TORNADO M10/M20 DIGITAL MEDIA CENTER

USER MANUAL

This manual contains web settings operational guidelines for both Admin and User roles.

If logged in as User and some sections of the menu or parts of dialog are missing, this is because the User privileges are limited to partial access.

Disclaimer: **The specifications information and performance of the Tornado product lines and featured in this publication may be changed without notice. Tornado manufacturers release new features frequently and subsequently, new features may not be reflected in this manual. The service manual is provided as a reference only. As with any publication, it is subject to errors.**

Since the use of this information, and the conditions by which the products are used are beyond the control of Tornado, it is the obligation of the owner and/or the equipment operator to determine the correct and safe selection and settings and conditions of use of the equipment and products.

Table of Contents

1. Welcome

Thank you for purchasing SysMaster Corporation award-winning TORNADO M10/M20 Digital Media Center. You made an excellent choice and we hope you will enjoy all its capabilities. SysMaster Corporation's award-wining TORNADO M10/M20 SIP Digital Media Center is the innovative Digital Media Center that offer a rich set of IPTV, Video Conferencing, and Telephony functionalities and superb sound quality. They are fully compatible with SIP industry standard and can interoperate with many other SIP compliant devices and software on the market.

For more information about the company, please visit us at: www.sysmaster.com

2. Product Overview

2.1. What is Included in the Package

The TORNADO M10 Set Top Box (STB) package contains:
1. One TORNADO M10 STB Device
2. One Audio and Video Cable
3. One Advanced Infra Red Remote Control
4. One Universal Power Adaptor
5. One Ethernet Cable
6. User Manual

The TORNADO M20 device package contains:
1. One TORNADO M20 Video Phone
2. One Phone Base Stand
3. One Audio and Video Cable
4. One Universal Power Adaptor
5. One Ethernet Cable
6. User Manual

2.2. Device Controls

Tornado M10 STB - Digital Media Center

Element	Description

1	Infra Red (IR) Receiver
2	Event LED. The LED has 3 colors. GREEN - Device is registered in SIP proxy RED – Device is registered with Media Streaming server GREEN & RED (BLUE) – Device is registered both to Streamer and SIP proxy. GREEN – Device is Off-Hook RED BLINKING – Device has received a new Voicemail (Ratio 1:1) GREEN BLINKING – Phone line is Ringing (Ratio 3:1) GREEN BLINKING – DND On (Ratio 1:1) GREEN BLINKING – Power Off (Ratio 1:3)
3	Line Failover LED. If the device fails to function, the LED will create Phone Line failover to allow calls to go directly from the phone to the outside line.
4	Power LED. The LED indicates that the power is ON.
5	VGA camera used in Video Conference mode.
6	DC Power Input. The device requires stabilized 5V/2A DC Power supply.
7	Video OUT RCA connector
8	Audio OUT Left Channel RCA Connector
9	Audio OUT Right Channel RCA Connector
10	10 Mbps Ethernet Port
11	Phone Connector (FXS). The two central connections (pins 2 and 3) are used to connect the Phone to the device. If the device is used with PBX/FXO module the outer two connectors (pins 1 and 4) are used for Line connection.
12	Line/PSTN Connector (FX0). The two central connections (pins 2 and 3) are used to connect to the Central Office phone line.. If the device is used with PBX/FXO module the outer two connectors (pins 1 and 4) are used for Line/PSTN connection as well.
13	USB 1.1 port for external storage.
14	SD Card slot

Remote Control for Tornado M10
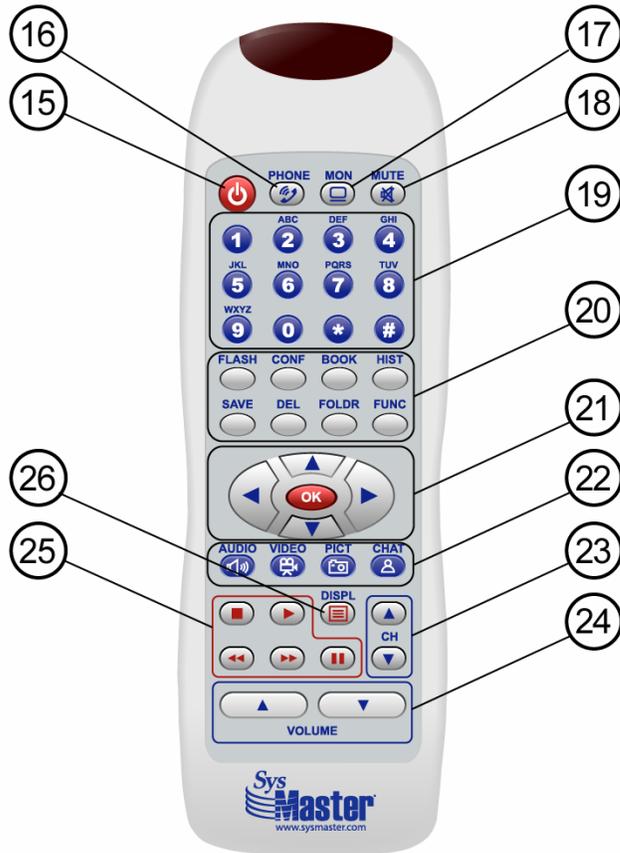
The remote control is used in conjunction with the M10 STB only. If you purchased the M20 Video phone, these settings do not apply.

Element	Description
15	Turn On/Off the device in Sleep Mode
16	Make Audio calls, pick up phone lines, or hang-up all phone lines
17	Make Video calls, or zoom Video selections.
18	Mute the Audio
19	Alpha-Numeric Characters used to enter Digits or other Characters
20	Buttons that provide different types of functionality **FLASH** – switch between multiple phone lines **CONF** – places all active phone lines in conference **BOOK** – switches to the Phone Book functionality or bookmark a channel **HIST** – switches to the phone call history **SAVE** – record Video or Audio content. Toggle to turn of/on recording. **DEL** – delete a data entry or turn on/off parental locks on channel selection **FOLDR** – switches to folder selection or switches to the upper menu **FUNC** – switches to the main function menu
21	Navigator Buttons **LEFT** – switch to the LEFT selection, or delete the last entered character **RIGHT** – switch to the RIGHT selection, or scroll within a selection

	UP – scroll between channel selections or data items **DOWN** – scroll between channel selections or data items **OK** – make a selection, save a selection, or pick up the phone line
22	Function Shortcut Keys allow switching to the underlying functions **VIDEO** – switch to Video selection **AUDIO** – switch to Audio selection **PICT** – switch to Picture Browser selection **CHAT** – switch to Chat/Messenger selection
23	Page manager keys switch between pages of channels or data pages
24	Volume management keys
25	Play management keys. **PLAY** – play Video or Audio or Picture Browser selection **STOP** – stop playing Video or Audio or Picture Browser selection **PAUSE** – pause the play of Video or Audio or Picture Browser selection **FORWARD** – forward Video or Audio or Picture Browser selection **BACKWARD** – backward Video or Audio or Picture Browser selection
26	Display key enable user to obtain information about channel selection or to switch between Video conference screens.

Connecting Tornado M10 STB
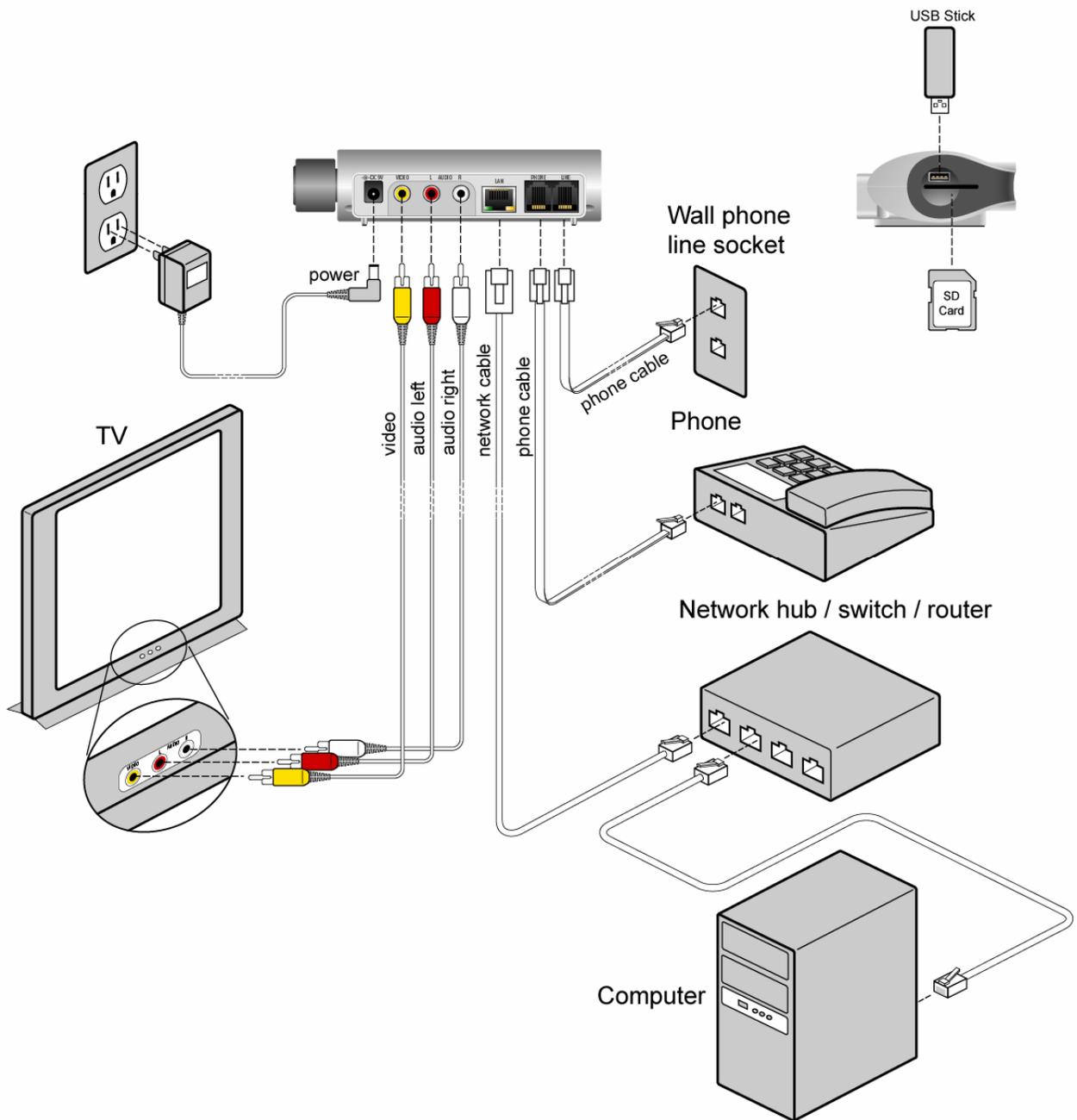
Tornado M20 Color Video Phone

