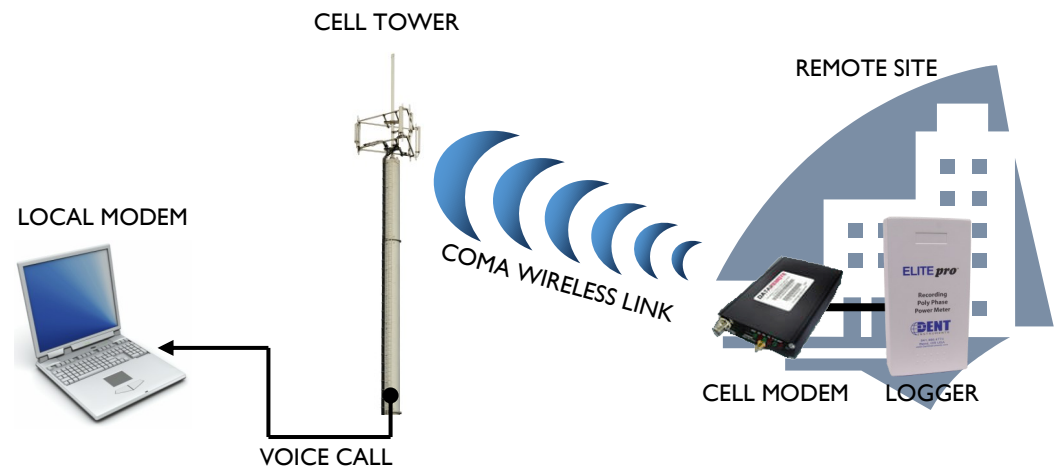


APPLICATION NOTE

Remote Communications with pro-Series Loggers Via Cellular Modem

Remote communications with the ELITE_{pro} and DATA_{pro} data loggers are now possible using an external **Data Remote 9060 Cell Modem**. The advantages of using a cellular modem include eliminating the need to travel long distances to a remote device and allowing wireless data collection when landlines are unavailable or cost-prohibitive. This capability now allows users to avoid costly site visits and automate data downloads via CDMA wireless service.



Step 1: Establish a Service Plan

Select a CDMA carrier in the area the modem will be used. Verizon and Sprint PCS are the two largest carriers/providers. Both offer CDMA technology that covers 97% of the United States. The data plan should be an **IS95** circuit switched which will work with a modem, via dial-up connection. Please refer to the Data Remote Manual (*pg. 12, section 2.2*) for more details.

Step 2: Program the Modem

The cell modem can be programmed by using a PC's standard RS232 connection (Data Remote Manual, *pg. 13, section 2.3*) and an Emulation program like HyperTerminal. The modem's configuration menu can be programmed (Data Remote Manual, *pg. 15, section 2.5*) for your assigned mobile phone number. On line J: of the configuration menu, program the Modem Init string to **AT S0=2 M0 Q I VI&CI &D0 E0 &Y0 &W0 &SI**. This command string will match the loggers default commands. For high memory downloads, set the maximum call time for 30 minutes.

See Configuration Menu on next page.



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```
***** CONFIGURATION MENU - 3G-M *****
A - Set Receive Window 1 00:00 to 00:00
B - Set Receive Window 2 00:00 to 00:00
C - Set Receive Window 3 00:00 to 00:00
D - Set Receive Window 4 00:00 to 00:00
E - Set Time: 00:00:00
F - Reprogram Telephone Information
G - Display Signal Strength
H - Remote Comms Baud Rate: 19200
I - Reprogram Alarm Information
J - Modem Init:
K - Auto Answer Mode: ON
L - Max Call Time: 20
M - AUX processor Mode: OFF
X - Exit to Terminal Mode
Battery voltage: 12.9 Phone #: 8055555555 CDMA SID: 2
Select option:
```

Step 3: Make a DIALUP Connection

Connect the external antenna to the cell modem and plug in the modem's power supply. Establish a connection to the DENT logger using the Elog application program and set the baud rate of the logger to **9600** baud. Using a male to male gender changer, connect the DENT logger's RS232 port to the Data Remote Cell Modem's RS232 port. In Control Panel > Modem > Properties > Properties > Advanced, set the Extra Initialization Commands to **AT+MS=V32,I**. This locks the modems to 9600 baud, which will improve overall data transfer reliability.

Set the default modem and connect speed to 9600 baud in the Elog software: Tools/PC Setup > Modem Connect. Open the Elog software and enter assigned phone number in the Logger/Communication/Call Now (Manual Dial) dialog box and dial. The local modem will ring the cell modem and negotiate the connection. Once connected, the Elog software will identify the logger and show 9600/9600 baud connection in the status lines. Now simply retrieve your remote data from the logger menu. You can also look at real-time data remotely, reprogram the logger or view other graphic information via the established wireless link.

Additional Considerations

Due to the nature of Wireless Communications, connections may be interrupted or not establish initially. Although in most coverage areas communications with the Cell Modems are very reliable, alternative antenna options are available for industrial or harsh environment applications. Automatic meter reading can be simplified by using DENT's Autopoll auto dialer program (Elog User Manual, pg.2-29). For more technical information regarding remote data logging via Cellular Modems, please contact us at 800-388-0770 or info@dentinstruments.com.



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