

## Technical Note #67

### Modbus Concentrator (Cat# PLZOOMG01)

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**Subject:** PROM Installation Instructions To Upgrade Main/Segment Processor Firmware

**APPLIES TO:** Modbus Concentrator (Cat# PLZOOMG01)

#### NOTES:

This procedure assumes that all necessary arrangements have been made prior to shutting of contro Modbus Concentrator and disconnecting RS-485 network line. If the Modbus host keeps running it lot of device timeouts and dead devices. Disconnecting RS-485 line may also result in disconnectio or all other devices, which are on the same network.

#### TOOLS NEEDED

1. Philips Screw Driver
2. Flat Screw Driver
3. PLCC Extractor Tool for ICs
4. Wrist Strap

#### STEPS

1. Make a note of Concentrator's Modbus address and baud rate. Also note Commnet address devices connected/configured on segment A through segment H.
2. Shut off the 120-240 Volt power input to the control power terminals on the lower left corn
3. Mark the H+, N- and the GND wires used to connect hot, neutral and ground lines.
4. Disconnect the three H+, N- and the GND wires from the control power terminals. Keep th plastic safety cover.
5. Unscrew the chassis ground flat screw on the lower left side of the top metal cover.
6. Unplug the two commnet segment connectors ABCD and EFGH and the two RS-485 Modb in/out connectors.
7. Remove the top metal cover by unscrewing the 8 Philips screws
8. Locate 8 small 32-pin PLCC type sockets containing 8 Segment Firmware PROMs (current firmware version is V2.12).
9. Locate 1 big 84-pin PLCC type socket on right side below the 4-character display. This con Main K4 Processor with on chip firmware PROM (current firmware version is V2.2).
10. Note one of the 4 corners is flat on both the socket and the PROM. This allows PROM to be in only one direction. Also note the other 2 corners of the socket has slots to allow IC Extra

easy access to PROM's corners.

11. Make sure your hands are clean, oil free and are free from any static charge. Touch your hands to an exposed electrical ground before and during PROM installation. Use of a Wrist Strap is strongly recommended. Wrap one end of the Wrist Strap around the wrist and connect the other end to a convenient and exposed electrical ground. Static charge is extremely harmful for electronic components like PROMs.
12. Remove the old 84-pin Main K4 Processor and/or the old 32-pin Segment PROM using the Extractor through the slotted corners of the socket. Be careful and apply equal pull on both sides of the old PROM. Unequal pull may damage socket contacts.
13. Gently insert the new K4 Processor/Segment PROM in the right direction by aligning the PROM corner with that of the socket. Apply light pressure in the center and make sure that all 4 sides have made good contacts with socket pins.
14. Put everything back in order by undoing step 7 through step 3 in reverse order.
15. Turn on control power and observe scrolling message on the 4 character LED display. The following should be displayed:

"RAM OK"

"PROM Good"

"Timer Good"

"Switch Good"

"NVRM Bad"

"ImOK"

Note: The non-volatile RAM test always fails and displays the message "NVRM Bad" on first power up after replacing the Main K4 Processor. This is due to blank non-volatile RAM on the new Processor that is then initialized with the current configuration parameters. Shut power off again, the message should be "NVRM Good".

If all the power on test pass, the following scrolling message appears:

**"Power Leader Modbus Concentrator Rev ??? Address ??? Baud Rate ???"**

Make sure that the display string indicates the correct version number of the Main Processor (2.2). You need to reconfigure the Modbus address and baud rate after changing the K4 Processor.

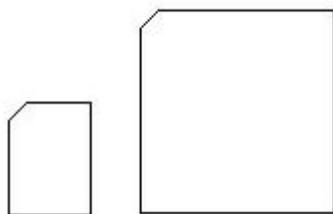
If any of the power on test fails, the Concentrator may end up in a never ending loop or display scrolling message:

**"Diagnostic Failed Error ??? Address ???"**.

16. Observe Main / Segment Processor Ready LEDs

The 10 pairs of red and green LEDs are initially turned off. After the initial power on tests, the LEDs turn red before finally turning to green (refer Power Leader Modbus Concentrator User's Guide). A red LED indicates an error. A red segment LED may be due to a device failure. Make sure all connected devices are powered up and the concentrator segments are configured for correct addresses. You need to reconfigure all the segments. Use "Auto Config" feature that will reconfigure all segments in about 9 minutes. Occasionally a segment address may not be picked during "Auto Config". In such case configure the segment manually.

A glowing green Main Processor LED and all green Segment Processor LEDs indicate read the Main and the corresponding Segment processors.



V2.12 (32-pin) Segment PROM	V2.2 (84-pin) Main Processor / PROM
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**KEYWORDS:**

Modbus, Concentrator, Firmware, Version

LAST REVISED: 5/27/99

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