G&L Basic Support

Note that in October of 2018 the entire G&L Product line's obsolescence was declared.

What that means is no new projects should be designed with G&L products and in the long term you should start preparing a retrofit/migration path with your machine builder and/or Kollmorgen distributor.

In the short run we continue to try to manufacture G&L products that have a demand and no end of life component issues.

In general G&L products have a very long, standard lead time which is around 16 weeks.

This document was written to assist with maintenance procedures.

Program files and PicPro

The program that runs in the controller is a compiled program (*.bin) which means yes you can back it up but unless you have the original project files (i.e *.G&L, *.LDO, etc.) then you won' t be able to go online and monitor the ladder, etc.

Do you know what version of PicPro the original code was written in?

If you can tell us, I can give you the part#.

If you don't know then the best case scenario is to contact the original machine builder or integrator and ask them.

Otherwise use this document to determine controller and drive firmware versions.

The ideal is to have the *.G&L compressed file which is suppose to back up everything. Often the OEM or integrator will put it on the RAMdisk or Flash to backup everything locally but not always.

PicPro comes in 3 versions:

PicPro Professional Edition-the full-featured version of PicPro. It allows you to program PIC controls, MMC controls and/or MMC Smart Drives, and MMC for PC.

PicPro MMC Limited Edition-allows you to program standalone MMC controllers and/or MMC Smart Drives.

PicPro Monitor Edition-freeware on our website which allows you to view, print, and monitor the execution of a program for PIC and MMC controls.
G&L Support Documentation and Downloads can be found at the following link:
https://www.kollmorgen.com/en-us/developer-network/gl-support-downloads-and-documentation/

PicPro Monitor Edition can be downloaded under G&L Product Downloads at the above link.

Identifying G&L Firmware Versions and PicPro Compatibility

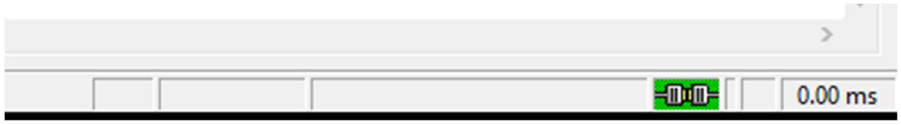
1. Ideally the user must have the "as commissioned" project files (i.e. *.PRJ, *.LDO, *.DRV, etc.) and the same version (full; not monitor) of PicPro installed on the PC as the project and program were created in. If the user doesn't have these files they must either find the *.G&L compressed file on the RAMdisk (more on this later) IF the original programmer placed it there OR contact the original integrator/OEM and obtain the files from them. A *.BIN file will not help identify what version of PicPro or firmware is needed to maintain the system (i.e. change a faulty drive or controller card out).
2. The user must review the compatibility chart app note at: https://www.kollmorgen.com/en-us/developer-network/gl-support-downloads-and-documentation/?page=1

Software/EPROM compatibility charts	an000013.doc	18-Jul-2006

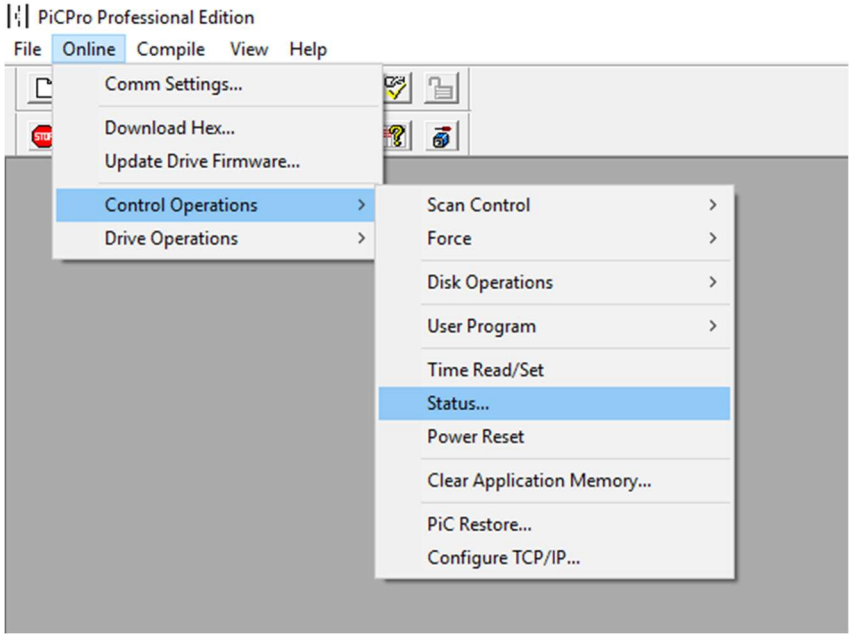
It is also important to understand how PicPro project files are and should be organized on your PC.

