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ACCESS DSL GATEWAY

DGA4231
Dual-Band .11n and .11ac Wi-Fi
Smart Ultra-Broadband Gateway with Voice

Technicolor's DGA4231 is a future proof triple-play carrier grade smart service gateway featuring VDSL2 WAN connectivity (up to VDSL2 profile 35b) and a Gigabit Ethernet WAN port to connect every home or small office to the network. With high performance dual band wireless, featuring a seven antenna configuration, the DGA4231 can support seamless real-time HD video over wireless whilst simultaneously supporting other data applications. The DGA4231 also supports VoIP functions for residential and business users.

Best-In-Class Ultra Broadband

The accelerating growth of WAN and LAN traffic is pushing telecom 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.

A dedicated Gigabit Ethernet WAN port and AutoWAN sensing make the DGA4231 the ideal service gateway for deployment in Fiber To The Home (FTTH) scenarios.

Some of the latest performance-enhancing technologies have been added on top, to get the utmost out of existing infrastructures:

- 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.

- G.inp ("Impulse Noise Protection"): makes sure that no errors occur on the DSL connection, even under extreme conditions, so that high-quality video transmission is guaranteed at all times. It is based on the principle of retransmission.

- Profile 35b: allows for aggregate speeds of up to 350 Mbps over traditional copper telephone lines deployed from the cabinet, thus filling the gap between VDSL2 17a vectoring and G.fast.

Furthermore, the latest wireless technologies ensure robust in-home wireless distribution which reduces wiring complexity and provides true mobility without sacrificing Quality of Service (QoS) and Quality of Experience (QoE) or transfer speeds.

Wireless Doctor, a Technicolor Managed Service

The DGA4231 supports Wireless Doctor™, a Technicolor Managed Service that gives service providers advanced capabilities to monitor and to improve the Wi-Fi quality of experience for their subscribers.

Wireless Doctor™ encompasses many facets including Wi-Fi diagnostics, Wi-Fi network optimization, Wi-Fi mesh and Wi-Fi provisioning. It enables service providers to gain valuable insights into their installed base, to reduce OPEX proactively by leveraging Radio Resource Management (RRM) and reactively by empowering Customer Service, and to optimize CAPEX investments by identifying where new and additional Wi-Fi access points are needed.

Features at a Glance

- Integrated ADSL/ADSL2+/VDSL2 modem (up to VDSL2 profile 35b)
- 1 GE WAN port
- AutoWAN sensing™
- 4 GE LAN ports
- Dual-band concurrent Wi-Fi interfaces
    - IEEE 802.11n 2.4 GHz (3x3)
    - IEEE 802.11ac 5 GHz (4x4)
- 2 FXS ports for phone or fax
- 2 highspeed USB 2.0 ports
- Seamless media sharing (UPnP A/V™ and DLNA®)
- Future-proof full service platform
- Enabled to support Wireless Doctor™ (sold separately)
- Extensive remote management
- Non-service-affecting platform software upgrades (dual bank memory)
- IPv4 & IPv6 enabled

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DGA4231

Leapfrogging Performance

Equipped with a next-gen dual core processor and hardware accelerator for CPU offload, the DGA4231 surpasses any current gateway's performance. Combining these features with Level 2 cache, this smart gateway is ideally suited to run multiple demanding applications, such as NAS-quality media sharing, high-speed LTE backup, smart life applications, deep packet inspection and powerful encryption algorithms simultaneously.

Flexible & Future-Proof Software Stack

The DGA4231 is enriched with Technicolor Homeware, a reliable and managed middleware that offers an open architecture with multiple application environments fit to open up the connected home and deliver an unlimited spectrum of value-added services and applications.

Featuring a platform agnostic architecture, Technicolor Homeware is a fully portable solution that ensures the fastest time to market. Moreover, its modularity and enhanced life cycle management make it easy to add or remove components to or from a software release, while enabling second & third party development.

Leveraging open source, Technicolor Homeware embraces different execution environments and supports current and emerging trends, transforming the gateway into a full-blown app platform.

Next-Gen Wi-Fi Technology for Next-Gen Speeds

Featuring the next-generation IEEE 802.11ac Wi-Fi standard for the 5 GHz band, this dual band Wi-Fi solution makes optimal use of the radio spectrum. With its optimized antenna configuration, the DGA4231 enables even higher throughput and better coverage over the much less crowded 5 GHz radio.

At the same time, it guarantees uninterrupted transmission of data services over IEEE 802.11n using the 2.4 GHz band.

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IPv6 Enabled

With the approaching IPv4 address pool depletion, DSL gateway products need to be ready for IPv6. Technicolor is a frontrunner in the support of IPv6 on its devices, with the DGA4231 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 to address security concerns that exist in an IPv4 environment.

