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FEEL THE WONDER

ACCESS GATEWAY

DGA0122

Dual-Band Wi-Fi 5 Smart Ultra-Broadband Gateway
with Voice



The Technicolor DGA0122 is a powerful carrier grade network-agnostic Digital Home enabler with advanced voice services.

Dual-Band Wi-Fi 5 Technology

Featuring the Wi-Fi 5 standard (IEEE 802.11ac) for the 5 GHz band, this dual band Wi-Fi solution makes optimal use of the radio spectrum. With its optimized antenna configuration, the DGA0122 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 Wi-Fi 4 (IEEE 802.11n) using the 2.4 GHz band.

Flexible & Future-Proof Software Stack

The DGA0122 is powered with HOMEWARE, a reliable and managed middleware developed by Technicolor, enabling our operator customers to tap into a thriving ecosystem of partners to bring the most innovative services to their subscribers.

HOMEWARE is open: based on Open Source Software that we extended to make it carrier grade.

HOMEWARE is apps-ready: with its dedicated and short learning curve SDK, it allows NSPs to generate new services and improve ARPU by integrating third-parties applications. It also pre-integrates Technicolor's partners apps (via the Technicolor HERO Program) and delivers a full apps Life Cycle Management to improve broadband service availability by decoupling the upgrade and maintenance of applications from the gateway core software.

HOMEWARE is secure: It uses an overall software architecture with end-to-end security by design, from bootup to the installation of applications via life cycle management.

HOMEWARE is interoperable: working with multiple network components, allowing a shorter time to market, greater freedom for the service provider to choose the network components or to deploy in a environment with multiple vendors in the network. It also reduces complexity for the service provider as a single software stack can deal with a vast variety of environments.

Features at a Glance

- Integrated VDSL2 modem
- 1 GE WAN port
- AutoWAN sensing™
- 4 GE LAN ports
- Dual-band concurrent Wi-Fi interfaces
 - 2.4 GHz Wi-Fi 4 (2x2) with high power (optional)
 - 5 GHz Wi-Fi 5 (3x3)
- 2 FXS ports for phone or fax
- 1 highspeed USB 2.0 master port
- Seamless media sharing
- Future-proof full service platform
- Extensive remote management
- Non-service-affecting platform software upgrades (dual bank memory)
- IPv4 & IPv6 enabled
- Designed according to the latest ECO standards



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Leapfrogging Performance

The DGA0122 is equipped with a System on Chip (SoC) featuring a 1.5 GHz triple-core processor (8.5k DMIPS) and hardware accelerator for CPU offload. Combining these features with Level 2 cache, this smart gateway is ideally suited to run multiple demanding applications and services, such as NAS-quality media sharing, high-speed LTE backup, smart life applications, deep packet inspection and powerful encryption algorithms simultaneously without impacting routing performances.

Best-In-Class 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.

A dedicated Gigabit Ethernet WAN port and AutoWAN sensing make the DGA0122 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.

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.

Highest Security

The DGA0122 Stateful Packet Inspection (SPI) firewall guarantees users the ultimate network security level. Through integration with Network Address & Port Translation (NAPT), the firewall leverages all the Application Level Gateways (ALGs) provided in the NAT context to minimize undesired service impacts.

Advanced smart parental controls, security audit services, access logging and monitoring are optionally available for home, hotspot and mobile data network users to create a fully personalized and time-based access control environment, based on individual user profiles and web usage behaviour.

The DGA0122 also supports powerful wireless security mechanisms, such as Wi-Fi Protected Access (WPA, WPA2) together with the secure and user friendly Wi-Fi Protected Setup (WPS) connection and configuration mechanism for connecting wireless clients.

In addition, the DGA0122 supports multiple wireless networks (mSSID) enabling to set up independent virtual wireless access points, including controlled wireless hotspots. These additional wireless networks allow other wireless users to enjoy high-performance access without any compromise on the integrity of the basic network, thus keeping the original network access limited and secure.

Easy to Manage

The DGA0122 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.

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Technical Specifications

Hardware

■ CPU	1.5 GHz triple-core CPU (8.5k DMIPS) with hardware acceleration
■ Memory	128 MB Flash 256 MB RAM
■ Interfaces WAN	1 RJ-11 DSL line port 1 Ethernet WAN 10/100/1000 Base-T port
■ Interfaces LAN	4-port autosensing 10/100/1000 Base-T Ethernet LAN switch 2.4 GHz Wi-Fi 4 access point 5 GHz Wi-Fi 5 access point 2 FXS POTS ports 1 USB 2.0 master port
■ Buttons & LEDs	Info button (with integrated LED) Wi-Fi on/off button WPS button Reset button (recessed) Power button 8 status LEDs
■ Power input	DC jack
■ Power supply	12 VDC external PSU
■ AC Voltage	100 - 240 VAC, 50 - 60 Hz (switched mode power supply)
■ Dimensions	213 x 34 x 185 mm (8.39 x 1.34 x 7.28 in.)
■ Operating temperature	0 - 40 °C (32 - 104 °F)
■ Operating humidity	20 - 80 % RH non-condensing
■ Storage temperature	-20 - 70 °C (-4 - 158 °F)

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 ITU-T G.993.5 (G.vector) ITU-T G.998.4 (G.inp) Up to VDSL2 profile 17a
■ Supports Dying Gasp (optional)	

Wi-Fi

■ Full dual band concurrent Wi-Fi access points, Wi-Fi certified®	2.4 GHz (2x2) Wi-Fi 4 5 GHz (3x3) Wi-Fi 5
■ 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	
■ 2x2 MIMO 2.4 GHz Wi-Fi features	2.4 GHz frequency bands 2400 - 2483.5 MHz 2.4 GHz Wi-Fi power Standard up to 20 dBm (100 mW EIRP) High power (optional) up to 24 dBm (250 mW EIRP) SGi (Short Guard Interval) STBC (Space-Time Block Code) 20, 40 MHz bandwidths
■ 3x3 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) 20, 40, 80 MHz bandwidths
■ RX/TX switched diversity	
■ Dynamic rate switching for optimal wireless performance	
■ Manual/auto radio channel selection	

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	

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Technical Specifications

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) data model
 - 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-1812 Device2 data model
- Zero-touch auto provisioning

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)
- VPN client/server scenarios none
- 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 (Tim-of-Day)
- Printer sharing
 - IPP
 - LPD
 - Server Message Block (SMB) Samba printer sharing
- Content sharing
 - Server Message Block (SMB) Samba file server
 - Digital Media Server (DMS) and media control point
 - Metadata support
- HDD file systems
 - FAT32, NTFS, ExFAT
 - 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, 6in4, 6to4
 - 464XLAT
 - DS-Lite
 - MAP-T
- Stateful connection tracking
- Stateful inspection firewall
- DHCPv6
 - Stateful/stateless DHCPv6 client
 - Stateless DHCPv6 server
 - Relay
 - Prefix Delegation
- ICMPv6

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

- DGA0122
- DSL cable
- Ethernet cable
- Power supply unit
- Quick Setup leaflet(s) (optional)
- Safety Instructions & Regulatory Information
- Filter(s) or splitter(s) (optional)



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