

SpeedTouch™ 610/610i/610s/610v Business DSL Routers

Works with:

- Windows 95, 98, Me and XP
- MAC OS
- Linux



UPnP™



For more details, please refer to the respective websites.



SpeedTouch 610/610i/610s/610v

A world of business applications... DSL has never been so powerful!

Flexible Solution

The SpeedTouch 610 Series is a family of business-class high performance routers. The SpeedTouch 610 Series has been designed for Corporate/SMEs and SOHOs and offers plenty of possibilities through a complete set of business features.

The SpeedTouch 610 Series allows providers to achieve a higher ARPU* than what is possible with the residential market. It fits the needs of Carriers, ISPs, ASPs, Integrators and Managed Services Providers. It provides

- Remote management for setting-up SLAs
- LAN interconnect capabilities (IP VPN based on IPsec or MPLS)
- VoIP features through built-in SIP software
- HiSpeed variants with SHDSL and VDSL
- Easy installation, embedded firewall, QoS

* Average Revenue Per Unit

Reduced cost

Operating a helpdesk is a costly business. With the SpeedTouch 610 routers, this cost is drastically reduced. Our complete range of DSL routers has been designed to reduce your Total Cost of Ownership (TCO). As there is no need to install software, OS upgrades are trouble-free and the PC environment remains stable.

Office Networking

This gateway is the ideal solution for business offices where there is an urgent need to share access along with other colleagues. All the users will appreciate that PCs, PDAs and other devices can instantly connect to the Internet through a single hi-speed DSL point. Also, this gateway is fully compatible and tested to work with all our SpeedTouch 100 and 200 series (Wireless access point, LAN PCI card, PCMCIA card, wireless USB or PCMCIA cards). Just few clicks, and you can have a complete, secure and reliable office network.

SpeedTouch™ 610/610i/610s/610v High Performance Router



The SpeedTouch 610 Series proposes a full family of high performance DSL Routers, with all the DSL flavors: ADSL, SHDSL and VDSL.

▶ **ATM features**

- Up to 30 simultaneous PVCs, allowing multiple simultaneous destinations
- ATM QoS per PVC: CBR, VBR-rt, VBR-nrt, UBR
- Service monitoring through ITU-T I.610 F4/F5 loop back, alarms (AIS / RDI) and continuity checks
- ATM PING command (loopback cells) and continuity check generator mode
- RFC 1483 / 2684 multiprotocol encapsulation over AAL5/ ATM: both LLC / SNAP and VC-based multi-plexing supported
- Platform independent

▶ **Bridging features**

- Multiport (up to 10 PVCs) self-learning transparent bridge per IEEE 802.1D for LAN interconnect
- Remote bridge ports are isolated from each other
- Pre-defined bridge filters to WAN (no filter, no CPE-to-WAN broadcast, PPPoE only) and to LAN (no filter, multicast filter)
- Wirespeed bridging performance (over 160,000 pps)

▶ **Integrated Managed Ethernet switch features**

- Port configuration: port speed, full/half-duplex
- Isolated Ethernet ports mode – allows to use Ethernet ports as WAN interface and/or as DMZ
- Port monitoring – allows network debugging through non-intrusive sniffing
- SNMP support (Medium Attachment Unit, Ethernet, interface and bridge MIBs)

▶ **'Dial-up networking' features (PPP Relay)**

- RFC 2364 point-to-point protocol over ATM via PPPoA-to-PPTP relaying
- Multiple PPTP tunnels per end user allowing simultaneous VPN connections between multiple hosts and destinations

▶ **Routed encapsulations**

- IP over ATM (IPoA):
 - RFC 1483 / 2684 routed encapsulation
 - Support for IP unnumbered and for multiple IP addresses
 - "True" RFC 1577 / 2225 classical IP over ATM encapsulation: supports the ATMARP and InATMARP protocol, based on RFC 1293
- IP over Ethernet (IPoE):
 - RFC 1483 / 2684 MAC encapsulated routing encapsulation (RFC 1483 / 2684 bridged)
 - Support for IP unnumbered and for multiple IP addresses



