

- » Multi-waveform software-defined modem enabling network interoperability and operational flexibility
- » Up to 400 Mbps total throughput for enterprise applications and tactical flexibility
- » Adapts to future mission requirements with software updates
- » Significantly reduced integration complexity and life cycle costs



The Viasat Commercial Broadband Modem 400 (CBM-400) is the most adaptable SATCOM modem platform, delivering more bandwidth efficiency, interoperability, and security to mobile, on-the-pause, and fixed communications.

The Viasat CBM-400 is a software-defined modem platform that combines the power of high-speed connectivity with the flexibility of waveform switching to meet the needs of any mission and application. Multiple form factors offer flexibility to arm your SATCOM terminal with the most versatile networking capability for your mission today and tomorrow.

With speeds up to 400 Mbps, the WGS certified Viasat CBM-400 is powerful enough for the most intensive enterprise missions and flexible enough for highly tactical integrations into any micro-sat terminal, half or full ATR chassis, or enclosure. The Viasat CBM-400 delivers satellite broadband performance whether at-the-halt or on-the-move (COTM). Mobile users can pair the modem with an ultra-compact antenna on ground vehicles or aircraft to send and receive true HD video, voice, and data networking.

Benefiting from a software-defined architecture, the Viasat CBM-400 platform is ready for any mission, network, or topology. One hardware platform with waveforms for every satellite networking challenge or operational environment: star and full-mesh networking with the LinkWay™ waveform; point-to-point networking with EBEM; airborne mobility with ArcLight® waveforms; and two integrated high performance DVB-S2 receivers/decoders with resources for additional waveforms. Choose the waveform that suits your mission today, and have the ability to adapt tomorrow or whenever your requirements change. With this flexibility, the Viasat CBM-400 significantly reduces the complexity and cost associated with deploying, operating, maintaining, and upgrading a network. The Viasat CBM-400 is interoperable with today's networks while also providing users with a path toward network convergence.

The Viasat CBM-400 delivers operational and capital savings by minimizing the expense of procurement and integrated logistics support (ILS) for modem hardware. Use of a single hardware platform across applications reduces the complexity of integration by collapsing hardware variants. A single Viasat CBM-400 solution significantly reduces total lifecycle costs, all while allocating the most efficient use of bandwidth with the right waveform for every application.

VIASAT CBM-400 AT-A-GLANCE

One Platform for Multiple Missions and Networks

- » Serves multiple missions simply by switching waveforms
 - LinkWay™ waveform: Full Mesh, Hybrid, and Star topologies with Comms-at-the-Halt and Comms-on-the-Move
 - EBEM waveform: High efficiency point-to-point architecture interoperable with Paired Carrier Multiple Access (PCMA) technology*
 - ArcLight®1 and ArcLight®2 waveforms: Airborne mobility communications
 - Software-upgradeable for protected and future waveforms
 - Reduced logistics footprint
 - Future-proof with support of additional waveforms
- » Seamlessly adapts to topology and architecture of your network
- » Operates on any satellite band (C-, X-, Ka-, Ku-)
- » Available in rack-mount, embedded card set, ruggedized outdoor enclosure, and ½-ATR enclosure for fixed or mobile applications

Broadband for Bandwidth-Demanding Applications

- » HD video, high-resolution imagery, C2, SA
- » Internet, VPN, VTC, secure voice, email, and data

High-Speed SATCOM with Bandwidth Efficiency

- » ArcLight, LinkWay, and EBEM approved for WGS
- » 400 Mbps combined throughput
- » Fast-hopping transmitter and receiver supports 16,000 hop/s MF-TDMA operation up to 30 Msps (Mcps)
- » High-performance transmitters and receivers support FDMA and CDMA operation up to 52 Msps (Mcps)
- » Dual DVB-S2 receivers, each supporting up to 170 Mbps IP Layer 3 traffic (52 Msps/Mcps) with adaptive coding, modulation, and spreading
- » EBEM along with carrier cancellation technology (PCMA) to increase bandwidth efficiency, increase network capacity, and lower the cost of satellite networking

Security

- » FIPS 140-2 Level 2 certified Transmission Security (TRANSEC)
- » Automatic over-the-air authentication, re-keying, and zeroization
- » Designed to support data/control plane separation

SPECIFICATIONS CAPABILITIES

| | |
|---------------------------------------|---|
| Waveform Options | LinkWay™ and EBEM with simultaneous DVB-S2 Rx, ArcLight®1, ArcLight®2, and Viasat high-capacity internet service |
| Network Control and Management | Embedded LinkWay™ Network Control Center (eNCC) hosted on CBM-400 Modem |
| TRANSEC | FIPS 140-2 Level 2 certified AES 256-bit bulk encryption of user data plane and network control plane; Key load via front panel or Ethernet port; Compatible with Simplex and Full-Duplex links |

VERSATILE FAST-HOPPING TRANSMITTER AND RECEIVER

| | |
|--------------------------------|---|
| Symbol (Chip) Rates | Up to 30 Msps/Mcps MF-TDMA, up to 60 Msps/Mcps FDMA/CDMA; 1x to 23x spreading |
| Modulations | BPSK, BPSK $\pi/2$, QPSK, OQPSK, 8PSK, 16APSK, GMSK |
| Turbo codes | DVB-RCS, 3GPP, EBEM, DVB-S2 |
| Performance | Code rates 1/5 to 9/10; Ec/No: -17 to +15 dB |
| Modes | MF-TDMA, FDMA, CDMA/CRMA, Adaptive power, modulation, code rate, and spread factor control, based on waveform |
| IF interface | |
| » Transmit | 950 to 2050 MHz |
| » Receive | 900 to 2050 MHz |
| Transmit Output Carrier | -35 to +10 dBm |
| Receive Noise Density | -90 to -140 dBm/Hz |

