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NEON REMOTE DATA COLLECTION SYSTEM

Unidata

Collecting environmental monitoring and industrial measurement data from remote field sites can be expensive and time consuming. With developments in the telecommunication industry over the last couple of decades, many manufacturers of remote terminal units and data loggers now use the internet to assist with the collection of remote field data.

Unidata's Neon System was conceived over 20 years ago with future internet developments in mind, and is now the most complete remote field to web browser solution available today. Telecommunications providers have moved to packet data networks across many different transmission methods such as fibre, copper, wireless and satellite. Regardless of the transmission methods, a good range of packet services / Internet protocol/ IP services are offered. These packet services are also cheaper than dedicated services.

The Neon system, Neon Field Units and the Neon Applications Server software, was designed, from the ground up, to harness the efficiency and the cost effective nature of IP to get data from the field to a web browser on your laptop computer, your desktop computer or your mobile device.

The Neon Remote Data Collection System incorporates field based and a Central Neon Server with the Neon Applications Software. Neon operates as a push data model over the internet, where the remote logged data is pushed from the Neon remote Terminal via the IP data / internet connection up to the Neon Server. Data is sent from the NRT to the Neon Server efficiently without formatting in small binary packets. Each packet is CRC error checked and validated and re-transmitted if needed. The Neon Server will acknowledge every received packet immediately using the duplex communication feature offered by IP network. This duplex communication ensures no data will be lost in the data transfer from the NRT to the Neon server in the event of a communications interruption, or a server availability interruption.

The Neon system collects data from remote field sites and sends that data to a server so the data can be viewed on a web browser from anywhere in the world. The data is also archived on the Neon Server in a complete Time Series Database. This is a powerful differentiator of Neon from other manufacturers. Other manufacturers simply send data via SMS text to a customer's PC; this data can be lost during transmission so the integrity of the data must be verified using third party software before it is used.

The Neon system allows for archiving of data on the Neon Server using the Neon Applications Software which allows you to easily display, compare and derive data from multiple channels and sites. The Neon Applications Software allows users to set multiple alarm conditions, which when exceeded, will notify the user via email or SMS text message in near real time. Data reports can be set up to automatically send logged data via email; file transfer protocol (FTP), web services, a dedicated SQL view or to other end processing systems.

The Neon Server is available as either an Application Software Package to run on a customer's server or as an Applications/Data Hosting Services offered by Unidata on Unidata secure servers. Data is secure and only available to view by users authorised to view specific data. The Neon Application is secured through access privileges for specific users. The Node on the Neon System is set up such that the Node Administrator (user) has the rights and privileges to set up other users and decide on the appropriate access levels for those users.

All Neon Remote Loggers have the same built-in programmable data logger module. With up to 7.5MB (3.75 million data point storage capacity) non-volatile memory and analogue, digital, SDI-12 & Modbus channels, no additional data logger is required for environmental monitoring and industrial measurement applications. For expanded monitoring applications the Neon Remote Logger can also be connected to the any SDI-12 or Modbus compatible data logger or instrument.

The communicator module and modem also included within the Neon Remote Logger. The communicator module manages the communications schedule and unloading of data to the Neon Server. The modem component can be either a cellular modem (4G/3G), LoRa WAN modem, a satellite modem (Globalstar, Inmarsat or Iridium), a microsatellite modem or the modem component can be replaced with WiFi and direct Ethernet interface, allowing connection to existing Ethernet networks.

All Neon Remote Loggers include a time synchronisation system to make sure they are synchronised with server time each time they communicate with the server. The M version Neon Remote Loggers also have a lithium battery call, which can power the system for extended periods if primary power is interrupted.

The same program (scheme) can be used on any Neon Remote Logger independent of the type of transmission. Data logging functions such as sensor scaling, scan rate, log interval and event conditions can all be configured with the user friendly Unidata Version 4 Starlog data Logger Management Software. An Instrument Library contains pre-defined setups for most common hydrology and meteorology instruments, and custom instruments can easily be added.

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The Neon Remote Logger can be re-programmed by authorised users from any internet access point and data transmission intervals and other parameters can easily be changed using a web browser. Logged data such as water level, flow, temperature, pressure, wind speed etc. will be stored on the Neon Remote Logger until it is successfully transmitted to and acknowledged by the Neon server. This system allows for local storage of data in the event the server or communications channel is unavailable. The system transmits any locally stored data when the server or communications channel is restored.

Designed specifically for harsh remote field sites, Neon Remote Loggers have ultra-low power consumption and a robust industrial microprocessor design. The Neon Remote Loggers and the companion sophisticated yet easy to use Neon Server Applications Software makes the Neon Remote Data Collection System one of the most flexible, reliable, and cost effective data collection platforms available.