Understanding and Organizing PiCPro Files	an000053.doc	12-May-2006

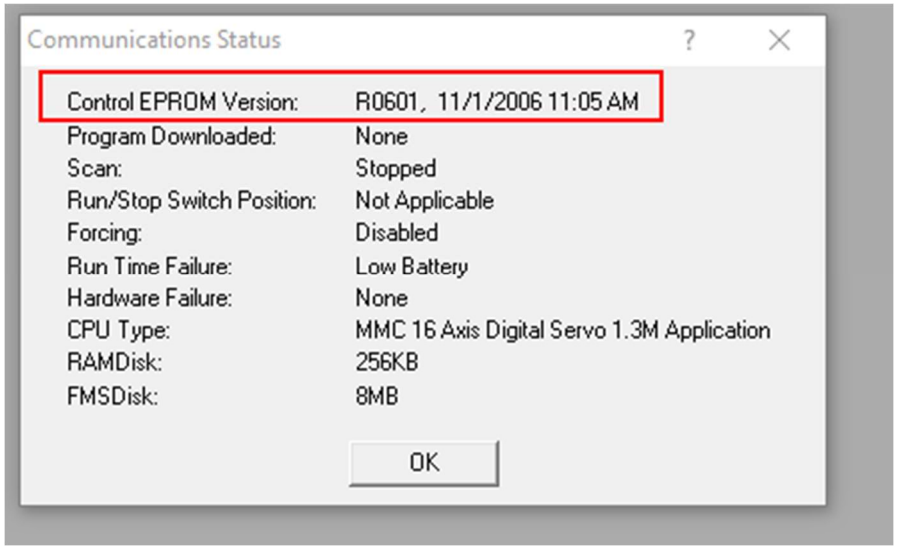
3. Checking the controller's firmware version:
   Connect to your controller with PicPro. In this example the program is not running and the scan is 0.00ms but the green icon indicates the PicPro is connected to the controller.



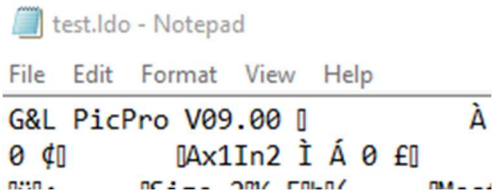
From the Online pull-down menu navigate to Control Operations->Status…



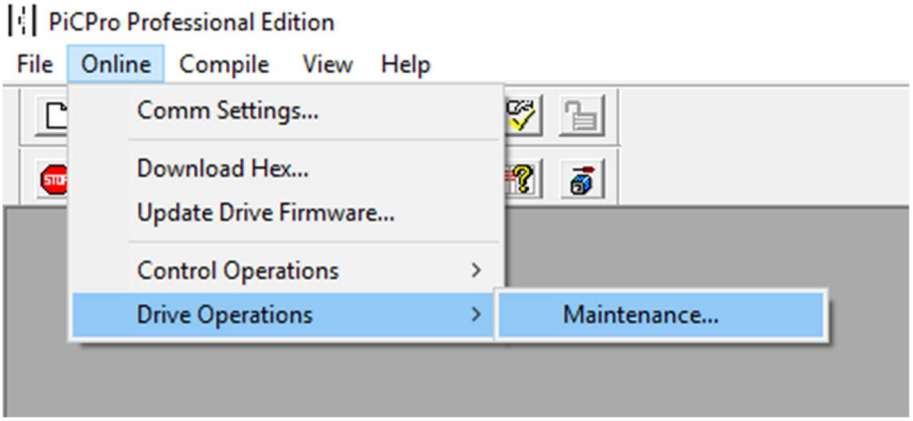
In this example the controller firmware version is R0601.



