SoftPLC Processor Main Board CMOS Battery Replacement Procedure

OVERVIEW:

The 3 volt lithium button cell CMOS battery on the *SoftPLC* Single Board Computers (SBC) maintain the BIOS setting when the power is removed. The life expediency of the button cell battery is approximately seven (7) to ten (10) years. As a result, it will be necessary to replace the battery on a routine maintenance schedule.

Depending on the particular system, the battery either snaps into a socket or is soldered in place. The following is a list of some of our SoftPLC Processor SBC's with the associated battery part number and battery connection method.

SBC Part #	System	Battery #	Type	Connection
PCA-6004V	Full-Size	BR2335T3L	3V Lithium	soldered
PCA-6159V	Full-Size	BR2032	3V Lithium	snap-in
PCA-6178V	Full-Size	BR2335T3L	3V Lithium	soldered
PCA-6359V	Full-Size	BR2335T3L	3V Lithium	soldered
PCA-6751V	Half-Size	BR2032	3V Lithium	snap-in

When the battery is removed, the current BIOS setting will be lost. As a result, it is recommended that the current BIOS settings be recorded prior to removal of the battery. The BIOS setup screen can be accesses by pressing the "DEL" key during the BOOT process.

RECOMMENDED TOOLS :

Philips Screwdriver (1 PT)
Soldering Gun (25 watt)
Silver Solder (62% Tin, 36% Lead, 2% Silver)
De-soldering Braid
Small Damp Sponge
Static-free work table or area

PROCEDURE:

1. Compare the systems current *BIOS* setting with the *"Factory BIOS Setup Parameters"*.

   A. Boot the system and press the *"DEL"* key.
   B. Compare the BIOS settings with the factory settings and record any differences.

2. Turn the power off the system but do **NOT** remove the power cord. The power cord provides a ground connection to the metal enclosure.

3. Touch the metal enclosure to insure that any static electricity is discharged from you to ground. This step should be repeated throughout this procedure to insure that no static electricity is transmitted to the electronic components!

Warning: Static electricity will destroy electronic components!

4. Look at the main board and document where and how the external cables are connected..

5. Remove the external cables from the main board.

6. Using the Phillips screwdriver, remove the screw from the metal bayonet that secures the board in the industrial enclosure.

7. Remove the main board from the enclosure and lay it on the static-free work table with the component side up.

8. Locate and remove the battery.

A. If the battery is the snap-in type, remove it and replace it with a fresh battery.

B. If the battery is soldered in place, turn the board over and heat the three (3) solder connections one at a time, removing the solder on each joint with the "de-soldering braid". Remove the battery and stand.

9. Install the fresh battery.

A, If the battery is the snap-in type, insert the new battery in the socket.

B. If the battery requires soldering, align the 3 point bracket to the existing holes, then simultaneously apply heat to the bracket tip and the board connection point, until the solder flows seamlessly sealing the connection. Repeat for the remaining two (2) connection points.

10. Re-install the main board in the enclosure, attach all previous cabling, and replace the screw in the bayonet using the Philips screwdriver..

11. Turn the system power switch on and then press the *DEL* key to enter the *BIOS* setup screen.

12. Restore the *BIOS* settings to the original settings as documented earlier.

13. Save and Exit the *BIOS* setup screen.

14. Test that processor boots and appears to operate normally.

Factory *BIOS* Setup Parameters

Note: The settings listed below are the modifications required after setting the BIOS to the defaults

STANDARD CMOS SETUP

Primary Master	: Type=Auto, Mode=Auto	(If using Compact Flash!)
Primary Slave	: None	
Secondary Master	: Type=Auto, Mode=Auto	(PCA-6751V uses for Compact Flash)
Secondary Slave	: None	

Drive A: None

Halt On: All, but keyboard

BIOS FEATURES SETUP

Boot Sequence	: C Only
...	
Boot-up Floppy Seek:	: Disabled
Boot-up NumLock Status	: Off
...	
Video BIOS Shadow	: Disabled

CHIPSET FEATURES SETUP

System BIOS Cacheable	: Disabled	
Video BIOS Cacheable	: Disabled	
...		
Power-Supply Type	: AT	<PCA-6359V has P.S. setting here!>

POWER MANAGEMENT SETUP

Power-Supply Type	:	AT	<P.S. setting generally here!>
Power Management	:	Disabled	
PM Control by APM	:	No	

Note: All others selections should be disabled!

PNP/PCI CONFIGURATION

PNP OS Installed : No
Resources Controlled by : Manual

Set at least IRQ3 thru IRQ9 for *"ISA Only"*
All other IRQ's can be set to *"PCI/ISA PnP"*.

Note: Any ISA bus I/O boards must have their assigned IRQ set to *"ISA Only"* to prevent the PCI BIOS from assigning it to another device.

INTEGRATED PERIPHERALS

IDE HDD Block Mode :Enabled
...
...
On-Chip Primary PCI IDE : Enabled <Generally for Compact Flash only!>
On-Chip Secondary PCI IDE : Disabled <Enabled for PCA-6751V Compact Flash only!>
Onboard PCI SCSI : Disabled
Onboard PCI Lan : Disabled
USB keyboard Support : Disabled
Boot Up Display Type : CRT & Panel
Panel Type : 640x480

Onboard FDC Controller : Disabled
Onboard Serial Port 1 : 3F8/IRQ4
Onboard Serial Port 2 : 2F8/IRQ3

Onboard Parallel Port : 378/IRQ7
Parallel Port Mode : SPP