Easy to Manage

The DGA4231 is completely designed according to the TR-069's TR-098 IGD data model through which the device can be configured remotely by the operator without interrupting the end user's experience.

In addition, the TR-181i2 Device:2 data model is made available to further increase the remote management capabilities towards life cycle management, diagnostics and application management.

Media Sharing

The DGA4231 acts as a fully compliant DLNA 1.5 Digital Media Server (DMS) and enables distribution of all content from any device to any device in the home. You can stream music, data, pictures and video from your gateway to devices connected to your wired or wireless home network.

In addition, the DGA4231 supports hot plugging of USB hard disk drives, allowing you to simply plug and play devices without the need to switch the gateway off first.

Voice over IP

The DGA4231 offers VoIP functions for residential and business users. POTS phone connectors are provided to accommodate regular 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 DGA4231 is completely interoperable with the main IMS cores in the market.

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Technical Specifications

Hardware

■ Interfaces WAN	1 RJ-11 xDSL line port
	1 autosensing 10/100/1000 Base-T Ethernet WAN port
■ Interfaces LAN	4-port autosensing 10/100/1000 Base-T Ethernet LAN switch
	IEEE 802.11n 2.4 GHz Wi-Fi
	IEEE 802.11ac 5 GHz Wi-Fi
	2 FXS POTS ports
	2 USB 2.0 master ports
■ Buttons & LEDs	Wi-Fi on/off button
	WPS button
	Reset button (recessed)
	Power button
	5 status LEDs
■ Power input	DC jack
■ Power supply	12 VDC external PSU
■ AC Voltage	100 - 240 VAC, 50 - 60 Hz (switched mode power supply)

xDSL modem

■ Supports multi mode standards	
■ ADSL compliancy	ITU-T G.992.1 Annex A (G.dmt)
	ITU-T G.992.2 Annex A (G.lite)
	ITU-T G.994.1 (G.hs)
	Rates up to 8 Mbps downstream and 1 Mbps upstream
■ ADSL2 compliancy	ITU-T G.992.3 Annex A, L (G.dmt.bis)
	ITU-T G.992.4 Annex A, L (G.lite.bis)
	ITU-T G.998.4 (G.inp)
	Rates up to 12 Mbps downstream and 1 Mbps upstream
■ ADSL2+ compliancy	ITU-T G.992.5 Annex A, M
	ITU-T G.998.4 (G.inp)
	Rates up to 24 Mbps downstream and 3 Mbps upstream
■ VDSL2 compliancy	ITU G.993.2
	SOS
	SRA
	INM
	Up to VDSL2 profile 35b
	ITU-T G.993.5 (G.vector)
	ITU-T G.998.4 (G.inp)
■ Supports Dying Gasp (optional)	

Wi-Fi

■ Full dual band concurrent Wi-Fi access points, Wi-Fi certified®	
	2.4 GHz (3x3) IEEE 802.11n AP
	5 GHz (4x4) IEEE 802.11ac AP
	with IEEE 802.11ac compliant transmit beamforming
■ Wi-Fi security levels	WPA2™-Enterprise / WPA™-Enterprise
	WPA2™-Personal / WPA™-Personal
	WPA2™ + WPA™ mixed mode (AES and TKIP)
■ Wi-Fi Protected Setup (WPS™)	
■ Wi-Fi Multimedia (WMM®) and WMM-Power Save	
■ Up to 4 BSSIDs (virtual AP) support per radio interface	
■ Wireless hotspot capabilities	
■ Band Steering	
■ 3x3 MIMO 2.4 GHz Wi-Fi features	
	2.4 GHz frequency bands
	2400 - 2483.5 MHz
	2.4 GHz Wi-Fi power up to 20 dBm (100 mW EIRP)
	SGi (Short Guard Interval)
	STBC (Space-Time Block Code)
	20, 40 MHz bandwidths
■ 4x4 MU-MIMO 5 GHz Wi-Fi features	
	5 GHz frequency bands
	5150 - 5250 MHz
	5250 - 5350 MHz with Dynamic Frequency Control
	5 GHz Wi-Fi power up to 30 dBm (1000 mW EIRP)
	SGi (Short Guard Interval)
	STBC (Space-Time Block Code)
	LDPC (FEC)
	Multi-User MIMO
	TPC (Transmit Power Control)
	OCAC (Off Channel Availability Check)
	20, 40, 80, 160 MHz bandwidths
■ RX/TX switched diversity	
■ Dynamic rate switching for optimal wireless performance	
■ Manual/auto radio channel selection	

