GSP-1720 Timing Requirements

This Globalstar, Inc. document provides the timing requirements and guidelines for use of the GSP-1720, whether as a standalone modem or as part of another product.

A characteristic common to all remote installation sites is that it takes a long time to get to the remote sites. Sometimes, it is necessary to travel many hours over poorly maintained unpaved roads, and sometimes it is impossible to get to the sites due to snow or other weather conditions. Because of this, it is very important that manufacturers and integrators design remotely located products so that the products will have very high reliability, robust self-contained troubleshooting capabilities, and can be remotely commanded to reconfigure to alternative operating configurations when unexpected problems arise.

Issue Power-Up Command to GSP-1720

➔ Isolate GSP-1720 for 5 seconds, making sure that there are no inputs or changes to any of the GSP-1720 ports by any process, by the power supply unit or by any other component of the electronics
➔ Apply power
    ➔ wait 3 seconds before doing anything
➔ Connect Pin 13 (Power_Enable_N) to GROUND to command the modem to exit standby mode, and enter an operational state
    ➔ wait the amount of time specified by the section of this Tech Tip entitled *"Power-Up Timing Sequence for GSP-1720"*

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Power-Up Timing Sequence for GSP-1720
- ➔ Assert DTR on the AT Command port
- ➔ Wait 20 seconds for the SELF TEST RESULT: OK
  - a. ***"SELF TEST RESULT: OK"*** **is displayed***:* The Power-On Self Test (POST) message "SELF TEST RESULT: OK" should appear in 12 seconds or less. However, there are some circumstances where it takes longer. If the POST message is NOT displayed go to the next step.
  - b. ***POST message*** *"SELF TEST RESULT: OK"* **is NOT displayed:**
    - i. Sometimes, the POST message does NOT appear. The modem will often communicate perfectly fine even if the POST message is not displayed. However, if the GSP-1720 repeatedly fails to display the POST message, it can indicate a problem with the modem. Therefore, such occurrences should be logged and investigated.
      1. Since the modem may function perfectly fine, we recommend that the controller software should simply log the incident and send the incident report to the customer's control center during the next data session or at a convenient opportunity.
      2. In other words, rather than going through a seemingly infinite loop of power-cycling the modem to try to force the POST message to appear, during which time the modem condition may degrade, we have found it better to simply wait 20 seconds for the POST message.
    - ii. If the POST message does NOT appear in 20 seconds, log the "odd boot" in the controller's log file.
- ➔ Wait another 5 seconds after seeing the POST message before pressing any keys or sending any data to either the Data Port or the Control Port
- ➔ Proceed to the instructions for issuing AT commands

Issuing AT Commands to the GSP-1720:
- Issue AT commands to the AT Command Port
- If the Control Port is disabled, all AT commands must be submitted to the Data Port
- If the Control Port is enabled:
  - o The GSP-1720 will ONLY accept AT commands from the Control Port
  - o Assert the Data Port DTR (DTR_DP) when it is appropriate for data to start to flow through the Data Port
  - o In general, when the Control Port is enabled, DTR_DP can be asserted at any time, as long as it is asserted in time for link negotiation and data transmission.
  - o Note that there are may be some additional product-specific timing dependencies for a developer's product, related to when the Data Port DTR can be asserted and when it is acceptable for data to be sent to the modem.
    - ▪ If product-specific dependencies exist, they must be handled by the developer on a case-by-case basis, depending on the particulars of the electronics in the remote communications unit.

Power-Down Timing for normal power-down of GSP-1720

➔ Continue to apply power to the modem during the following sequence:
   o Remove GROUND from Pin 13 (Power_Enable_N) and let the Power_Enable_N (Pin 13) voltage float for 25 seconds
       ▪ During this time, the GSP-1720 will tidy up Flash Memory, store applicable AT command settings and system acquisition parameters in NVRAM, and shut down gracefully
       ▪ There is no feedback from the GSP-1720 during the shutdown process. This is a "blind wait" which is entirely clock-based.
➔ Remove power from the modem
➔ Isolate modem for 5 seconds.
➔ The modem will gracefully transition from standby to power-off
   o Keep control of modem and isolate it during these 5 seconds. Do not let any other process or electronics component "touch" the modem with power or data or via anything else for 5 seconds

Exception Situations: "RESET and RESTART" Power-Down sequence for GSP-1720
(See Integrator Reference Manual for further information)
   Do NOT use this sequence except in exceptional situations. We have had modems running for 7 years without ever having to use this procedure.
➔ **Instructions:**
   o Continue to apply power to the GSP-1720
   o Apply positive +5VDC voltage to Power_Enable_N (Pin 13)
       ▪ Hold positive +5VDC voltage for 2 seconds to signal GSP-1720 to reset Flash Memory.
   o Connect Power_Enable_N (Pin 13) to GROUND
   o Proceed to the instructions (above) for ***Power-Up Timing Sequence for GSP-1720***