

OPTICAL MODEM FOR OPTICAL GROUND STATIONS

The Celestia Optical Modem is a key element for Optical Satellite Communication. It can be integrated into optical ground stations or used in test environments. The Modem is multi-standard compatible, and is designed to operate with data rates up to 10Gbps. The Modem may contain an optical receiver for very low input powers, and an Optical Transmitter Unit supporting multiple tunable seeds with programmable skew.



The Optical Modem is designed to be multi-standard compatible, and can be in-field reconfigured. The system is 19" rack mountable and is designed for use both in optical communication ground stations and in test / lab environments.

The system is highly flexible and scalable. It can be configured with several optical Tx outputs with programmable skew and wavelengths, and an Rx channel for very low optical input powers. The system can be configured to work with external optical transmitters and receivers.

A raw data ingest configuration can be supplied where the hard-decision data bits from the receiver is saved directly to disc. This extremely powerful tool allows clients to examine and/or process the raw, unprocessed data bits, using C-STS' or the client's custom processing.

KEY FEATURES

General

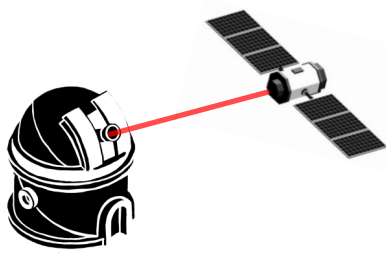
- Standard compatibility: SDA , CCSDS O3K RS Branch, custom
- Multiple tunable optical Tx outputs with programmable skew (optical C-band)
- Powerful receiver for very low optical input powers
- FC/APC input and output bulkhead connectors
- 10Gbit LAN for data ingress/egress
- Control and Monitoring software included

Data Processing

- Hardware processing of digital bitstream from optical receiver
- Bitstream decoding, FEC decoding and data extraction
- Designed for data rates of up to 10Gbits
- Ingest raw data to disc: browse and process
- Internal BER test data generation: PRBS or custom from file
- Internal loopback tests: optical and electrical

OPTICAL MODEM

Optical Signal Acquisition



Optical Modem

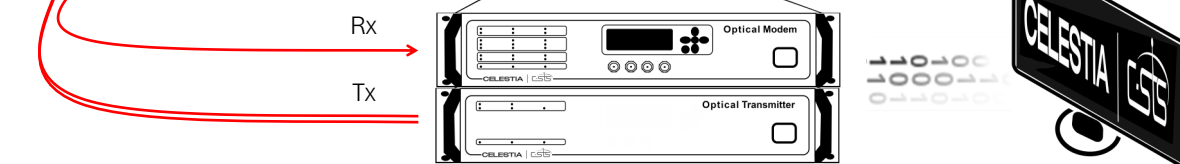
Advanced Functionality

- Fibered Input and Output
- Data Reception and Processing
- Decapsulation
- Decoding
- Formatting for Storage

C-STs Data Management

Data ingest and Control

- C-STs Control and Management
- Ingest Platform
- Logging
- Data Access



The Optical Modem is connected to the optical ground station telescope via fibre. Optical TX and RX data is received/ transmitted, and processed directly by the Modem. A 10G LAN TCP-IP data interface is provided for user data ingress and egress.

The Modem includes a built-in test generator that can generate PRBS patterns, or load user test data from file. Closed/ loop testing can be done both optically and electrically. The modem can be connected directly to the customer's ingest/processing system, or C-STs can provide a server platform for data storage to local disks.

Custom configurations of the Optical Modem has been provided to clients with specific needs in both data handling and optical characteristics. The system can also be configured as a data receiver/ processor without optical components. The Optical Modem is provided with back-end software for control, monitoring and data storage/ archiving.

Interface to Telescope	Single Mode Fibre	Dimensions H x W x D	133 x 448 x 500 mm
Baud Rate	Up to 10 Gbits	Weight	<15kg
Monitoring Interfaces	4 x BNC ports	Input Power Range	100 - 240VAC 50 - 60Hz
Control Interfaces	Gigabit Ethernet	Operating Temperature	+10°C to +40°C
Compatibility	SDA, CCSDS O3K, Custom	Operating Humidity	30% - 85% (non-condensing)
10G TCP/IP Data Offload	SFP+ Optical or Copper	Storage Temperature	-10°C to +60°C
		Storage Humidity	Up to 85% (non-condensing)