ACCESS **DSL GATEWAY**

DGA4231

Technical Specifications

Voice and telephony

■ Voice technologies	Voice over IP (VoIP)
■ Voice signalling	SIP
■ Voice codecs	G.711, G.726, G.729
	iLBC (internet Low Bitrate Codec)
	Wideband G.722.2 AMR-WB (optional)
	T.38
■ Echo cancellation	G.168 compliant

■ Comfort Noise Generator (CNG)
■ Voice Activity Detection (VAD)
■ Flexible telephone number per FXS handset, including common numbers
■ Supplementary and advanced services

Caller ID
Call waiting (on call basis)
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 / V.92 transparency
3-way conference
Message Waiting Indicator (MWI)
Call completion to busy subscriber
Abbreviated number
Anonymous Call Rejection (ACR)
Distinctive ringing
DNS SRV

■ SIP server	Back-to-Back User Agent

■ Interoperable with main market softswitches

Management

■ Customizable user-friendly GUI via HTTP and HTTPS
■ Command Line Access SHell (CLASH)

SSH v2

■ Web services API for remote access (portal, management, diagnostics, applications, …)
■ Web-browsing intercept (install/diagnostics/captive portal)
■ AutoWAN sensing™ (automatic selection and configuration of WAN interfaces)
■ TR-069 CPE WAN Management Protocol (CWMP)

TR-098 Internet Gateway Device (IGD) management
TR-104 voice service provisioning and configuration
TR-111 home network device management
TR-140 storage service provisioning
TR-143 network throughput performance tests and statistical monitoring
TR-157a3 Life Cycle Management (LCM)
TR-181i2 Device:2 data model

■ Zero-touch autoprovisioning

Services

■ Life Cycle Management (LCM) for developing advanced services support
■ Open architecture for 3rd party application and UI development
■ 3G/LTE/4G mobile fall-back WAN connection (through USB adapter)
■ Enabled to support Technicolor Managed Services

Wireless Doctor™ (sold separately)

■ VPN client/server scenarios	L2TP/IPSec
	PPTP
	OpenVPN

■ Wireless hotspot (optional, on request)

Based on HotSpot 2.0 technologies
Passpoint™
GRE tunneling
EAP
Fon

■ Parental control	URL- and (optional) content-based website filtering
	Time-based access control (Time of Day)
■ Printer sharing	IPP
	LPD
	Server Message Block (SMB) Samba printer sharing
■ Content sharing	Server Message Block (SMB) Samba file server
	UPnP A/V™ media server and control point
	DLNA® DMS
	Metadata support
■ HDD file systems	FAT32, NTFS
	EXT2, EXT3, EXT4
	HFS+

Networking

■ Symmetrical NAT with application helpers (ALGs)
■ Game and application sharing NAT port maps
■ DHCP conditional serving & relay
■ DNS server & relay
■ IGMPv3 proxy (Fastleave)
■ IGMP snooping (full routed)
■ DHCP spoofing
■ IEEE 802.1q VLAN bridging, multiple bridge instances
■ MLD Proxy for IPv6
■ Port Control Protocol (PCP)
■ Multicast to unicast translation on Wi-Fi interfaces

IPv6 networking

■ IPv4 / IPv6 dual IP stack

■ Supported models	PPP(oE)(oA)
	IPoE(oA)
■ Transitioning	6rd/6to4/6in4
	DS-Lite

■ Stateful connection tracking / stateful inspection firewall

■ DHCPv6	Stateful/stateless DHCPv6 client
	Stateless DHCPv6 server
	Relay
	Prefix Delegation

■ ICMPv6
■ 464xlat
■ MAP-T

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Technical Specifications

Quality of Service

- ATM QoS — UBR, VBR-nrt, VBR-rt, CBR shaping, queuing and scheduling
  CLP tagging
- IP QoS — Flexible classification (ALG aided)
  IP rate limiting (two-rate remarking/dropping)
  DSCP (re-)marking
  Dynamic link fragmentation
- Ethernet QoS — Priority or C-VLAN/S-VLAN tagging
  Ethernet switch port queuing and scheduling
- Wireless QoS — WMM (BE, BK, VI, VO access categories) queuing and scheduling

Security

- Stateful Packet Inspection Firewall (SPIF)
- Customizable firewall security levels
- Intrusion detection and prevention
- DeMilitarized Zone (DMZ)
- GRE Tunnel encryption
- Multilevel access policy
- Secure boot
- Security and service segregation per SSID

Package contents

- DGA4231
- Power supply unit
- Quick Setup Guide
- Safety Instructions & Regulatory Information
- DSL cable
- Ethernet cable
- Filter(s) or splitter(s) (optional)

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