


UMC800 Controller Upgrade Instruction From Release Versions 3.x - 4.x to Release Version 5.00

Document Number

Form: 51-52-33-116

Effective: 3/01

Determine your release number

To check, press  to access the main menu, Unit Setup, Controller Status, Rev Level.

System level release number: (x = 1 thru 9)

System Level Release Number	Controller Software Version
3.x	3.01 3.03 3.1x (except 3.12) *
4.x	3.2x (except 3.22) *
5.x	5.x

** For this update, a new CPU assembly is required - Contact Honeywell Technical Support 1-800-423-9883 to select the proper item.*

Verify proper upgrade kit

Check the table below to make sure you have to proper Upgrade Kit.

These instructions apply to the following upgrade kits:

From	To	Kit Number
Release 3/4.x - 8 or 16 loops without Serial Communications	Release 5.0 - 8 or 16 loops without Serial Communications	51309954-511
Release 3/4.x - 8 or 16 loops without Serial Communications	Release 5.0 - 8 or 16 loops with Serial Communications	51309954-512
Release 3.x - 8 or 16 loops with Serial Communications	Release 5.0 - 8 or 16 loops with Serial Communications	51309954-512
Release 4.x - 8 or 16 loops with Serial Communications	Release 5.0 - 8 or 16 loops with Serial Communications	51309954-511

Background

Code download provides a mechanism to upgrade the firmware in your UMC800 controller to a newer version without the need to replace the CPU card. This can be useful if you wish to upgrade your controller to take advantage of new features and functions as they are introduced, or in the event that a software bug requires field repair.

Upgrade firmware changes

The download you are about to do corrects the following problems:

- 1) Control action inversion signal to the PID block has been changed to Level.
- 2) Noisy A/D conversions.
- 3) DR4500 not packing Modbus requests correctly.
- 4) PID/FFV lockup.
- 5) Auto Bias block generates its own bias when switching from auto to manual.
- 6) Excessive cycle time on Modbus master port.
- 7) On/Off Delay blocks do not time accurately.
- 8) When Fuzzy logic is selected, the DEV field on the loop trend is modified to show the deviation of them actual (modified) Setpoint.
- 9) Periodic Timer stops.
- 10) Modbus byte swap on the Modbus slave port goes to zero after a configuration download.
- 11) Modbus Rtu master Function Code 17 ID support for DPR180/250 and VRX devices.
- 12) Unable to set the guaranteed soak type for a schedule's segment using Modbus.
- 13) If the UMC800 identifies a UDC6300 on the modbus link, it doesn't use to optimized packet size values.

The download you are about to do also adds the following function blocks:

- **Device Control (DC)** - The Device Control function block is normally used to control pumps. Based on certain events the device will be placed into one of six states: READY, PRESTART, STARTING, RUNNING, STOPPING, DISABLED, or FAILED. The READY (off state) is the initial state of the function block. Each configuration is limited to a maximum of 16 Device Control function blocks.
- **Digital Encoder (DENC)** - This block's main function is to totalize the number of ON states from up to 16 digital signals. The block digitally encodes up to 16 digital inputs to a single floating point output value.
- **Frequency Input (FI)** - This function block reads a single frequency channel from a pulse-frequency-input module. It scales inputs from the module to user-configured engineering units per unit time. The function is used for measuring speed and flow rate. The frequency high and low limits are sent to the module and the module will respond with FAIL or the frequency input value.
- **Hand/Off/Auto (HOA)** - The Hand – Off – Auto (HOA) switch function block permits state change requests from a Local Operator Interface or a Remote source. The block states are: BYPASS (external manual operation of a device), HAND (manual operation from an operator interface), AUTO (default – requests are operated automatically), or OFF (relay to be switched to Bypass, Hand, or Auto) The HOA switch is also used with the Device Control (DC) function block to comprise a Pump Control algorithm which is used to manipulate the state of a controlled device (pump). Each configuration is limited to a maximum of 16 HOA function blocks.
- **Pulse Input (PI)** - This function block reads a single input channel from a pulse-frequency-input module. It scales inputs from the module to user-configured engineering units corresponding to accumulated pulses. The scaling typically represents a quantity. The preset values, reset, preset action, hold and clear flags are sent to the module and the module will respond with FAIL, counter overflow indicator (OVFL), preset indicator (PREI) and accumulated pulse counts.

Upgrade Compatibility

To allow this upgrade to be compatible with all 3.xx versions of the UMC800 controller, it includes a new startup sequence code.

To upgrade from versions 3.03, 3.10, 3.11, 3.13, 3.14, 3.15, or 3.21:

Three separate downloads will be required to complete the process.

- The *first* enables download of the new startup sequence,
- The *second* performs the startup sequence upgrade,
- The *third* restores the remainder of the controller code to its normal state, included the changes listed above, and disables the startup sequence download.

To upgrade from Version 3.23, 3.24, or 3.25;

Only one download will be required.