Element	Description
1	Handset switch
1-13	Buttons used to dial numbers or enter alpha-numeric characters.
14-19	Buttons that are used to select functions or phone lines from the Graphical menu. **LONG * 14** – Shortcut to Video Mode **LONG * 15** – Shortcut to Audio Mode **LONG * 16** – Shortcut to Picture Browser Mode **LONG * 17** – Shortcut to Chat Mode **LONG * 18** – Shortcut to History Mode **LONG * 19** – Shortcut to Bookmark Mode
20	Color LCD display
21	**DISPLAY** button – provide selection information
22	**PAUSE** button – pause content playing
23	**STOP** button – stop the content playing
24	**PLAY** button – play content selection
25	**DELETE** button – put parental lock or remove parental lock
26	**SAVE** button – record Video or Audio content.
27	**VGA** – Video Camera
28	**MENU** button – enter the TOP MENU screen. **LONG* MENU** – enter the UPPER Menu
29	**FLASH** button – switch between two phone lines

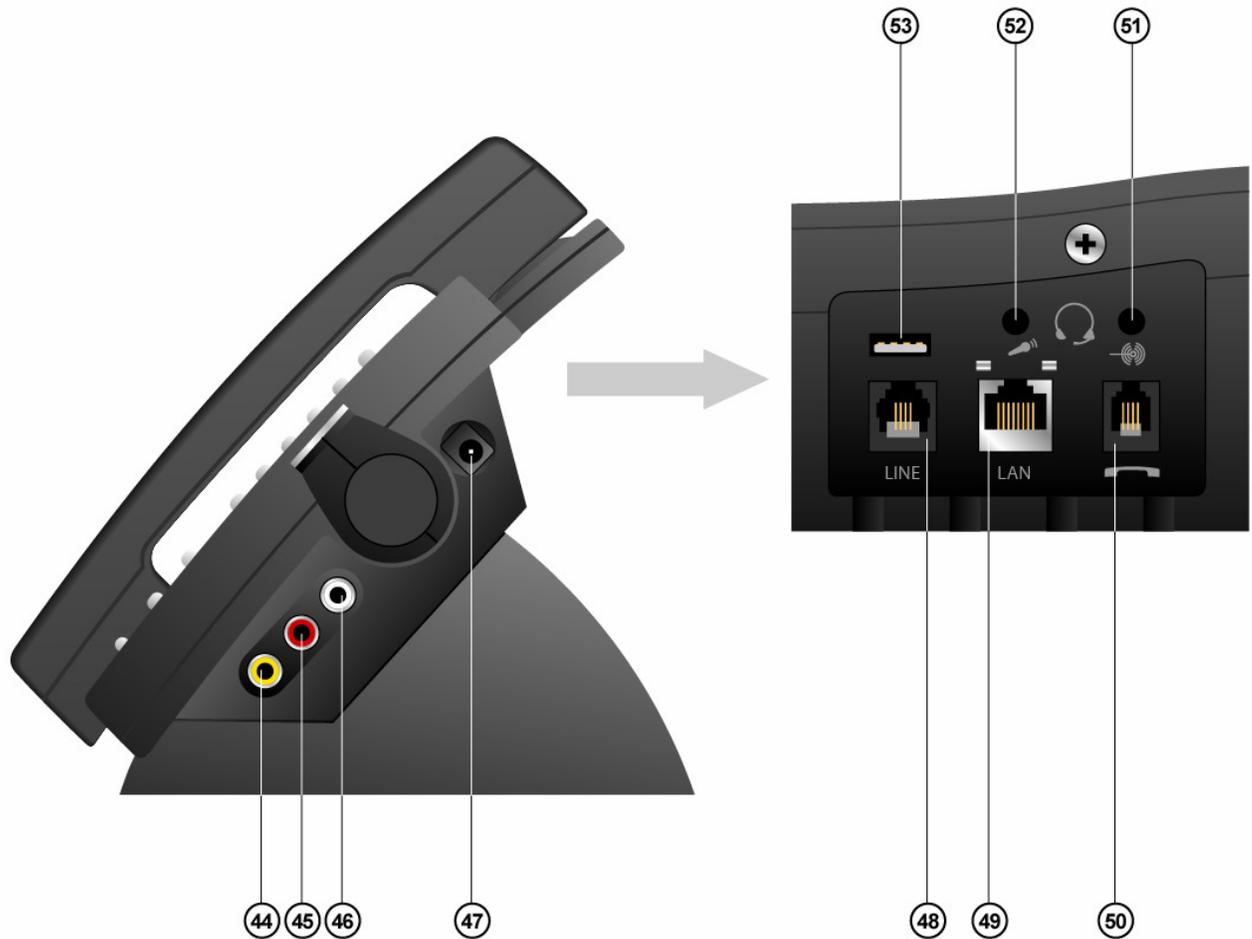|	
30	**MUTE** button – mute microphone or audio coming form Video player.
31	**OK** button – make a selection, save a selection, or pick up the phone line
32	**NAVIGATOR** button – scroll between data items
	LEFT – switch to the LEFT selection, or delete the last entered character
	RIGHT – switch to the RIGHT selection, or scroll within a selection
	UP – scroll between channel selections or data items
	DOWN – scroll between channel selections or data items
33	**LINE LED** – LED indicator for line status
	ON – line is ON (Off-Hook)
	BLINK – Do-Not-Disturb (DND) is ON
34	**SPEAKER** – activate the speaker phone and put the phone Off-Hook
35	**REDIAL** – redial the last dialed number
36	**VIDEO** – make Video calls or put the phone in Video mode
37	**VOLUME** (+) – increase the audio volume
38	**LED** Indicator – indicate phone state
	BLINK – Voicemail is waiting
	SEQUENTIAL BLINK – phone line is ringing
39	**VOLUME** (-) – decrease the volume
40	PHONE BUILT-IN SPEAKER
41	Headset
42	Phone cord that connects to 43 and 50
43	Phone cord RJ11 connector
44	Video OUT RCA connector used to connect to external TV set
45	Audio OUT LEFT connector used to connect to external Audio system
46	AUDIO OUT RIGHT connector used to connect to external Audio system
47	DC Power connector for 5V/2A stabilized power feed
48	LINE/PSTN connector used to connect to the external phone line
49	LAN connector
50	Phone line RJ11 connector used to connect to the phone handset
51	Headset Speaker used to connect to the headset
52	Headset Microphone used to connect to the headset
53	USB Port used to connect external USB hard drive devices
*	LONG – requires the button to be pressed longer than two seconds