- Embedded PPP clients:
 - RFC 2364 PPP over ATM, RFC 2516 PPP over Ethernet
 - Terminates multiple PPP sessions per RFC 1661
 - Multiple PPPoE sessions on a single PVC
 - PPPoE pass-through: support of pass-through PPPoE sessions (directly between PC and BAS) together with embedded PPPoE sessions on the same PVC
 - Multiple embedded PPPoE sessions, multiple pass-through PPPoE sessions and up to one IPoE session can be combined on the same PVC
 - PPPoE to the LAN – allows to use Ethernet ports as WAN interface
 - Both PPPoE client and server mode
 - Dial-up networking user GUI allowing PPP session setup with service provider
 - PAP (RFC 1334), CHAP (RFC 1994 / 2484) and MS-CHAP (RFC 2443) authentication
 - Auto configuration IPCP (RFC 1331 / 1877)
 - Dial-in, dial-on-demand and always-on PPP modes
 - Support for IP unnumbered and for multiple IP addresses
 - DHCP-to-PPP spoofing
 - IPCP subnet mask option: Internet access for multiple PCs on a single PPP session without NAT / PAT (using multiple IP addresses)
 - **IP routing**
 - Multi-port (up to 20 PVCs) router
 - Static routing, Automatic routes (PPP, LAN)
 - IP address multi-homing
 - Label-based routing:
 - Label classification of packet streams based on source and destination IP address, source and destination port, type of service / diffserv bits, protocol, source interface
 - Forwarding of packet streams based on the label classification
 - Type of service / DSCP marking based on the label classification
 - IGMPv1/v2/v3 forwarding
 - TCP (RFC 793), UDP (RFC 768), ICMP (RFC 792), IPv4 router (RFC 1812)
 - Dynamic routing RIPv1 (RFC 1058) and RIPv2 (RFC 1723 / 2453), configurable per interface
 - ISDN Back-Up (DSL + ISDN, using an additional SpeedTouch 210i ISDN Back-Up Router) and Redundancy (DSL + DSL, using two SpeedTouch 610 routers)
 - Switch-over triggerable by PPP link failure, RIP, F4/F5 AIS/ RDI and/or DSL physical layer failure
 - Classless inter-domain routing (CIDR - RFC 1518 / 1519): subnetting, supernetting (RFC 1338), variable length subnet masks (VLSM - RFC 1009); support for 31-bit prefixes (RFC 3021)
 - IP over LAN (RFC 894), Address Resolution Protocol (RFC 826); proxy ARP (RFC 1027) using configurable ARP table
 - PING, extended PING, trace route and extended trace route
 - HTTP Probe: measures DNS resolution time, TCP connect time, HTTP download time and bandwidth
 - Wirespeed routing performance
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- **NAT/PAT**
 - Traditional NAT (network address translation) support for both Basic NAT / multi-NAT and NAPT (network address and port translation) (RFC 1631, 2663, 3022, 3027)
 - Static NAPT entries and static NAT (multi-NAT, basic NAT) entries
 - Transparent NAT – allows use of public IP addresses on the LAN even in case of a NAT'ed interface
 - Support for NAPT default server, configurable per Public IP address
 - Simultaneous support of Basic NAT / multi-NAT, NAPT, transparent NAT and default server on a single interface
 - UPnP NAT Traversal, with safe NAT mode and logging of UPnP commands
 - Zero-config support for VPN tunnel pass-through for IPsec (ESP transport mode) / IKE, L2TP and PPTP / GRE, including support for multiple simultaneous tunnels, to different servers or even to the same server
 - Zero-config NetMeeting / H.323 support via ILS snooping
 - Zero-config SIP support, supporting simultaneously multiple SIP clients and multiple Microsoft Messenger clients
 - Zero-config support for FTP (including passive FTP), IRC, Jabber, RealAudio and RTSP
 - Zero-config IPv6 6to4 pass-through support
 - Configurable time-out periods for outbound sessions
 - Easy pin-hole configuration via SpeedTouch NAT Manager application

SpeedTouch™ 610/610i/610s/610v Easy Setup & Management



The SpeedTouch Business Class Routers 610 benefit from the same setup tools than the residential SpeedTouch Products. They can be setup either locally by a "Click Next" wizard, remotely by the Carrier, ISP or Integrators through FTP, Telnet or HTTP interfaces.



