Keypad serves is listed in Figure 2-1 and Figure 2-2.

How to Store a Copy of the PLC's Memory into the MM

1. It is assumed the MicroLogix 1400 programmable controller is On and operating normally in "RUN" mode.

The LCD Default Screen which should be showing is the I/O Status Screen (refer to Figure 3 LCD Default Screen).

2. Select the "ESC" key and press it once. The LCD screen should change to show the Main Menu Screen (refer to Figure 4.1 Main Menu Screen, Page 1 and Figure 4.2 Main Menu Screen, Page 2).

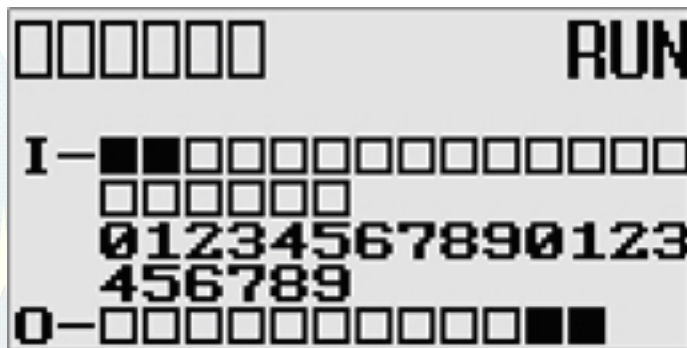


Figure 3 LCD Default Screen



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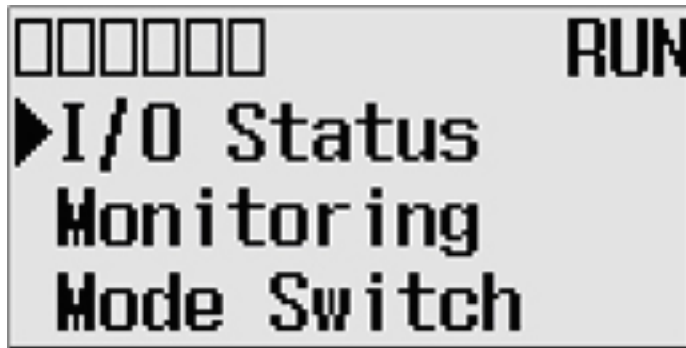


Figure 4.1 LCD Main Menu Screen, Page 1



Figure 4.2 LCD Main Menu Screen, Page 2

3. From the Main Menu Screen, select "Advanced Set" by using the Up and Down keys on the LCD keypad to navigate to this menu item. The cursor ("▶") will indicate which option is currently selected. If the two menu items shown in the figure below (Figure 5 Advanced Set Selected) are not displayed on the Main Menu Screen, scroll down the screen by pressing the Down key ("▼") until the cursor is on the "Advanced Set" option.



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Figure 5 Advanced Set Selected

4. Press the OK button on the LCD Keypad. The Advanced Settings Menu Screen is now displayed (refer to Figure 6 LCD Advanced Settings Menu, Page 1).



Figure 6 LCD Advanced Settings Menu, Page 1

5. Use the Down key to get to Page 2 of the Advanced Settings Menu (refer to Figure 7 Advanced Settings Menu, Page 2).



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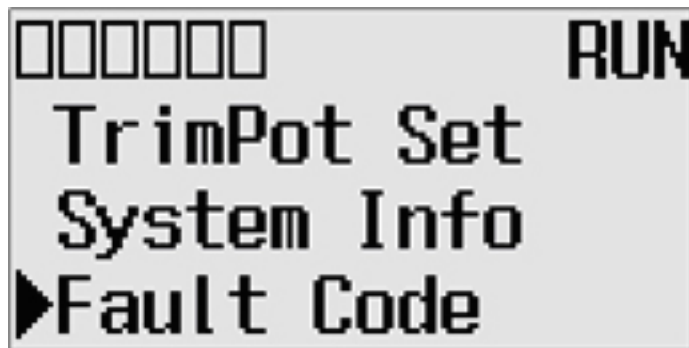


Figure 7 Advanced Settings Menu, Page 2

6. Continue to use the Down key to get to Page 3 of the Advanced Settings Menu (refer to Figure 8 Advanced Settings Menu, Page 3).



Figure 8 Advanced Settings Menu, Page 3

7. Select the "Comms EEPROM" menu and press the "OK" key. The Comms EEPROM Menu Screen will open (refer to Figure 9 Comms EEPROM Menu Screen).



