



**TANDBERG**  
**Set-top**  
**990/880/770**  
**MXP**

For work environments ranging from medium and small meeting rooms to shared offices. These portable, high performance set-top units conveniently transform any standard TV into an interactive meeting place, providing users with an outstanding business tool.

TANDBERG Flatscreen  
 Monitor Package



**DESIGN FEATURES**

- Designed for medium to small meeting rooms and shared office environments
- Elegantly designed all-in-one set-top unit that fits easily on any standard television monitor
- Integrated wide angle view camera with extensive zoom, pan and tilt
- Optional TANDBERG Flatscreen Monitor Package

**APPLICATION FEATURES**

- Join up to 4 video and 3 audio sites with optional embedded MultiSite functionality
- Best possible call for each MultiSite participant with rate matching and transcoding
- Powerful live presentations through one-step PC plug-in or LAN connection
- View presentations and presenter simultaneously with DuoVideo and H.239 Dual Stream
- TANDBERG Expressway™ Technology
- URI Dialing

**PERFORMANCE FEATURES**

- Choice of Network: up to 512 kbps ISDN or external network (H.320)/2 Mbps IP (H.323 or SIP)
- PC card slot for wireless LAN connection
- Highest level of embedded encryption as well as H.235 and IEEE 802.1x authentication
- True CD-quality audio
- Protection against network interruptions in point-to-point and multipoint calls with automatic Down-speeding and IPLR
- Superior video quality incorporating the H.264 standard

PROTECT YOUR TECHNOLOGY INVESTMENT WITH  
 TANDBERG'S PORTFOLIO OF **CONSTANT CARE SERVICES**.  
 VISIT [WWW.TANDBERG.NET](http://WWW.TANDBERG.NET)

#### UNIT DELIVERED COMPLETE WITH:

Wireless remote control, W.A.V.E II camera, microphone and cables

#### BANDWIDTH

##### 990 MXP:

H.320 up to 512 kbps  
H.323 & SIP up to 2 Mbps

##### 880 MXP:

H.320 up to 384 kbps  
H.323 & SIP up to 1.1 Mbps

##### 770 MXP:

H.320 up to 128 kbps  
H.323 & SIP up to 768 kbps

#### FIREWALL TRAVERSAL

TANDBERG Expressway™ Technology  
Auto NAT  
H.460.18, H.460.19 Firewall Traversal

#### VIDEO STANDARDS

H.261, H.263, H.263+, H.263++ (Natural Video), H.264

#### VIDEO FEATURES

Native 16:9 Widescreen  
Advanced Screen Layouts  
Picture in Picture (PIP)  
Picture outside Picture & Large POP  
Side by Side  
PC Zoom  
Intelligent Video Management  
Simultaneous videoconference & local PC mode  
Local Auto Layout

#### VIDEO INPUTS (4 INPUTS)

Built-in main camera  
1 x MiniDin, S-video: auxiliary/document camera  
1 x RCA/Phono, composite: document camera/aux  
1 x RCA/Phono, composite: VCR  
1 x DVI-I: PC  
Input: 800 x 600 @ 60, 72, 75, 85 Hz, 1024 x 768 @ 60, 70, 75 Hz,  
1280 x 720 (HD720P) @ 50, 60 Hz, 1280 x 1024 @ 60 Hz  
Extended Display Identification Data (EDID)

#### VIDEO OUTPUTS (4 OUTPUTS)

1 x MiniDin, S-video: main monitor  
1 x RCA/Phono, composite: main monitor or VCR  
1 x RCA/Phono, composite: dual monitor or VCR  
1xDVI-1/XGA: main or second monitor  
XGA Output  
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz, 1280 x 768  
(WXGA) @ 60 Hz, 1280 x 720 (HD720p) @ 60 Hz  
VESA Monitor Power Management

#### VIDEO FORMAT

NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

#### LIVE VIDEO RESOLUTIONS

##### NATIVE NTSC:

400p (528 x 400 pixels)  
4SIF (704 x 480 pixels), Digital Clarity  
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video  
SIF (352 x 240 pixels)

##### NATIVE PAL:

448p (576 x 448 pixels)  
4CIF (704 x 576 pixels), Digital Clarity  
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video  
CIF (352 x 288 pixels)  
QCIF (176 x 144 pixels)  
SQCIF (128 x 96 pixels) decode only

##### NATIVE PC RESOLUTIONS:

XGA (1024 x 768)  
SVGA (800 x 600 pixels)  
VGA (640 x 480 pixels)

##### WIDE RESOLUTIONS:

w288p (512 x 288 pixels)  
w448p (768 x 448 pixels)  
w576p (1024 x 576 pixels)  
w720p (1280 x 720 pixels)

