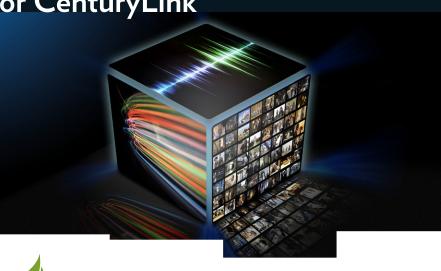# technicolor

MediaAccess C2000T for CenturyLink

Wireless n VoIP
Ultra Broadband Gateway
with HPNA

TELECOM

DATA

VOICE

VIDEO

Optimizing your WAN Bandwidth

In this bandwidth-hungry era of IPTV and real-time HD video streaming, operators need to stay competitive and keep costs down, as well as take advantage of existing facilities as much as possible.

Our C2000T innovation helps you get the most out of your network by letting you re-use existing copper wiring and giving higher coverage from one DSLAM. Moreover, it is a powerful future-proof triple-play service gateway allowing VDSL2 (Bonded) connectivity while providing Voice over IP functions for residential users.

A dedicated Gigabit Ethernet flexible WAN/LAN port and DSL WAN sensing make the C2000T also the ideal service gateway for deployment in mixed DSL and fiber-based access networks.

In addition to its four Gigabit Ethernet LAN ports, the C2000T offers an IEEE 802.11n wireless access point for Local Area Network (LAN) access.

The Ultimate in Ultra Broadband

The accelerating growth of WAN and LAN traffic is pushing operators to look to ultra-high-speed network technologies to solve the bandwidth crunch. VDSL2 combined with Gigabit Ethernet enables extremely high bandwidth and guarantees superior quality in voice, data and video. Adding on top some of the latest performance-enhancing technologies gets the utmost out of existing infrastructures:

■ Bonding: works by combining multiple wire pairs to increase available capacity, or extend the copper network's reach. It typically combines two regular VDSL2 lines into a single, virtual "big pipe".

■ G.vector: effectively cancels the crosstalk noise inherently present in VDSL2 bands. With vectoring, every line in a binder can operate at peak performance, as if there were no other VDSL2 lines in that binder.

Features at a Glance

■ Integrated VDSL2 modem
■ Bonded ADSL2+
■ Bonded VDSL2 (up to 17a profile)
■ 1 GE WAN/LAN port
■ DSL WAN sensing
■ 4 GE LAN ports to connect multiple devices, such as PCs, laptops, set top boxes...
■ HomePNA™
■ Wireless networking on-board: IEEE 802.11n 2x2 (2.4 GHz) with High Power (up to 200 mW)
■ Wi-Fi Protected Setup (WPS™)
■ 2 FXS ports
■ 1 USB 2.0 host port
■ Extensive remote management
■ Non-service-affecting platform software upgrades (dual bank memory)
■ Built-in stateful firewall, parental control
■ IPv6 enabled
■ Designed to meet the latest ECO standards

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HomePNA for Premium In-Home Networking

The C2000T features a built-in HPNA 3.1 compliant adapter that allows distribution of high-quality data and video inside the home over existing coax wires. Hence, it is ideal for IPTV deployments with minimal impact on subscribers' homes: Set-top boxes can be directly connected to the gateway over the present network infrastructure. Furthermore, the HPNA adapter enables HD streaming speeds of up to 190 Mbps and an advanced QoS.

Highest Security

The Technicolor firewall guarantees users the ultimate level in network security. Through integration with NAT, the firewall leverages all the Application Level Gateways (ALGs) provided in the NAT context to minimize undesired service impact. The firewall provides Stateful Packet Inspection (SPI), and an integrated Intrusion Detection and Prevention System (IDS) engine monitors a wide range of attack patterns, and logs potential security breaches to a local cache or remote server.

The C2000T also supports powerful wireless security mechanisms, such as Wi-Fi Protected Access (WPA2).

The support of multiple SSIDs in the gateway enables support for up to four independent wireless access networks. These additional wireless networks allow other wireless users to enjoy the high-performance access without compromising the integrity of the basic network, thus keeping the original network access limited and secure.

Easy to Use

Like all Technicolor modems and gateways, the C2000T is an easy to use, easy to install gateway. For convenience of the end user, the easy-to-access LEDs provide a clear indication of start-up sequence and connectivity status. Multiple integrated web pages also allow direct access to the status and settings, including privacy and security information.