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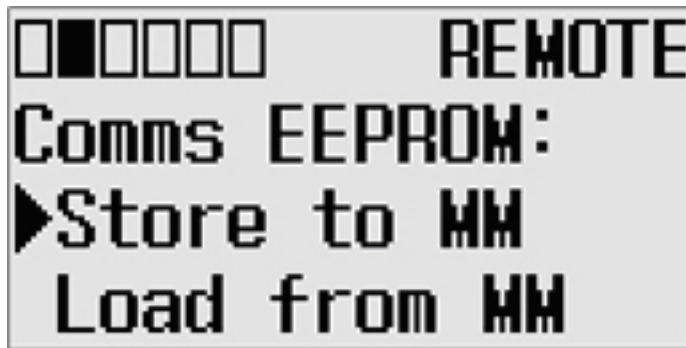


Figure 9 Comms EEPROM Menu Screen

8. Select "Store to MM" to save the user program and data, then press the "OK" key.
9. If the controller is in a non-executing mode, skip to the next step. If it is in an executing mode (i.e. "RUN" or "RMOTE"), the Change Mode Screen will appear (refer to Figure 10 Change Mode Screen).

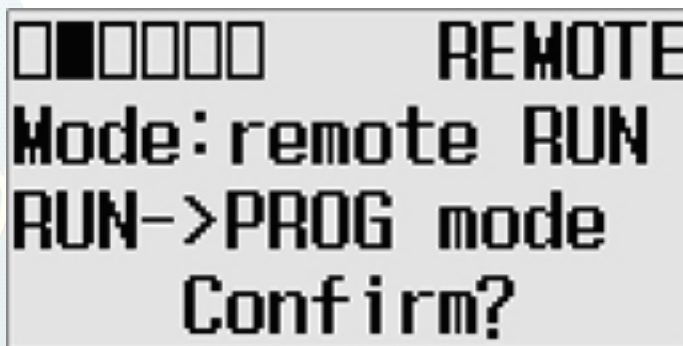


Figure 10 Change Mode Screen



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Switch the controller to the non-executing mode (“PROG”) by selecting the “OK” key to change the mode. The Reuse Device Menu Screen will open (refer to Figure 11 Reuse Device Menu Screen).

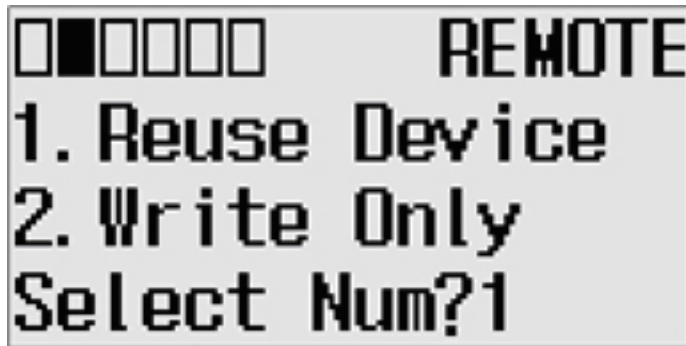


Figure 11 Reuse Device Menu Screen

10. The usual method for using a memory module is to reuse the device. Select the “1. Reuse Device” option using the Up or Down keys and then press the “OK” key.
11. The following screen appears if the save is complete. Press the “OK” key to go back to executing mode (refer to Figure 12 MM Change Mode Screen).

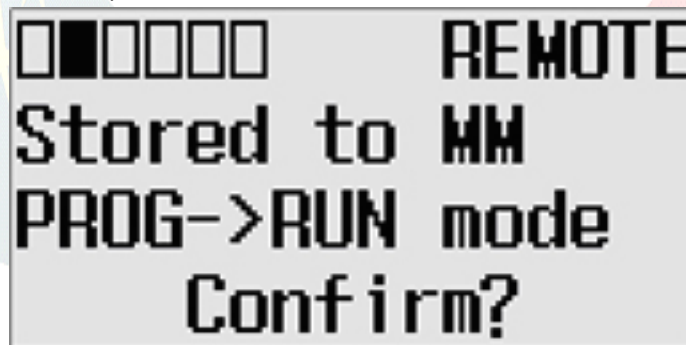


Figure 12 MM Change Mode Screen



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How to Load Data from the MM into the PLC's Memory

1. It is assumed the MicroLogix 1400 programmable controller is On and operating normally in "RUN" mode.

The LCD Default Screen which should be showing is the I/O Status Screen (refer to Figure 1 LCD Default Screen).

Select the "ESC" key and press it once. The LCD screen should change to show the Main Menu Screen (refer to Figure 2-1 Main Menu Screen, Page 1 and Figure 2-2 Main Menu Screen, Page 2).

