Primer on Iridium satellite telemetry

Introduction
All Hydroinnova dataloggers have the option of coming with a factory installed, tested and configured Iridium satellite modem. Relying on a constellation of more than 66 satellites, Iridium's Short Burst Data (SBD) service provides truly global (pole-to-pole) coverage at an affordable price. It has rapidly become the preferred telemetry solution for applications ranging from data retrieval and instrument control to global asset tracking and fleet management. Recent increases in the volume of users means that the price for Iridium SBD data service plan is now comparable or even less than a cellular modem data service plan in some areas. For many applications, especially remote or international sites, Iridium is the only way to go.

How Iridium SBD service Works
Iridium SBD service refers to the sending and retrieval of short messages of binary or text data. Any datalogger enabled with a basic Iridium SBD modem can transmit messages up to 340 bytes and receive messages up to 270 bytes in size. The datalogger sends "Mobile Originated" or "MO-SBD" messages via the Iridium satellite network to the Iridium Gateway. From there, the data is transferred via e-mail or IP Socket to the customer's host computer system. The message is often stored in a database for further processing and use. A customer can also send "Mobile Terminated" or "MT-SBD" messages via email or IP socket to the datalogger. *Please contact Hydroinnova for more information on supplemental data services that are available.*

What does the user need to do?
Not much. Parameters controlling data selection and transmission cadence are usually set at the factory. If necessary, these parameters can easily be reconfigured by the user by accessing the datalogger via USB interface or by editing the text initialization file on the datalogger SD card. Enclosures supplied by Hydroinnova come equipped with the proper cables and feedthroughs. We can also provide you with or recommend and appropriate Iridium antenna.

Data Transmission and Data Retrieval
The datalogger will autonomously acquire data, pack it into binary format, and transmit. Data can be retrieved and parsed in several ways:

1. By customers via their own computer server or PC based application. Hydroinnova will provide all the necessary information for customers to retrieve and parse the data.
2. Via a Hydroinnova provided PC based GUI data retrieval application. This application will retrieve the data sent via email, parse it, and store it in comma delimited format suitable for further processing in a program such as Microsoft Excel. In addition, our application will display time series charts of retrieved data.
3. Via a third party service who can make the data retrievable and available via the internet and a simple Web page. Monthly charges for such a service will typically apply.

Iridium Airtime Data Plans
Hydroinnova has arrangements with a third party Iridium airtime reseller. Depending on the volume of activated and operational Iridium SBD modems, the monthly cost per modem is typically on the order of $40-$50 USD for up to 12 kBytes of data. Higher data rate plans are available. Please contact Hydroinnova for more details.

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