Connecting Tornado M20 Video Phone

Headsets

External USB HDD

USB

sound

mic

Wall phone
line socket

phone cable

Phone

phone cable

network cable

Network hub / switch / router

Computer
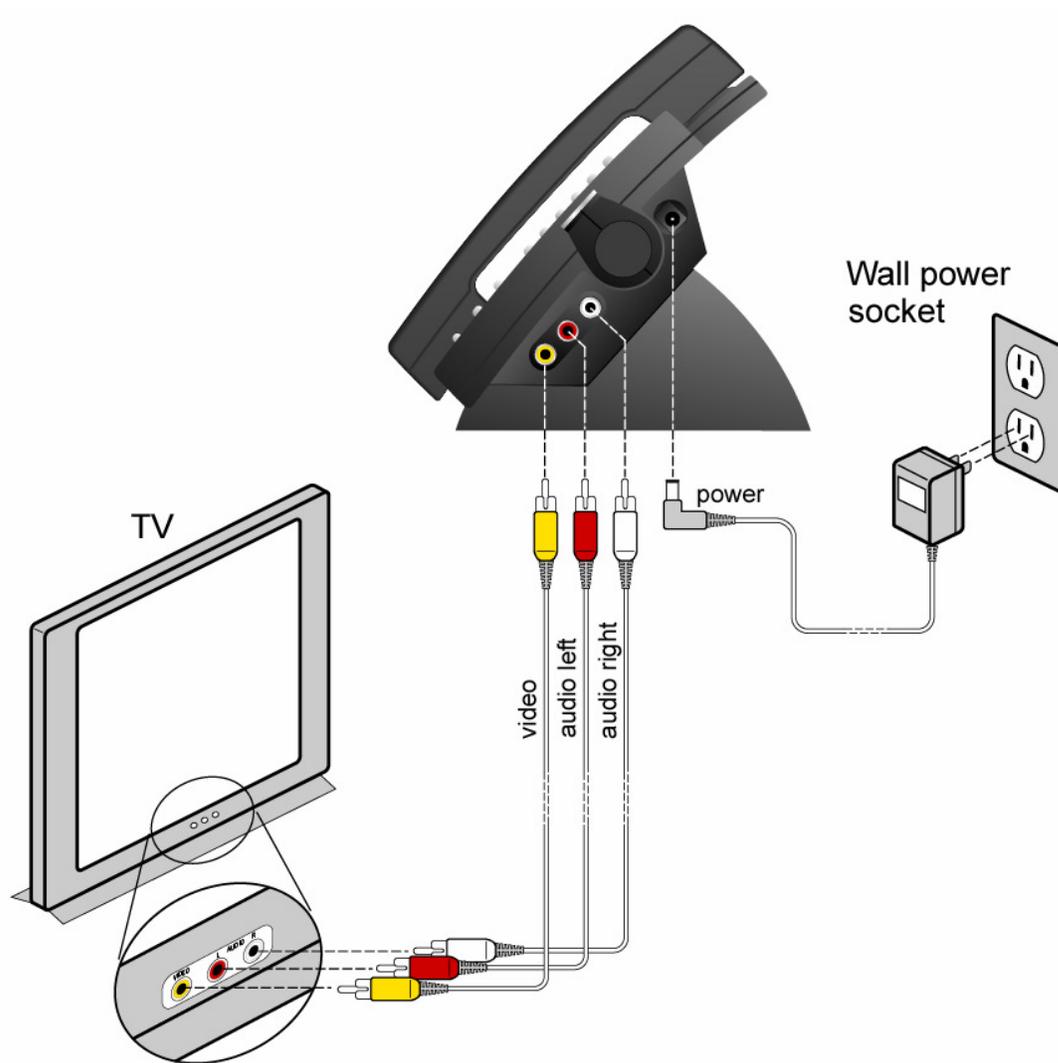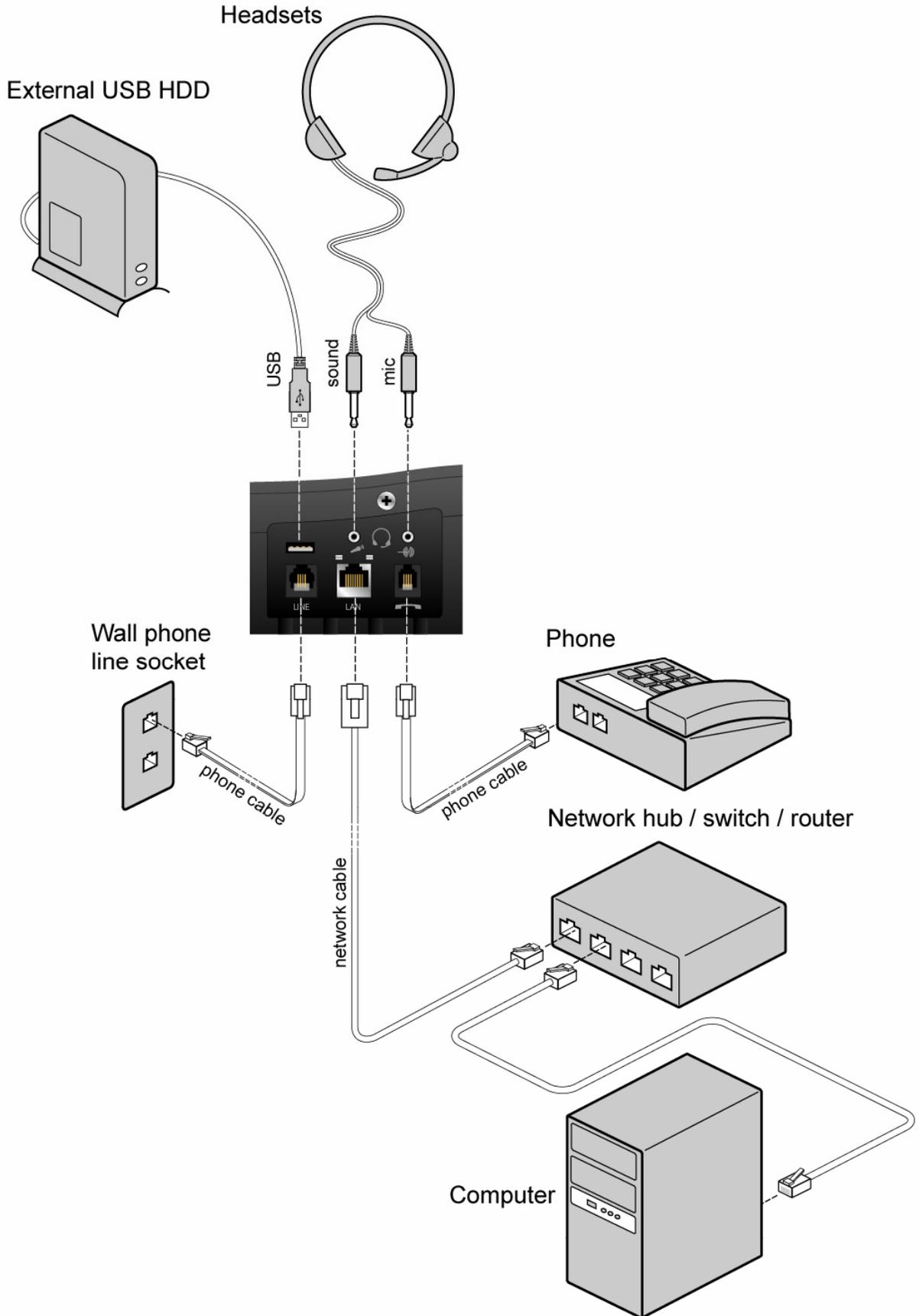
2.3. Safety Compliances

The TORNADO M10/M20 Digital Media Center is compliant with various safety standards including FCC/CE. Its power adaptor is compliant with UL standard. The device should only be operated with the universal power adaptor provided with the package. Damages to the device caused by using other unsupported power adaptors are not covered by the manufacturer's warranty.

2.4. Warranty

SysMaster Corporation has a reseller agreement with our reseller customer. End-users should contact the company from whom you purchased the product for replacement, repair or refund.

If you purchased the product directly from SysMaster Corporation, contact your SysMaster Corporation Sales and Service Representative for a RMA (Return Materials Authorization) number.

SysMaster Corporation reserves the right to remedy warranty policy without prior notification.

3. Product Features

3.1. Key Features

SysMaster Corporation TORNADO M10/M20 Digital Media Center is a next generation consumer IP device system based on industry open standard SIP (Session Initiation Protocol). Built on innovative technology, SysMaster Corporation Digital Media Center features market leading superb sound quality and rich functionalities at mass-affordable price. The advanced voice processing capabilities of M10/M20 are similar to any type of IP Centrex System. (Some features and services require subscription on an IPTV Platform **)

Features and Capabilities

Video and Audio Features
- IPTV Streaming - **
- Content Distribution via HTTP/TCP Unicast
- Content Distribution via UDP Unicast and/or Multicast
- Video on Demand (VOD) Support - **
- Pay-per-View (PPV) Support - **
- Trick Play Support (Pause, Replay, Rewind, etc.)
- Digital Audio Streaming (Online Radio) - **
- Picture Slide Show - **
- Show Scheduling and Optional Recording
- Parental Control
- Content Library Support for Remote PC
- Low Bit Rates Support
- Optional Personal Video Recorder (PVR)
- Optional Time Scheduling of the PVR

Online Services Capabilities
- Interface to Local PC Content (Media Extension Center Functionality)
- Chat Client compatible with ICQ, AOL, MSN - **
- Email Reader - **
- News Reader - **
- Weather Interface - **
- Calculator - **
- Currency Converter - **

VoIP Telephony
- SIP Protocol with NAT Traversal
- Video Conferencing Support
- Peer Auto Discovery
- Four (4) Line Rollover for Inbound/Outbound Calls
- Advanced PBX Features
- Call Waiting, Call Forward, Call Hunting
- Automated Call Forwarding to Multiple Numbers

- E.911 Support via FXO Port (M10 Device Only)
- FXO/FXS and IP Origination/Termination
- Advanced IVR Support and Management
- Auto Attendant Support
- Voice Encryption
- Wake-Up Phone Service

Web Interface
- Advanced System Management
- Voicemail Retrieval
- Phone Book
- Advanced Feature Management
- Customizable IVR Response Management
- Call History Lists
- User/Administrator System Views

Voicemail
- Up to 80 Voicemail Messages
- Remote Voicemail Retrieval via Phone or Web
- Advanced Voicemail Management
- Voicemail-to-Email Support
- Unified Messaging

Technical Specifications

Connectors
- One FXO (RJ-11 – M10 Device Only)
- One FXS (RJ-11 – M10 Device Only)
- One Ethernet (RJ-45)
- One Integrated Video Camera
- One USB 1.1 (Type A)
- One SD (Secure Digital) Card Interface
- One Video RCA Analog Port
- One Stereo Audio RCA Analog Port
- Infrared (IR) Remote Control Interface (M10 Device Only)
- Optional WiFi/Wireless 2.4 802.11a Interface
- Optional Three FXO (RJ-11 – M10 Device Only)

Codecs
- MPEG4/SP Video
- H.263 Video Conferencing
- MP3 Audio
- AAC Audio
- G.711 A-law / µ-law (56 & 64 kbps)
- G.711 Annex I
- G.729, G.279A
- G.726-32
- Echo Canceller (G.165 / G.168)

- Advanced Dynamic Jitter Control
- Voice Activity Detection (VAD)
- DTMF Detection and Generation
- Fax/Modem Pass-Through (G.711)

Protocols
- SIP
- H.264
- DHCP
- NTP
- DNS
- RTP / RTCP / SRTP
- HTTP
- UDP/TCP
- SDP
- SMTP
- PPPoE

Device Provisioning
- Via Central Content Management System
- Caller ID Number Assignment
- User/Admin Interface
- PPPoE
- Web Interface

Software Features

- Support MPEG4, MP3, AAC and other encoding standards.
- Support H.263 Video Conferencing Standards.
- Support advanced audio and video processing including IPTV, Pay-per-View, Video on Demand, Online Radio, Audio-on-Demand. - **.
- Support SIP 2.0, TCP/UDP/IP, RTP/RTCP, HTTP, ARP/RARP, ICMP, DNS, DHCP, NTP/SNTP, TFTP, SIMPLE/PRESENCE protocols.
- Support multiple SIP accounts and up to 4 media channels concurrently.
- Support multiparty conferencing and 3-way calling.
- Support NAT traversal.
- Advanced Digital Signal Processing (DSP) technology to ensure superior hi-fidelity audio quality, interoperable with various 3rd party SIP end user device, Proxy/Registrar/Server and Gateway products.
- Advanced adaptive jitter buffer control, packet delay and loss concealment technology.
- Support popular codecs including G711 (a-law and u-law), G.726, G.729A/B.
- Dynamic negotiation of codec and voice payload length.
- Support standard voice features such as Caller ID Display or Block, Call Waiting, Call Waiting. Caller ID, Call Hold, Call Transfer (attended/blind), Do-Not-Disturb, Automated Call Forwarding.
- Call Forwarding, in-band and out-of-band DTMF(RFC2833), SIP INFO, Dial Plans, Auto Dial, Auto Answer, 100 Speed Dial capacity.
- Supports advanced Voicemail functionality to allow custom voicemail services and capacity for over 80 voicemail messages.

