Diamond Knowledge Base

System Sentry - Basic Features & Functions

- Introduction
  The System Sentry is an electronic system manager for permanent traffic data collection sites. It is designed to do two things:
  1. Help prevent sites from going down. It does this by:
     Providing the best quality lightening and EMI suppression electronics for the sites power, RS232, and telephone line connections. Controlling modem power consumption.

2. If a site should go down for any reason, the System Sentry provides the necessary tools to get it back up and running without having to physically travel to the site.
In designing the product, DET looked at the various types of problems with ATR sites (including why they went down and what the customer had to do to get the site back up and running). The System Sentry incorporates all of the necessary electronics, firmware, and software to allow you to successfully predict failures before they happen, and to fix most site problems without ever leaving your office.

Once the System Sentry has been installed, it begins operation immediately. The Charging, Status, Phone, and Fault LED's will indicate if there is a wiring or any other problem, so you quickly can see if your site is working correctly.

You now have access to the following features and functions:

Current & Voltage Monitoring:
The System Sentry constantly monitors the current and voltage going between the Solar Panel, Battery, ATR Input, ATR Internal Battery, and Modem. You can call the site at any time and view in real time how much power each piece of the system is drawing. This lets you evaluate the performance of the entire system.

Remote Connection:
The System Sentry is compatible with Telecom/TT-Link and TrafMan. You can call up any site where a System Sentry is connected and switch between the System Sentry and the Traffic counter.

Modem Answer Monitor:
The System Sentry constantly "listens" to the phone line to detect rings. If it detects 10 rings in a row and the modem does not answer the phone, then the modem can be automatically powered Off, then On, and reprogrammed. This feature prevents one of the most common problems with ATR sites where the modem simply stops answering the phone.

Modem Off-Hook Monitor:
Sometimes modems don't hang up properly, which can result in expensive phone bills. If the System Sentry detects this condition, it can automatically disconnect the modem from the phone line and reprogram it for proper operation.

Modem Power Control:
The System Sentry allows you to set up to 5 Power On/Off times for the modem. You can also set the system to power the modem on whenever it detects a Ring, to give you the ultimate in low power savings.

ATR Power Control:
If the worst happens and the ATR stops responding or shuts down, the System Sentry gives you the tools to

remotely power it off and back on again.

Lightening, Surge, and Noise Protection:
This is constantly active on the telephone line, solar input, and serial port connection between the ATR and the modem.
The System Sentry also acts as a central grounding point for all your electronics.

Other features and functions:

Works with any make and model of traffic counter, modem, battery, and charger. Selectable between "Land Line" and "Cellular" modem operation. Can automatically reinitialize modem at up to 5 different user specified times. Completely transparent to the existing equipment. Will not interfere with any operation or function of the equipment installed. System Sentry operating firmware can be updated through telephone line. This allows corrections & expansions to the system without leaving your office. Ultra low power. Uses less than 2 mA of current. Supports solar panels up to 50 watts.

The above functions are supported by all System Sentries V1.00. In the near future, the following additional features may also be available free of charge as an uploadable firmware upgrade:

Ability to call you up and report a problem (Call Back Function). This will include the optional Email alerts through the DET system or your own in-house computer. Ability to Store in Memory in 5 minute intervals all Current, Voltage, Temperature, and other Events that occur at the site (and it can hold more than 1 year worth of information). You can check the performance over time of your batteries, ATR, modem, and solar panel. Smart Power Tool. This function can make intelligent predictions about future power shortages. It looks at trends in the charger input and current drain output. If it predicts a system failure, such as from a solar panel no longer providing power or a battery not holding its charge, the Smart Power tool will send you an e-mail alert days or even weeks in advance of the failure. This allows you to fix the problem before the site ever goes down. This also allows you to maximize the value out of your battery investment. Only replace batteries that actually need it instead of every battery annually. Ability to talk directly to the ATR and restart/reprogram it.

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