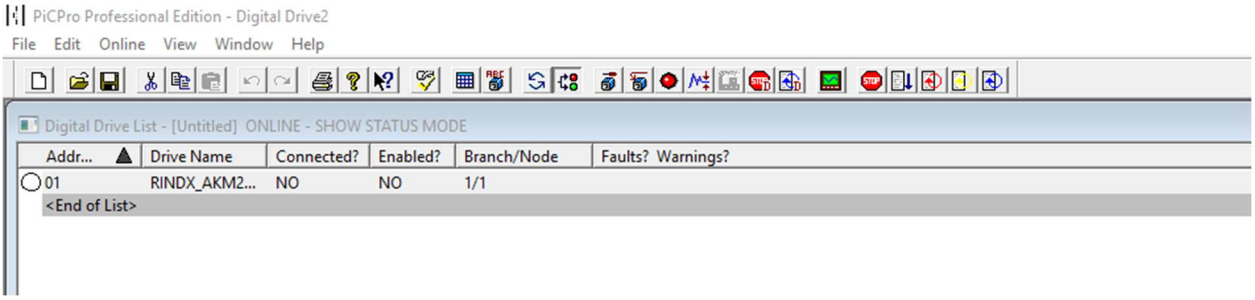
Also, note that the Compiler version can be identified by opening the .LDO or .SRV in a text editor such as MS Notepad.
I compiled this LDO file in PicPro v18.0 and the text file shows V09.00 so I don't think this works.



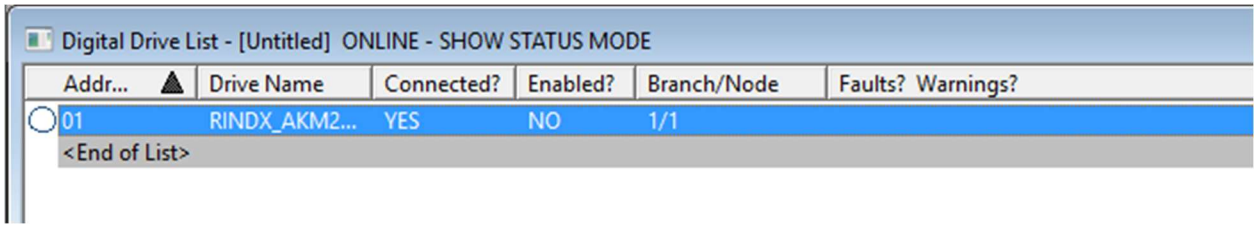
4. Checking drive firmware versions:
From the Online->Drive Operations->Maintenance menu.



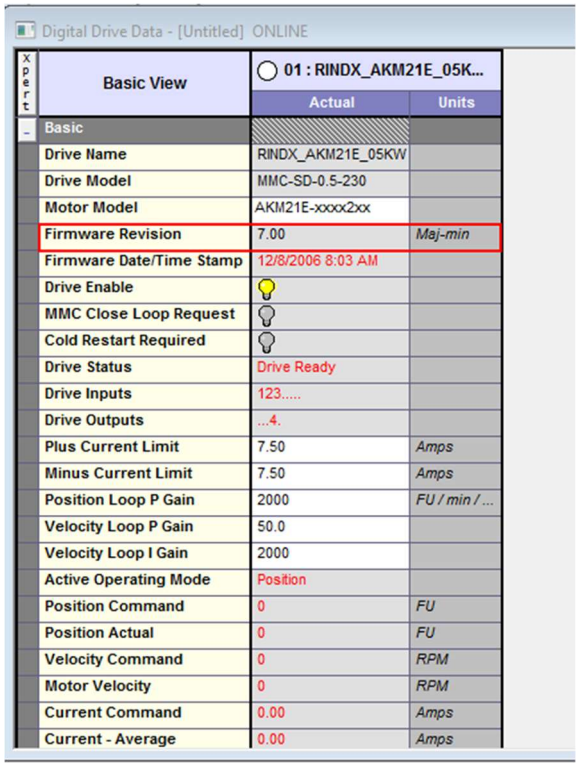
Drives that are identified should be visible in the Digital Drive List.



