



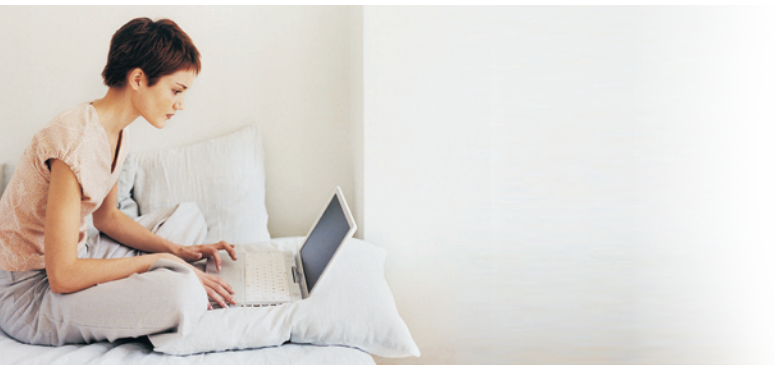
Data

Voice

Access Platform & Gateways

# TWG850 - Wireless VoIP Cable Modem

# THOMSON



Thomson is proud to present the new generation of E-MTA voice-capable cable modems with integrated wireless functionality. The Wireless E-MTA model, TWG850, builds on the latest generation of chipset and is based on the Euro-DOCSIS™ 2.0 Hardware Specification. Enhanced with the now Thomson standard Dual-Mode feature, the TWG850 is a versatile product which can cope with both DOCSIS™ and Euro-DOCSIS™ standards.

Voice is supported using the PacketCable 1.5 standard NCS protocol or, if so desired, using the SIP protocol. High-speed wireless with 802.11b/g makes this a true home gateway.

### Dual-Mode cable modem

Thomson technology enables the cable modem to work with both Euro-DOCSIS™ and DOCSIS™ standards (\*if using the Euro-DOCSIS™ bandwidth).

### High Speed Wireless Interface

The TWG850 supports the 802.11g standard at speed up to 54Mb/s. (802.11b compatible at speed up to 11Mb/s). Latest generation technology with internal 32-bits data buses guarantees superior handling of data traffic.

### Other Broadband Cable Products:

- TCM420: Euro-DOCSIS 2.0 certified
- TCM425: DOCSIS 2.0 certified hardware
- TCW710: One port Euro-DOCSIS/DOCSIS 2.0 802.11b/g Wireless Cable Modem
- THG520: Euro-DOCSIS/DOCSIS 2.0 VoIP E-MTA

### Enhanced Voice performance

The TWG850 cable modem uses a 300 MHz Dual Instruction MIPS32 CPU and DSP Instruction Extensions for VoIP in order to guarantee superior performance. Gateway and Voice operation support 10Mbps small packet data throughput and 2 complex voice codec calls simultaneously. All standard codec's are supported, including the new iLBC and BV16. Two software images are available to support PacketCable™ 1.5 and SIP.

### Start-Up Indicators

Easy-to-use LED lights on the front of the unit show the modem status. This provides the user the ability to verify modem operation and connectivity.

### Security

- Supports BPI+ communications privacy to provide secure data exchange between modems and cable operator's servers.
- Supports WPA, WPA2 and WEP (encryption of the data between the gateway and the wireless connected computer).
- Wireless access control mechanism to prevent unauthorized wireless users.
- Supports VPN's with IPsec



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## Technical Specification

### Standards

Euro-DOCSIS	designed for Euro-DOCSIS 1.0/1.1/2.0
Euro-PacketCable	designed for Euro-Packetcable 1.0
CMTS Interoperability	Any qualified Euro-DOCSIS and DOCSIS* CMTS. *DOCSIS CMTS using the Euro-DOCSIS frequency bandwidth
Operating Systems supported	Any OS with Ethernet connection Windows 2000, Me and XP with USBconnection

### Receiver

Downstream Modulation	64/256 QAM
Downstream Frequency Range	88-860 MHz
Maximum Downstream Data Rate	30.34/42.88 Mbps (64QAM/256QAM)
Input Signal Level Range	-15 to +15 dBmV(64QAM) -15 to +15 dBmV(256QAM)
BER	1x10 <sup>-8</sup> @ C/N=23.5dB, 64QAM with FEC 1x10 <sup>-8</sup> @ C/N=30dB, 256QAM with FEC, received power = -6dBmV to +15dBmV 1x10 <sup>-8</sup> @ C/N=33dB, 256QAM with FEC, received power = -15dBmV to -6dBmV
Input Impedance	75 Ohm

