



# COMTECH™



## Comtech ELEVATE CEL-232

## Wideband Satellite Router

Comtech ELEVATE is a scalable, reliable, software-defined solution that brings together the best of Comtech's popular Heights and MF-TDMA VSAT platforms in a first-of-its-kind leading-edge architecture featuring **D-RAM (Dynamic Return Access Modes)** that allows dynamic seamless shifting between MF-TDMA and H-DNA waveforms. Comtech's software-defined technology allows the creation of private VSAT Networks of any size and topology with unlimited potential for future development.

The Wideband Satellite Router CEL-232 represents a significant extension of the HTS series of multi-beam/multi-satellite Comtech Hubs. The new HTS Hub supports wideband DVB-S2/S2X Outbounds (forward link) carrier with symbol rate up to 200 Msps.

CEL-232 router comprises the new HUBMUX feature which is based on the Time-Slicing DVB-S2X standard and facilitates scalability in the Hub. The HUBMUX feature enables aggregation of multiple TDM/DRAM networks and SCPC links in a single wideband carrier up to 240 MHz. HUBMUX is compatible with CEL-100 and CEL-200 series routers and permits use of compact low-cost terminals in very large VSAT networks with wideband HTS transponders.

This product optimizes utilization of wideband HTS transponders. Different services (and the associated business models) can operate over a single wideband carrier with a full traffic isolation of constituent networks.

CEL-232 wideband router also includes a DVB-S2/S2X demodulator that can be used as a control receiver for the Comtech Smart Redundancy or as a spectrum analyzer. This router is supplied in a 1U chassis for installation in a standard 19-inch rack.

### Key Features:

- 1U Rack-mountable wideband satellite router for HTS Hubs
- Efficient DVB-S2/S2X ACM MODCODs with 5% or 20% roll-off and support for wideband HTS transponders
- Single-signal transponder operation up to 240 MHz per carrier
- Wide range of symbol rates: 300 kbps – 200 Msps
- HUBMUX feature with support for 4 subnetworks
- Aggregation of TDM/DRAM Hubs or SCPC channels in a single wideband carrier
- 650 Mbps aggregate throughput per carrier
- Multiple services in the same carrier for diversification of applications and customers
- Dedicated bandwidth and full traffic isolation of embedded networks
- Efficient use of HTS capacity and new dimension of VNO cooperation
- Pay-as-you-grow HTS Hub infrastructure
- Hot-standby M:N Smart Redundancy option

### Applications:

- High-performance TDM/TDMA networks for HTS with slicing and load balancing
- Ultra high speed SCPC channels for GSO and NGSO satellites
- Multiservice VNO networks with dedicated virtual Hubs and traffic isolation

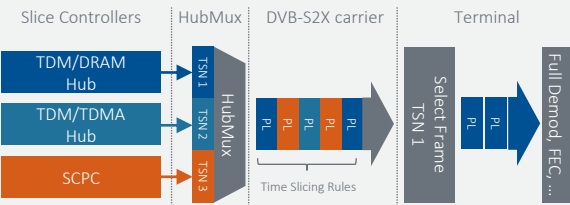


Network	
Modes of operation	Wideband modulator of HTS Hub with HUBMUX feature; Control TDM receiver for Smart Redundancy; Spectrum Analyzer
Number of slices	Up to 4 time-slices 64 Msps each
Frequency bands	C, X, Ku, Ka, including multi-beam HTS satellites GEO/MEO/LEO
Wideband Modulator	
Standard	DVB-S2 / DVB-S2X ACM
Channels	One wideband modulator
MODCODs	QPSK to 256APSK
Roll-Off	5%, 20%
FEC	Most of DVB-S2 & DVB-S2X MODCODs
Symbol Rate	300 ksps - 200 Msps; step 1 ksps; minimum 300 ksps per each slice

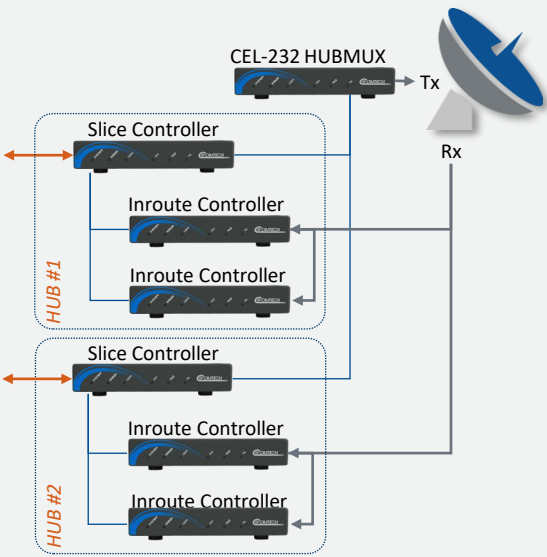
Interfaces (MODULATOR)	
User LAN	1 x Gigabit 10/100/1000 Base-T
IF Tx	950-2150 MHz, -1...-46 dBm; Ref. 10 MHz/+5 dBm; F type
Interfaces (ROUTER)	
User LAN	2 x Giga Ethernet 10/100/1000 Base-T
Maintenance	MiniUSB, B female
IF Rx (both inputs)	950-2150 MHz; Ref. 10 MHz/+5 dBm [RX1]; 13.5/18 VDC 0.75A; F type
Mechanical / Environmental	
Power	90-264 VAC or 24 VDC; 20 W
Operating temperature	0...+50 °C
Size / Weigh	440x44x170 mm / 2.3 kg
Humidity	95% maximum, non-condensing

DVB-S2X ANNEX M TIME-SLICING

- Operation in wideband mode, without requiring a full-speed decoding of the total carrier capacity
- Suitably mapping the services in multiple time-slices
- A time-slice corresponds to one PL-Frame
- Terminals select and decode a specific time-slice only
- Slice Controllers (may act as SCPC or OC) prepare PL-Frames with unique TSN and deliver it to HubMux
- HubMux transmits time-slices within a single carrier
- Return channels are associated with the respective slice controller and transmitted via separate carriers



WIDEBAND HUB



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About Us

Comtech Telecommunications Corp. is a leading global technology company providing terrestrial and wireless network solutions, next-generation 9-1-1 emergency services, satellite and space communications technologies, and cloud native solutions to commercial and government customers around the world. Our unique culture of innovation and employee empowerment unleashes a relentless passion for customer success. With multiple facilities located in technology corridors throughout the United States and the world, Comtech leverages its global presence, technology leadership and decades of experience to create the world's most innovative communications solutions.

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Rev. EL-2.0 02/02/2023