Highlight the drive desired with your mouse cursor and then double-click the highlighted drive in the list to open the Digital Drive

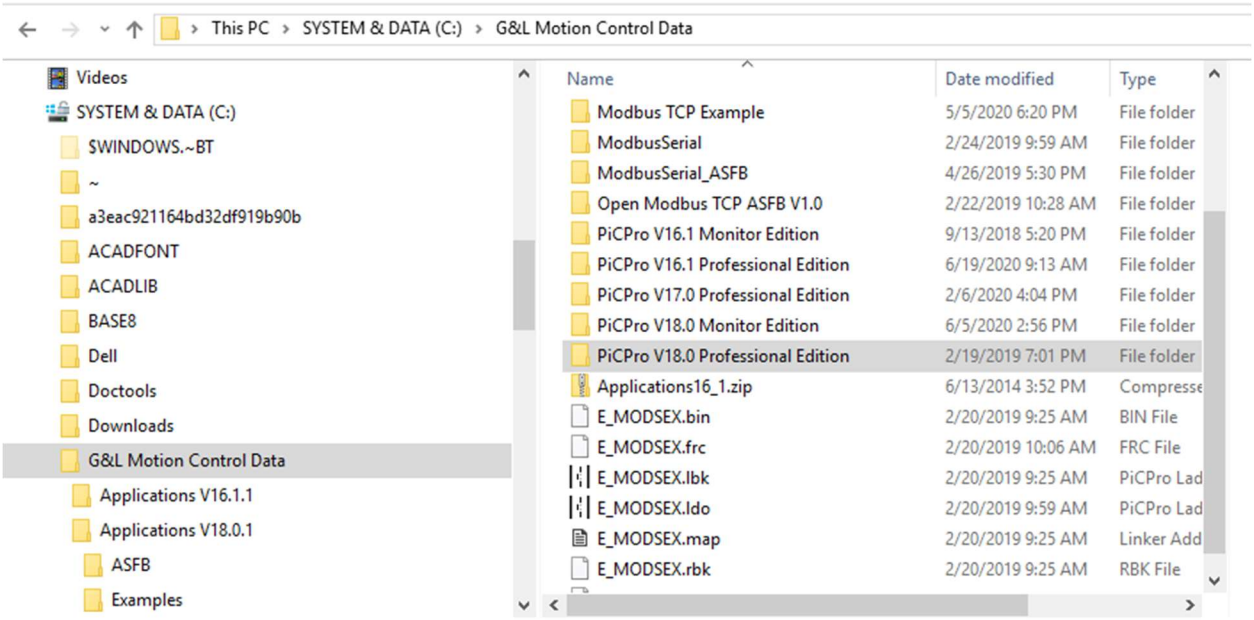


In this example the drive firmware version is shown to be 7.00.