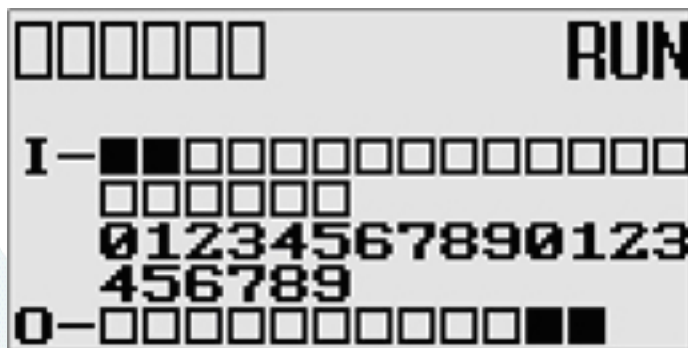


Figure 1 LCD Default Screen



Figure 2.1 LCD Main Menu Screen, Page 1



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Figure 2.2 LCD Main Menu Screen, Page 2

- From the Main Menu screen, select “Advanced Set” by using the Up and Down keys on the LCD keypad to navigate to this menu item. The cursor (“▶”) will indicate which option is currently selected. If the two menu items shown in the figure below (Figure 3 Advanced Set Selected) are not displayed on the Main Menu Screen, scroll down the screen by pressing the Down key (“▼”) until the cursor is on the “Advanced Set” option.



Figure 3 Advanced Set Selected



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3. Press the “OK” button on the LCD Keypad. The Advanced Settings Menu screen is now displayed (refer to Figure 4 LCD Advanced Settings Menu, Page 1).

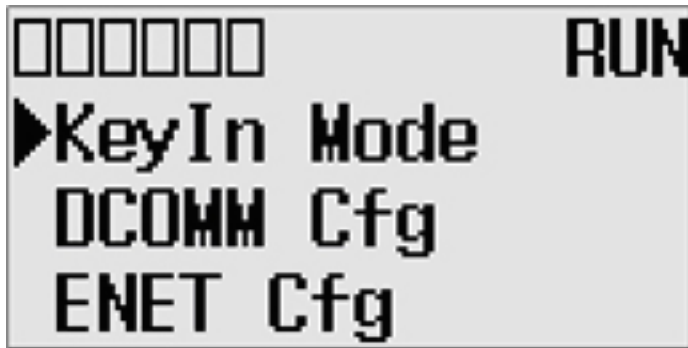


Figure 4 LCD Advanced Settings Menu, Page 1

4. Use the Down key to get to Page 2 of the Advanced Settings Menu (refer to Figure 5 Advanced Settings Menu, Page 2).

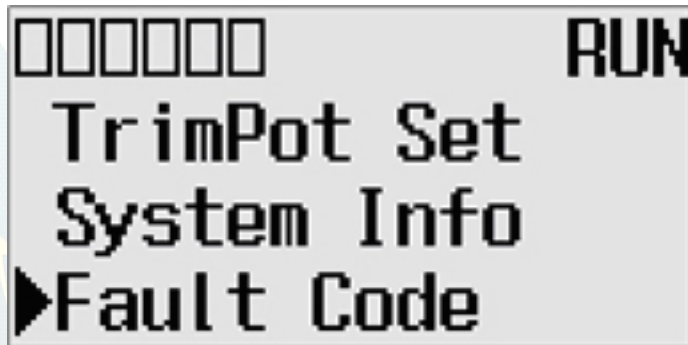


Figure 5 Advanced Settings Menu, Page 2

5. Continue to use the Down key to get to Page 3 of the Advanced Settings Menu (refer to Figure 6 Advanced Settings Menu, Page 3).



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Figure 6 Advanced Settings Menu, Page 3

6. Select the “Comms EEPROM” menu option and press the “OK” key. The Comms EEPROM Menu Screen will open (refer to Figure 7 Comms EEPROM Menu Screen).

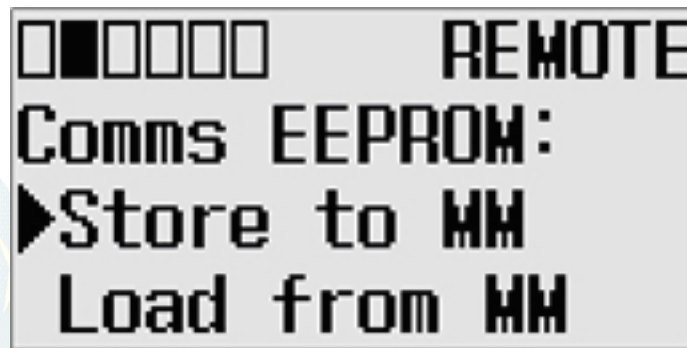


Figure 7 Comms EEPROM Menu Screen

7. Use the Down key to select the “Load from MM” menu option and then press the “OK” key (refer to Figure 8 Comms EEPROM Menu Screen “Load from MM” Selected).