With Wi-Fi Protected Setup (WPS) users can easily connect with the C2000T wireless network by simply pushing a button or entering a PIN code. It allows home users to easily connect to a secure network without any complex configuration and eliminates the need to remember or store their security information in an unsafe way.

Easy to Manage

The C2000T is compliant with the TR-069 data model through which the device can be configured remotely by the operator without interrupting the end user's experience.

Voice over IP

The C2000T offers POTS phone connectors to accommodate phones and faxes. Once the gateway is registered with a VoIP service, regular phone calls can be conducted over the Internet with all the benefits of IP telephony.

On top of a wide range of advanced voice services like caller ID, CLIR, call waiting, call forwarding, three-way conference and message waiting notification, the C2000T is completely interoperable with the main IMS cores in the market.

IPv6 Enabled

With the approaching IPv4 address pool depletion, our products need to be ready for IPv6. Technicolor is a frontrunner in the introduction of IPv6 on its devices, with the C2000T being enabled for multiple IPv6 field scenarios. Internet Protocol version 6 is the next generation of Internet technologies aiming to effectively support the ever-expanding Internet usage and functionality, and also to address security concerns that exist in an IPv4 environment.

Technicolor aims to introduce IPv6 as smoothly as possible in customer networks. By providing in-depth knowledge of the networking stack, we guide our customers in their transition from IPv4 to IPv6.

ECO

Technicolor is committed to offer its customers sustainable products and implements a set of ECO features to reach the best possible environmental performance. In addition to carefully selected plastics and packaging to minimize the ecological footprint, the C2000T benefits from a unique combination of hardware and software features that reduce power consumption substantially.

Professional Services

To reinforce our extensive portfolio of digital home solutions, Technicolor has a dedicated Professional Services team to make sure that every deployment is a success, from initial provisioning and integration to operations, upgrades, ongoing support and beyond.

Our wide array of services spans the entire customer project lifecycle, encompassing:

- Expert consulting

- Seamless system integration

- Warranty on all our products

- Qualified technical support and maintenance

- Efficient repair, refurbishment and recycling

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Technical Specifications

Hardware Specifications

- Interfaces WAN   RJ-11 DSL line port
  1 Ethernet WAN/LAN 10/100/1000 Base-T port
  1 filtered RJ-11 FXO analog pass-through port
- Interfaces LAN   4-port autosensing 10/100/1000 Base-T
  auto-MDI/MDI-X Ethernet LAN switch
  2 RJ-11 FXS POTS ports
  1 USB 2.0 host port
  Wi-Fi IEEE 802.11n 2.4GHz 2x2 on board
  with High Power
  HPNA 3.1 on board
- Extras   WPS button
  Reset button
- Dimensions   255 x 154 x 35.5 mm (10.0 x 6.1 x 1.4 in.)
- AC Voltage   100-240 VAC 50/60 Hz (switched mode power supply)
- Temperature   0° - 40° C (32° - 104° F)
- Humidity   20 % to 80 %

DSL Modem Specifications

- Supports multi mode standards
- Supports ATM and PTM dual priority
- ADSL compliance   ANSI T1.413 Issue 2,
  ITU-T G.992.1 Annex A, B (G.dmt),
  ITU-T G.992.2 Annex A, B (G.lite),
  ITU-T G.994.1 (G.hs)
  Maximum rate: 8 Mbps for downstream
  and 1 Mbps for upstream
- ADSL2 compliance   ITU-T G.992.3 Annex A, B, L, M (G.dmt.bis),
  ITU-T G.998.4 (G.inp)
  Maximum rate: 12 Mbps for downstream
  and 1.5 Mbps for upstream
- ADSL2+ compliance   ITU-T G.992.5 Annex A, B
  ITU-T G.998.4 (G.inp)
  Maximum rate: 24 Mbps for downstream
  and 3 Mbps upstream
- VDSL2 compliance   ITU G.993.2
  SOS
  SRA
  INM
  Up to 17 MHz profiles (POTS/ISDN)
  ITU-T G.993.5 (G.vector)
  ITU-T G.998.4 (G.inp)
  ITU-T G.998.1 ATM Bonding
  ITU-T G.998.2 Ethernet Bonding

Wireless Performance and Security

- Wi-Fi access point, Wi-Fi Certified®
  IEEE 802.11n 2.4 GHz 2x2 AP
- Wi-Fi power   High Power: up to 200 mW
- WPA2™-Personal, WPA™-Personal, WEP™
- Wi-Fi Multimedia (WMM®)
- Wi-Fi Protected Setup (WPS™)
- Up to 4 BSSIDs (virtual AP) support
- Security and service segregation per SSID
- Dynamic rates switching for optimal wireless rates
- Wireless scheduler
- RX/TX switched diversity
- Manual/auto radio channel selection

