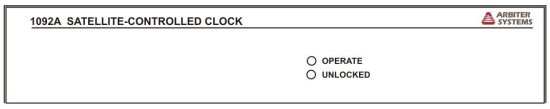
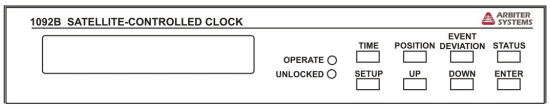
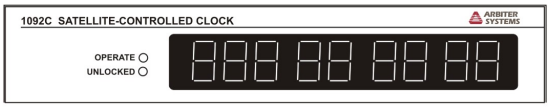
REPLACING THE PROGRAM ROM IN MODEL 1092A/B/C AND MODEL 1093A/B/C



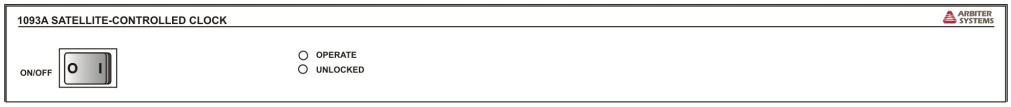
Model 1092A



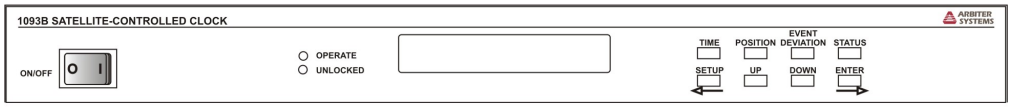
Model 1092B



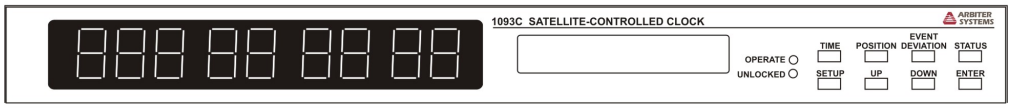
Model 1092C



Model 1093A



Model 1093B



Model 1093C

Document No. PD0030600H

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1 Introduction

These instructions cover the installation of a replacement program ROM (firmware) in the Model 1092A/B/C and Model 1093A/B/C series GPS clocks. ROM upgrades allow you to set up automated Daylight Saving Time (DST) time changes for any geographical region, including recent DST changes in North America. Please read through the entire set of instructions prior to installing the program ROM.

NOTE: After installing the new program ROM, you must restore the clock to factory default settings for it to function correctly. Instructions to restore to factory default settings are included in Section 7.

2 Required Equipment

1. Torx T-25 or large slot screw driver
2. IC Removal Tool, curved tweezers or small blade screwdriver

3 Saving Original Configuration Information

Each clock has a set of operating parameters that are configured into memory. It is advantageous to record these configuration settings prior to disassembly.

1. For 1092B and 1093B/C series clocks, press the SETUP key and sequentially scroll through the various menus to write down your current settings.
2. Use the ENTER key with any menu to sequence through individual settings and confirm them.
3. For 1092A and 1093A series clocks, you will need to know beforehand what settings you need to set after installing the new program ROM.

4 Disassembly

1. First turn the power switch to OFF (if so equipped), and disconnect the power cord. For clocks with Options 08 or 10 power supply options, instead of IEC-320 power receptacles, be careful with open voltages.
2. Using a T-25 driver (or flat-blade screwdriver), remove the four screws securing the cover and lift off the cover.

5 Installing the Program ROM

1. The program ROM is located at U2 (see Figure 1 on page 6).
2. Remove the old program ROM using the appropriate IC removal tool.
3. Install the new ROM. Observe the correct IC orientation and make sure the IC pins line up well on both sides of the socket. If necessary, use a pin-bending tool to line up the pins.
4. Model 1093A/B/C Only: If you have Option 28 installed in your clock, it may be necessary to install a new Option 28 ROM at this time. Our records should indicate if this is necessary, and the Option 28 ROM and instructions will accompany the main program ROM. If the new Option 28 ROM is included, install it at this time according to instructions in PD0038500.

6 Reassembly and Startup

1. Replace the clock cover and tighten the four M-25 screws that secure it to the clock chassis.
2. Connect the power cord and turn the power switch ON (if equipped with a power switch).

7 Configure Clock and Settings

1. Connect a null-modem cable between a computer and the main serial port on the clock.
2. Open a terminal program (e.g. HyperTerminal) with port settings of 9600, 8, N, 1.
3. Reset the clock to factory defaults by either of two methods:
   - For Models 1092A/B/C and 1093A/B/C, typing in the following command in the terminal window (The command is sent to the clock after typing the last character): 1092XX
   - Alternatively for Model 1092B and 1093B/C series clocks, at startup you can press the SETUP key until you get the message SET FACTORY DEFAULTS? and press ENTER. Follow the on-screen messages to complete the reset. It should take a few seconds.
4. Type in the serial command listed below according to your clock model. This command sets your clock to the correct version.