- Supports Unified Messaging including Voicemail-to-Email, Email notifications, Remote Voicemail retrieval via Web and Device.
- Supports redial, call log, volume control, voice mail with indicator, customizable downloadable ring tone, etc.
- Support Silence Suppression, VAD (Voice Activity Detection), CNG (Comfort Noise Generation), Line Echo Cancellation (G.168) and AGC (Automatic Gain Control).
- Support basic and MD5 encrypted authentication.
- Support Voice Encryption with other Tornado devices.
- Provide easy configuration through manual operation (device keypad) and Web.
- Supports interface for automated provisioning by downloading encrypted configuration file via HTTP for mass deployment.
- Support for Layer 2 (802.1Q VLAN, 802.1p) and Layer 3 QoS (ToS).
- Support firmware upgrade via HTTP.
- Support DNS SRV Look up and SIP Server Fail Over.

3.2. Hardware Specification

The table below describes the hardware specification of the TORNADO Devices:

Reference:	TORNADO M10	TORNADO M20
LAN Interface	RJ-45 / 10 Base-T	RJ-45 / 10 Base-T
FXO Interface	RJ-11	N/A
FXS Interface	RJ-11	N/A
Optional 3 FXO Interfaces	RJ-11	N/A
USB 1.1 Interface	Type A	Type A
Video Camera	CMOS VGA	CMOS VGA
SD Card Interface	Secure Digital (M10 only)	N/A
Stereo Audio Port	RCA interface	RCA interface
Video Port	RCA Interface	RCA Interface
WiFi/Wireless Interface	802.11a Protocol	802.11a Protocol
Infra Red Interface	IR Remote Control (M10 Only)	N/A
LED	(1) Link – Red, (1) Act – Amber, (1) Pwr - Green - LED colors change according to status	(1) LED in Red – Message indicator will flash
Universal Switching Power Adaptor	Input: 100-240VAC 50-60 Hz, Output: +5VDC, 2A, UL Certified	Input: 100-240VAC 50-60 Hz, Output: +5VDC, 2A, UL Certified
Dimension	152mm (W) x 38mm (H) x 76mm (D)	254mm (W) x 172mm (H) x 140mm (D)
Weight	0.454kg (1 lbs.)	1.134kg (2.5lbs.)
Temperature	40 - 130oF, 5 – 45oC	40 - 130oF, 5 – 45oC
Humidity	10% - 90% (non-condensing)	10% - 90% (non-condensing)
Compliance	FCC / CE	FCC / CE

4. Using TORNADO M10/M20 Digital Media Center

4.1. Getting Familiar with TV/LCD Menu Options

TORNADO M10/M20 device includes advanced display functionally to allow dynamic and easy device management. The M10 STB must be connected to a Television or to a Motor with RCA video and audio input connectors. On the remote control, select the "Video" button and hold it for a few seconds to activate the menu screen:

4.1.1. Menu Structure

Tornado M10/M20 Digital Media Center features a tree-like, multi-level menu hierarchy to allow easy menu navigation and access. The table below represents the menu structure:

Main Menu	Sub-Menu	Function	Function ID
Video	Video	IP Television	1
		Pay Per View	2
		Video On	3
		User Video	4
		Video Categories	5
		Picture Browser	6
		Exit	7
Audio	Audio	Online Radio	10
		Audio On Demand	11
		User Audio	12
		Exit	13
Telephony	Telephony	Video/Audio Call	20
		History	21
		Voicemail	22
		Send SMS	23
		Exit	24
Information	Information	Weather	30
		Currency	31
		News	32
		Stock Quotes	33
		Lucky Numbers* Hotel Management	x
		Help	34
		Exit	35
Communication	Communication	Email	40
		Chat/Messenger	41
		Phone Book	42
		Virtual Terminal	43

		Web Browser	x
		Exit	44
Services	**Services**	Program Scheduler	50
		Calculator	51
		Alarm	52
		Wake-Up Call	53
		Setup	54
		Search	55
		Exit	56

4.1.2. Main Menu

Upon start-up of the M10/M20 device, the main menu will display. The menu will allow users to select the sub-menu functions that they need to access. To enter one of the listed sub-menu options, the users must use "UP/DOWN" buttons of the navigator. Once the desired selection is high-lighted, the users must press "OK" button to execute the command. The navigator buttons are accessible via the Remote Control (on the Tornado M10) or via the keypad (on the Tornado M20). Both devices allow support of "hot-keys" to allow easy access of commonly used functions.

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.

4.1.3. Video Sub-Menu

Tornado M10/M20 supports advanced video options to allow users to watch IP Television, Video-on-Demand, Pay-per-View, and User Video provided content. It is necessary to be registered user with a subscription on an IPTV platform to access such services.

Upon selecting the Video option from the main menu, a sub-menu is entered once the user presses the "Video" button on the remote control for the Tornado M10 STB, or highlights and select the "Video" option from the main menu display of the Tornado M20 phone. To return to the Main Menu the users must select the "Exit" option from the sub-menu.

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func or Menu	Switches to the upper menu – For M10 = "Func", For M20 = "Menu"

4.1.4. IP Television (Subscription Required)

The IP Television function allows the users to watch online IP TV streaming video content. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, index, time, rating, artist, and cost information. If the selected channel requires payment the system will ask the users to confirm the selection.

Button	Function	
Navigator-UP	Switches to the UP channel	
Navigator-DOWN	Switches to the DOWN channel	
Navigator-LEFT	Moves Left across Folder selection	
Navigator-RIGHT	Moves Right across Folder selection	
Channel-UP	Moves one page UP (one page has 6 channels)	(M10 Remote Control)
Channel-DOWN	Moves one page DOWN (one page has 6 channels)	(M10 Remote Control)
Navigator-OK	Selects and plays channel/file	
PLAY	Plays the selected channel/file in BUFFERED mode	(M10 Remote Control)
STOP	Stops paying the selected channel/file	(M10 Remote Control)
PAUSE	Pauses the playing of the channel/file	(M10 Remote Control)
DISPLAY	Switches On/Off Information display mode	(M10 Remote Control)
MUTE	Mutes the audio output	
VOLUME +/-	Increases/Decreases the volume	
FOLDR	Switches On/Off folder selection	(M10 Remote Control)
SAVE	Initiates channel/file recording (if configured)	(M10 Remote Control)
DEL	Switches On/Off Parental Lock. Requires password.	(M10 Remote Control)
MON	Switches between digital ZOOM modes. 1x, 2x, 4x	(M10 Remote Control)

BOOK	Makes the selected channel Favorite (M10 Remote Control)
HIST	Jumps to the last viewed channel. (M10 Remote Control)
>> Forward	Forward scroll of the EPG guide to the selected channel. (M10 Remote Control)
<< Backward	Backward scroll of the EPG guide for the selected channel. Allows viewing of historical content (if supported by the system). (M10 Remote Control)
FLASH	Switches to the Setup Menu.
VIDEO	Switches to the Video content and retrieves the newest channel EPG.

4.1.5. Pay Per View (Subscription Required)

The Pay per View function allows the users to watch online Video streaming content. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, index, time, rating, artist, and cost information. If the selected channel requires payment the system will ask the users to confirm the selection.
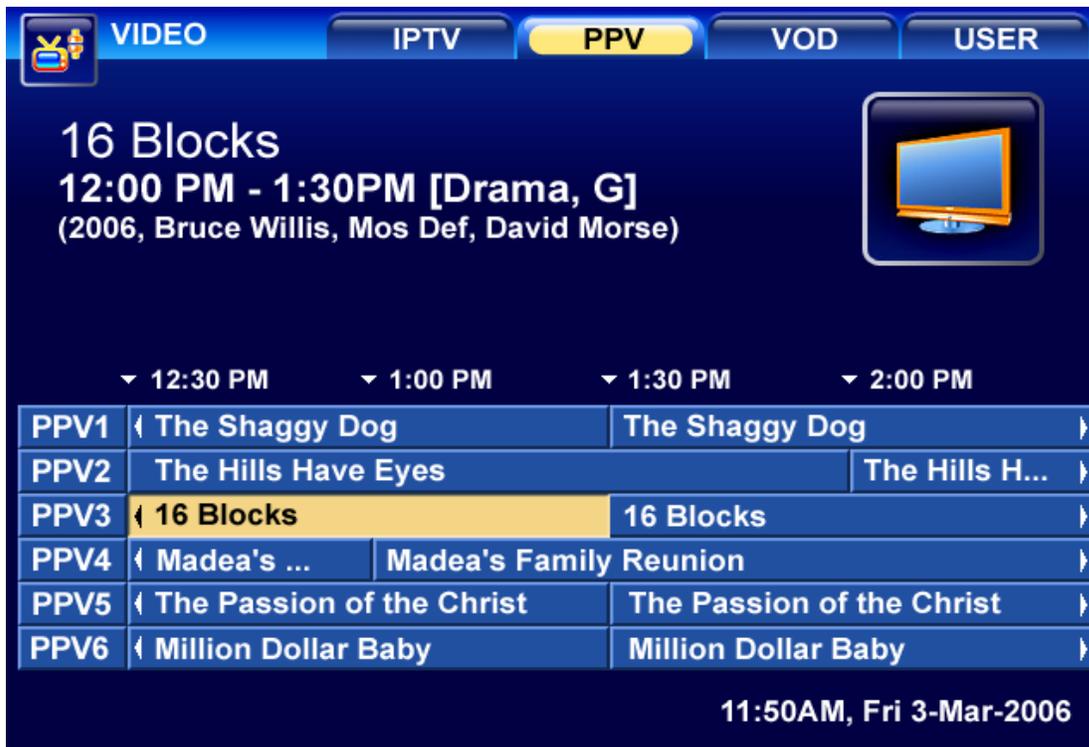

