8 x 4

EPC3928AD

Smart Dual Band Concurrent Wireless .11n Broadband Cable Gateway with Voice

| CABLE | DATA | VOICE |

The Technicolor EPC3928AD residential wireless cable gateway with digital voice is a high-performance home gateway that combines a cable modem, digital voice adapter, router, and dual-band concurrent IEEE 802.11n 2.4 and 5 GHz wireless access points in a single device, providing a cost-effective voice and networking solution for both the home and small office.

■ Latest Gigabit-Class Bandwidth Technology

The EPC3928AD is a EuroDOCSIS 3.0 cable gateway introducing the next generation in high-speed data services. This new cable solution offers next to up to 4 bonded upstream channels, 8 bonded downstream channels for downstream data rates in excess of 400 Mbps.

The EPC3928AD has an extended life cycle thanks to its extensive remote management capabilities, including the ability to smoothly upgrade itself and add apps on the go.

■ Voice Performance

The EPC3928AD is EuroPacketCable 1.5 compliant and, after a software upgrade, it can operate in EuroPacketCable 2.0 or SIP mode. The EPC3928AD supports all standard codecs including iLBC and BV16 and is equipped with basic and extended CLASS features such as caller ID and call waiting. Gateway and voice operations support data throughput and complex voice calls simultaneously.

■ Versatile Networking Solutions

The EPC3928AD features four Gigabit Ethernet LAN ports and two IEEE 802.11n multistream wireless interfaces, operating simultaneously in the 2.4 GHz and 5 GHz radio bands. Hence it is the perfect solution for high-speed data transfer and for off-loading the more and more crowded 2.4 GHz band.

The 3x3 antenna configuration furthermore enables wireless speeds of up to 450 Mbps.

Features at a Glance

- EuroDOCSIS® 3.0 compliant
- Backward compatible with EuroDOCSIS® 2.0 (and older)
- 8 bonded downstream and up to 4 bonded upstream channels
- Full band capture tuner
- Built-in RF spectrum analyzer
- 4 GE LAN ports
- Wireless networking on-board
    - IEEE 802.11n 2.4 GHz (2x2)
    - IEEE 802.11n 5 GHz (3x3)
- 1 FXS port for phone or fax
- Voice EuroPacketCable™ 1.5 compliant
- 1 highspeed USB 2.0 master port
- TR-069 remote management
- IPv4 & IPv6 enabled
- Designed to meet the latest ECO standards

Wi-Fi PROTECTED SETUP · WiFi CERTIFIED · ECO

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■ Full Band Capture Solution

Thanks to its fully integrated 1 GHz wideband tuner, the EPC3928AD eliminates all frequency limitations of traditional wideband tuners. The EPC3928AD enables use of the full Radio Frequency (RF) spectrum without the need for grouped channels. This helps the operator migrate his entire EuroDOCSIS 3.0 installed base from one to all downstream channels without having to re-align all broadband channels to accommodate this new service.

Remote diagnostics provides real time, unobtrusive diagnostic and spectrum analysis capabilities, without effecting user service on any of the downstream channels.

■ Advanced Security

The integrated firewall provides Stateful Packet Inspection (SPI), and an integrated Intrusion Detection and Prevention System (IDS) engine which monitors a wide range of attack patterns, and logs potential security breaches to a local cache or remote server.

To secure data exchange between the gateway and the cable operators' servers, BPI+ communications privacy is used.

The EPC3928AD supports up to eight wireless networks (mSSID) per radio interface, enabling to set up independent virtual wireless access points. These additional wireless networks allow other wireless users to enjoy high-performance access without compromise on 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 EPC3928AD is an easy to use, easy to install device.

For convenience of the end user, the easy-to-access LEDs provide a clear indication of start-up sequence, operational status, and connectivity status.

Multiple integrated web pages also allow direct access to the status and settings, including privacy and security information.

■ 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 EPC3928AD benefits from a unique combination of hardware and software features that reduce power consumption substantially.

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Technical Specifications

Hardware

Interfaces WAN	1 F-type connector, external threaded
Interfaces LAN	4-port autosensing 10/100/1000 Base-T Ethernet LAN switch
	1 USB 2.0 master port
	IEEE 802.11n 2.4 GHz radio
	IEEE 802.11n 5 GHz radio
Buttons	Wi-Fi on/.off button
	WPS button
	Reset button
	Power button
Power input	DC jack
Power supply	15 VDC external PSU
AC voltage	100 - 240 VAC (switched mode power supply)
Dimensions (W x H x D)	196 x 54 x 145 mm (7.72 x 2.13 x 5.71 in.)
Operating temperature	0° - 40 °C (32 - 104 °F)
Operating humidity	0 - 95 % RH non-condensing
Storage temperature	-20 - 70 °C (-4 - 158 °F)

Certifications

Data	EuroDOCSIS® 3.0 compliant
Voice	EuroPacketCable™ 1.5 compliant
CMTS interoperability	Any qualified EuroDOCSIS® CMTS

RF downstream

Downstream modulation	64 QAM, 256 QAM	
Downstream frequency range		
	Operating	108 - 1002 MHz
	Tuner	108 - 1002 MHz
Number of downstream channels		
	Up to 8 bonded	
Maximum downstream rates	445.0 Mbps (theoretical, 8 x 55.62 Mbps)	
Capture windows	Full Band Capture (possibility to have any of the downstream channels over the full EuroDOCSIS spectrum)	
Channel bandwidth	6 MHz, 8 MHz	
Input signal level range	-15 dBmV / + 15 dBmV	
Input impedance	75 Ohm	