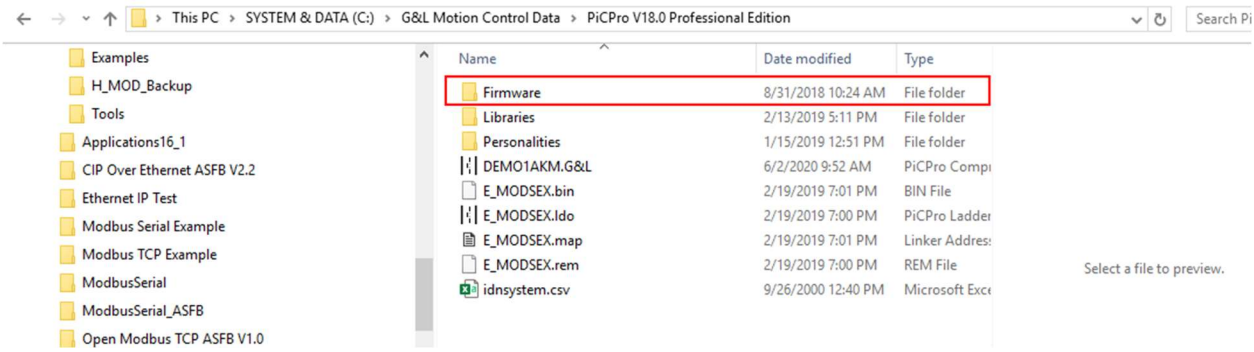


5. In the given example we've identified the controller firmware is R0601 and the drive is R0700.
   So how do you know what version of PicPro these are compatible with?
   One method is to check within your installed version of PicPro.
   From the Help pull-down menu->About PicPro…the version of PicPro is given.

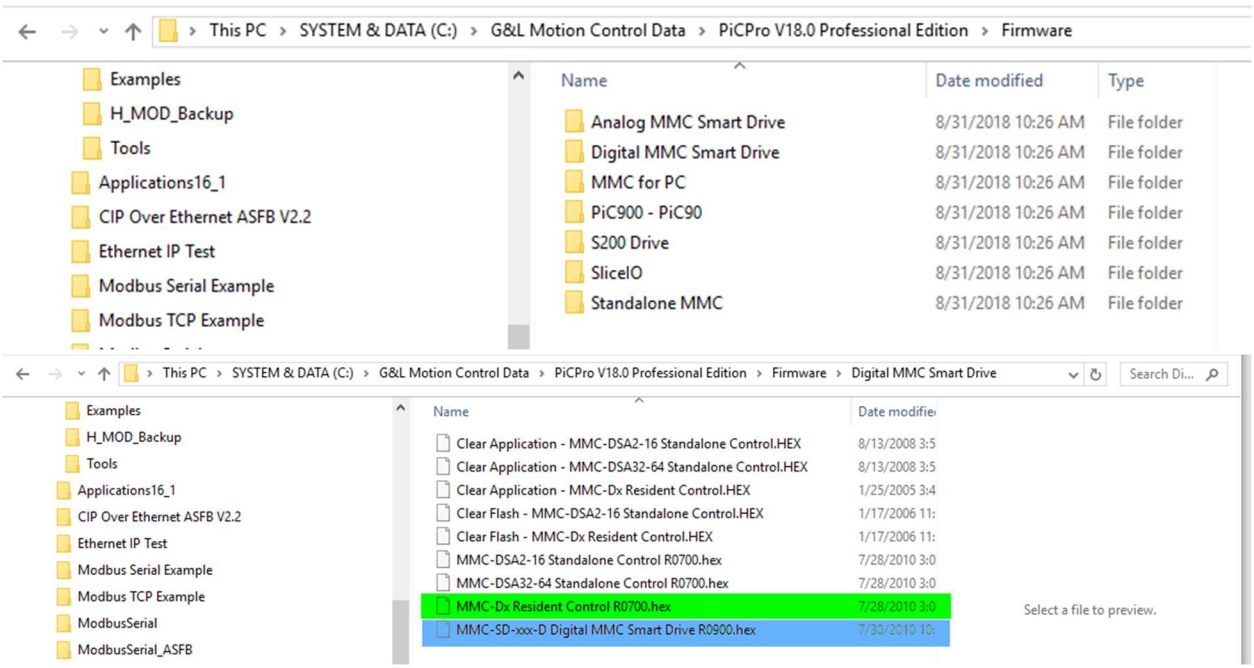
Navigating to C:\G&L Motion Control Data and then the folder for the version of PicPro (V18.0 Professional in this example):



Under that folder is the “Firmware” folder:



To navigate further it requires the user identify what controller and drive hardware is present. In this example the hardware is the Digital MMC Smart Drive and the Drive Resident MMC-Dx control card.



