CP22 Chip Update

Purpose

A CPR2102 or AP22 time switch can be updated to work with the CP365 software. This software allows the CPR2102 to run an annual plan. It also solves communication problems with the AP22 time switch.

Replacing the chip in the AP22

1. Remove power source from the AP22.

2. Remove the cover from the AP22 and lay it off to the side. There is no reason to remove the communication cable.

3. Remove the four Phillips screws from the corners of the keypad. You may have to hold the white plastic posts underneath while removing the screws.

4. The processor chip is the largest chip on the board. Notice that the notch molded in the chip is facing the left side of the board.

5. Using a chip puller or pick, pull the chip out of the socket carefully. Be careful that you do not get the pick under the socket as you can seriously damage the board.

6. Locate the notch on the new chip. This notch should be placed in the same position shown by the white outline on the circuit board.

7. Plug the new chip into the socket. You may have to gently rock the chip as you place it in the socket. Inspect both rows of pins to see that none of them have collapsed during installation.

8. Secure the keyboard pad in place with the screws you removed in Step 5.

9. Replace the cover, and apply power to the AP22.

10. Validate that the new chip is running by entering command 99 on the main screen. This is done by hitting 9, 9, *, in that order. The version of the chip should now be displayed.

11. Address the time switch using command 22. Do this by hitting the Exit button twice to put the AP22 at the main menu. Press 2, then 2 again, then hit *. Say, for example, your time switch is Master Group 1, Group 6, and Location 1. The AP22 cursor should be flashing by Mgrp on the screen. Press 0, 1, followed by *. Press 0, 1, and * again. The cursor will move to the Grp section. Enter the group number 0, 6, followed by *. Finally, program the location by pressing 1, then *.
12. Press # to return to the main menu. Use command code 22 to validate that you have programmed the master group, group, and location numbers correctly.

Replacing the chip in the CPR2102

1. Remove power source from the CPR2102.

2. Remove the cover from the CPR2102 and lay it off to the side. There is no reason to remove the communication cable.

3. Jot down the address dip switch settings. These can get bumped during installation, causing problems later.

4. Using a chip puller or pick, pull the processor chip out of its socket carefully. It will be the largest chip on the board. Notice how the notch molded into the chip is facing the right side of the board. If you are using a pick, be careful that you do not get it under the socket as you can seriously damage the board.

5. Locate the notch on the new chip. This notch should be placed in the same position shown by the white outline on the circuit board.

6. Take the new chip and plug it into the socket. You may have to gently rock the chip as you insert it. Inspect both rows of pins to see that none of them have collapsed during installation.

7. Check that you have not bumped any of the address dip switches.

8. Replace the cover, and apply power to the CPR2102.

Restoring programming and time using CPR4Loader

When you upgrade a time switch to CP22 you will most likely destroy the time, date, and all programming steps in it. This programming will need to be restored.

Files and CPR III programming

CPR 4 Loader is compatible with all versions of CPR III. CPR 4 Loader needs to have the programming files from the computer running CPR III transferred to it. This is easily done following these steps:

1. On the computer running the CPR III program, locate the c:\rtc\cpr3 directory.

2. Find all files with the extension .csv (for example, groups.csv, steps.csv, etc.).
3. Copy those files to a flash drive, jump drive, or some other removable media that can be used on both computers.

4. On the computer running the CPR 4 Loader program, locate the c:\rtc\cpr3 directory.

5. Copy the .csv files from the jump drive to this directory.

You should be able to see the data when you launch the CPR 4 Loader program. The program is installed in the same directory as the files, c:\rtc\cpr3.

The groups and their programming are displayed in the left side of the program window. Notice in Fig. 1 that the group named Kennedy Jr High is expanded to show the programming. In this instance, the Default Week Plan has a command at 7:02 AM.

Time switch programming is displayed in the format of the Time Switch Type you indicate you have connected. See Fig. 2 below.
When first connected, a red highlighted ball will indicate that nothing has been read from the time switches. (Fig. 3)

**Communications**

The CPR 4 Loader program only communicates to one time switch at a time through a serial cable. If your computer does not have a serial port you can use a USB serial port adapter.

For AP22 and the latest generation CPR2102R time switches, you will need the RTC cable part #504567. For CPR2102R time switches before 2008 you need the adapter part #504552.

To set up communications, click Utilities on the main screen as shown in Fig. 4.
You will then see the screen shown in Fig. 5. Use this screen to set up which serial port you are using. You can select any of the ports listed, or type in the COM number Windows assigned to your serial port. This is often needed when using a USB serial device.

After you have selected your COM port, click Setup. A message will appear (Fig. 6) telling you CPR4 Loader has set up the port correctly.
Writing programming to the time switch

First, select the type of time switch to which you wish to connect. For all CP22 time switches you must select either AP22 (W CP 22), or CPR2102 (W CP22), depending on which platform the CP22 chip is running (Fig. 7).

Next, select the group the time switch is a member of by clicking one of the groups listed along the left side. In our example, Nixon Sr High is selected.

Now connect the cable to the time switch. You can test communications by clicking Manual ON, or Manual OFF. You can verify communications by listening for the relay, or by looking at the time switch relay status lights.

You are now ready to write the programming to the time switch. Do this by clicking the Write button, shown below (Fig. 8).
On the AP22 time switch, the screen will show you it is receiving characters. On a CPR2102 time switch, the operating LED will flash telling you the command is being received.

You should read a time switch after writing to it to verify that the programming and dates are correct. This is done by selecting the Read button shown in Fig. 9.

The screen will display a timer while reading. The reading of a time switch takes seven seconds. Notice in Fig. 10 that the read was caught at seven seconds elapsed time.

The AP22 time switch will display onscreen that it is transmitting. The CPR2102 time switch’s operating LED will flash, indicating it has received a valid command.
After the read is finished, the results are displayed. In Fig. 11 below, the time switch data matches the computer data so the dot on the right hand side of the screen is highlighted green.

Congratulations! You are finished, and the time switch is ready to run the programming written to it.

Please send any comments and suggestions to: Mark Sampson
RTC Manufacturing
msampson@rtc-traffic.com