Button	Function
Navigator-UP	Switches to the UP channel
Navigator-DOWN	Switches to the DOWN channel
Navigator-LEFT	Moves Left across Folder selection
Navigator-RIGHT	Moves Right across Folder selection
Channel-UP	Moves one page UP (one page has 6 channels) (M10 Remote Control)
Channel-DOWN	Moves one page DOWN (one page has 6 channels) (M10 Remote Control)
Navigator-OK	Selects and plays channel/file
PLAY	Plays the selected channel/file in BUFFERED mode (M10 Remote Control)
STOP	Stops paying the selected channel/file (M10 Remote Control)
PAUSE	Pauses the playing of the channel/file (M10 Remote Control)

DISPLAY	Switches On/Off Information display mode	(M10 Remote Control)
MUTE	Mutes the audio output	
VOLUME +/-	Increases/Decreases the volume	
FOLDR	Switches On/Off folder selection	(M10 Remote Control)
SAVE	Initiates channel/file recording (if configured)	(M10 Remote Control)
DEL	Switches On/Off Parental Lock. Requires password.	(M10 Remote Control)
MON	Switches between digital ZOOM modes. 1x, 2x, 4x	(M10 Remote Control)
BOOK	Makes the selected channel Favorite	(M10 Remote Control)
HIST	Jumps to the last viewed channel.	(M10 Remote Control)
>> Forward	Forward scroll of the EPG guide to the selected channel.	(M10 Remote Control)
<< Backward	Backward scroll of the EPG guide for the selected channel. Allows viewing of historical content (if supported by the system).	(M10 Remote Control)
FLASH	Switches to the Setup Menu.	
VIDEO	Switches to the Vide content and retrieves the newest channel EPG.	

4.1.6. Video On Demand (Subscription Required)

The Video On Demand function allows the users to watch online Video streaming content. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, index, time, rating, artist, and cost information. If the selected channel requires payment the system will ask the users to confirm the selection.

Button	Function
Navigator-UP	Switches to the UP channel
Navigator-DOWN	Switches to the DOWN channel

Navigator-LEFT	Moves Left across Folder selection	
Navigator-RIGHT	Moves Right across Folder selection	
Channel-UP	Moves one page UP (one page has 6 channels)	(M10 Remote Control)
Channel-DOWN	Moves one page DOWN (one page has 6 channels)	(M10 Remote Control)
Navigator-OK	Selects and plays channel/file	(M10 Remote Control)
PLAY	Plays the selected channel/file in BUFFERED mode.	(M10 Remote Control)
STOP	Stops paying the selected channel/file	(M10 Remote Control)
FORWARD >>	Forwards the channel/file (if possible)	(M10 Remote Control)
BACKWARD <<	Backwards the channel/file (if possible)	(M10 Remote Control)
PAUSE	Pauses the playing of the channel/file	(M10 Remote Control)
DISPLAY	Switches On/Off Information display mode	(M10 Remote Control)
MUTE	Mutes the audio output	
VOLUME +/-	Increases/Decreases the volume	
FOLDR	Switches On/Off folder selection	(M10 Remote Control)
SAVE	Initiates channel/file recording (if configured)	(M10 Remote Control)
DEL	Switches On/Off Parental Lock. Requires password.	(M10 Remote Control)
MON	Switches between digital ZOOM modes. 1x, 2x, 4x	(M10 Remote Control)
BOOK	Makes the selected channel Favorite channel.	(M10 Remote Control)
HIST	Jumps to the last viewed channel.	(M10 Remote Control)
FLASH	Switches to the Setup Menu.	
VIDEO	Switches to the Vide content and retrieves the newest channel EPG.	

In some cases, the Video on Demand and Pay per View content will require payment and the subscribers will be prompted to confirm the payment prior to receiving the Video stream.

4.1.7. User Video

The User Video function allows the users to watch Video streaming content over Local Area Network (LAN). The device will scan for open shared directories and locate compatible file types (AVI, MP3) that can be played. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, file type and size information.

Button	Function	
Navigator-UP	Switches to the UP channel	
Navigator-DOWN	Switches to the DOWN channel	
Navigator-LEFT	Moves Left across Folder selection	
Navigator-RIGHT	Moves Right across Folder selection	
Channel-UP	Moves one page UP (one page has 6 channels)	(M10 Remote Control)
Channel-DOWN	Moves one page DOWN (one page has 6 channels)	(M10 Remote Control)
Navigator-OK	Selects and plays channel/file	
PLAY	Plays the selected channel/file	(M10 Remote Control)
STOP	Stops paying the selected channel/file	(M10 Remote Control)
FORWARD >>	Forwards the channel/file (if possible)	(M10 Remote Control)
BACKWARD <<	Backwards the channel/file (if possible)	(M10 Remote Control)
PAUSE	Pauses the playing of the channel/file	(M10 Remote Control)
MUTE	Mutes the audio output	
VOLUME +/-	Increases/Decreases the volume	
FOLDR	Switches On/Off folder selection	(M10 Remote Control)
FUNC	Switches to the Main menu	(M10 Remote Control)
SAVE	Initiates channel/file recording (if configured)	(M10 Remote Control)
DEL	Switches On/Off Parental Lock. Requires password.	(M10 Remote Control)
BOOK	Makes the selected channel Favorite channel.	(M10 Remote Control)

4.1.8. Audio Sub-Menu (Subscription Required)

Tornado M10/M20 supports advanced audio options to allow users to listen to Online Radio streams, Audio on Demand streams, and User provided content. It is necessary to be registered user with a subscription on an IPTV platform to access such services.

Upon selecting the Audio option from the main menu, a sub-menu is entered once the user presses the "Audio" button on the remote control for the Tornado M10 STB, or highlights and select the "Audio" option from the main menu display of the Tornado M20 phone. To return to the Main Menu the users must select the "Exit" option from the sub-menu.

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func or Menu	Switches to the upper menu – For M10 = "Func", For M20 = "Menu"

4.1.9. Online Radio (Subscription Required)

The Online Radio function allows the users to listen to online streaming Audio content. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, index, time, rating, artist, and cost information. If the selected channel requires payment the system will ask the users to confirm the selection.

Button	Function
Navigator-UP	Switches to the UP channel
Navigator-DOWN	Switches to the DOWN channel
Navigator-LEFT	Moves Left across Folder selection
Navigator-RIGHT	Moves Right across Folder selection
Channel-UP	Moves one page UP (one page has 6 channels)
Channel-DOWN	Moves one page DOWN (one page has 6 channels)
Navigator-OK	Selects and plays channel/file
PLAY	Plays the selected channel/file
STOP	Stops paying the selected channel/file
FORWARD >>	Forwards the channel/file (if possible)
BACKWARD <<	Backwards the channel/file (if possible)
PAUSE	Pauses the playing of the channel/file
MUTE	Mutes the audio output
VOLUME +/-	Increases/Decreases the volume
FOLDR	Switches On/Off folder selection
FUNC	Switches to the Main menu
SAVE	Initiates channel/file recording (if configured)
DEL	Switches On/Off Parental Lock. Requires password.
BOOK	Makes the selected channel Favorite channel.

4.1.10. Audio On Demand (Subscription Required)

The Audio On Demand function allows the users to listen to online streaming Audio content. Once selected the function will connect to the remote server and retrieve the data content. The system will display various

channel information including name, index, time, rating, artist, and cost information. If the selected channel requires payment the system will ask the users to confirm the selection.

Button	Function
Navigator-UP	Switches to the UP channel
Navigator-DOWN	Switches to the DOWN channel
Navigator-LEFT	Moves Left across Folder selection
Navigator-RIGHT	Moves Right across Folder selection
Channel-UP	Moves one page UP (one page has 6 channels)
Channel-DOWN	Moves one page DOWN (one page has 6 channels)
Navigator-OK	Selects and plays channel/file
PLAY	Plays the selected channel/file
STOP	Stops paying the selected channel/file
FORWARD >>	Forwards the channel/file (if possible)
BACKWARD <<	Backwards the channel/file (if possible)
PAUSE	Pauses the playing of the channel/file
MUTE	Mutes the audio output
VOLUME +/-	Increases/Decreases the volume
FOLDR	Switches On/Off folder selection
FUNC	Switches to the Main menu
SAVE	Initiates channel/file recording (if configured)
DEL	Switches On/Off Parental Lock. Requires password.
BOOK	Makes the selected channel Favorite channel.

4.1.11. User Audio

The User Audio function allows the users to listen to Audio streaming content over Local Area Network (LAN). The device will scan for open shared directories and locate compatible file types (mp3) that can be played. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, file type and size information.

Button	Function
Navigator-UP	Switches to the UP channel
Navigator-DOWN	Switches to the DOWN channel
Navigator-LEFT	Moves Left across Folder selection
Navigator-RIGHT	Moves Right across Folder selection
Channel-UP	Moves one page UP (one page has 6 channels)
Channel-DOWN	Moves one page DOWN (one page has 6 channels)
Navigator-OK	Selects and plays channel/file
PLAY	Plays the selected channel/file
STOP	Stops paying the selected channel/file
FORWARD >>	Forwards the channel/file (if possible)
BACKWARD <<	Backwards the channel/file (if possible)
PAUSE	Pauses the playing of the channel/file
MUTE	Mutes the audio output
VOLUME +/-	Increases/Decreases the volume
FOLDR	Switches On/Off folder selection
FUNC	Switches to the Main menu
SAVE	Initiates channel/file recording (if configured)
DEL	Switches On/Off Parental Lock. Requires password.
BOOK	Makes the selected channel Favorite channel.