Intuitive wizard



Dr SpeedTouch



NAT Manager & UPnP



► **Main features**

- Language selection for CD ROM programs and web GUI supporting 8 languages
- Fail-proof setup wizard on CD ROM, customizable using operator-defined templates
- Dr SpeedTouch on CD ROM, for continuous service and performance monitoring and user-friendly dynamic trouble-shooting, customizable per operator
- NAT manager on CD ROM, for easy configuration of static NAT entries for applications, customizable per operator
- Fully configurable via user-friendly web-based GUI (HTTP)
- Embedded multi-language setup wizard on the web, customizable using operator-defined templates
- Embedded hierarchical diagnostics tool on the web
- Extensive embedded on-line help pages on the web
- System password authentication for all access methods
- Support for HTTP digest authentication
- Command line interface over serial port (EIA / TIA-232), over Telnet (RFC 854), on the web (HTTP) and over FTP / FTPS
- CLI fully available both in menu-mode and in text-mode
- SNMPv1 (RFC 1157): MIB II (RFC 1213 / 2011 / 2012 / 2013), traps MIB (RFC 1215), bridge MIB (RFC 1286 / 1493), ATM TC MIB (RFC 2514), ATM MIB (RFC 1695 / 2515), ADSL MIB (RFC 2662) / SHDSL MIB (RFC 3276), Ethernet MIB (RFC 1398 / 1623 / 1643 / 1650 / 2358 / 2665), Medium Attachment Units MIB (RFC 1515 / 2239 / 2668), interface MIB (RFC 1229 / 1573 / 2233 / 2863), IPSec MIB
- Logging of events (alarms, warnings, operator sessions,...) on webpage and to standard syslog-server (RFC 3164)
- Time synchronisation SNTPv1 (RFC 868), SNTPv2 (RFC 1119), SNTPv3 (RFC 1305) and SNTPv4 (RFC 2030)
- Microsoft Windows UPnP: presentation, discovery and Internet Gateway Device model
- Remote and host software download capability using web / HTTP / HTTPS and FTP (RFC 959) / FTPS
- Configuration and software back-up and restore
- Storage of two software images, for fail-safe remote software upgrade and easy software roll-back
- Digitally signed system software, guaranteed tamper-free
- Storage of multiple configurations, with easy switch-over between configurations
- Memory and processor load counters
- Reset to ISP-specific defaults and to generic factory defaults
- DHCP server, relay and client (RFC 2131 / 2132), Auto-sensing DHCP server start/stop mechanism, DHCP relay agent information option (RFC 3046), BOOTP client (RFC 951 / 1542), DHCP-to-PPP spoofing, per-WAN-interface DHCP pool configuration and selection, IPCP subnet mask DHCP pool propagation support for Routed PPPoA and Routed PPPoE
- Network-aware auto-IP (auto-configuration of link-local IP addresses, RFC 3330)
- DNS server and forwarding

SpeedTouch™ 610/610i/610s/610v Firewall & VPN



Firewall

Everyone knows about hackers and the dangers they can pose to business. The SpeedTouch 610 Series has a built-in firewall that denies all unauthorized access.

End-users, equipment retailers or ISPs can configure this powerful firewall for a broad range of security policies and requirements. Attacks are stopped in the router and a log of attempted breaches of security is kept for audit purposes. The SpeedTouch 610 keeps you safe from security violations.

► Embedded firewall

- Packet filter firewall, capable of filtering all information available in the IP packet header:
 - Source and destination interface, IP address and port
 - TCP incoming / outgoing connections, TCP header (syn / ack / urg)
 - PINGs, ICMP type and code number, type of service, protocol
 - Logging of intrusions to webpage and to syslog

VPN

SpeedTouch IP VPNs enable Flexible, Fast, Secure and Scalable solutions. The SpeedTouch IP VPN uses the 'state-of-the-art' technology for VPNs

(IPSec with PKI for simple deployment). Remote sites, Teleworkers or Call Center Agents can be securely connected at low cost with IPSec, scalable through Public Key Infrastructure (PKI). The SpeedTouch IP VPN is incredibly easy to install and use.

