ApolloDas High-g Custom Telemetry Senders

Telemetry Sender Features:

- Apollotek has developed a modular range of High-g survivable Telemetry Senders based on the electronic design of the field proven ApolloDas 8600 Telemetry Instrumentation System
- A typical high-g Telemetry Sender will comprise a multiple channel data encoder and an RF transmitter with an optional rechargeable battery pack to provide a complete solution for the test and evaluation of articles which may be subjected to high-g levels, spin and launch and impact shock
- The Encoder Section can be specified to monitor analogue voltages, digital signals and serial data sources of various types
- Signal Conditioning of associated transducers can be performed
- Transducer excitation can be provided
- The mechanical assembly and installation characteristics together with the electrical configuration of this range of Telemetry Senders is typically designed to integrate and mate with the Customers Test Article
- The Transmitter section of these Telemetry Senders is typically integrated with the Encoder Section and is normally a PCM/FM or SOQPSK transmitter operating in either the S-Band or L-Band and with an RF Power Output of up to 5 Watts. RF Power is determined by Telemetry range and reception requirements
- The Transmitter can incorporate a feature which delays full RF Power Output for a specified time after the Telemetry Sender is turned on
- Rechargeable batteries are optionally incorporated into these Telemetry Senders. The capacity of the batteries is matched to the required trial duration and sender power consumption
- Signal Input Connections and methodology is typically configured to interface with other sections of the host test article

Typical 50 mm diameter applications

Typical 105 mm diameter applications

Apollotek High-g Telemetry Senders are typically custom designed and packaged to match the mechanical, electrical and signal measurement requirements of the Customer's application. This type of instrumentation usually requires close co-operation between the Customer and Apollotek to define and agree the mechanical and electrical interfaces and the data acquisition characteristics of the system and associated environmental testing. Apollotek will support design reviews with the Customer as required to ensure that the designs and its implementation will meet the requirements of the application.

The Telemetered data is formatted to IRIG 106 PCM specifications as standard.

Apollotek can also supply Mobile and fixed Telemetry Reception Groundstations and Data processing Instrumentation Systems as required to support these high-g Telemetry Senders.

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TYPICAL TELEMETRY SENDER SPECIFICATIONS

50 mm diameter cylindrical Telemetry Sender characteristics

Analogue Inputs	Typically up to sixteen single ended 0 to 5 Volt Signals
Digital Inputs	Typically up to 24 Digital Bi-Level Inputs
Serial Data Input	Typically one or more RS422 / RS232 inputs which could be in NMEA Time Format from an external GPS Receiver
Excitation	Typically +5V DC Single Ended. Alternative voltage and current excitation can be specified
Encoder A to D Resolution	Typically up to 16 bits per word
Frame Format	IRIG 106 Compatible
PCM Output Code	Typically RNRZ-L. Other standard Codes supported
Bit Rate	Typically up to 5 MBPS. Other bit rates supported
Transmitter Frequency	Typically one fixed frequency in S-Band or L-Band
Transmitter Output Power	Can be supplied in configurations providing RF Output power from 10 milliwatts up to 10 Watts
Transmitting Antenna	Selected as required for each application

105 mm diameter cylindrical Telemetry Sender characteristics

Analogue Inputs	Typically up to 64 single ended and bi-polar differential inputs with ranges up to ± 10 Volt Signals
Digital Inputs	Typically up to 48 Digital Bi-Level Inputs
Serial Data Input	Typically up to four RS422 / RS232 inputs one of which could be in NMEA Time Format from an external GPS Receiver
Excitation	Typically +5V or +10V DC. Alternative voltage and current excitation can be specified
Encoder A to D Resolution	Typically up to 16 bits per word
Frame Format	IRIG 106 Compatible
PCM Output Code	Typically RNRZ-L. Other standard Codes supported
Bit Rate	Typically up to 10 MBPS. Other bit rates supported
Transmitter Frequency	Typically tuneable over 100 MHz in S-Band or L-Band
Transmitter Output Power	Can be supplied in configurations providing RF Output Power from 10 milliwatts up to 10 Watts

Typical Environmental Characteristics:

Operating Temperature	-30 ^{O} Centigrade to +75 ^{O} Centigrade
Vibration	Sender Construction design is optimised for Customer Vibration and Acceleration Requirements.
Shock	
Acceleration	High-g requirements up to +30,000g and -10,000g can be supported with Apollotek uniquely developed construction, assembly and power conditioning techniques