Preliminary procedure

Before doing the CPU upgrade procedure, do the following steps to keep old and new Control Builder files separate. *You must do this procedure if you want to access older configurations after doing the upgrade.*

1. Upload and save your controller configuration with your current version of the Control Builder (not with the new version). Save your existing configurations in a directory named "Revision X" where "X" is the old version number of Control Builder. To learn the version of Control Builder, click on Help, then click on About.
2. Insert the new (number 1 of 4) CD and install to a directory separate from the old LCB directory. For example, the LCB CD will ask you if you want to install to "Honeywell\LCBuilder". Change this to "Honeywell\LCBuilder_RevY" where "Y" is the new LCB version number. If you install the new LCB files to the same directory as the old LCB files, you will not be able to access your old configurations should the need arise.
3. If you want to use the new LCB to work on configurations made with the old LCB, upload the configuration into the new LCB but save it in the new directory (RevY). This ensures that an old and new version of the configuration is maintained.

Getting Started

Before you begin the download there are a few things you need to be aware of.

- a) **CAUTION! Loss of controller power during the second download of this procedure will cause the code download to fail.** It will not be possible to recover from this failure if the controller loses power during the new startup sequence download. The only remedy is to replace the CPU card with a new one which has been pre-programmed by Honeywell.
The startup sequence download takes approximately 25 seconds to complete. Therefore, it is highly recommended that you do not start the code download procedure at a time when the likelihood of power failure is increased, such as during thunderstorms.
- b) The code download function is only available through the UMC800 User Utility program connected to the controller via the CONFIGURATION port on the UMC800. Install the User Utility software to your existing system per instructions provided with the system.
- c) The controller will not allow the code download to begin if the battery is bad.
- d) **Code download will destroy the configuration database in the controller.** Therefore, before code download is started, either upload the configuration file via the operator interface and save on floppy, or upload and save to your PC via the User Utilities.
- e) The entire process to upgrade from versions *3.03, 3.10, 3.11, 3.13, 3.14, 3.15, or 3.21*, start to finish, will take approximately 45 minutes.

The entire process to upgrade from versions *3.23, 3.24 or 3.25*, start to finish, will take approximately 20 minutes.

Extract files to be downloaded

The files needed to complete this download are distributed as a self-extracting ZIP file named "UMC800 V3_xx to V5_00 Upgrade.exe". It contains compressed versions of four (4) files:

- 1st.s19 -- program which enables new startup sequence download
- 2nd.s19 -- new startup sequence program
- 3rd.s19 -- normal controller program
- ReadMeTxt.doc -- this procedure

Prior to performing the download procedure, you must extract the three program files to your computer's hard disk according to the following instructions.

- 1) Save the file UMC800 V3_xx to 5_00 Upgrade.exe to a temporary location on your computer (your desktop would be a good choice or you could use your "temp" directory.)
- 2) After saving the file, run it by either double clicking your left mouse button on the icon on the desktop, or by clicking "Start", "Run", then enter the complete path and file name where you saved the file.
- 3) A dialog box will ask where you want to Unzip the files to. The default entry is your system temporary folder. Either accept this choice or enter or "Browse" to another folder name and click the "Unzip" button.
- 4) A dialog pop-up will indicate successful completion. Click "OK" and then "Close".

Download procedure



Step	Action
1	Backup the controller configuration either by uploading to floppy disk on the operator interface, or uploading and saving via the User Utilities.
2	Connect the serial port of your PC to the CONFIGURATION port connector on the controller CPU card using the appropriate null-modem cable. <i>Note: A 66MHz 486 is the minimum supported PC.</i>
3	Install UMC800 User Utilities Program per the instructions provided with the software WIN95: MSVERT.dll file on rel. 5.0 UMC control Builder is older than existing file <i>Note: If DLL file version error displays, select the newer DLL file..</i>
4	Start User Utilities. From the Communication menu select "Setup" to verify the configuration is set to the correct port for your computer and the to 9600 Baud. Make any needed corrections and click on "OK".
IF YOU ARE UPGRADING FROM CPU VERSION 3.23, 3.24, or 3.25, SKIP TO STEP 15	
5	From the Maintenance menu select "Download Controller Code...".
6	Use the "Look in:" drop down list in the "Open" dialog box to select the drive and folder you un-zipped the files to. Three files will appear in the file list box.
7	Select and open the file "1st.s19" displayed in the file list box.
8	Click on the "Start" button in the "Code Download" dialog box. The download will start, and progress is displayed. At this time, all four (4) LEDs on the CPU will be lit, and the operator interface will display "NO COMM". The download itself will take approximately 20 to 25 minutes, depending on the speed of the PC. <i>Note: A 66 MHz 486 is the minimum supported PC.</i>
9	When the download is complete, the controller will be restarted. An "INVALID CONFIGURATION" diagnostic will be indicated. Close the "Code Download" progress dialog. The controller is now prepared to accept the new startup sequence.
10	From the Maintenance menu select "Download Controller Code...".
11	Use the "Look in:" drop down list in the "Open" dialog box to select the drive and folder you un-zipped the files to. Three files will appear in the file list box.