4.1.12. Telephony Sub-Menu

Tornado M10/M20 supports advanced Telephony options to allow users to make Audio and Video calls, listen to Voicemail, or Send SMS messages (requires service activation). The sub-menu is entered after the users select the Telephony option from the main menu or once they press the "Phone" button of the remote control (Tornado M10) or press the "Speaker" button of the phone set (Tornado M20). To return to the Main Menu the users must select "Exit" from the sub-menu.

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func or Menu	Switches to the upper menu – For M10 = "Func", For M20 = "Menu"

4.1.13. Video/Audio Call (May Require Subscription)

The Video/Audio Call function allows the users to initiate and accept Audio and Video calls. The device supports up to 4 active calls and allows advanced Centrex/PBX functions such as Call on Hold, Call Transfer, Call Forwarding, Conference Calling, Message Wait Indicator, Voicemail, and other.

The function allows the users to interactively manage all inbound and outbound phone calls. The system will display various telephony channel information including Caller ID, Caller Name, Call State (such as Ringing (R:), Talking (T:), Call On Hold (H:), Voicemail (M:), Calling Card IVR (I:), Virtual Office Auto Attendant (O:)) information. The device also allows easy access to other common functions such as Ringer control, Voicemail access, Message Wait Indicator management, Call History management, Do-Not-Disturb management, and Phone Book management.

Button	Function
Navigator-UP	Switches to the UP phone line.
Navigator-DOWN	Switches to the DOWN phone line.
Navigator-Left	Moves Left across Function selection.
Navigator-Right	Moves Right across Function selection.
Navigator-OK	Opens the phone line and dials the number. If there is no entered number, switches to the Phone Book.
0-9 Buttons	Enters the digits of the phone number.
Display/DISP	Switches On/Off Information display mode. In Video Conference mode allows digital Zoom 1x, 2x, and 4x.
Video/MON	Initiates a Video call. The number should be dialed in advance. Video calls can not be initiated after the phone line is picked up. To switch from Video to Voice call, press the button again. To drop the call, press the Speaker/Phone button.

Speaker/PHONE	Initiates a Voice call. If the number is not dialed in advance will play a dial tone. To drop the call, press the button again. Voice calls can not be switched to Video unless they have been initiated as Video calls with the Video/Mon button.
Mute	Mutes the audio input.
Volume +/UP	Increases the volume
Volume -/DOWN	Decreases the volume
CONF	Places all phone lines in a conference mode
FLASH	Puts the current line on Hold and opens the next phone line. Used to switch between lines.
BOOK	Opens the phone book to allow number selection.
DEL/DELETE	Drops the selected phone line.
Func/Menu	Switches to the upper menu.

Call State Indicator	Description
R	The line is ringing.
T	The line is in active call. Subscribers are talking.
H	The line is on hold. To pick up the call, select the line and press "OK".
M	The line is in Voicemail IVR auto attendant. To pick up the call, select the line and press "OK".
I	The line is in Calling Card IVR auto attendant. To pick up the call, select the line and press "OK".
0	The line is in Virtual Office IVR auto attendant. To pick up the call, select the line and press "OK".
RV	There is in incoming Video call. To accept the call the subscriber must press Video or MON.

4.1.14. History and Media History Service

The History Screen function allows the users to check on all passed call events. The device displays all Missed, Dialed, Received calls as well as the full History of all Viewed Media channels. The History function is directly interfaced with the Phone Book function to allow easy storage for all numbers that the user need to access. The History information is reset upon rebooting or restarting the device.

Button	Function
Navigator-UP	Switches to the UP record.
Navigator-DOWN	Switches to the DOWN record.
Navigator-Left	Moves Left across Function TAB selection.
Navigator-Right	Moves Right across Function TAB selection.
Navigator-OK	Opens the record to allow Phone Book entry.
DEL	Deletes a single entry or all entries from the list.
SAVE	Saves the entry to the Phone Book.
Func or Menu	Switches to the upper menu.

4.1.15. Voicemail Service

The Voicemail function allows the users to check on all received voicemails. The device displays all voicemail time and caller id information. The users can listen directly to their voicemails utilizing the TV and the remote control or access the Voicemail function via the phone IVR. The Voicemail information is not reset upon rebooting or restarting the device.

To enter the Voicemail function, the subscriber must first input a valid Voicemail password.

Button	Function
Navigator-UP	Switches to the UP Voicemail and plays it.
Navigator-DOWN	Switches to the DOWN Voicemail and plays it.
Navigator-OK	Plays the Voicemail message.
DEL	Deletes a single entry or all entries from the list.
Func or Menu	Switches to the upper menu.

4.1.16. SMS Sending (Subscription Required)

The SMS sending function allows the users to send SMS messages using their TV and remote control. In order to send SMS messages, the users must enter The SMS number and the SMS text. Once submitted for processing the SMS message can not re stopped or delayed. The maximum length of the SMS message is 255 characters.
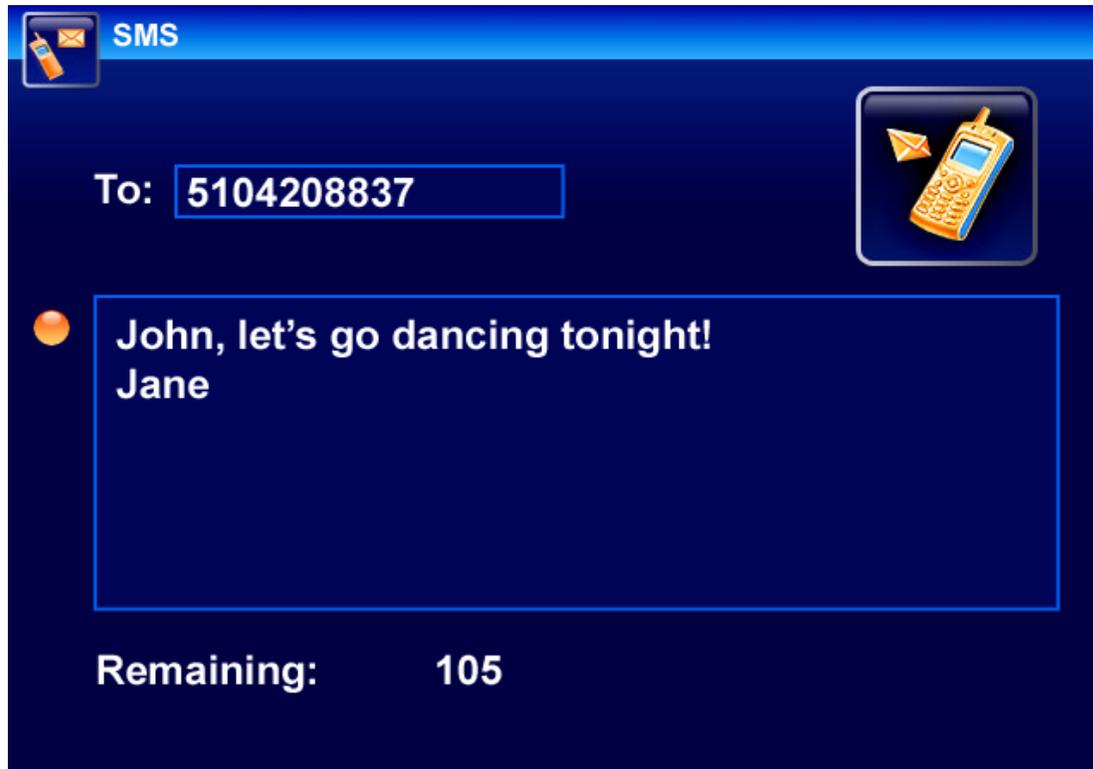
Button	Function
Navigator-UP	Switches to the UP "To:" entry.
Navigator-DOWN	Switches to the DOWN "Text:" entry.
Navigator-Left	Deletes one character to the left.
Navigator-OK	Sends the SMS message.
0-9 Buttons	Enters the alpha numeric digits of the message. To enter alpha characters, please press multiple times the 0-9 buttons. For example, to enter "A" press the "2" twice.
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the message.

4.1.17. Information Sub-Menu (Subscription Required)

Tornado M10/M20 supports advanced Information options to allow users to receive valuable online information such as Weather, Currency Exchange, News, and Stock Quotes information. The sub-menu is entered after the users select the Information option from the main menu. To return to the Main Menu the users must select "Exit" from the sub-menu.

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func or Menu	Switches to the upper menu.

4.1.18. Weather Service (Subscription Required)

The Weather function allows the users to receive the most current weather conditions in their area and check on future weather conditions. The Weather information is refreshed once every 30 minutes but its accuracy depends on the proper user localization and the data feed associated with the service. This is informational service only.

Button	Function
Func or Menu	Switches to the upper menu.

4.1.19. Currency Exchange Service (Subscription Required)

The Currency Exchange function allows the users to receive the most current currency exchange information. The currency exchange requires refresh and is updated every 30 minutes. Its accuracy is not guaranteed. This is informational service only.

