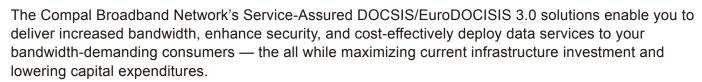# CD6000A / CD6000E
DOCSIS / EuroDOCSIS 3.0 Cable Modem

Introduction

Strengthen your broadband leadership —
count on Compal Broadband Network's
DOCSIS / EuroDOCSIS 3.0 CPE to
help you deliver innovative, ultra-broadband data
services to your premium customers.

Highlights

- Cable Europe Labs DOCSIS/EuroDOCSIS 3.0 certified.
- 2 x 96MHz full bandwidth groups.
- 8 Downstream plus 4 Upstream Channel bonding, over 300Mbps downstream rate, 100Mbps upstream rate.
- High speed connection with auto-sensing Gigabit Ethernet ports
- Supports IPv4 and IPv6.
- Enhanced security with AES traffic encryption.
- Advanced SNMP network management.
- User-friendly online diagnostics.
- Low-power comsumption with enhanced power management.
- Small form-factor.

The Compal Broadband Network's Service-Assured DOCSIS/EuroDOCISIS 3.0 solutions enable you to deliver increased bandwidth, enhance security, and cost-effectively deploy data services to your bandwidth-demanding consumers — the all while maximizing current infrastructure investment and lowering capital expenditures.

High Value and Increased Data Rates

The Compal Broadband Network's easy-to-use CD6000A/CD6000E DOCSIS/Euro DOCSIS 3.0 Cable Modem unlocks the potential of offering innovative high-bandwidth data and multimedia services to customers. Utilizing the power of DOCSIS/Euro DOCSIS 3.0, the CD6000A/CD6000E enables channel bonding of up to eight downstream channels and four upstream channels, which allows an operator to offer its customers advanced multimedia services with data rates of over 300 Mbps for received data and over 100 Mbps when sending data. The CD6000A/CD6000E's higher-speed services enable operators to:
- Protect their installed base of high-speed data customers
  Deliver high-bandwidth, multimedia services

- Deliver competitive, high-capacity commercial services to their business

Economic and Flexible

The Compal Broadband Network's CD6000A/CD6000E DOCSIS/Euro DOCSIS 3.0 Cable Modem provides operators with an economic option for providing Ultra-Broadband services, with eight times the current maximum user data throughput approximating over 300 Mbps in DOCSIS and 400 Mbps in EuroDOCSIS mode*, without the need for hybrid fiber coax (HFC) plant upgrade. Maximizing an operator's current infrastructure investment, the CD6000A/CD6000E can be deployed without service interruption. Backwards compatible to DOCSIS 1.0, 1.1 and 2.0, the CD6000A/CD6000E also supports both IPv4 and IPv6, Advanced Encryption Services, and all other DOCSIS 3.0 standards. As part of The Compal Broadband Network's DOCSIS/Euro DOCSIS 3.0 Ultra- Broadband family of products, the CD6000A/CD6000E tuner has flexibility of two individual capture bandwidth groups, each 96 MHz which can be put anywhere in full downstream spectrum.

These downstream capture windows can be placed independently anywhere within the 108 MHz to 1 GHz spectrum for deployment of new high-value services, such as bandwidth on-demand, commercial services, interactive gaming, and IPTV, to their customers.

The CD6000A/CD6000E features a 10/100/1000Base-T Ethernet (RJ-45) port, as well as intuitive, easy-to-read front-panel operational status LEDs. Operators can optionally activate dual-colored LEDs for their customer to have visual verification of bonded channels and GigE link use. With the Compal Broadband Network's cable modems, high-speed Internet access is always at your fingertips – always on and always connected. The CD6000A/CD6000E is the ideal competitive solution for the high-end residential user, the small home office owner, and the medium to large business enterprise.