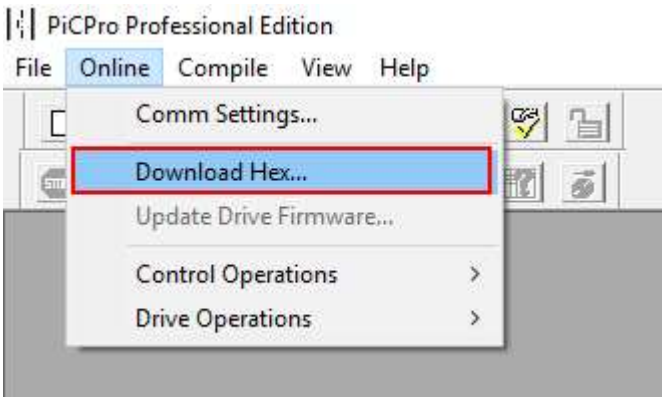
For the installed version of PicPro the compatible firmware versions are shown above (R0700 for the drive resident control and 0900 for the digital MMC drive.

Note previously the actual controller and drive firmware versions were determined to be R0601 and R0700 respectively.

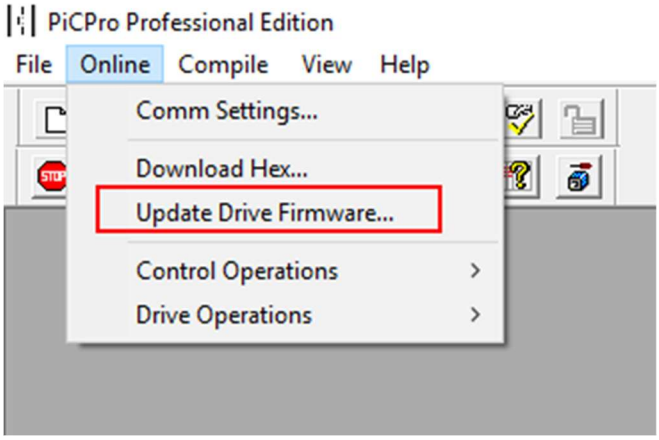
In this scenario there are two possible options to take.

1) Update the controller and digital MMC smart drive firmware to match the version of PicPro on the PC.

To change the controller firmware:



To change the drive firmware:



2) Determine the version of PicPro compatible with the firmware resident in the controller and drive.
https://www.kollmorgen.com/en-us/developer-network/gl-support-downloads-and-documentation/?page=1

G&L Downloads and Documentation

G&L Firmware

Filename	Description
FIR180S7.zip	**Firmware released with PiCPro for Windows V18.0 SP7** Includes: PiC, MMC, MMC Smart Drive, MMC Digital, S200, DL-DIU, MMC-SDN, and SliceIO firmware Released 02/18/2015, 2,394 KB
---	Service Pack 6 Firmware was an internal release only.
FIR180S5.zip	**Firmware released with PiCPro for Windows V18.0 SP5** Includes: PiC, MMC, MMC Smart Drive, MMC Digital, S200, DL-DIU, MMC-SDN, and SliceIO firmware Released 02/28/2014, 2,390 KB
FIR180S4.zip	**Firmware released with PiCPro for Windows V18.0 SP4** Includes: PiC, MMC, MMC Smart Drive, MMC Digital, S200, DL-DIU, MMC-SDN,

It requires a bit of trial and error to setup back through the versions until you find a match. In the example PicPro version v18.0 Service Pack 0 provided the match.

