

Upgrading MON GC Software and Model 2350 EPROMs

INSTRUCTIONS BOOKLET

**DANIEL MEASUREMENT AND CONTROL
HOUSTON, TEXAS**

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DANIEL

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AND MODEL 2350 EPROMs
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UPGRADING MON GC SOFTWARE AND MODEL 2350 EPROMS

OVERVIEW

Steps for upgrading Daniel Industries GC Software (MON) and the associated Daniel Industries Model 2350 GC Controller EPROMs are divided into these overall tasks:

- (1) "Connect" and "Halt"
- (2) "Offline Edit," "Upload Application," and Rename
- (3) Upgrade Software and "BIN" Files
- (4) Disconnect Power and Disassemble
- (5) Replace EPROMs and Reset CPU
- (6) Reassembly
- (7) "Connect" and "Download"



IMPORTANT: To upgrade the GC software and the Model 2350 EPROMs, perform all steps in the same order as they appear in this instruction booklet.



IMPORTANT - DO THIS FIRST: Before you begin step (3) to upgrade the "BIN" files, you will need to know which standard, or factory-released application file was used to form the GC's current 'user application'. Consult the guide to the different standard application files, or "BIN" files at the *end of this instructions guide*.

"CONNECT" AND "HALT"

- (1) Ensure that the MON software is running and you are connected to the Gas Chromatograph (GC) that is to be upgraded.
 - (a) From the Main Menu screen, choose "Select," then "Connect."
- (2) Use MON to "Halt" any ongoing analysis or calibration runs.
 - (a) From the Main Menu screen, choose "Control," then "Halt."
 - (b) When halted GC runs have finished, the Status Line Detector 1 field (D1:) will indicate **Idle**.

"OFFLINE EDIT," "UPLOAD APPLICATION," AND RENAME

- (1) Use MON to upload (from the GC unit) to the PC the most current parameters that are in use at the GC.
 - (a) From the Main Menu screen, choose "Select"; then, from the "Select" Submenu, choose "Offline Edit."
 - (b) From the "Offline Edit" pop-up selection menu, choose "Upload Application."
 - (c) A pop-up list of stored application files appears.
- (2) Assign a new filename to the GC Application file that is the target for uploading.
 - (a) With the "Select Dumped Application" screen in view, note that the GC Application file for the connected GC already has the existing filename in the "Filename:" field.
 - (b) Make changes to the *.BIN* filename to reflect the new name you wish to assign to the upgraded GC Application.

For clarity, it may be beneficial to call this file 'OLD'. Any name, eight characters or less can be used.

EXAMPLE: The current GC Application filename is *LCS_2350.BIN*.

You change the GC Application filename to *OLD.BIN*.



IMPORTANT: Note carefully the *.BIN* filename you provide in the above step. Later in this procedure, you will be prompted for this same filename when you use the *UPD_BIN* program.

- (c) When you are finished changing the filename, press the ENTER key.

- (3) The Upload Application process begins, which usually takes about 15 minutes to complete.
 - (a) MON automatically disconnects from the GC after the Upload Application process has finished.
- (4) Press the ESCAPE key to exit from the MON program and return to the DOS prompt.

UPGRADE SOFTWARE AND "BIN" FILES



CAUTION: Do not delete from the PC hard drive any currently existing MON or GC Application files. This upgrade process will utilize information from those files and automatically overwrite any outdated program files.

- (1) Install the new version of MON software from floppy diskettes.
 - (a) Start with the DOS prompt on your screen. Example: **C:\>**
 - (b) Insert **MON Installation Diskette #1** into the diskette drive.
 - (c) Depending on whether the diskette drive is A: or B:, type in
a:\install
or **b:\install**
and press the ENTER key.
 - (d) When prompted, provide answers for the following:
 - Target installation drive (default is **C:**)
 - Type of printer you are using (default is **Epson FX**)
 - Whether you want changes written directly to **AUTOEXEC.BAT** and **CONFIG.SYS** files or to **temporary files**
-



CAUTION: The new, upgrade version of MON *must* be installed in the same hard drive directory as the original, or \GC.

- (e) When prompted, insert **MON Installation Diskette #2**, and press any key to continue.

- (f) When prompted, insert **MON Installation Diskette #1**, and press any key to continue.
 - (2) Install the new or upgraded GC Application software from floppy diskette.
 - (a) Insert the GC Application diskette into the diskette drive.
 - (b) Type **a:\install** (or **b:\install**), then press the ENTER key.
-

NOTE: GC Application "Users" and "GC Directory" screens should require no editing. When these screens are displayed during the GC Application installation/upgrade process, simply press the ESCAPE key and proceed to the next steps.

- (3) After installation of the upgraded MON software and GC Applications are finished, activate the UPD_BIN program.
 - (a) Start with the DOS prompt on your screen.
 - (b) Type in

upd_bin

and press the ENTER key.