► Flexible

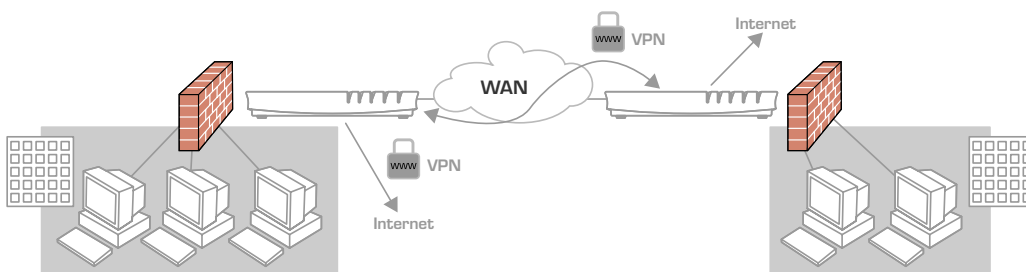
- Easily extend network to remote users
- Ability to set up networks or change networks architecture quickly

► Scalability

- Leverages and extends classic WAN to more remote and external users
- Improved geographic coverage
- Simplified WAN operations

► TCO

- Dial up cost savings (Teleworkers)
- Delivers cost effective bandwidth for remote sites (branch-offices, partners ...)
- Reduced dial infrastructure expenses and costs of the WAN.



The SpeedTouch products combine features to deliver voice, video and data IP networks through VPN solutions



► IP VPN features*

- IPSec (RFC 2401 / 2407): ICSA VPN certified - guaranteeing a solid security implementation and complete multi-vendor interoperability
- Key distribution
 - Public key infrastructure (RFC 2459, ITU-T Q.817) with X.509 digital certificates; support for cross-certification and chain of trust
 - On-line PKI enrollment: CEP (certificate enrollment protocol) interoperable with Entrust, VeriSign, Netscape and Baltimore CAs
 - Off-line PKI enrollment: PKCS#10 "Certification Request Syntax Standard" (RFC 2314 / 2986) and PKCS#7 "Cryptographic Message Syntax Standard", compatible with Entrust, VeriSign, Netscape, RSA Security (RSAS) and Xcert
 - Shared secrets
- Tunnel set-up
 - ISAKMP, IKE / Oakley (RFC 2408 / 2409 / 2412), Main Mode and Aggressive Mode
 - Diffie-Hellman 768-, 1024- and 1536-bit Modular Exponentiation (MODP) groups (number 1, 2 and 5)
 - Certificate Revocation List (CRL) – ITU-T X.509v2; offline import; online import via LDAP (RFC 1777) and HTTP interface
 - Xauth authentication: PAP and CHAP
- Tunnel mode
 - IPSec authentication header (AH - RFC 2402) and encapsulating security payload header (ESP - RFC 2406)
 - Differentiated Services handling on IPSec tunnels (RFC 2983)
 - Support for NAT-T IPSec ESP on top of UDP
 - IPsec IP payload compression (IPCOMP - RFC2393 / 3173): LZS (RFC 2395, ANSI X3.241-1994), deflate / zlib (RFC 2394)
 - Bridge Emulation Mode (BEM) using proxy ARP
 - Automatic and manual policy rules
- Encryption
 - AES Rijndael – 128 / 192 / 256 bits (RFC 3602), DES – 56 (64) bits (RFC 2405, FIPS-46-2, FIPS-74, FIPS-81), 3DES – 168 (192) bits, RC5 – up to 256 bits (RFC 2040), null encryption (RFC 2410), perfect forward secrecy (PFS), ESP CBC-mode cipher algorithms (RFC 2451)
- Hashing : Keyed MD5 (RFC 1825 / 1828), Keyed SHA1 (RFC 1852), HMAC-MD5 (RFC 2403), HMAC-SHA-1 (FIPS-180-1, RFC 2404 / 3174)