Model	Serial Command	Model	Serial Command
1092A	0,1,1092XZ	1093A	3,1,1093XZ
1092B	1,1,1092XZ	1093B	4,1,1093XZ
1092C	2,1,1092XZ	1093C	5,1,1093XZ

7.1 Option Setup

Use the SETUP button to configure options in the 1092B and 1093B/C models. Use the serial port to configure options in Model 1092A/C and 1093A. For the Model 1092A/C and 1093A, type in the following command: (Note: option codes are NOT case sensitive; caps used for clarity).

M,N,K,LXI

Where:
M = 0 for Main Board, and M = 1 for Aux Board Option.
N = option number (0 = no option, see codes in table below)
K = security tree (model number, e.g. 1092 or 1093 depending on model)
L = (use only if N selects Option 28) L = 0 for 60 Hz; L = 1 for 50 Hz

7.1.1 Option Number Codes

Use the following codes (for "N" above) to configure the correct option for the main board and auxiliary board.

Option Code (for N)	0	1	2	3	4	5	6	7	8	9
Main Board Option Number	none	19	–	–	–	–	–	–	–	–
Aux. Board Option Number	none	03	20A	27	28	29	32	33	34	35

7.1.2 Option Setup Examples

Example 1: For a Model 1093B with options 19

0,1,1093XI

Example 2: For a Model 1093B with option 27

1,3,1093XI

7.1.3 Option 28

If you have Option 28 Installed, type in the code below to set up the Option 28 in the Model 1093A/B/C. First example is for 60 Hz, second example is for 50 Hz.

1,4,1093,0XI

1,4,1093,1XI

7.2 Final Setup

1. Cycle power to check model message on display. If it is incorrect, go back to step 4 in Section 7.
2. After the clock finishes the normal startup and locks, reconfigure the clock to your current local settings.
3. Place clock back into service.

7.3 How to Configure DST from the Front Panel

Automatic Settings include setting the Starting and Stopping Day of week, Minute after midnight, Month and Week of the Month.

1. Press the SETUP button twice to reach the display that reads "SET LOCAL HOUR?" Press ENTER and the display should read (first line) "SET LOCAL OFFSET" (second line) "HOUR:MIN 00:00" Press the UP or DOWN button to adjust the clock to your local offset from UTC. Press ENTER to set. The offset in California is -8:00.
2. The display should now read (first line) "SET DST/SUMMER TIME?" (second line) OFF. The possible modes are OFF, ON and AUTO. To configure the clock to make automatic changes at the correct times each year, you will need to press the UP button and change the mode to "AUTO" and press ENTER.
3. START DAY: The display should read (first line) "DST/SUMMER START" (second line) "DAY: SUN". Values are from SUN through SAT. First use the UP or DOWN buttons to set up the starting day for DST/Summer Time and press ENTER.
4. START MINUTE: The display should read (first line) "DST/SUMMER START" (second line) "MIN: 0000". Values are from 0000 to 1440 (minutes in a day). Press either the UP or DOWN button to adjust the starting time number of minutes after midnight and press ENTER.
5. START MONTH: The display should read (first line) "DST/SUMMER START" (second line) "MONTH: JAN". Values are JAN through DEC. Press either the UP or DOWN buttons to adjust he starting month for DST/SUMMER TIME and press ENTER.
6. START WEEK OF MONTH: The display should read (first line) "DST/SUMMER START" (second line) "First SUN of JAN". Values are First, Second, Third, Last, 2nd from Last and 3rd from Last. Press either the UP or DOWN button to adjust the starting week of the month and press ENTER.
7. STOP DAY: The display should read (first line) "DST/SUMMER STOP" (second line) "DAY: SUN". Values are from SUN through SAT. First use the UP or DOWN buttons to set up the ending day for DST/Summer Time and press ENTER

8. STOP MINUTE: The display should read (first line) “DST/SUMMER STOP” (second line) “MIN: 0000”. Values are from 0000 to 1440 (minutes in a day). Press either the UP or DOWN button to adjust the ending time number of minutes after midnight and press ENTER.
9. STOP MONTH: The display should read (first line) “DST/SUMMER STOP” (second line) “MONTH: JAN”. Values are JAN through DEC. Press either the UP or DOWN buttons to adjust the ending month for DST/SUMMER TIME and press ENTER.
10. STOP WEEK OF MONTH: The display should read (first line) “DST/SUMMER STOP” (second line) “SUN of JAN”. Values are First, Second, Third, Last, 2nd from Last and 3rd from Last. Press either the UP or DOWN button to adjust the ending week of the month and press ENTER.

7.4 How to Configure DST From the Serial Port

There are several RS-232 port commands that will set up the DST/Summer Time information and return the current setup.