RF upstream

Upstream modulation	QPSK
	8 QAM, 16 QAM, 32 QAM,
	64 QAM/ATDMA, 128 QAM/SCDMA
Upstream frequency range, software selectable	
	5 - 65 MHz (5 - 85 MHz optional)
Number of upstream channels	
	4 bonded
Maximum upstream rates	131.1 Mbps (theoretical, 4 x 32.78 Mbps)
Channel bandwidth	200, 400, 800 kHz
	1.6, 3.2 and 6.4 MHz
Output impedance	75 Ohm
Upstream spectrum analyzer	

Wireless

- Full dual band concurrent Wi-Fi access points, Wi-Fi certified®
  - 2.4 GHz (2x2) IEEE 802.11n AP
  - 5 GHz (3x3) IEEE 802.11n AP
- Wi-Fi Protected Setup (WPS™)
- Wi-Fi security levels — IEEE802.1x port-based authentication with RADIUS client
  - WPA2™-Enterprise / WPA™-Enterprise
  - WPA2™-Personal / WPA™-Personal
- Wi-Fi Multimedia (WMM®) and WMM-Power Save
- Up to 8 BSSIDs (virtual AP) support per radio interface
- Wireless hotspot capabilities
- 2x2 MIMO 2.4 GHz Wi-Fi features
  - SGi
  - STBC
  - 20/40 MHz coexistence
- 3x3 MIMO 5 GHz Wi-Fi features
  - SGi
  - STBC
  - 20/40/80 MHz mode
- RX/TX switched diversity
- Dynamic rate switching for optimal wireless performance
- Manual/auto radio channel selection

Voice and telephony

Audio codecs	G.711
	iLBC
	BV16
	G.728, G.729, G.723, G.726 (optional)
	BV32 (optional)
Multi-line phone support	2 phone lines
	3-party conference calls
	Supports two complex voice codecs simultaneously
Fax relay	T.38
DTMF tone relay	RFC 2833
Caller ID	Type I and Type II
CLASS features	Basic and extended CLASS features
Voice Activity Detection (VAD)	
Comfort Noise Generation (CNG)	
Echo cancellation	G.168 up to 32 ms
Packet tone	DTMF generation
	Call progress generation
	Custom tone generation
Call discrimination	Fax and modem detection
Telephony interface capabilities	
	Loopback and on-demand diagnostics
Modems	V.17, V.29
REN	5 REN (per FXS)
Pulse dialing	DTMF/pulse tones
	Pulse/DTMF tones conversion
RTP layer	RFC 1889
	RFC 1890
RTCP statistics collection	
PacketCable protocols	EuroPacketCable NCS
	Network-based call signalling protocol (PKT-SP-EC-MGCP)
SIP protocol	By software upgrade

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Management

- Web-based user interface management and administration
- User-friendly GUI via HTTP
- Command Line Interface (CLI)
  - Telnet
  - SSH v2
- TR-069 CPE WAN Management Protocol (CWMP)
  - TR-098 Internet Gateway Device (IGD) data model subset (optional)
- Operation, Administration & Maintenance (OAM)
  - ITU-T Y.1731
- SNMP SNMP v1, SNMP v2, SNMP v3
- HNAP server 1.2+
- Software upgrade via WAN RF connection only
- Logging and alert

Services

- Wireless hotspot Static DHCP IP Scope over tunnel
- Parental control URL- and (optional) content-based website filtering
  - Per-user policies
  - Keyword blocking
  - Domain name blocking
  - Time of day filters
  - MAC address filtering

Networking

- Routing modes Transparent bridging
  - Routed modes
- Multiple client support 32 (briged mode)
- Network protocol Dual stack IP (IPv4, IPv6)
  - TCP, UDP
  - ARP, ICMP, DHCP
  - TFTP, SNMP, HTTP
- Discovery protocols UPnP
  - Home Network Administration Protocol (HNAP)
- Protocol filtering Ethernet and IP

IPv6 networking

- IPv4 / IPv6 dual IP stack
- Transitioning DS-Lite

Quality of Service

- Class of Services 32 downstream IDs
  - 32 upstream service flows
- Traffic type prioritization (Euro)DOCSIS 1.0, 1.1 compliant
- IEEE 802.1Q classification
- Queuing, policing, shaping

Security

- Baseline Privacy Interface Plus (BPI+)
- Stateful Packet Inspection Firewall (SPIF)
- Customizable firewall security levels
- Intrusion detection and prevention (DoS, SYN Flood, Ping of Death)
- Security and service segregation per SSID

ECO design

- Power control features Ability to turn off any or all modules
  - Slow down or turn off processors
  - Turn on or turn off external interfaces
  - Dynamic power consumption reduction

Content of the box

- EPC3928AD
- Ethernet cable (RJ-45)
- Power supply unit
- Quick Setup leaflet (optional)
- Safety Instructions & Regulatory Notices booklet

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
- Software customizations and customer change orders
- Qualified technical support and maintenance
- Seamless system integration
- Efficient repair, refurbishment and recycling
- Warranty extensions on all our products

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