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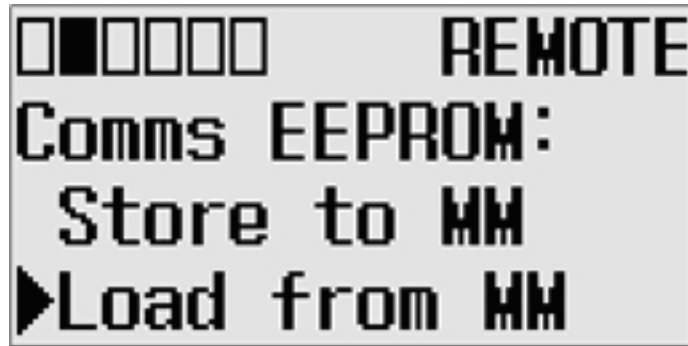


Figure 8 Comms EEPROM Menu Screen “Load from MM” Selected

8. If the controller is already in a non-executing mode, once the load from MM is complete, the “Change to Run Mode” screen will appear (refer to Figure 9 Run Mode Confirm Screen).

If the controller is in a “RUN” state, then skip to Step 9.

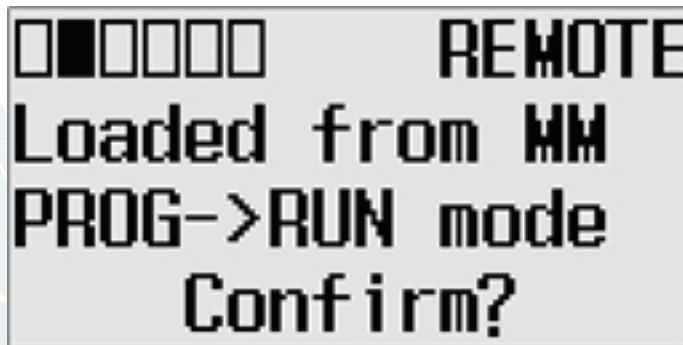


Figure 9 Run Mode Confirm Screen

9. If it is in an executing mode (i.e. “RUN” or “REMOTE”), the “Change Mode Screen” will appear (refer to Figure 9 Change Mode Screen) once the Load command is selected.



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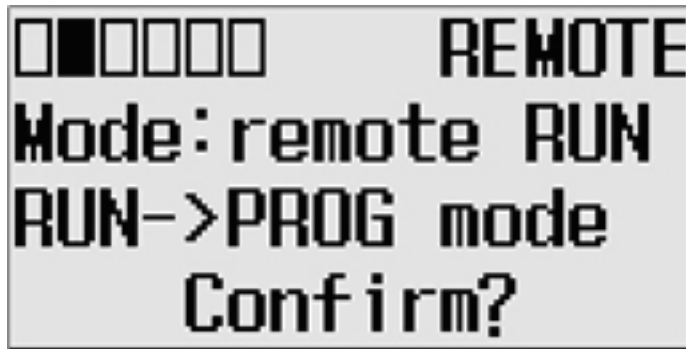
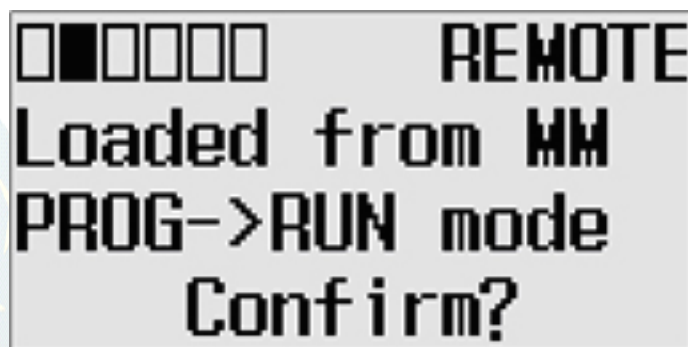


Figure 9 Change Mode Screen

Select the "OK" key to change the mode. The controller will switch into the non-executing mode ("PROG").

10. Once the load from the memory module is complete, the following screen will appear.



11. Select the "OK" key to go back to executing mode.