CURRENCY

Exchange Rate:

1 GBP =   1.4652 EUR

Convert From:

| 1236.52 | GBP = | 1811.7491 | EUR |

	USD	EUR	GBP	CAD	AUD	CHF	JPY
USD	1.0000	1.1920	1.7466	0.8790	0.7453	0.7628	0.0086
EUR	0.8388	1.0000	1.4652	0.7374	0.6253	0.6399	0.0072
GBP	0.5725	0.6824	1.0000	0.5032	0.4267	0.4367	0.0049
CAD	1.1375	1.3560	1.9869	1.0000	0.8479	0.8678	0.0097
AUD	1.3415	1.5992	2.3433	1.1793	1.0000	1.0234	0.0115
CHF	1.3108	1.5626	2.2895	1.1522	0.9770	1.0000	0.0112
JPY	116.22	138.55	203.01	102.17	86.639	88.671	1.0000

11:28AM, Fri 3-Mar-2006

Button	Function
Navigator-UP	Switches to the UP selection.
Navigator-DOWN	Switches to the DOWN selection.
Navigator-Left	Switches to the LEFT selection.
Navigator-RIGHT	Switches to the RIGHT selection.
Navigator-OK	Calculates the currency exchange result.
0-9 Buttons	Enters the numeric digits of the money entry that needs to be converted. Once done press "OK" to convert into the selected currency.
Func or Menu	Switches to the upper menu without sending the message.

4.1.20. News Service (Subscription Required)

The News function allows the users to receive the most current news information. The news information requires refresh and is updated every 30 minutes. The information accuracy is not guaranteed. This is informational service only.
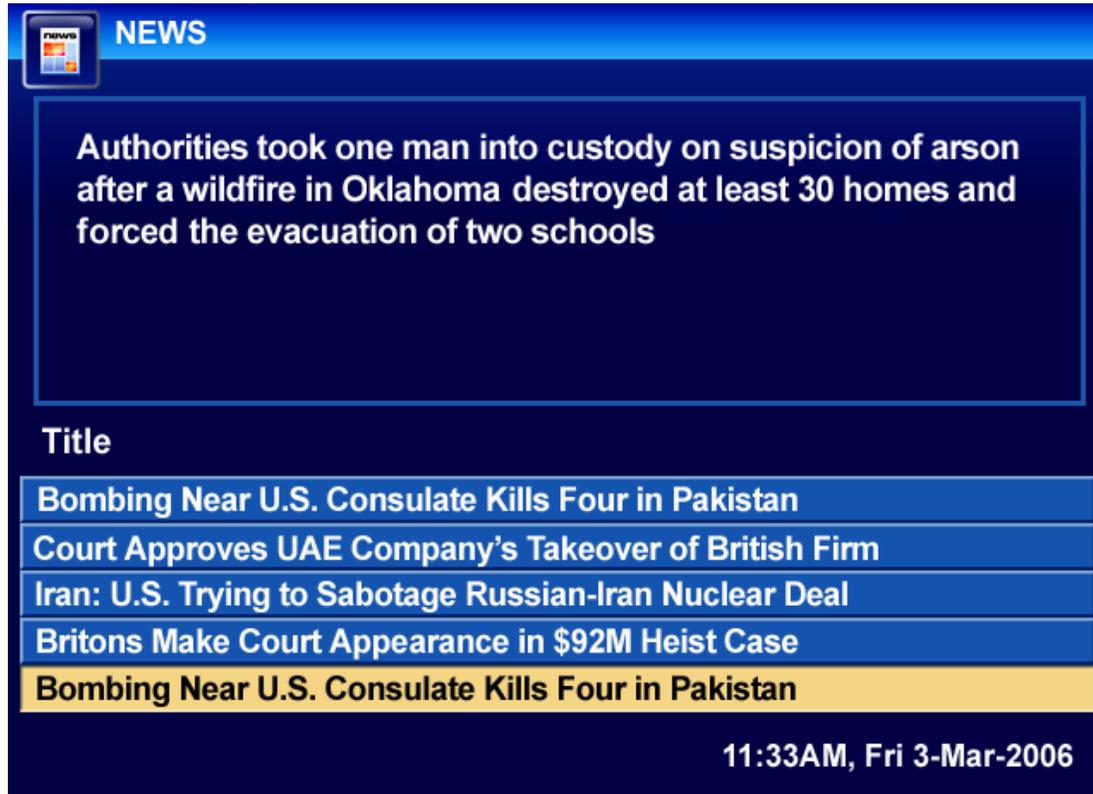
Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func or Menu	Switches to the upper menu.

4.1.21. Stock Quote Service (Subscription Required)

The Stock Quote function allows the users to receive the most current stock quote information. The stock quote information requires refresh and is updated every 30 minutes. The information accuracy is not guaranteed. This is informational service only.

Button	Function
Navigator-Left	Deletes one character to the left.
Navigator-OK	Submits the Stock Quote request.
0-9 Buttons	Enters the alpha numeric digits of the Index of the Stock. To enter alpha characters, please press multiple times the 0-9 buttons. For example, to enter "A" press the "2" twice.
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the quote request.

4.1.22. Lucky Numbers Service (Subscription Required)

The Lucky Numbers function allows the users to receive predictions about their daily lucky numbers. The information accuracy is not guaranteed. This is informational service only.

4.1.23. Hotel Management Service (Subscription Required)

The Hotel Management function allows the users to receive information about their hotel account and accommodations. The service also allows ordering of selected hotel services and receiving hotel messages. This function is available only in selected devices. This is informational service only.

4.1.24. Communication Sub-Menu (Subscription Required)

Tornado M10/M20 supports advanced Communication options to allow users to communicate online via
Email, Phone and Chat/Messenger. In addition, the users have direct access to remote desktop computers
via the Virtual Terminal support to allow them to telecommute or work remotely (requires software
installation on the remote desktop).

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func/Menu	Switches to the upper menu.

4.1.25. Email Service (Subscription Required)

The Email function allows the users to receive and send emails. The service requires a valid external email server that is configured via the Web interface. The device retrieves emails upon startup and requires refresh to retrieve new emails. This is informational service only.
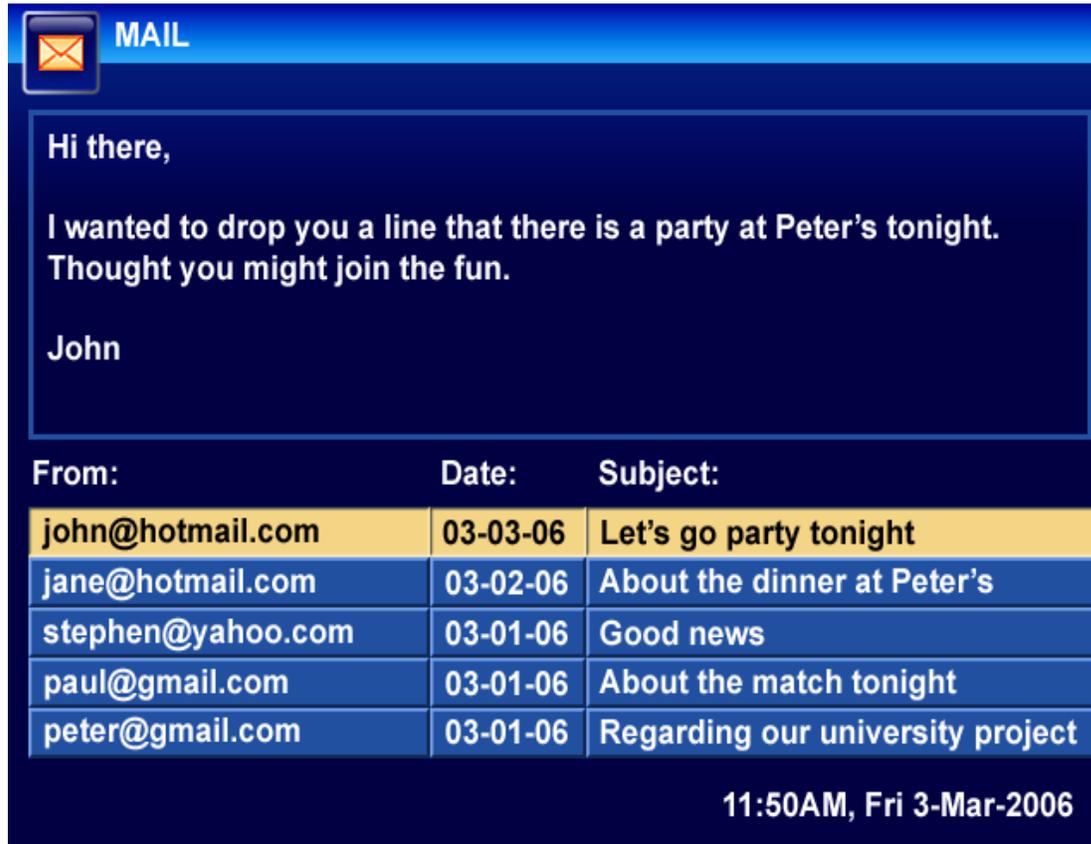
Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func/Menu	Switches to the upper menu.

4.1.26. Chat/Messenger Service (Subscription Required)

The Chat/Messenger function allows the users to receive and send chat messages. The service requires a valid external chat server that is configured via the Web interface. The device retrieves messages upon startup and keeps track of all incoming messages once initialized.

Button	Function
Navigator-UP	Switches to the UP contact.
Navigator-DOWN	Switches to the DOWN contact.
Navigator-Left	Deletes one character to the left.
Navigator-OK	Sends the Chat message.
0-9 Buttons	Enters the alpha numeric digits of the message. To enter alpha characters, please press multiple times the 0-9 buttons. For example, to enter "A" press the "2" twice.
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the message.

4.1.27. Phone Book Service

The Phone Book function allows the users to keep track of their phone contact information. There is no practical limit on the number of contacts into the Phone book. The phone is interfaced with the Telephony function. Once a Phone Book entry is selected the subscribers can press "OK" to initiate a phone call to the listed destination. The function does not allow direct editing of the Phone book entries. All direct editing is done via the Web interface.

Button	Function
Navigator-UP	Switches to the UP data entry.
Navigator-DOWN	Switches to the DOWN data entry.
Navigator-LEFT	Switches between the data types within one data entry.
Navigator-RIGHT	Switches between the data types within one data entry.
Navigator-OK	Enters the selected function.
DEL	Deletes the Phone Book entry.
Func or Menu	Switches to the upper menu.