Specification

GENERAL	
Standards	
Cable Interface	75 Ω F-connector
CPE Network Interface	10/100/1000Base-T Ethernet
Data Protocol	TCP/IP
Dimensions	132 mm x 132 mm x 36 mm
Power	9W (nominal)
Input Power	
North America	105 to 125 VAC, 60 Hz
Outside North America	220 to 230 VAC, 50 to 60 Hz
Environmental	
Operating Temperature	32 F to 104 °F (0 °C to 40°C)
Storage Temperature	–22 °F to 158 °F (–30 °C to 70°C)
Operating Humidity	5 to 95% R.H. (non-condensing)
Downstream	
Modulation	64 or 256 QAM
Capture Bandwidth Dual	96 MHz Capture windows
Maximum Theoretical Data Rate**	
DOCSIS	343.072 Mbps (8 channels) / 42.884 (single channel) @ 256 QAM at 5.36 Msym/s
EuroDOCSIS	444.928 Mbps (8 channels) / 55.616 (single channel) @ 256 QAM at 6.952 Msym/s
Bandwidth	
DOCSIS	≤ 48 MHz
EuroDOCSIS	≤ 64 MHz
Symbol Rate	
DOCSIS	64QAM 5.057 Msym/s; 256 QAM 5.361 Msym/s
EuroDOCSIS	64 QAM 6.952 Msym/s; 256 QAM 6.952 Msym/s
Operating Level Range	–15 to 15 dBmV
Bonded Channel RF	
Level Tolerance	10dBmV
Input Impedance	75Ω (nominal)
Frequency Range	DOCSIS 88 to 1002MHz, EuroDOCSIS 108 to 1002 MHz (edge to edge),optional DOCSIS 108 to 1002MHz)
Frequency Plan	
EuroDOCSIS	Annex A
DOCSIS	Annex B
J-DOCSIS	Annex B, modified for Japan Frequencies
Security	DOCSIS 3.0 Security (BPI+, EAE, SSD)
Network Management	SNMP v2 & v3
Provisioning Supports	IP addressing using IPv4 and/or IPv6 (dual stack)
Upstream	
Modulation	QPSK and 8, 16, 32, 64, 128 QAM
Maximum Channel Rate**	
DOCSIS	131.072 Mbps (4 channels) / 32.768 Mbps (single channel):@ 128 QAM at 6.4 MHz
EuroDOCSIS	131.072 Mbps (4 channels) / 32.768 Mbps (single channel):@ 128 QAM at 6.4 MHz
Channel Width	200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.4 MHz
Symbol Rates	160, 320, 640, 1280, 2560, 5120 ksym/s
Operating Level Range	Level range per channel (Multiple Transmit Channel mode disabled, or only Multiple Transmit Channel mode enabled with one channel in the TCS)
DOCSIS/EuroDOCSIS TDMA	

Specifications (continued)

	Pmin to +57 dBmV (32 QAM, 64 QAM)
	Pmin to +58 dBmV (8 QAM, 16 QAM)
	Pmin to +61 dBmV (QPSK)
S-CDMA	
	Pmin to +56 dBmV (all modulations), where:
	Pmin = +17 dBmV, 1280 kHz modulation rate
	Pmin = +20 dBmV, 2560 kHz modulation rate
	Pmin = +23 dBmV, 5120 kHz modulation rate
Level range per channel (two channels in the TCS)	
TDMA	
	Pmin to +54 dBmV (32 QAM, 64 QAM)
	Pmin to +55 dBmV (8 QAM, 16 QAM)
	Pmin to +58 dBmV (QPSK)
S-CDMA	
	Pmin to +53 dBmV (all modulations), where:
	Pmin = +17 dBmV, 1280 kHz modulation rate
	Pmin = +20 dBmV, 2560 kHz modulation rate
	Pmin = +23 dBmV, 5120 kHz modulation rate
Level range per channel (three or four channels in the TCS)	
TDMA	
	Pmin to +51 dBmV (32 QAM, 64 QAM)
	Pmin to +52 dBmV (8 QAM, 16 QAM)
	Pmin to +55 dBmV (QPSK)
S-CDMA	
	Pmin to +53 dBmV (all modulations), where:
	Pmin = +17 dBmV, 1280 kHz modulation rate
	Pmin = +20 dBmV, 2560 kHz modulation rate
	Pmin = +23 dBmV, 5120 kHz modulation rate
Output Impedance	75 Ω(nominal)
Frequency Range	DOCSIS 5 to 42 MHz (edge to edge), EuroDOCSIS 5 to 65 MHz (edge to edge), Optional DOCIS 5 to 85 MHz
Compatibility	PC: Windows Vista™, 2000, XP or 7 or Linux® with Ethernet connection (older versions of Windows, although not specifically supported, will work with this cable modem) Macintosh: Power PC or later; OS 9 or higher, Ethernet connection UNIX: Ethernet connection Home Networking: Ethernet router or wireless access point

NOTE:

* Actual speeds will vary, and are often less than the maximum possible. Data transmission speed is approximate and depends on the configuration and capacity of your network, as well as the amount of traffic on the network. ** Actual data throughput will be less due to physical layer overhead (error correction coding, burst preamble, and guard interval). Certain features may not be activated by your service provider, and/or their network settings may limit the feature's functionality. Additionally, certain features may require a subscription. Contact your service provider for details. All features, functionality, and other product specifications are subject to change without notice or obligation. DOCSIS 3.0 modem capabilities are dependant on the services available through the CMTS. Please verify with your CMTS vendor their specific DOCSIS 3.0 implementation roadmap.