► Support for MPLS networks

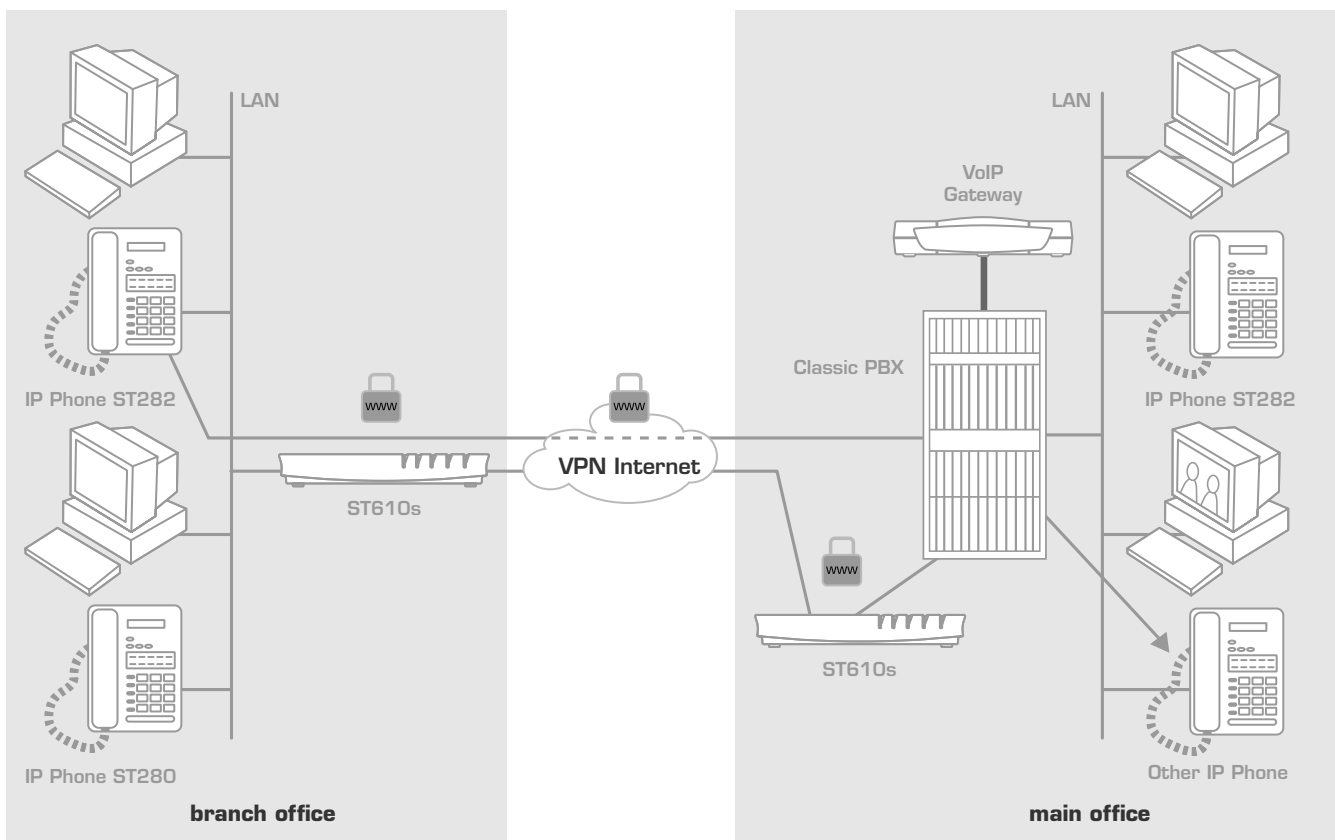
- Dedicated support for provider-provisioned PE-based MPLS networks:
 - Announcing of CPE IP address to a BGP-MPLS VPN using RIP
 - Advanced RIP route filtering capabilities to support simultaneously internet access and MPLS VPN access using RIP.
 - Encryption over MPLS using IPSec
 - Monitoring from CPE to an MPLS VPN using Extended Trace route and HTTP Probe
 - Support of DHCP over MPLS VPNs using DHCP Relay

* Available as option (under SW key)

SpeedTouch™ 610/610i/610s/610v Voice Over IP (VoIP)



The SpeedTouch 610 Series includes a SIP PBX that enables voice communication over Internet or any IP Network. It can reduce or eliminate inter-offices charges. For teleworkers, it allows them to place calls to their office either by using the headquarters PBX or by using a VoIP gateway. For branch-offices, it offers services such as a small PBX such as call logging, call blocking, ...





