NORMANN ENGINEERING
Advanced Broadband Technologies

TECHNICOLOR   TC7200.20

DOCSIS 3.0 VOIP & WLAN GATEWAY

- EuroDOCSIS 3.0 certified
- Dual Mode DOCSIS/EuroDOCSIS
- Backward compatible with DOCSIS/EuroDOCSIS 2.0 (and older)
- Voice EuroPacketCable 1.5 certified
- Full Band Capture
- 4 GE LAN Ports
- Wireless Networking on board: IEEE 802.11b/g/n
- (2.4 GHz and 5 GHz simultaneously)
- 2 FXS Ports (RJ-11)
- 1 USB Master Port
- Reliable high Performance Platform
- Voice CLASS Features
- Advanced Security Features
- MPEG2 over IP Encapsulation Solution
- IPv4 and IPv6 Support
- Digital Media Server Sharing (DNLS 1.5)

SPECIFICATIONS

CABLE CERTIFICATIONS	
Data	EuroDOCSIS® 3.0 certified
Voice	EuroPacketCable™ 1.5 certified
CMTS interoperability	Any qualified EuroDOCSIS® / DOCSIS® CMTS
HARDWARE SPECIFICATIONS	
Interfaces WAN	1 RF connector F-Type
Interfaces LAN	4-port auto-MDI/MDI-X 10/100/1000 Base-T port Ethernet LAN switch (RJ-45) 2 FXS POTS ports (RJ-11) 1 USB 2.0 master port Wi-Fi IEEE 802.11b/g/n on board
Interfaces other	WPS button Reset button
Dimensions	220 x 165 x 42 mm (8.7 x 6.5 x 1.6 in.)
Power supply	120-240 VAC, 50-60 Hz
Operating temperature	0° to 40° C (32° - 104° F)
Operating humidity	20 % to 90 % non-condensing
Storage temperature	-20° to 70° C (-4° - 158° F)
RECEIVER SPECIFICATIONS	
Downstream modulation	QAM 64/256
Downstream frequency range	108 - 1002 MHz
Maximum downstream data range	440 Mbps (theoretical) (55.61 Mbps x 8 channels)
Capture windows	Full Band Capture: possibility to have any of the 8 downstream channels over the full EuroDOCSIS® spectrum
Number of downstream channels	Up to 8
Input signal level range	-15 dBmV / + 15 dBmV
Input impedance	75 Ohm
TRANSMITTER SPECIFICATIONS	
Upstream modulation	QPSK and 8, 16, 32, 64 and 128 QAM
Upstream frequency range	5 - 65 MHz
Maximum upstream data range	131 Mbps (theoretical) (32.78 Mbps x 4 channels)
Number of upstream channels	4
Channel bandwidth	200, 400 and 800 kHz, 1.6, 3.2 and 6.4 MHz
Output impedance	75 Ohm

MANAGEMENT	
User-friendly GUI via HTTP	
Web-based user interface management and administration	
Logging and alert	

WIRELESS SPECIFICATIONS*	
Wi-Fi IEEE 802.11b/g/n access point Wi-Fi certified®	
Full dual concurrent Wi-Fi with 2.4 GHz (2x2) and 5.0 GHz (2x2) support*	
WPA(2)™-personal support of Temporal Key integrity Protocol (TKIP), IEEE 802.1x port-based authentication with RADIUS client	
Wi-Fi Protected Setup (WPS™)	
Up to 16 virtual SSID APs support	
Security and service segregation per SSID	
Up to 250 Mbps data rates	
4 internal antennas (external antennas optional)	

SECURITY	
Stateful Packet Inspection Firewall (SPIF)	
Customizable firewall security levels	
Intrusion detection and prevention (DoS, SYN Flood, Ping of Death)	
URL- and content-based website filtering	

NETWORKING	
Network protocol	IP, TCP, UDP, ARP, ICMP, DHCP, TFTP, SNMP, HTTP
Protocol filtering	Ethernet and IP
SNMP management	SNMP v2, SNMP v3

SOFTWARE SPECIFICATIONS	
Downloadable software	
Multiple client support	254
Quality of Service	32 DSIDs and 32 US Service Flows
Security	BPI+
HTTP server	

TELEPHONY SPECIFICATIONS	
Audio codecs	PCM A-law, PCM µ-law, G.729, G.729a, G.729e, G.728, iLBC and BV16
Multi-line phone support	2 phone lines 3-party conference calls Supports two complex voice codecs simultaneously
Fax relay	T.38
DTMF tone relay	RFC2833
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.65 / G.168 up to 16 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	Up to V.90 (38.5 kbps)
RFC2833 DMTF tone relay	Enabled / disabled via SNMP
REN	5 REN
Pulse dialing	DTMF/pulse tones and pulse/DTMF tones conversion
RTP layer	RFC1889 / RFC1890
RTCP statistics collection	
PacketCable protocols	PacketCable™ NCS Network-based call signalling protocol (PKT-SP-EC-MGCP) SIP protocol by software upgrade
SIP based protocols	

CONTENT OF THE BOX	
EMTA gateway	
Power supply unit	
Ethernet cable (RJ-45)	
CD-ROM	
Quick Installation Guide	

*Wireless configuration can be tailored to customer requirements