NOTE: The program UPD_BIN.EXE should be located in the **\gc\bin** directory of the hard drive, along with the other executable MON program files.

- (4) Use the UPD_BIN software program to update the GC binary files.
 - (a) From the UPD_BIN Main Menu screen, choose "Communication."
 - (b) From the "Communication" Submenu, choose "File Selection" (see Figure 1). The "Select Application File" pop-up screen appears.



Figure 1. In the UPD_BIN program, choose "File Selection" from "Communication" Submenu.

- (c) In the "Select Application File" screen, press the TAB key to move the cursor into the "Files" window.
- (d) In the "Files" window of the "Select Application File" screen, use the cursor to highlight the renamed GC Application file (see earlier, "Offline Edit," "Upload Application," and Rename), then press the ENTER key.
- (e) You should now see the filename displayed in the lower left corner of the UPD_BIN Main Menu screen, along with the status prompt "OFFLINE DUMP."

- (f) If necessary, press the ESC key to return to the UPD_BIN Main Menu screen. From the UPD_BIN Main Menu screen, choose "Update Config" by pressing the RIGHT ARROW key, then pressing the ENTER key.
- (g) From the "Update Config" Submenu, choose "Merge to a copy of current *.bin file" by pressing the ENTER key.



Figure 2. In the UPD_BIN program, choose "Merge to a copy of current *.bin file" from "Update Config" Submenu

- (h) A file selection screen will be displayed with the prompt "Select File to be copied for Data to be merged into". Press the TAB key to move the cursor into the "Files" window.
- (i) In the "Files" window, locate the .BIN file that is the standard application file from which the user application was originally created. (See section at end of this instruction guide, Guide to Standard Application ["BIN"] Files, and the "IMPORTANT - DO THIS FIRST" notice, at the beginning of this instruction guide.) Highlight the file with the cursor, and press the ENTER key.

NOTE: The file you select in step (i), above, will be one of the standard application files installed during step (2) of this section. See also section at the end of this instruction guide, Guide to Standard Application ("BIN") Files, about the importance of the standard application files.

- (j) A "Merge" screen appears. In the "Merge" screen, press the F2 key to 'Select All'.

- (k) With all items selected in the "Merge" screen, begin deselecting those items that are to be excluded from the merge. (NOTE: Normally, it is not necessary to exclude items from the merge.) To deselect items and exclude them from the merge, use the TAB or ARROW keys to highlight portions of the configuration, and press the ENTER key. The "*" adjacent to the portion name is removed, indicating that item will be excluded from the merge.

NOTE: Certain specialized application updates may have special instructions concerning the above step for excluding items from the "Merge" process. If there were additional printed instructions or notices included with the update diskette(s), be sure to consult those instructions.

- (l) After making the appropriate deselections (for excluding portions from the merge), press the F4 key to "Start Merge".
- (m) An "Enter new BIN Filename" screen is next displayed. In this screen, you can select an existing filename from the "Files" window or type in a new, unique filename. Be sure to record the filename created or used, as you will need it later during the last part of this procedure (see section D.8, "Connect" and "Download").

NOTE: It is recommended that you provide a new, unique filename in the preceding step. This way, all files are preserved, and not overwritten, which would allow for an older, saved application file to be downloaded to the GC Controller if necessary.

- (n) When the UPD_BIN Main Menu screen is next displayed, press the ESCAPE key twice to exit the program and return to the DOS prompt.

DISCONNECT POWER AND DISASSEMBLE

- (1) Disconnect AC power from the Model 2350 GC Controller.



WARNING: Before you remove the cover from the GC Controller or access its internal electronics, switch OFF the AC power source to the GC Controller, either at the breaker box or the controlling power source switch.

- (a) When you have access to the GC Controller's Terminal Board for field wiring (accessed from the rear on rack-mount versions of the GC Controller), also disconnect the AC power cord from J21 before working further on the unit.
- (2) For newer model 19-inch rack mount and retrofit 2350 GC Controllers, proceed as follows:
 - (a) Remove the (right) side access panel that is secured to the chassis with four thumbscrews.
 - (b) Unplug all cables connected to the boards in slots 2 through 6 of the Card Cage Assembly in order to access the "SBC53" CPU Board.
 - (c) Proceed to step (4), below.
 - (3) For the explosion proof GC Controller or older rack mount GC Controllers, proceed as follows:
 - (a) Access the GC Controller's Terminal Board for field wiring.
 - On the explosion proof GC Controller, remove outer housing bolts and lower the cover on its bottom hinge. The TB faces the front.
 - On rack mount GC Controllers, the TB is exposed and faces the rear.
 - (b) Loosen the six thumbscrews that secure the TB. Then gently unplug the TB from its mating DIN connectors at the back, top of the board.
 - (c) Lower the TB down (held in place by its ground straps at the bottom of the board) in order to expose the Card Cage Assembly.