▶ **Integrated SIP Multi-media PBX features***

- SIP (RFC 2543 / 3261)
 - Supports single-site scenarios (one SpeedTouch 610, no central softswitch), operator network scenarios (one SpeedTouch 610, with central softswitch) and multi-site scenarios (multiple SpeedTouch 610, no central softswitch)
 - Supports a wide variety of SIP User Agents, including SpeedTouch 280 Series IP Phones, Pingtel xpressa, Snom, Microsoft Messenger
 - SIP Registrar
 - Local registrar for the SIP User Agents on the LAN
 - Can work as proxy registrar towards a centralized SIP registrar
 - Active users tracking
 - Plug-and-play IP Phones installation with SpeedTouch 280 Series IP Phones
 - Configurable registration screening / blocking (list of SIP URLs and/or IP addresses)
 - Automatic re-registration to centralized SIP registrar when the IP address of the CPE changes
 - Multiple incoming calls on a single public IP
 - SIP Proxy
 - Local SIP proxy server for the SIP User Agents on the LAN
 - Supports all kinds of multi-media calls, including voice calls, video calls, text chat sessions and mixed calls
- Can work as proxy server towards centralized SIP proxy server
 - Local call handling in absence of a centralized SIP proxy server
 - Transparent for all SIP supplementary services (call waiting, call hold, call transfer, call forking, ..) implemented in SIP User Agents and in centralized SIP proxy servers
 - Configurable session screening / blocking (per user: outgoing black list of unauthorized callees, incoming black list of unauthorized callers)
 - Call Logging

* Available as option (under SW key)

SpeedTouch™ 610/610i/610s/610v Quality of Service (QoS)



The SpeedTouch 610 Series offers quality-of-service (QoS) features to optimise the traffic priority and deliver IP packets according to this priority (e.g.: Voice with high priority, data with low priority).

Two levels are possible:

- ATM QoS
- IP QoS

▶ ATM QoS features

- 10 simultaneous bridged VC's and / or 20 simultaneous routed VC's
- Supported ATM QoS categories: UBR, VBR-nrt, VBR-rt, CBR
- Upstream PCR (UBR, CBR) and PCR/SCR/MBS (VBR-nrt & VBR-rt) shaping per VC
- Connection Admission Control (CAC) using statistical multiplexing to prevent overbooking of guaranteed bandwidth
- Per VC queueing on frame level (for SAR)
- Fixed priority ATM QoS category queue scheduling
- Selective Discard enabled by default on all ATM QoS category queues
- Explicit Congestion Notification Indication in case of ATM queue congestion
- ILMI 4.0 auto-configuration - allows automatic coordination of ATM PVC and QoS parameters between DSLAM and CPE, auto configuration of upstream shaping on existing terminated VCs, auto configuration of Bridged Ethernet on new PVCs and auto configuration of PPPoE Relay on new PVCs



► IP QoS features

- VLAN 802.1p User Priority Mapping
- IP, TCP, UDP, ICMP header based packet classification, prioritization and forwarding
- IP header TOS byte / DSCP field marking
- IP QoS queues instantiated per upstream interface (ATM VP/VC)
- IP QoS Scheduling: Queueing between 6 classes:
 - Real-time queue with strict priority over all other queues
 - 4 WFQ queues with strict priority over the best effort queue
 - Best Effort queue. This class will use any bandwidth that is not used by the other classes, but does not have any bandwidth guarantees.
- Queue scheduling algorithms:
 - Strict priority scheduling
 - Weighted Fair Queueing (WFQ) with configurable queue weights
- Packet Discard Strategies:
 - Tail Drop
 - Early Packet Discard active queue management and congestion avoidance (RFC 2309) using the BLUE algorithm
- Configurable queue propagation to enqueue in lower priority queue in case of congestion
- Rate-Limiting of the strict priority real-time queue data to a percentage of the interface bandwidth in case of congestion
- Prioritization of upstream TCP ACK segments
- Differentiated Services Architecture (RFC 2475 / 3260)
- Per-Hop Behavior: Best Effort (BE) and Class Selector (RFC 2474), Assured Forwarding (AF) (RFC 2597), Expedited Forwarding (EF) (RFC 3246)
- IP QoS TOS / DiffServ handling on Tunnels (RFC 2983)
- SLA monitoring using (extended) PING, (extended) trace route and HTTP Probe