Backup the User Programs ".bin File"

Your program in the control memory may be backed up as a binary file directly to a computer disk. With your workstation connected to the control and communications established, follow these steps.

1. Select **Online | Control Operations | User Program| Backup | Application Program** from the menu. Backup will be in bold and selectable if there is an existing communication link to your workstation.
2. The **Backup File to PC** dialog appears. The filename of the ladder file currently in the control memory with the a .bin extension will appear in the entry field.
3. Choose the location you want to save the binary file to and choose **Save**. A progress display will tell you the file is being saved to the workstation.

Restore User Program " Download .bin File"

A program file saved in the binary format with .bin extension can be restored to the control memory by doing the following

1. Select Online| Control Operations | User Program | Restore from the menu.
2. **The Restore to File Control** dialog appears. Restore will be in bold and selectable if there is an existing communication link to your workstation.
3. On your Workstation, find the location the binary file you want to restore and click on it so that it appears in the entry field. When the correct bin file is in the entry field, choose **Restore**. A progress display will tell you the file is being downloaded to the control

Battery Replacement for Drive Resident Controller card.

The BR2032 lithium battery is located on the drive resident control care in the D2 slot.

G&L documentation support which includes manuals, application notes, and software patches or PicPro Monitor can be found at the following link.

https://www.kollmorgen.com/en-us/developer-network/gl-support-downloads-and-documentation/

The hardware manual for the MMC Smart Drive and Drive Resident Control can be found at the link above under G&L Technical Manuals.

Page 363 of the manual provides the specifications on the battery and cautions.

Starting on page 337 of the manual Basic Setup and Maintenance Procedures are given.

Starting on Page 335 of the manual there are procedures for installing the drive resident control card (I don't see a procedure for removal).

Prior to battery replacement it is extremely important that you have backup files in case you lose the program.

If you don't have the backup files it is best to contact whomever you acquired the system from.

In regards to backing up the BIN file from the PicPro help you can backup the BIN file using the following procedure.