#### STILL IMAGE TRANSFER

CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

#### AUDIO STANDARDS

G.711, G.722, G.722.1, G.728, 64 bit & 128 bit MPEG4AAC-LD

#### AUDIO FEATURES

CD-Quality 20KHz Mono and Stereo  
Telephone add-on via MultiSite  
Two separate acoustic echo cancellers  
Audio mixer  
Automatic Gain Control (AGC)  
Automatic Noise Reduction  
Audio level meters  
VCR ducking  
Optional Stereo Package  
Packet loss management  
Active lip synchronization  
GSM/Blackberry interference audio feature

#### AUDIO INPUTS (4 INPUTS)

2 x microphone, 24V phantom powered, XLR connector  
1 x RCA/Phono, Line Level: auxiliary (or VCR Stereo L)  
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

#### AUDIO OUTPUTS (2 OUTPUTS)

1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue  
Line Level: main audio or Analogue Stereo L  
1 x RCA/Phono, Line Level: VCR or Analogue Stereo R

#### FRAME RATES

30 frames per second @ 168 kbps and above  
60 fields per second @ 336 kbps and above (Point-to-point)

#### DUAL STREAM

DuoVideo  
H.239 dual stream  
Dynamic bandwidth adjustment (H.323)  
Available on H.323 & H.320  
Available in MultiSite from any site (990 & 880 MXP only)

#### NETWORK FEATURES

Auto H.320/H.323 dialing  
SIP  
Downspeeding  
Programmable network profiles  
Intelligent Call Management  
Maximum call length timer  
Automatic SPID and line number configuration  
(National ISDN, GR-2941-CORE)  
SoftMux  
H.331 Broadcast Mode  
NATO standard KG194/KIV-7 encryptor support\*\*  
URI Dialing

#### MULTISITE FEATURES (990 & 880 MXP ONLY)

H.323/H.320/SIP/Telephony/VoIP in the same conference  
Audio and Video Transcoding  
Video rate matching from 56 kbps — maximum conference rate  
CP4 and Voice Switched  
Best Impression (Automatic CP Layouts)  
H.264, Encryption, Digital Clarity  
Dual Stream from any site  
ISDN & IP Downspeeding and IPLR  
MultiSite (H.243) Cascading on H.320 & H.323  
Unicode H.243 Terminal Names  
Dial In/Dial out  
Chair control for host system  
Snapshot of ongoing conference (JPEG)  
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)  
Separate welcome page for encrypted conferences  
Conference rates up to 2.3 Mbps with optional bandwidth  
upgrade (1.5 Mbps is standard conference rate)  
Up to 4 video and 3 audio sites  
4 sites @ 768 kbps (+telephone calls)  
Mix ISDN-BRI and IP up to maximum conference rate

#### EMBEDDED ENCRYPTION

H.320 and H.323 point-to-point and multipoint calls  
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES  
NIST-validated AES  
NIST-validated DES  
Automatic key generation and exchange  
Supported in Dual Stream & MultiSite

#### IP NETWORK FEATURES

IEEE 802.1x/EAP Network Authentication  
H.235 Gatekeeper Authentication  
DNS lookup for service configuration  
Differentiated Services (DiffServ)  
Resource Reservation Protocol (RSVP)  
IP precedence  
IP type of service (ToS)  
IP adaptive bandwidth management (including flow control)  
Auto gatekeeper discovery  
Dynamic playout and lip-sync buffering  
Intelligent Packet Loss Recovery (IPLR)  
H.245 DTMF tones in H.323  
Cisco CallManager integration using ECS  
IP Address Conflict Warning  
Date and Time support via NTP  
Call Services

#### IPv6 NETWORK SUPPORT

Dual Stack IPv4 and IPv6 simultaneous support  
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS,  
ftp, SNMP, DNS, NTP, DHCP  
Media support on IPv6: H.323, SIP, Streaming

#### SECURITY FEATURES

Management via HTTPS and SSH  
IP Administration Password  
Menu Administration Password  
Dialing Access code  
Streaming password  
H.243 MCU Password  
VNC password  
SNMP security alerts  
Disable IP services  
MD-5 Challenge  
Network Settings protection  
SIP Authentication via NTLM  
SIP Authentication via Digest

#### NETWORK INTERFACES

4 x ISDN BRI (RJ-45), S-interface  
1 x LAN/Ethernet (RJ-45) 10/100 Mbit  
(LAN/DSL/cable modem)  
1 x PC card slot (PCMCIA) for wireless LAN  
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran  
IMUX, Leased Line, Data Triggered, and Manual\*\*  
1 x USB for future usage

#### WIRELESS LAN SUPPORT

Compliant with IEEE 802.11b, up to 11 Mbit  
Support for 64/128 bit encryption (WEP)  
Infrastructure or ad-hoc mode

#### ETHERNET/INTERNET/INTRANET CONNECTIVITY

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,  
MD-5 Challenge  
SNMP Enterprise Management  
Internal web server  
Internal streaming server

#### OTHER MAJOR STANDARDS SUPPORTED

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243,  
H.281, BONDING (ISO 13871), H.320, H.323, H.331  
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC  
2032, RFC 2190, RFC 2429, RFC 3407