HomePNA

- HomePNA™ 3.1 Certified

Management

- User-friendly GUI via HTTP and HTTPS
- Web services API for remote access (portal, management, diagnostics, applications,...)
- On-demand remote GUI assistance (helpdesk)
- Web-browsing intercept (install / diagnostics)
- TR-069 CPE WAN Management Protocol
  TR-098 Internet Gateway Device Management
  TR-143 network throughput performance tests and statistical monitoring
  TR-111 home network device management
  (Session Traversal Utilities for NAT (STUN) not supported)
- TR-064 LAN side configuration
- Zero-touch autoprovisioning

Services

- DSL WAN sensing   Automatic selection and configuration of WAN interface(s) and configuration
  Autodetection of:
  xDSL versus Ethernet WAN (FTTH) mode
  Single versus bonded DSL line
  ATM versus PTM
  VPI/VCI configuration
  VLAN detection
  IPoE versus PPPoE connection models
- URL- and (optional) content-based website filtering
- Parental Control   access scheduler
  service blocking
  website blocking
- Dynamic DNS

Security

- Stateful Packet Inspection Firewall (SPIF)
- Customizable firewall security levels
- Intrusion detection and prevention (DoS, SYN Flood, Ping of Death, Fraggle, LAND, Teardrop, ...)
- DeMilitarized Zone (DMZ)
- Multi level access policy

Networking

- Symmetrical NAT with application helpers (ALGs)
- Game and application sharing NAT port maps
- DHCP conditional serving & relay, DNS server & relay
- IGMPv3 proxy
- IGMP snooping
- DHCP spoofing
- Flexiport (automatic selection of Ethernet port bridged IPTV)
- IEEE 802.1q VLAN bridging, multiple bridge instances

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Technical Specifications

IPv6 Networking

- IPv4 / IPv6 dual IP stack
- Supported models PPP(oE)(oA) – IPoE(oA)
- Transitioning: 6rd/6to4/6in4
  DSLite
- Stateful connection tracking / stateful inspection firewall
- DHCPv6 Stateful/stateless DHCPv6 client
  Stateless DHCPV6 server
  Relay
  Prefix Delegation
- DNS v4/v6 Proxy
- ULA
- ICMPv6
- IPv6 Quality of Service
- MLDv1/v2

Quality of Service (QoS)

- ATM QoS UBR, VBR-nrt, VBR-rt, CBR shaping, queuing and scheduling
  CLP tagging
- IP QoS Flexible classification
  IP rate limiting
  DSCP (re) marking
  Per service class connection/resource reservation
- Ethernet QoS Priority or C-VLAN/S-VLAN tagging
  Switch port queuing and scheduling
- Wireless QoS WMM (BE, BK, VI, VO access categories) queuing and scheduling

Voice over IP Features

- Voice signalling SIP
  MGCP (optional)
- Codecs G.711, G.726, G.729A, G.723.1,
  Wideband (G.722),
  ILBC, AMR narrowband, Linear PCM,
  T.38
- Echo cancellation G.168 compliant
- Comfort Noise Generator (CNG)
- Flexible telephone number per FXS, including common numbers
- Interoperable with main market softswitches

- Supplementary and advanced services
  - Call waiting (on call basis)
  - Caller ID
  - Call forwarding (no answer/busy/unconditional)
  - Call transferring
  - Call hold, call return
  - Calling Line Identification Presentation (CLIP)
  - Calling Line Identification Restriction (CLIR)
  - Calling Name Identification Presentation (CNIP)
  - Calling Name Identification Restriction (CNIR)
  - Fax transparency
  - 3-way conference
  - Message Waiting Indicator (MWI)
  - Call completion to busy subscriber
  - Forced FXO
  - Anonymous Call Rejection (ACR)
  - Voice Mail on No Reply (VMNR)
  - Support for secondary outbound proxy
  - DNS NAPTR, DNS SRV

Content of the Box

- Wireless n VoIP Ultra Broadband Gateway
- DSL cable (RJ-11)
- Ethernet cable (RJ-45)
- Power supply unit
- Safety Instructions & Regulatory Information booklet
- End User License Agreement leaflet

C2000T back panel

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