Step	Action
12	Select and open the file "2nd.s19" displayed in the file list box.
13	Click on the "Start" button in the "Code Download" dialog box. The download will start, and progress is displayed. At this time, the status of all four LEDs on the CPU is not defined, but the operator interface will display "NO COMM". The download itself will take approximately 20 to 25 seconds. During this time, a loss of controller power will cause a fatal failure of the download, and you will have to contact Honeywell for a replacement CPU.
14	A "Download succeeded" status will be displayed in the "Code Download" dialog box, but the controller will not restart. Close the "Code Download" dialog box. At this point, the new startup sequence has been downloaded into the controller and restoration of the normal controller code can proceed.
15	From the Maintenance menu select "Download Controller Code...".
16	Use the "Look in:" drop down list in the "Open" dialog box to select the drive and folder you un-zipped the files to. Three files will appear in the file list box.
17	Select and open the file "3rd.s19" displayed in the file list box.
18	Click on the "Start" button in the "Code Download" dialog box. The download will start, and progress is displayed. At this time, all four (4) LEDs on the CPU will be lit, and the operator interface will display "NO COMM". The download itself will take approximately 20 to 25 minutes, depending on the speed of the PC.
19	When the download is complete, the controller will be restarted. An "INVALID CONFIGURATION" diagnostic will be indicated. Close the "Code Download" progress dialog.
20	Restore the configuration from the backup copy you previously made.
21	Close the UMC800 User Utility.
22	Install the PROMs in the Operator Interface.

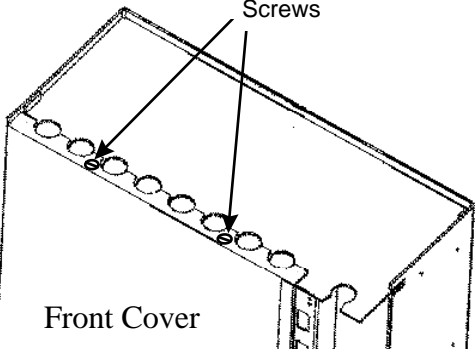
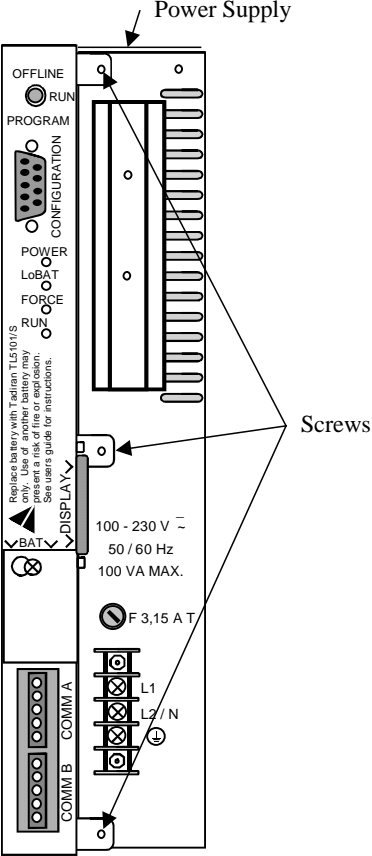
Install Serial Communication Option

If your System Release 3.x version controller has the serial communication option, or if you are upgrading to add this feature, the CPU must be removed from the controller and the existing serial communication card must be replaced or the new card added. Proceed as follows:

Communications Upgrade

Step	Action
1	 WARNING Never access components inside the controller enclosure with power applied. Remove power from the controller. Disconnect cables from Display and Configuration ports.  Electrostatic discharge can damage sensitive electronic components. Take appropriate precautions such as wearing a grounded wrist strap or working in an ESD-safe area.

Kit Instruction, continued

Step	Action
2	<p>Remove the front cover by loosening the two screws at the top of the enclosure.</p> 
3	<p>Remove the three screws securing the CPU module to the power supply.</p> 
4	<p>Unplug the CPU module from the controller slot by pulling it straight out from its slot.</p>
5	<p>If a communications card is installed behind the COMM A and COMM B port labels, remove it by removing the two screws. Using the screws and washers provided, attach the upgrade communications card to the two metal studs behind the COMM A and COMM B labels on the module. The washers should be under the screw heads.</p>
6	<p>Carefully insert the CPU module into its enclosure slot and secure with three screws removed in step 3.</p>
7	<p>Replace the front cover and secure with two screws.</p>
8	<p>Reconnect cables to Display and Configuration ports. Connect communications wiring—see UMC800 Controller Installation and User Guide, 51-52-25-61 for details.</p>

Step	Action
9	Restore power to the controller.
10	Any existing configurations that you want to use in the upgraded controller must be first opened and saved in the new LCB tool, then downloaded into the controller. Be sure to save them in a separate directory from the old LCB files. Download the controller configuration file from the new LCB.
11	Verify controller configuration.
12	Perform calibration of AI modules and CJC references for all channels if better than 0.1% accuracy is required. All controller components are factory-calibrated to $\pm 0.1\%$ accuracy. If better than 0.1% accuracy is required, <i>refer to the UMC800 Operator Interface User Guide, 51-52-25-62, for details on field calibration.</i>

CONGRATULATIONS! You have successfully upgraded your UMC800 controller to version 5_00.

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is **in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.** Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

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