System Studies Incorporated

289H LSS Controller / LAN Controller Card EPROM Replacement

289H LAN CONTROLLER CARD

Enclosed is an EPROM replacement for the 289H Loop Surveillance System (LSS) Monitor. This chip replaces the existing Firmware EPROM chip on the modem-equipped Controller Card or LAN Controller Card and it provides operational improvements for the monitor.

The instructions below describe how to remove and replace the EPROM chip on the Controller Card or LAN Controller Card. Please follow the procedures carefully to prevent damage to the EPROM chip while installing.

Procedure:

1. Switch off power to the 289H LSS using the main power switch at the front of the Utility Card. This card is typically located in the slot labeled AUX 1 or AUX 2.

2. Unplug the Modem RJ-11 Connector or RJ-45 Network Connector on the back of the Controller Card. This card is in the slot labeled CTLR 1.

    Note: Make sure that you are grounded before removing the circuit boards or any of the board components. If available, put on an anti-static wrist strap and clip the strap wire to a piece of metal grounded to the frame. If you do not have access to an anti-static strap, touch the grounded metal 289H LSS chassis before proceeding.

3. Push the Controller Card ejectors to the open position (straight out, away from card) and remove the card.

4. The Firmware EPROM is U29, the third 28-pin integrated circuit in from the top left (see photo). The location of this EPROM is the same for either the modem-equipped Controller Card or the LAN Controller Card. Remove the EPROM with a chip puller, or insert a small screwdriver underneath it, working the screwdriver down between the chip and the surface mount until the chip loosens enough to be pulled out easily.

5. The pins on a new EPROM are slightly splayed for machine insertion. For manual insertion, the pins must form a right angle (90°) to the base of the chip. Hold the chip, pins facing you, with the long edge of the chip resting on a flat, grounded surface. Gently rock the chip toward you so that the lower row of pins is bent inward to the correct angle. Repeat for the second row of pins.
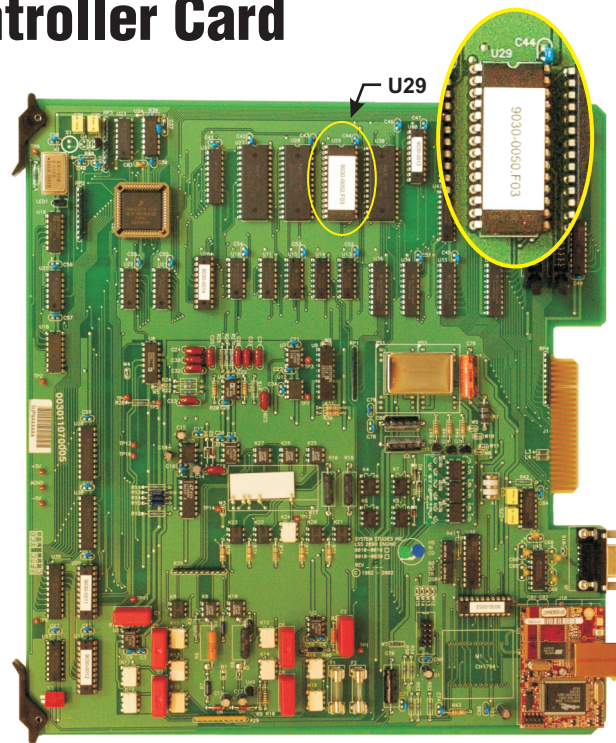
6. To insert the new Firmware EPROM correctly, make sure that the index notch on the chip is at the top (see enlarged photo section) and lined up with the notch printed on the board. Also make sure the pins on the chip are aligned with the socket: hold the chip at an angle, line up one row of pins with the socket, and carefully tilt the other row of pins into position. Once all pins are properly aligned, press the chip down firmly into place by applying equal pressure on each end.

7. After you have installed the replacement EPROM chip, hold the controller card so you are looking from the top towards the bottom edge. When the EPROM is firmly seated, there is a small space (1/16" or less) between the chip's base and the mount, and the chip's base is level with the board. Check the connection of the pins to make sure they are seated snugly in the socket and that none of the pins are bent.

8. Slide the controller card back into the first slot. Make sure it is seated properly in the backplane. Close the card ejectors. Reinsert the Modem RJ-11 or RJ-45 Connector and turn the power switch back on. You should hear the 289H LSS initializing and begin cycling through the relay cards.

    Troubleshooting: If you do not hear the 289H LSS monitor initializing, power it off, pull the controller card out and re-check the chip connection. Make sure the pins are not bent and that the Firmware EPROM was not installed upside down.

If you have any questions regarding this replacement procedure, please call System Studies Technical Support at (831) 475-5777 or (800) 247-8255. You may also email your questions to support@airtalk.com.

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