

# technicolor



FEEL THE WONDER

## ACCESS GATEWAY

FGA2230TCH

Dual Band Wireless

Integrated GPON Gateway



The FGA2230TCH is a high-speed Gigabit Passive Optical Network (GPON) gateway taking advantage of the latest developments in Fiber To The Home (FTTH), while at the same time guaranteeing the highest quality of service.

### OLT Agnostic GPON Gateway

Built upon Technicolor's extensive experience in xDSL gateway development and deployment, the FGA2230TCH interoperates seamlessly with different Optical Line Terminations (OLTs) in the field. By keeping a flexible software track on the FGA2230TCH, we can detect the OLT and reconfigure the gateway dynamically to ensure full compatibility between both. As such, there is no need for any firmware upgrades or restart in order to be able to cover deployments with multiple OLTs, even if from different vendors.

Moreover, the FGA2230TCH supports standard G.984.4 and G.988 ONU Management and Control Interface (OMCI) features and implements some proprietary vendor specific Management Information Base (MIB), Managed Entities (MEs) and Alarms (MAs). Furthermore, the device can be maintained and upgraded using the TR-069 protocol.

### Seamless Video over Next-Gen Wi-Fi

With its support of dual band concurrent Wi-Fi (IEEE 802.11n 2.4 GHz and the next-generation IEEE 802.11ac wave 2 standard for the 5 GHz band), the FGA2230TCH is a powerful and future-proof smart gateway enabling high-speed wireless HD video streaming inside the home. Thanks to its integrated wireless video bridge featuring a robust chipset and 4x4 antennas, it can support multiple UHD TV channels over the clean 5 GHz radio. Furthermore, its advanced architecture guarantees a very low packet error rate on the wireless link.

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

### Features at a Glance

- Integrated 2.5/1.25 Gbps GPON port, compliant to ITU-T G.984.2 Class B+
- Integrated 1310/1490 nm diplexer transceiver
- 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
- 1 superspeed USB 3.0 master port
- 1 highspeed USB 2.0 master port
- Seamless media sharing (UPnP A/V™ and DLNA®)
- 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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## FGA2230TCH

### High Speed Network Connectivity

By integrating the ONT in the gateway and by using an integrated GPON interface, the FGA2230TCH can reach lightning fast speeds, allowing operators to respond to the increasing end-user demand for higher bandwidths.

To benefit from these extreme WAN speeds the gateway implements a Gigabit Ethernet (GE) router, providing very high speed connectivity between LAN devices and the network. It also includes a dual band concurrent Wi-Fi base station with IEEE 802.11n and IEEE 802.11ac capabilities to stream data, including rich media content, anywhere in the home.

The integration of the GPON ONT in a service gateway guarantees a lower installation and operation cost. Thanks to its innovative mechanical solution, the installation becomes as easy as any other fixed line service gateway installation.

### Flexible & Future-Proof Software Stack

The FGA2230TCH 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.

### Highest Security

The FGA2230TCH 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 FGA2230TCH 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 FGA2230TCH 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.

### Voice over IP

The FGA2230TCH 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 FGA2230TCH is completely interoperable with the main IMS cores in the market.

### Media Sharing

The FGA2230TCH 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 FGA2230TCH 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.

### IPv6 Enabled

With the approaching IPv4 address pool depletion, gateway products need to be ready for IPv6. Technicolor is a frontrunner in the support of IPv6 on its devices, with the FGA2230TCH 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 Use

Like all Technicolor modems and gateways, the FGA2230TCH 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.

### Easy to Manage

The FGA2230TCH is completely designed according to the TR-069's TR-098 IGD data model and the OMCI standard protocols 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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FGA2230TCH

## Technical Specifications

### Hardware

■ Interfaces WAN	1 GPON port (SC/APC)
■ Interfaces LAN	4-port autosensing 10/100/1000 Base-T Ethernet LAN switch IEEE 802.11n 2.4 GHz on-board IEEE 802.11ac 5 GHz on-board 2 FXS POTS ports 1 USB 3.0 master port 1 USB 2.0 master port
■ Buttons & LEDs	WPS button (with integrated status LED) Reset button (recessed) Power button 8 status LEDs
■ Power input	DC jack
■ Power supply	12 VDC PSU
■ AC Voltage	100 - 240 VAC (switched mode power supply)

### GPON

■ Standards	ITU-T G984.1 ITU-T G984.2 ITU-T G984.3 ITU-T G984.4 ITU-T G.988
■ Fiber type	ITU-T G.652
■ Up to 8 T-CONTs and 32 GEM ports	
■ Upstream and downstream FEC	
■ Downstream AES encryption	
■ Downstream rate	2.488 Gbps
■ Upstream rate	1.244 Gbps
■ Upstream wavelength	1260 - 1360 nm
■ Downstream wavelength	1480 - 1500 nm
■ Connector type	SC-APC
■ Attenuation range	ITU-T G.984.2 Class B+ (28 dB optical link budget)
■ Maximum differential range	20 km
■ GPON Dying Gasp	

### 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 Protected Setup (WPS™)	
■ Wi-Fi security levels	WPA2™-Personal / WPA™-Personal WPA2™ + WPA™ mixed mode (AES and TKIP)
■ 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 (DFC) 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	

### Voice and telephony

■ Voice technologies	Voice over IP (VoIP)
■ Voice signalling	SIP
■ Voice codecs	G.711, G.726, G.729
■ 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
■ 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
■ G.984.4 and G.988 ONT Management and Control Interface (OMCI) management	
■ Zero-touch autoprovisioning	

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## Technical Specifications

### 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 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 (Tim-of-Day)
- Printer sharing
  - IPP
  - LPD
  - Server Message Block (SMB) Samba printer 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, 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/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

### Quality of Service

- GPON QoS
- 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

### ECO design

- ECO mode for more intelligent power saving
- WMM-Power Save

### Package contents

- FGA2230TCH
- Power supply unit
- Quick Setup Guide
- Safety Instructions & Regulatory Information
- Ethernet cable

### TECHNICOLOR DELIVERY TECHNOLOGIES

25 rue d'Hauteville, 75010 Paris, France

[www.technicolor.com](http://www.technicolor.com)

### SALES CONTACT

For more information please get in touch with your usual sales representative or use the following email:

[contactsales@technicolor.com](mailto:contactsales@technicolor.com)

