UPGRADING PGR-6200 AND PGR-7200 FLASH MEMORY

1. GENERAL

The TIA-232 interface on the PGR-6200 and PGR-7200 is used to upload the firmware to the flash memory.

An RJ-45-to-DB9 interface cable (such as the PGA-0420) and a PC with a serial port capable of operating at 57,600 bits per second are required. If the PC does not have a serial port, a serial-to-USB converter (such as the PGA-0440) is required.

The PGW-FLSH software is used to upload firmware. The firmware files are in standard S-record format and have the "s19" extension. These files can be found at www.littelfuse.com/protectionrelays.

2. PROCEDURE

Install PGW-FLSH.

Connect the PC serial port (DB-9) to the TIA-232 port using an RJ-45-to-DB9 interface cable. The cable pin-out is shown in Table 2.1.

TABLE 2.1 Cable Pin-Out

DB-9	RJ-45
1	2
2	5
3	6
4	3
5	4
6	-
7	8
8	7
9	1

2.1 Initiating Flash Update

To enter the flash update mode, go to *Setup* | *System Config* | *Maintenance* | *Flash Update.* The ER, MS, and NS LED's on the back of the protection relay will be ON when it is ready to accept commands from PGW-FLSH.

2.2 Uploading The New Firmware

1. Start the PGW-FLSH program.
2. Select unit type as 'PGR-6200 Motor Protection Relay' or 'PGR-7200 Feeder Protection Relay'. <Press Next>
3. Select an available COM port and the "s19" file containing the new firmware. <Press Next>
4. Press Begin. Select 'Yes' to request erase. The flash will not be erased until communication is established between the PC and the protection relay. Once communication is established, the S-records will be uploaded. The S-record counter indicates the number of S-records sent. While uploading, the front LED's and the rear MS and NS LED's will flash.

2.3 Restarting The Protection Relay

When finished, press 'Yes' to restart the protection relay. The restart will take approximately four seconds.

When the protection relay restarts, a non-volatile trip may occur and the following messages may be displayed:

NV Error (All)	All defaults have been loaded.
NV Error (Enum)	One or more enumerated set points (list items) have been added and initialized to the default value.
NV Error (Num)	One or more numeric set points have been added and initialized to the default.
NV Error (String)	One or more string variables have been added and initialized to the default.
NV Error (Event)	One or more event records are damaged (caused by a format change in the new revision).

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3. PGW-FLSH ERRORS

The following is a list of possible errors and a summary of how to correct them:

a) **No COM ports detected.**
PGW-FLSH requires a COM port for the update process. Another program may be using the COM port, or you may have to add another port.

b) **The selected file could not be found. Please select another file.**
The "s19" filename you previously selected has moved or changed. Click 'Back' and select a new "s19" filename.

c) **Could not establish communication with protection unit. Please check all connections and try again, or consult the help file.**
This indicates that PGW-FLSH has tried to send information to the unit, but there was no response. Verify that all connections between the computer, interface cable, and the protection relay are correct.

d) **Error 'F': Buffer full error. Please try again, or consult the help file.**
This can occur if the "s19" file is damaged or incorrect, or if the connection to the unit is incomplete. Locate an undamaged "s19" file, and verify that all connections between the computer, interface cable, and protection relay are correct.

e) **Error 'C': Checksum error. Please try again, or consult the help file.**
The checksum in the S-record file did not match with its expected value after the unit has received it. See (d).

f) **Error 'E': Flash erase error. Please try again, or consult the help file.**
The protection relay has attempted to erase the flash memory, but an error occurred. Try the process again; if the error continues to occur, the flash memory may be damaged.

g) **Error 'R': Byte programming or S-record error. Do you want to restart the unit?**
There was an error during programming of the flash memory, or an error in the S-record format. Download the correct S-record file and repeat the process. If the error continues to occur, the flash memory may be damaged.

h) **The S-record file "s19" is damaged or is in the wrong format. Please locate the correct file from www.littelfuse.com. No changes were made to the unit.**
The upgrade file "s19" is verified for the correct format before PGW-FLSH attempts the upgrade. If PGW-FLSH detects an error or an incorrect format, it will not proceed with the upgrade. Obtain the correct upgrade "s19" file from www.littelfuse.com/protectionrelays and retry.

i) **The Quit (Q) command was sent because of 3 failed retries. Do you want to restart the unit?**
If PGW-FLSH has received a buffer or checksum error during programming, it will automatically resend the S-record. After three failed retries, you will see this message. Try the process again, and verify that all connections between the computer, interface cable, and protection relay are correct. See (d) and (e).

j) **Received an illegal character. Do you want to retry?**
An unexpected character was received from the unit. Click on 'Yes' to resend the current S-record. If the problem reoccurs, restart the programming procedure. Verify that all connections between the computer, interface cable, and the protection relay are correct.

k) **An end-of-file has been reached without a correct delimiter from the unit. Please try again, or consult the help file.**
The end of the "s19" file has been reached unexpectedly. See (d).

l) **You have encountered Error # (number) (description).**
This will describe any further errors that may have occurred. The error number and description will define the problem.

m) **PGW-FLSH has detected a previous update that was not complete. It has restarted the update sequence.**
This may occur if the connection between the computer and unit has been lost during a previous update. Verify that all connections between the computer, interface cable, and the protection relay are correct.

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