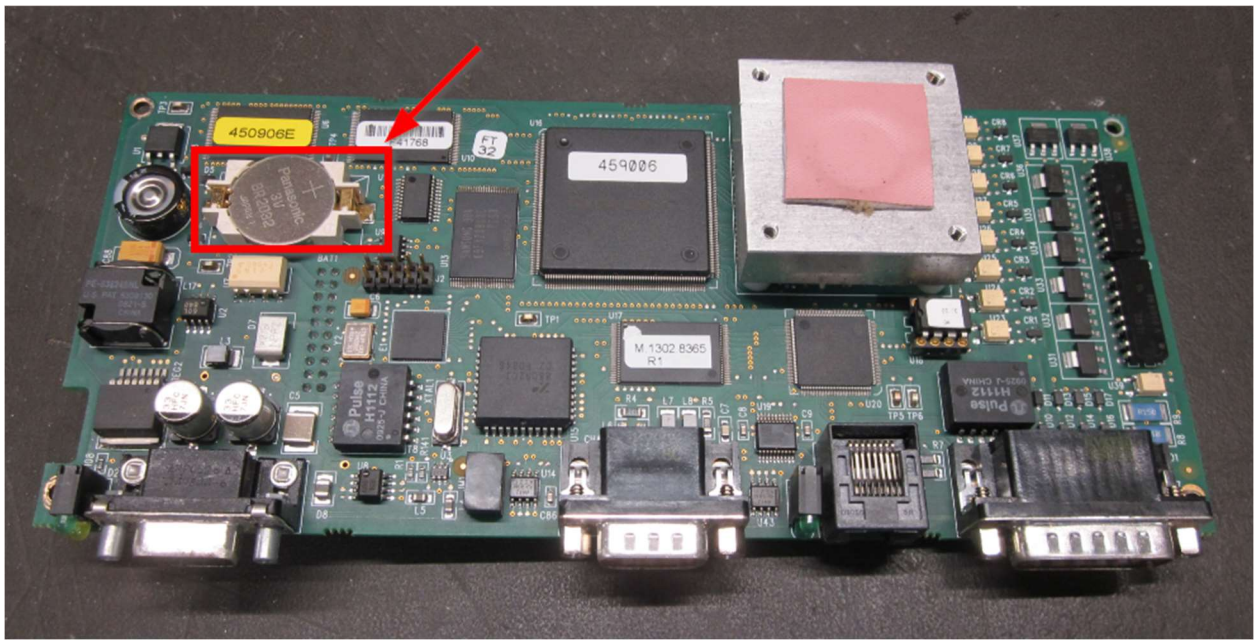
Backup User Programs

Your program in the control memory may be backed up as a binary file directly to a computer disk. With your workstation connected to the control and communications established, follow these steps.

1. Select **Online | Control Operations | User Program | Backup | Application Program** from the menu. Backup will be bold and selectable if there is an existing communication link to your workstation.
2. The **Backup File to PC** dialog appears. The filename of the ladder file currently in the control memory with a .bin extension will appear in the entry field.
3. Choose the location you want to save the binary file to and choose **Save**. A progress display will tell you the file is being saved to the workstation.

The file can later be restored to the control using the **Restore** command.

It is easy to locate the battery on the Resident Controller card. I have attached a picture showing the location of the battery. It is always good practice to ground yourself when working on electronics, so you do not damage them with ESD. Use the installation document for the Resident Controller as a guide.



13.2 Installing the Drive Resident Digital MMC Control

13.2.1 Installing into a 230V MMC-SD Drive

1. Remove the three screws from the right side of the cover and one screw from the top and bottom of the drive near the front. Remove the cover.
2. Place the cover removed in step 1 on a flat surface, with the blue plastic faceplate down, and the large side cover to the left pointing up.
3. Remove the two screws that hold the .6" by 8" blue filler plate to the back of the faceplate and remove the plate.
4. Locate the 4 screws that secure the top-most printed circuit board into the drive. Remove one of the screws and the associated lock washer, and install one of the four threaded standoffs that were included with the Drive Resident Digital MMC Control (do not use the lock washer). Repeat this process for the other 3 screws, one at a time.
5. Place the Drive Resident Digital MMC Control into the drive, with the connectors facing towards the front of the unit. Align the 20-pin connector on the Drive Resident Digital MMC Control with the 20-pin connector on the drive. Press the Drive Resident Digital MMC Control onto the drive until the 20-pin connector is completely seated and the Drive Resident Digital MMC Control is seated against the threaded standoffs installed in step 4.
6. Fasten the Drive Resident Digital MMC Control onto the threaded standoffs using the lockwashers and screws removed in step 4.
7. Replace the cover using the 4 screws removed in step 1.

13.2.2 Installing into a 460V MMC-SD Drive

1. Turn the two locking screws on the front of the drive clockwise ¼ turn and pull the drive control board unit out of the drive.
2. Place the drive control board unit removed in step 1 on a flat surface, with the blue plastic faceplate down, and the drive control board to the left.
3. Remove the two screws that hold the .6" by 8" blue filler plate and remove the plate.
4. Place the drive control board unit on a flat surface so that the control board is facing up, and the blue plastic faceplate is facing away from you.
5. Locate the 4 screws that secure the top-most printed circuit board into the drive. Remove one of the screws and the associated lock washer, and install one of the four threaded standoffs that were included with the Drive Resident Digital MMC Control (do not use the lock washer). Repeat this process for the other 3 screws, one at a time.
6. Place the control board unit on a flat surface, with the blue plastic faceplate down, and the drive control board to the left.
7. Loosen (but do not remove....about 2 turns) the 5 screws that hold the drive control board mounting plate to the front cover plate.
8. Place the Drive Resident Digital MMC Control into the drive, inserting the connectors on the Drive Resident Digital MMC Control through the front plate.
9. Align the 20-pin connector on the Drive Resident Digital MMC Control with the 20-pin connector on the drive. Press the Drive Resident Digital MMC Control onto the