SpeedTouch™ 610/610i/610s/610v Specifications



Hardware specifications

▶ WAN interfaces

- DSL line RJ11
- ADSL, SHDSL 4 wires or VDSL

▶ LAN interfaces - Switch variants

- 4-port 10 / 100BaseT auto-detect Ethernet switch IEEE 802.3 (RJ45), half- / full-duplex with auto-MDI / MDI-X
- Available on SpeedTouch 610, 610i, 610s and 610v

▶ LAN interfaces - ATMF variants

- 10 / 100BaseT auto-detect Ethernet (RJ45), half- / full-duplex
- 25.6 Mb/s ATM Forum interface (RJ45) – can be used either as LAN or as WAN interface
- Available on SpeedTouch 610, 610i and 610s

▶ Serial interface

- RS232 - EIA / TIA-232

Physical specifications

- Height: 35 mm (1.38 in.)
- Width: 210 mm (8.27 in.)
- Depth: 185 mm (7.29 in.)

Operating environment

- Temperature: 0° to 40° C (32° to 105° F)
- Humidity: 20% to 80%

Power requirements

- AC voltage: 100 to 120 V AC, 220 to 240 V
- Optional 48V DC power supply
- Frequency: 50 / 60 Hz
- Power consumption: 9 W maximum



SpeedTouch 610 1-port



SpeedTouch 610 4-port



Modem specifications

Physical layer	Product	Bandwidth	Standards	Notes
ADSL-over-POTS	SpeedTouch 610	Up to 8.192 Mb/s downstream and 832 kb/s upstream	<ul style="list-style-type: none"> • ANSI issue 2 - ANSI T1.413i2 • Full rate - G.dmt ITU-T G.992.1 Annex A • ADSL lite - G.lite ITU-T G.992.2 	<ul style="list-style-type: none"> • Multi-mode hand-shake - ITU-T G.994.1 (G.hs) • Complete embedded operations channel (EOC) implementation • Dying gasp (allows to distinguish cable cut and CPE power outage)
ADSL-over-ISDN	SpeedTouch 610i	Up to 8.192 Mb/s downstream and 640 kb/s upstream	<ul style="list-style-type: none"> • ETSI - ETSI ETR 006 • Full rate - G.dmt ITU-T G.992.1 Annex B • Germany - UR2 	<ul style="list-style-type: none"> • Dying gasp (allows to distinguish cable cut and CPE power outage)
SHDSL	SpeedTouch 610s	Up to 4.608 Mb/s downstream and upstream in 4-wire mode	<ul style="list-style-type: none"> • SHDSL standard ITU-T G.991.2 (G.shdsl): symmetric PSDs and asymmetric PSDs in line with annex A (ANSI) and annex B (ETSI) • Hand-shake procedure ITU-T G.994.1 (G.hs), including automatic annex selection and rate adaptive mode 	<ul style="list-style-type: none"> • Wetting current (annex A and B), including metallic termination (annex A) • Complete embedded operations channel (EOC) implementation: performance monitoring (bit errors, signal-to-noise ratio, loop-attenuation, ..), status reporting, remote loopback, remote inventory • Dying gasp (allows to distinguish cable cut and CPE power outage) • Auto-detect of 2-wire/4-wire SHDSL mode • Transmission Quality Monitoring • SHDSL configurable in CO mode
VDSL	SpeedTouch 610v	Up to 23 Mb/s downstream and 4 Mb/s upstream (asymmetrical bandplan) or up to 13 Mb/s downstream and upstream (symmetrical bandplan)	<ul style="list-style-type: none"> • Standard DMT VDSL: ETSI TS 101 270-1 & -2; ANSI T1E1.4/2001-009R5 and -013R2; ITU-T G.vdsl.f 	<ul style="list-style-type: none"> • Supports band plans 997, 998 and Fx with same hardware. • Excellent throughput performance, with aggregate (up + down) rates of 58 Mb/s over 350 m, 29 Mb/s over 1000 m and 14.5 Mb/s over 1500 m



Need more help?

Additional help is available online at <http://www.speedtouch.com>.