DUAL INTEGRATED HIGH-EFFICIENCY RECEIVERS

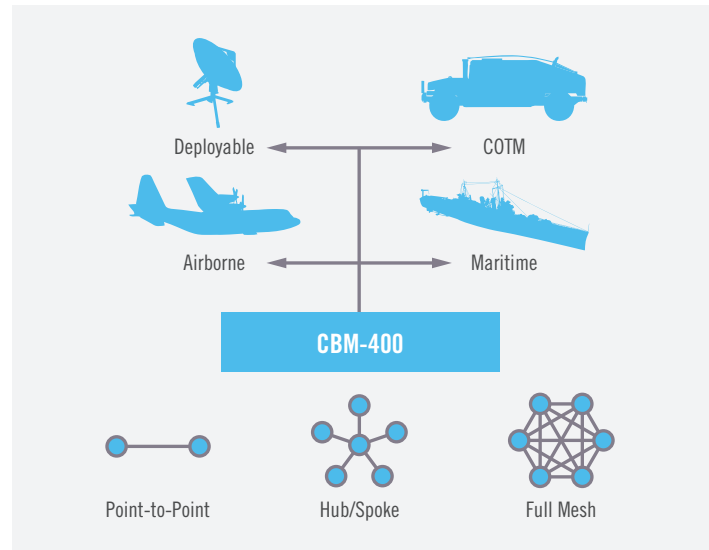
| | |
|------------------------------|--|
| Symbol (Chip) Rates | 1 to 52 Msps (Mcps), 1x to 23x spreading |
| Demodulations | BPSK, QPSK, 8PSK, 16APSK |
| Performance | DVB-S2 code rates 1/4 to 9/10; Ec/No: -17 to +15 dB |
| Modes | FDMA with adaptive spreading, coding, and modulation |
| IF interface | 900 to 2150 MHz |
| Receive Noise Density | -140 to -90 dBm/Hz |

INTERFACES

| | |
|------------------------------|--|
| IF Interfaces | TNC or SMA; VSWR 2:1 |
| Reference to BUC, LNB | 10 MHz, -5 to 0 dBm output on IF interfaces |
| DC Power | BUC up to 2.5A @ 24 VDC (rack mount) or up to 4A @ external 18 to 52 VDC input; LNB up to 500 mA @ 13, 18, or 21 VDC |
| Ethernet | 4x RJ-45 10/100/1000: Data, Control, Expansion |
| USB | Up to 2x USB 2.0 compatible, USB-A Female |
| Timing Reference | 50-Ohm, dual 5 MHz, 10 MHz or 1PPS -5 to +5 dBm input or +10 to +13 dBm output |
| ARINC 429 | 4-channel receiver, DE-9 interface |
| Miscellaneous | RJ-45 with dual RS-232 or one RS-422 for ACU control, GPS NMEA-183 receiver |

ENCLOSURES AND ENVIRONMENTAL

| | |
|-------------------------------------|--|
| Rack Mount Enclosure | |
| » AC powered | 100 to 240 VAC, 47 to 63 Hz |
| » Dimensions (W x H x D) | 17.0 x 1.75 x 14.0 in; 43.2 x 4.5 x 35.6 cm |
| » Weight | <9 lb; convection cooled |
| » Temperature | -40° to 60°C Operational, -40° to 70°C Storage |
| » Humidity | Up to 95%, non-condensing |
| Card Set | |
| » DC powered | 22 to 30 VDC |
| » Dimensions (W x H x D) | |
| » Digital Card | 6 x 1 x 9.5 in; 15.2 x 2.5 x 24.1 cm |
| » Analog Card | 6 x 0.9 x 9.5 in; 15.2 x 2.2 x 24.1 cm |
| » Digital & Analog Stacked | 6 x 2.5 x 9.5 in; 15.2 x 6.4 x 24.1 cm |
| » Weight | <3 lb card set; <4.5 lb with optional metal frame, conduction cooled |
| » Temperature | -40° to 60°C Operational, -40° to 70°C Storage |
| » Humidity | Up to 95%, non-condensing |
| 1/2ATR | |
| » DC powered | 26 to 30 VDC |
| » Dimensions (W x H x D) | 4.88 x 7.62 x 13.5 in; 12.4 x 19.4 x 34.3 cm |
| » Weight | <19 lb; conduction cooled |
| » Temperature | -40° to 60°C Operational, -54° to 70°C Storage |
| » Ruggedization | MIL-STD-810G, MIL-STD-461F sealed chassis |
| Ruggedized Outdoor Enclosure | |
| » DC powered | 10 to 36 VDC |
| » Dimensions (W x H x D) | 8.90 x 3.25 x 13.80 in; 22.6 x 8.3 x 35.1 cm |
| » Weight | <13.5 lb; conduction cooled |
| » Temperature | -40° to 60°C Operational, -40° to 70°C Storage |
| » Ruggedization | MIL-STD-810G, MIL-STD-461G, MIL-STD-1275D, IP-67 |



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* Hardware supports future software upgrade

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