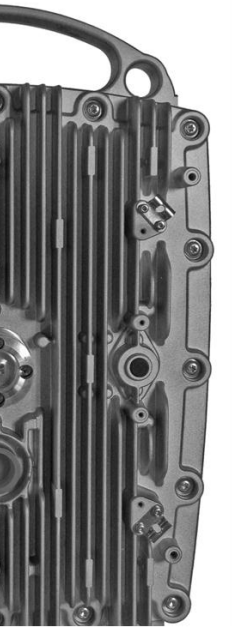


VectaStar Gigabit ODU GE

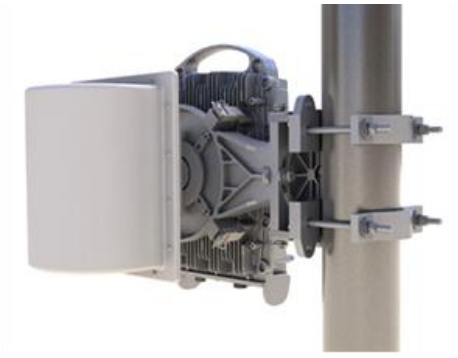
System datasheet

The VectaStar Gigabit ODU is a range of outdoor units for use as Access Points (APs) and Remote Terminals (RTs), which forms part of the wider family of Carrier Class VectaStar Gigabit point-to-multi-point products. VectaStar Gigabit offers a compelling alternative to point to point, with up to 350 Mbps gross throughput per sector (2+0) and operating in the standard ETSI 10.5 GHz, 26 GHz and 28 GHz frequency bands. VectaStar Gigabit outdoor units are accompanied by a range of antennas including vertically and horizontally polarized 90^{o} sector horn antennas for APs and 30cm and 60cm parabolic antennas for RTs.

VectaStar Gigabit deployments can vary from single sector outdoor-only deployments to multi-sector protected radio hubs (1+1 and 2+0) with a Radio Controller (RC), providing sector aggregation and interfacing to the core network. Traffic from the network edge (e.g. NodeB, eNodeB, WiMAX BS, etc.) is backhauled by the connected RT to the sector AP. Within each sector, bandwidth is statistically multiplexed across multiple RTs in accordance with operator-defined QoS parameters. This dynamic allocation avoids the wasteful spectrum usage associated with PtP links. VectaStar systems support 7-state adaptive modulation for superior performance in all weather conditions.

ACCESS POINT (AP-GE)

The VectaStar Gigabit Access Point (AP-GE) is an integrated radio, modem and network interface unit, connecting directly to a sector antenna. An AP-GE can operate as a single sector without any additional indoor equipment (Zero-footprint mode), backhauling traffic from up to 8 Remote Terminals (RTs) and terminating it on a single Gigabit Ethernet interface. Up to 30 RTs per AP-GE can be supported with the addition of the Radio Controller. Power and data are provided to the AP-GE over a single CAT-5e cable or by 2-core cable for power and a single mode fibre for data.



VSG AP-GE & Sector Antenna

REMOTE TERMINAL

The VectaStar Gigabit Remote Terminal (RT-GE) offers class-leading full duplex throughput up to the available sector capacity of 175Mbps gross (150Mbps net Ethernet) in each direction (at 256QAM in a 28MHz channel). Power and data are provided over a single CAT-5e cable. Alignment of the RT-GE to the sector AP-GE is performed using the dedicated alignment interface (BNC) and a standard voltmeter.

VSG RT-GE & 30cm Antenna

SERVICES

VectaStar Gigabit supports Ethernet services. Support for TDM E1 services is provided via the use of a 1U indoor unit at the RT. At a multi-sector radio hub with RC, up to 126 E1's can be terminated to the core over channelized STM-1 on a Multi Protocol Aggregator (MPA). E1s from co-located customer systems are accommodated via an E1 Concentrator.

VectaStar Gigabit Technical Specifications

General	10.5 GHz	26 GHz	28 GHz
Standards conformance	ITU-R F.1568 & CEPT ERC 12.05E	ITU-R F.748-4 Annex 1 & CEPT ERC 13.02E	ITU-R F.748-4 Annex 2 & CEPT ERC 13.02E
Duplexer Tx/Rx bands	10.15 – 10.3GHz / 10.5 – 10.65GHz	24.549 – 25.445GHz / 25.557 – 26.453GHz	27.5485 – 28.4445GHz / 28.5565 - 29.4525GHz
Duplex spacing	350MHz	1008MHz	
Radio access method	Single Carrier FDD Full Duplex, TDMA uplink and downlink		
Radio transmit power	+19dBm	+18dBm	
Channel sizes	7 and 14MHz	7, 14 and 28MHz	
Modulation	Hitless Adaptive Modulation (ACM) and fixed mode, QPSK up to 256QAM with Trellis Coding		
Latency (Typical)	Average < 0.6ms with 99.9% < 1.0ms at <=98% rated sector throughput		
Synchronisation	1588V2, NTPv4, External Clock input option (with Radio Controller), E1 clocking** and SyncE***		
Sector throughput (at 256QAM)	Over 87Mbps Gross, Up to 75Mbps Ethernet (14MHz channel)	Over 175Mbps Gross, 150Mbps Ethernet (28MHz channel)	
Range	Up to 19.5 km†	Up to 7.4 km†	Up to 7.0 km†