- (d) Unplug the TB's power supply cord from its connection at the Card Cage Assembly power supply.
 - (e) Loosen the four thumbscrews that secure the Card Cage Assembly to the chassis. Then remove the Card Cage Assembly away from its chassis mount so that it is easy to work on.
 - (f) Unplug all cables connected to the boards in slots 2 through 6 of the Card Cage Assembly in order to access the "SBC53" CPU Board.
- (4) Remove the "SBC53" CPU Board from slot number 2 (second from the top) of the Card Cage Assembly.

REPLACE EPROMS AND RESET CPU

- (1) Locate the EPROMs that will be replaced: U18 and U19. They are near the card-connector edge of the "SBC53" CPU Board.

**IMPORTANT:**

Carefully note which EPROMs are labeled **ODD** and **EVEN**.
Carefully note which sockets hold them:

socket U18 **EVEN** EPROM part no. 8-2350-001

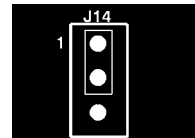
socket U19 **ODD** EPROM part no. 8-2350-002

- (2) Remove, *one at a time*, each of the old EPROMs, and replace each with its upgrade EPROM.

- (3) Locate Jumper Pin Set J14. It is near the two EPROMs you have just replaced.

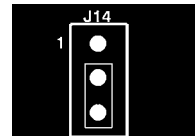
- (4) Note that Jumper Pin Set J14 has a single jumper shorting pins 1 and 2.

normal operation jumper →



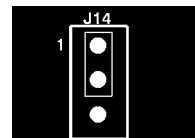
- (5) To reset the CPU registers, remove the jumper from J14 pins 1 and 2, and place it to short J14 pins 2 and 3.

CPU reset jumper →



- (6) After briefly shorting J14 pins 2 and 3, remove the jumper again. Place it back in its original position, shorting J14 pins 1 and 2.

normal operation jumper →



REASSEMBLY

- (1) Place and securely plug the "SBC53" CPU Board into slot number 2 of the Card Cage Assembly.
- (2) Reconnect all ribbon cables that were unplugged (see earlier, "Disconnect Power and Disassemble," step (7)). Because the ribbon cables are arranged in layers, it *important to reconnect them in the order listed below*:

IMPORTANT! Replace cables in order listed below.

	Ribbon cable (part number	System Interface Board connection...	Cable originating from board...
(a)	3-2350-063	J12	SBC53
(b)	3-2350-052	J9	SBC53
(c)	3-2350-062	J11	SBC53
(d)	3-2350-051	J4	SBC53
(e)	3-2350-064	J8	DSPIO
(f)	3-2350-053	J10	DSPIO
(g)	3-2350-054	J6	RTI1281
(h)	3-2350-055	J5	RTI1281

- (3) Return and secure the Card Cage Assembly back in its chassis mounting. Tighten the four screws.
- (4) Return and secure the field wiring TB in its original position. Tighten the six screws.
- (5) Reconnect the AC power cord to J21 on the TB, and restore AC power to the Model 2350 GC Controller.

"CONNECT" AND "DOWNLOAD"

- (1) Use MON software to "Connect" with the GC unit.
 - (a) From the Main Menu screen, choose "Select," then "Connect."
- (2) Use MON to "Download" the newly upgraded GC Application to the connected GC Controller.
 - (a) From the Main Menu screen, choose "Select," then "Download."
 - (b) In the pop-up "Select download file" window, press the TAB key to move the cursor into the "Files" window.
 - (c) In the "Files" window of the "Select download file" screen, use the cursor to highlight the renamed GC Application file (see earlier, Upgrade Software and "BIN" Files, this instruction guide).
 - (d) Press the ENTER key to begin the download process.
- (3) This completes the steps needed for upgrading the GC software and Model 2350 EPROMs.

GUIDE TO STANDARD APPLICATION ("BIN") FILES

This section of the instruction guide lists the various standard application, or "BIN" files that have been released by Daniel for the Model 2350 GC Controller.

WHY STANDARD APPLICATION FILES ARE IMPORTANT

After a new GC Controller has been loaded with a standard application, the standard application is customized by the entry of timed events, component table entries, and other operator entered information consistent with the performance characteristics of the chromatograph hardware to which the Controller is connected and the needs of the user. Thus the standard application becomes a 'user application' and differs from the factory-released, standard application from which it originated.

At the time when software is upgraded, including application files, it becomes important to know which factory-released standard application formed the basis of the user application, so the user application can be upgraded, too, with newer version of the standard application file (see the two sections "Offline Edit," "Upload Application," and Rename; and Upgrade Software and "BIN" Files; this instruction guide).

