



Application Note

App. Note Number: 1002

Title: Modems and Remote Data
Logging Applications

Description: This document describes the problems involved with modems used in remote data logging applications.

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Date: January 27, 1997
Last Rev: January 1998
Revision: 1.02



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Introduction:

There are a few problems encountered when using modems in remote data logging applications.

1. High power draw from the modem during non used times.
2. Automatic reset to sustain long term unattended operation.
3. Auto Answer ability when the connected device is turned off.
4. Works with standard land line or cellular phones.

Finding an off the shelf modem that resolves these issues is nearly impossible when the majority of modems made today are manufactured for the PC industry. The H-219 is a modem that answers these issues and adds voice capability to the system also. This application note will discuss how the H-219 resolves these problems and, if possible, how other modems may be configured to closely fit this application also.

High Power Draw:

The H-219 will draw less than a milliamp when idle. This is one of the lowest power modems in idle mode on the market today. When connected to a cellular phone the modem does not require any more current but the phone will draw a higher amount to stay active, enabling it to receive calls.

Along with power draw is the voltage level of the power source. The H-219 will run off of 12 volts that is common with the remote data logging applications. It actually has an input voltage range of 10 to 16 volts, and has built in reverse power protection and surge protection.

Some off the shelf modems do have a low power mode that will drop the current, but this is typically still running over a 100 milliamps. If using an off the shelf modem be sure to see if it does have a low power mode as every little bit helps for this type of application.

An off the shelf modem may work at a voltage level different than what is available. Many modems use a 9 volt DC wall adaptor or even worse is an adaptor that produces an AC output. In any case another device that provides power conditioning may be required.

Automatic Reset:

There are several reasons that can cause a piece of electronic equipment to go haywire, Cold, Heat, Moisture, EMF, ESD, hardware / software interaction, etc. Whatever causes the problem, it is a major inconvenience to make a special trip to the field just to reset the equipment. The H-219 has a feature called a COP (Chip Operating Properly) timer that must be reset on a regular basis or it will reset the system automatically. This feature will not resolve all problems but potentially will resolve many of them.

Auto Answer:

Standard modems are normally configured to only answer the phone call if the connected device is turned on and ready to receive the call. In remote data logging applications, the data logger is normally off when the call comes in preventing the modem from answering the phone. The modem must be configured to not only answer the phone but wake up the device it is connected to. The H-219 default configuration allows it to function as needed for remote communications with data logging equipment.

Standard modem configurations that can be used are listed below. Keep in mind that not all modems will use these commands or may have some other command to perform the same function.

AT&F	Reset to factory defaults.
ATE0	Turn off echo mode.
ATQ1	Turn on quiet mode.
AT&D0	Ignore DTR for auto answer.
ATS0=1	Enable auto answer and set it to answer on the first ring.
AT*W	Save current settings in user profile.

With these settings saved in the user profile, any time the modem powers up it will automatically load them making the modem ready for remote operation. This works fine until the modem locks up or loads the factory defaults again.

Land Line or Cellular Phones:

The H-219 is a modem that comes packaged ready for use by itself or with a cellular phone.