#### W.A.V.E. (WIDE ANGLE VIEW) II CAMERA

10 x zoom 1/4" CCD +15°/-20° tilt +/-95° pan  
61° vertical field of view  
96° total vertical field of view  
77° horizontal field of view  
267° total horizontal field of view  
460 (PAL) / 470 (NTSC) TV lines  
Min. Illumination 2 Lux (F1.8)  
Auto or manual focus/brightness/white balance  
Far-end camera control  
1.5 near and far-end camera pre-sets  
Voice-activated camera positioning

#### CLOSED CAPTIONING/TEXT CHAT

T.140 text chat available from Telnet, Web and User Interface

#### PRESENTATIONS AND COLLABORATION

Natural Presenter Package including:  
PC Presenter (DVI-I, SXGA In)  
PC SoftPresenter  
Digital Clarity & Native Formats  
Advanced Video Layouts  
Streaming compatible with Cisco IP/TV,  
Apple QuickTime®, RealPlayer® v8 etc.

#### SYSTEM MANAGEMENT

Support for the TANDBERG Management Suite  
Total management via embedded web server, SNMP,  
Telnet, SSH, FTP and SOAP  
Remote software upload: via web server, ftp server or ISDN  
1 x RS-232 local control and diagnostics  
Remote control and on-screen menu system  
External Services from TMS

#### DIRECTORY SERVICES

Support for Local directories (My Contacts),  
Corporate Directory and Global Directory  
Unlimited entries using Server directory\* supporting  
LDAP and H.350  
Unlimited number for Corporate directory (through TMS)  
400 number global directory  
200 number local directory  
16 dedicated MultiSite entries  
Received Calls with Date and Time  
Directories in Local Languages  
Placed Calls with Date and Time  
Missed Calls with Date and Time

#### 16 SELECTABLE MENU LANGUAGES

Arabic, Simplified Chinese, Traditional Chinese, English,  
French, German, Italian, Japanese, Korean, Norwegian,  
Portuguese, Russian, Spanish, Suomi, Swedish and Thai  
Chinese, Korean and Japanese Input Method Editor  
Import Custom Language through TMS

#### CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO

Picture JPEG (logo.jpg): Recommended maximum size  
is 704x576 for Welcome Screen and 352x288 for  
Encryption Required Screen.

#### POWER

Auto-sensing power supply  
100–250 VAC, 50–60 Hz  
40 watts max.

#### OPERATING TEMPERATURE AND HUMIDITY

0° C to 35° C (32° F to 95° F) ambient temperature  
10% to 90% Relative Humidity (RH)

#### STORAGE AND TRANSPORT TEMPERATURE

-20° C to 60° C (-4° F to 140° F) at RH 10–90%  
(non-condensing)

#### APPROVALS

Directive 73/23/EEC (Low Voltage Directive)  
– Standard EN 60950  
Directive 89/336/EEC (EMC Directive)  
– Standard EN 55022, Class B  
– Standard EN 55024  
– Standard EN 61000-3-2/-3-3  
Directive 1999/5/EEC (R&TTE Directive)  
– Standard TBR3  
Approved according to UL 60950 and CAN/CSA C22.2 No.60950  
Complies with FCC15B Class B

#### UNIT DIMENSIONS

Height: 5.1"/13.0 cm  
Width: 14.9"/38.0 cm  
Depth: 7.9"/20.0 cm  
Weight: 5.0 lbs/2.3 kg

\* Requires TANDBERG Management Suite 9 or newer

\*\* Optional equipment, must be specified at the time  
of order, Serial Port replaces ISDN BRI

All specifications subject to change without notice,  
system specifics may vary.

All images in these materials are for representational  
purposes only, actual products may differ.

TANDBERG and Expressway are registered trademarks or  
trademarks of TANDBERG in the U.S. and other countries.

All other trademarks are property of their respective owners.

#### MTBF PRODUCT RELIABILITY/MTBF

The predicted reliability is expressed in the expected  
random Mean Time Between Failures (MTBF) for the  
electronic components based on the Power On Hours:  
Power On Hours (POH) > 69 000 hours  
Useful Life Cycle > 6 years  
ISO 9001 certificate is available upon request

## TANDBERG

# Set-top 990/880/770 MXP

#### TANDBERG WORLD HEADQUARTERS

Phillip Pedersens vei 20  
1366 Lysaker, Norway  
Tel: +47 67 125 125  
Fax: +47 67 125 234  
Video: +47 67 126 126  
E-mail: tandberg@tandberg.net

200 Park Avenue, Suite 2005  
New York, NY U.S.A. 10166  
Tel: +1 212 692 6500  
Tel: +1 800 538 2884 (toll free in the U.S.)  
Fax: +1 212 692 6501  
Video: +1 212 692 6535  
E-mail: tandberg@tandbergusa.com

July 2006