Iridium Satellite SBD Primer, June 2011

Quaesta Instruments LLC

The latest generation Iridium SBD modem are small, lightweight, and consume low amounts of power. This modem is utilized in Quaesta Instruments Iridium enabled dataloggers, such as the Q-DL-2100-I.

Introduction

Iridium's Short Burst Data (SBD) service is a satellite telemetry system providing truly worldwideNorth Pole to South Pole coverage.   Iridium's SBD service makes use of a constellation of 66 satellites (with spare satellites in the event of failures).   Maintained since 2001 by Iridium Satellite LLC, the Iridium SBD service is now being used by the Department of Defense and in numerous private sector applications including remote data retrieval and instrument control, global asset tracking, and fleet management.

The increasing number of users has led to a reduction in the price for Iridium SBD data service airtime plans.   Often, the price of an Iridium SBD data service plan is comparable or even less than a cellular modem data service plan.

The number of Iridium satellite communications users is growing, and as such a network of next generation satellites is planned for launch in 2015.

How the SBD service Works

The Iridium SBD service specifically refers to the telemetry of short messages of binary or text data (voice is not enabled on the SBD service).   Enabled with a basic Iridium SBD modem, a Remote Application can transmit messages up to 340 bytes and receive messages up to 270 bytes in size.

The Remote Application transmit Mobile Originated or MO-SBD messages via the Iridium satellite network to the Iridium Gateway.   From there, the data message is transferred via e-mail or an IP Socket to a customer's host computer system. The message is often stored in a database for further processing and use.   A customer can send Mobile Terminated or MT-SBD messages via email or IP socket.

User Configuration

Quaesta Instruments Iridium SBD enabled dataloggers such as the Q-DL-2100-I make transmission and reception of Iridium SBD messages easy for the end user.   No programming is required.

Selection of the data to be sampled and transmitted, as well as the transmission cadence, is easily accomplished by setting of a few parameters on the datalogger. These parameters can be easily configured via an easy to use computer interface or via the editing of a text file on the datalogger's SD card.

Data Transmission and Data Retrieval

After user configuration, the Q-DL-2100-I datalogger will autonomously acquire data, packing the data into the appropriate binary format, and transmit the data.

Data can be retrieved and parsed in several ways:

1. By customers via their own computer server or PC based application. Quaesta Instruments will provide all the necessary information for customers to retrieve and parse the data.

2. Via a Quaesta Instruments 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, the Quaesta Instruments GUI application provides the ability to display some simple time series charts of the 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

Quaesta Instruments is an authorized 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 Quaesta Instruments for more details.