1. MODE SETUP: Use the command 1,mDT to set up which mode you want to operate: OFF, ON or AUTO, with m=mode (0 through 2), 0 = OFF, 1 = ON and 2 = AUTO. To set up the DST/Summer Time to AUTO type in the command 1,2DT.
2. RETURN CURRENT SETTINGS: Use the command 0DT to return the current DST/ Summer Time settings.
3. START TIME and DATE: You can set up the Starting Time and Date with one string, 2,w,x,y,zDT; “2” signifies the Start Time command.
4. STOP TIME and DATE: You can set up the Stopping Time and Date with one string, 3,w,x,y,zDT; “3” signifies the Stop Time command.

where:
w = Month, with 0=JAN, 1=FEB through 11=DEC.
x = WeekOfMonth, with 0=First, 1=Second, 2=Third, 3=Last, 4=2nd from Last, 5=3rd from Last
y = DayOfWeek, with 0=SUN, 1=MON through 6=SAT.
z = Minutes, settings from 0 through 1440, starting at midnight.

7.4.1 Start Time Example, Default Setting

2,2,1,0,120DT means that Daylight Saving begins at 2:00 am on the second Sunday of March. “120” means the number of minutes after midnight.

7.4.2 Stop Time Example, Default Setting

3,10,0,0,120DT means that Daylight Saving ends at 2:00 am on the first Sunday of November. “120” means the number of minutes after midnight.

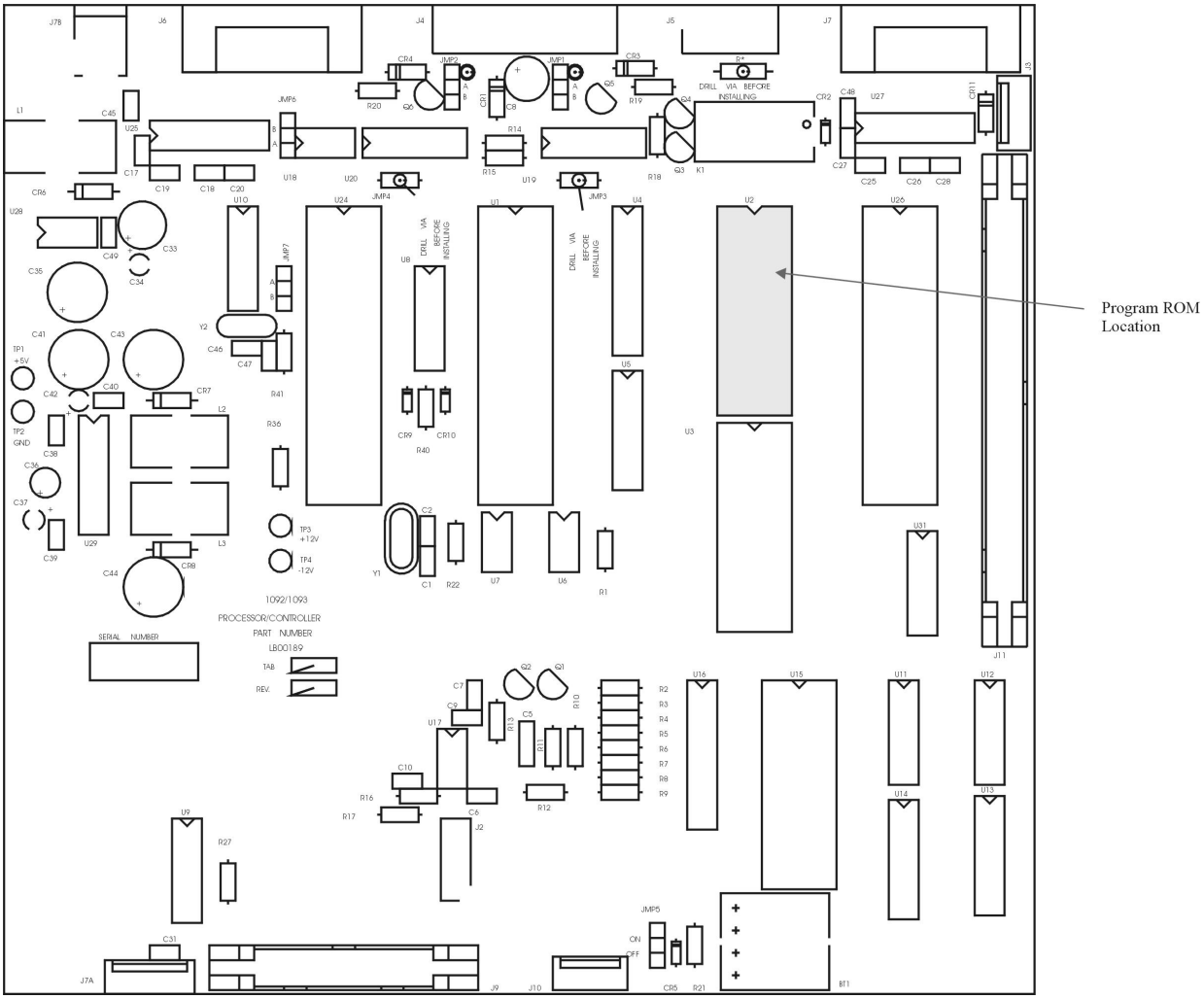

Figure 1: Model 1092/1093 Main Board ROM Location