Access Point (AP-GE)

AP Antenna * gain	16 dBi (beamwidth: 90° x 8°)	18 dBi (beamwidth: 90° x 6°)
Network interfaces	1 x 100/1000BaseT Ethernet or 1 x 1000BaseLX (LC connector, single mode short haul 1310nm laser). Both VLAN capable.	
Power requirements	–48V DC; 35W (typical) at AP either PoE using Gigabit Power Injector or 2-core power with fibre interface	
AP powering	–48V DC over 2-core cable or –48V DC with Gigabit Ethernet on single CAT-5e from Gigabit Power Injector unit	
AP weight and dimensions (excluding antenna)	431x266x127mm (HxWxD), 8.5kg	431x266x139mm(HeightxWidthxDepth), 8.5kg

Remote Terminal (RT-GE)

Antenna* gain (horizontal x vertical beamwidth)	0.3m dish: 28 dBi (6° x 6°) 0.6m dish: 33 dBi (3° x 3°)	0.3m dish: 36 dBi (2.5° x 2.5°) 0.6m dish: 41 dBi (1.4° x 1.4°)	0.3m dish: 36 dBi (2.3° x 2.3°) 0.6m dish: 42 dBi (1.3° x 1.3°)
Network interfaces	1 x 10/100/1000BaseT (VLAN capable)		
Power requirements	–48V DC or 220V AC, 35W (typical) at RT, PoE using Gigabit Power Injector		
RT outdoor unit weights and dimensions (excl. ant.)	431x266x127mm(HxWxD), 8.5kg	431x266x134mm(HxWxD), 8.5kg	431x266x139mm(HxWxD), 8.5kg
RT powering	–48V DC with Gigabit Ethernet on single CAT-5e from Gigabit Power Injector unit		
Throughput	Over 87Mbps Gross, Up to 75 Mbps Ethernet (14MHz channel)	Over 175Mbps Gross, 150Mbps Ethernet (28MHz channel)	

Services

Ethernet	Native Ethernet, 802.1D MAC Switching with RC, 802.1Q (VLAN tagging), 802.1p (Class of Service), 802.1ad (QinQ).
E1 **	Optimised E1 (for ABIS, IuB, CDMA and IMA), E1 structured (G.704) and unstructured (G.703)
ATM **	ATM/IMA, RFC1483, E1CES
Scalability	AP in Zero-footprint mode: Up to 8 RTs in a sector, up to 256 services in a sector (up to 64 services per RT) AP with Radio Controller: Up to 30 RTs per sector. Radio Controller supports up to 8 APs

Standards Compliance

EMC	ETSI EN 301 489
Environmental	Class of indoor equipment is 3.1 (temperature range: +5°C to +40°C), as defined in ETSI EN 300 019-1-3. Class of outdoor equipment is 4.1E and 4.2H (temperature range: –45°C to + 55°C), as defined in ETSI EN 300 019-1-4.
Safety	EN 60950-1 and 60950-22
Storage	Class of storage of equipment is 1.3, as defined in ETSI EN 300 019-1-1
Transportation	Class of transportation of equipment is 2.3, as defined in ETSI EN 300 019-1-2
DC power supply	ETSI EN 300 132-2
RoHS and WEEE	VectaStar is compliant with RoHS and WEEE directives (see http://www.cbnl.com/support/recycling.html)

For details of backwards compatibility with prior generations of VectaStar products please enquire.

† Link ranges basis: 99.99% reliability, 1E-9 BER, Vertical polarised 60cm RT antennas, R0.01 = 28.3 mm/h, 14 MHz channel. AP at 100m ASL, RT at 20m ASL

*Typical antennas shown. Additional antenna options available. Please enquire.

** Consult CBNL Representative for full hardware and software requirements.

*** Subject to roadmap. Consult CBNL Sales representative for availability.

To confirm the latest product information and to find your nearest Cambridge Broadband Networks representative, please contact our head office on sales@cbnl.com or visit http://www.cbnl.com

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