You can determine which standard application formed the basis of the current user application by inspecting various MON screens while connected to the GC (in most cases, you need only inspect the "System" the screen).

STANDARD APPLICATIONS v1.50 AND LATER

If you are using a GC Application that is version 1.50 or later, you can quickly determine the original standard application's name by viewing the variables listed in the "System" screen.

To access the "System" screen...

- (1) Start at the Main Menu screen, and choose "Application".
- (2) From the "Application" Submenu, choose "System".

In the "System" screen, find the value for the variable named **cfg_name**, and locate it in the following table *to determine the application .BIN filename* (see Table 1):

Table 1. "System" variables in standard, factory-released application files

application .BIN file	"System" screen variables				
	unit_type	cfg_name	system_descr	max_avgs	# of streams
2350_001	2350	USASTD1	2350 Standard 1 - 64 avgs	64	8
2350_002	2350	USASTD2	2350 Standard 2 - 32 avgs	32	8
2350_003	2350	USASTD3	2350 Standard 3 - 128 avgs	128	5
2350_006	2350	USASTD6	2350 Std 6 - 32 avgs 10 str	32	10
2350_007	2350	USASTD7	2350-7 12Str 128 Avg 260Mbus	128	12
2350ISO1	2350	ISOSTD1	2350 ISO Std 1 - 64 avgs	64	8
2350ISO2	2350	ISOSTD2	2350 ISO Std 2 - 32 avgs	32	8
2350ISO3	2350	ISOSTD3	2350 ISO Std 3 - 128 avgs	128	8
2350FI02	2350	USSTDFILE02	12 stream with files	204	12
2360_001	2360	USADUAL1	2360 test application	64	8
2350NW01	2350	USSTDFILE01	Northwest PL 4 strm plus cal	150	5
2360ISO1	2360	ISODUALSTD1	2360 ISO Std 1 - 64 avgs	64	8

- Note that standard BTU applications use the .BIN files 2350_001, 2350_002, and 2350_003 for 64, 32, and 128 averages respectively.
- The historical modbus application (for Northwest Pipeline) uses .BIN file 2350NW01.
- The standard dual application uses .BIN file 2360_001.

STANDARD APPLICATIONS PRIOR TO v1.50

For versions of GC Applications prior to version 1.50, the **cfg_name** variable did not exist. Therefore, a combination of other variables must be inspected to determine the standard application that was used to formulate the current user application.

To determine the standard application used to create a user application prior to version 1.50, compare the values of the following three variables from the "System" screen, along with the maximum number of streams which can be determined from the "Streams" option under the "Application" menu, with the values found in the table above (see Table D-1):

unit_type, max_avgs, and system_desc.

There is one more possible complication. The variable **system_desc** can be edited, and, if it was, it may not be the same value as described earlier in the table (see Table D-1). In such an instance, it would be impossible to distinguish between the 2350_00n (i.e., USASTD1, USASTD2, and USASTD3) and 2350ISO (i.e., ISOSTD1, ISOSTD2, and ISOSTD3) applications.

To overcome this complication, you can inspect one more variable. First, follow this menu sequence from the Main Screen: (1) Application, (2) User Defined, (3) Selection. Then, in the "Selection" screen, **CVTABLE_pri** will be the first variable listed if the application is one of the ISO applications.

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1. Provide Daniel with proof of the Date of Purchase and proof of the Date of Shipment of the product in question.
2. Return the product to Daniel within twelve (12) months of the date of original shipment of the product, or within eighteen (18) months of the date of original shipment of the product to destinations outside of the United States. The Purchaser must prepay any shipping charges. In addition, the Purchaser is responsible for insuring any product shipped for return, and assumes the risk of loss of the product during shipment.
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P. O. Box 55435
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REPAIR P. O. #: _____ IF WARRANTY, UNIT S/N: _____

INVOICE ADDRESS: _____

SHIPPING ADDRESS: _____

RETURN SHIPPING METHOD: _____

EQUIPMENT MODEL #: _____ S/N: _____ FAILURE DATE: _____

DESCRIPTION OF PROBLEM: _____

WHAT WAS HAPPENING AT TIME OF FAILURE? _____

ADDITIONAL COMMENTS: _____

REPORT PREPARED BY: _____ TITLE: _____

IF YOU REQUIRE TECHNICAL ASSISTANCE, PLEASE FAX OR WRITE THE MAIN CUSTOMER SERVICE DEPARTMENT AT:

DANIEL MEASUREMENT AND CONTROL
ATTN: CUSTOMER SERVICE
19203 HEMPSTEAD HIGHWAY
HOUSTON, TEXAS 77065

PHONE: (281) 897-2900
FAX: (281) 897-2901

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