### Transmitter

Upstream Modulation	QPSK 16/32/64 QAM, 128 QAM for TCM only
Upstream Frequency Range	5-42 MHz
Maximum Upstream Data Rate	30.72 Mbps (64QAM)
Output Signal Level Range	A-TDMA: +8 to +58 dBmV/QPSK +8 to +55 dBmV @ 8/16QAM +8 to +54 dBmV @ 32/64QAM S-CDMA: +8 to +53 dBmV/All
Output Impedance	75 Ohm
Channel Bandwidth	Programmable (200*N KHz) N=1, 2, 4, 8, 16, 32
Automatic Level Adjust	Yes
Gain Control Range	50dB
Frequency Stability	± 5 kHz

### Telephony Features – Voice/Fax

Audio Codecs	PCM A-law, PCM $\mu$ -law, G.729, G.729a, G.729e, G.728, iLBC and BV16
Multi Lines Phone Support	Yes, Two phone lines, three-part conference calls, can support 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
VAD (Voice Activity Detection)	Yes
CNG (Comfort Noise Generation)	Yes
Echo cancellation	G.165/G.168 up to 16ms
Packet Tone	DTMF generation/Call Progress Generation/Custom Tone Generation
Call discrimination	Fax and Modem Detection
Telephony interface capabilities	Loop-back and on demand diagnostic
Modems	Up to V.90 (38.5kbps)
RFC2833 DTMF Tone relay	Enabled/disabled via SNMP and Telnet
REN	5 REN
Pulse dialing	DTMF tones to pulse tones conversion and pulse to DTMF tones conversion

### VoIP Call Control

RTP layer	RFC1889/RFC1890
RTCP statistics collection	Yes
PacketCable Protocols	PacketCable NCS v1.0 Network-Based Call Signaling Protocol (PKT-SP-EC-MGCP)
SIP Based Protocols	Yes

### Wireless Features

Protocol	Fully 802.11b/g Compatible
Antennas	one built-in antenna, one external antenna
Throughput	Up to 54 Mbps Data Rate
Wireless security	64/128 bit WEP Encryption, WPA, WPA2, Support Temporal Key Integrity Protocol (TKIP), IEEE 802.1x Port-Based Authentication with RADIUS client

### Gateway Features

Network Protocol	IP, TCP, UDP, ARP, ICMP, DHCP, TP, TFTP, SNMP, HTTP
Firewall	IP Filtering, Stateful Packet Inspection (SPI), Intrusion Detection for Denial of Service (DoS) attacks, Flexible Parental Control, URL Content Filtering
Firewall control	Web-Based User Interface Management and Administration, Remote User Access, Logging & Alert

### Software Features

Software Downloadable	Yes
Bridging	Between USB and Ethernet
Multiple client support	250
Class-of-Service (COS)	16 SID's
Protocol Filtering	Ethernet & IP
SNMP Management	V2, V3
LED Diagnostics	9-step LED

### Interfaces

Ethernet	One RJ-45, 10BaseT/100BaseT auto-detect
RF Connector	F-Type
Power	230Vac 50Hz (Wall Pack)
Telephony Lines	Two RJ-11
USB 1.1 Port	Yes
Number of PCs Supported	254

### Packaging & Content

Cabinet Dimensions	216mm (L) x 154mm (D) x 36mm (H)
Product Weight	approximately 530 g
Packaging dimensions	tbd
Master pack dimensions	tbd
Master Pack shipping Weight	tbd
Master Pack Quantity	tbd
Operating Temp.	0°C to +40°C
Storage Temperature	-20°C to 70°C
Cables	USB & Ethernet
CD-ROM	Yes

### For more information

Thomson  
46, quai Alphonse Le Gallo  
92100 Boulogne-Billancourt  
France  
Tel. : 33 (0) 1 41 86 50 00  
Fax : 33 (0) 1 41 86 56 59  
www.thomson-broadband.com