4.1.28. Virtual Network Console (VNC) Service

The VNC function allows the users to connect to remote computers and desktops in a desktop sharing fashion. The function is commonly used to allow telecommuters to work from remote locations or people to access their remote computers as if they were sitting at the console of the remote computer. The function requires valid VNC software to run on the remote computer. To set it up the subscribers must use the Web interface. The service requires also a compatible Infra Red keyboard and a mouse.

Button	Function
Navigator-OK	Sends the VNC password.
0-9 Buttons	Enters the numeric digits of the password. Once done, press "OK".
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the message.

4.1.29. Web Browser Service (Subscription Required)

The Web Browser function allows the users to browse the Internet with a graphical web browser. The service requires that the users have a USB drive plugged into their device. In addition, the users must have Digital Media Center software installed on their desktop computer. The service requires also a compatible Infra Red keyboard and a mouse.

When the service is run for the first time, a dialog shows up indicating that the Tornado device loading the browser into the USB stick for smoother operation. This is a one time operation upon initial use of a USB stick together with the web service. Every subsequent launch of the web service will be much faster as it will use the stored information on your USB.

Using a compatible infrared keyboard and mouse, you can use the Tornado device as a general purpose web browser.
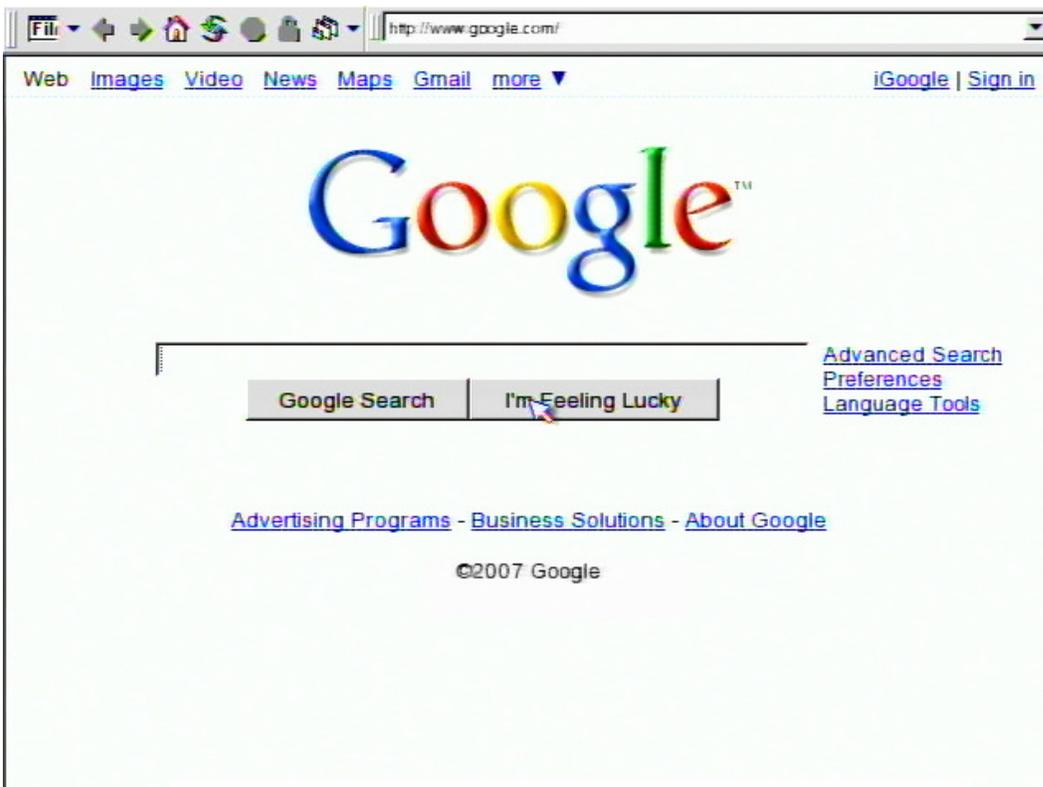
4.1.30. Services Sub-Menu (Subscription Required)

Tornado M10/M20 supports advanced Services options to allow users to have direct access to convenient services such as Calculator, Alarm Clock, Wake-up Call, Program Schedule, Setup and Search Functions. The sub-menu is entered after the users select the Services option from the main menu. To return to the Main Menu the users must select "Exit" from the sub-menu.

Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-OK	Enters the selected function.
Func or Menu	Switches to the upper menu.

4.1.31. Program Scheduler Service

The Program Scheduler function allows the users to schedule different Video and Audio programs to start at a specified time. The service will switch to the selected program once the scheduled time is reached.

Button	Function
Navigator-UP	Switches to the UP channel entry.
Navigator-DOWN	Switches to the DOWN channel entry.
Navigator-LEFT	Navigates between data entries. . Must select the data entry by pressing "OK" prior to changing it. Once selected the button allows changes to the selected data entry.
Navigator-RIGHT	Navigates between data entries. . Must select the data entry by pressing "OK" prior to changing it. Once selected the button allows changes to the selected data entry.
Navigator-OK	Selects data entry for editing. Press the button again after changing the entry to commit the change.
DEL	Deletes the selected channel entry from schedule.
Func or Menu	Switches to the upper menu.

4.1.32. Calculator Service

The Calculator function allows the users to perform different types of mathematical functions.
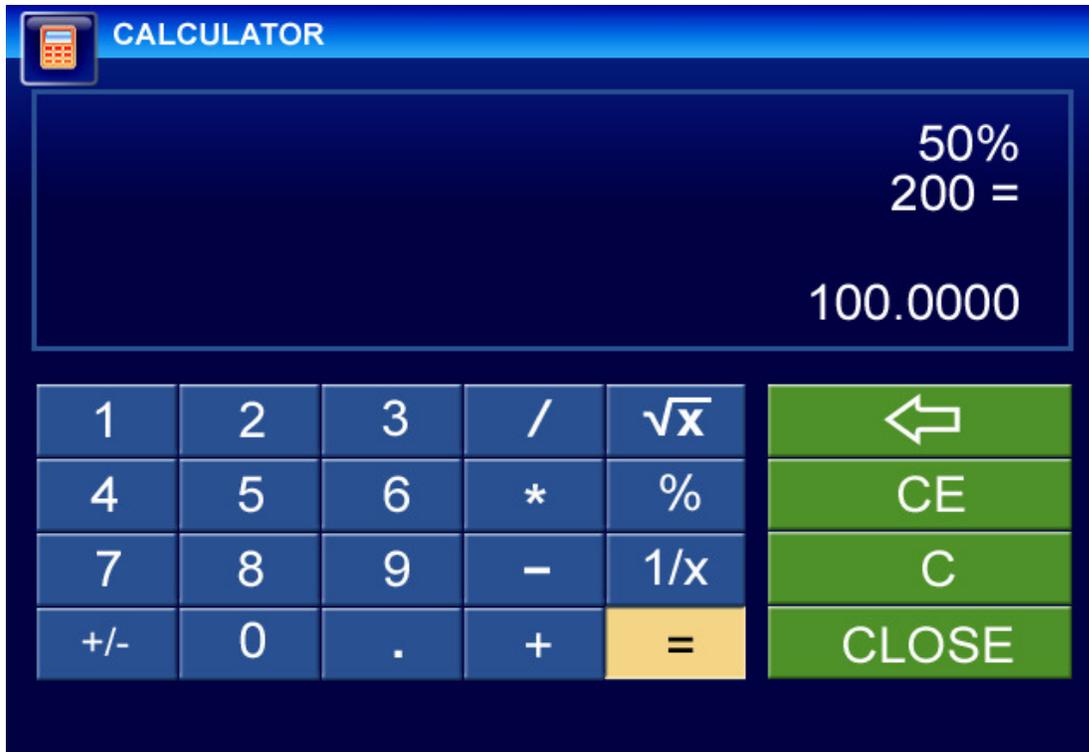
Button	Function
Navigator-UP	Switches to the UP function.
Navigator-DOWN	Switches to the DOWN function.
Navigator-Left	Switches to the LEFT function.
Navigator-Right	Switches to the RIGHT function.
Navigator-OK	Executes the mathematical function.
0-9 Buttons	Enters the numeric digits of the number.
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the message.

4.1.33. Alarm

The Alarm function allows the users to schedule alarms. The service will trigger an alarm (initiate Ringing Alarm) via the TV set or via the Phone once the scheduled time is reached.

Button	Function
Navigator-UP	Switches to the UP alarm entry.
Navigator-DOWN	Switches to the DOWN alarm entry.
Navigator-LEFT	Navigates between data entries. . Must select the data entry by pressing "OK" prior to changing it. Once selected the button allows changes to the selected data entry.
Navigator-RIGHT	Navigates between data entries. . Must select the data entry by pressing "OK" prior to changing it. Once selected the button allows changes to the selected data entry.
Navigator-OK	Selects data entry for editing. Press the button again after changing the entry to commit the change.
DEL	Deletes the selected alarm entry from schedule.
Func or Menu	Switches to the upper menu.

4.1.34. Wake-Up Call

The Wake-Up function allows the users to schedule wake-up calls to remote numbers. The service will trigger a wake-up call with IVR function to a predefined number once the scheduled time is reached. The wake-up call termination requires remote user interaction via the IVR functionality.

Button	Function
Navigator-UP	Switches to the UP wake-up call entry.
Navigator-DOWN	Switches to the DOWN wake-up call entry.
Navigator-LEFT	Navigates between data entries. . Must select the data entry by pressing "OK" prior to changing it. Once selected the button allows changes to the selected data entry.
Navigator-RIGHT	Navigates between data entries. . Must select the data entry by pressing "OK" prior to changing it. Once selected the button allows changes to the selected data entry.
Navigator-OK	Selects data entry for editing. Press the button again after changing the entry to commit the change.
DEL	Deletes the selected wake-up call entry from schedule.
Func or Menu	Switches to the upper menu.

4.1.35. Setup Service

The Setup function allows the users to setup basic system parameters. The setup parameters include network, authentication, balance, and other parameters. Not all configuration parameters are accessible via this function. If the users need to configure other parameters they can use the Administrative Web Interface.
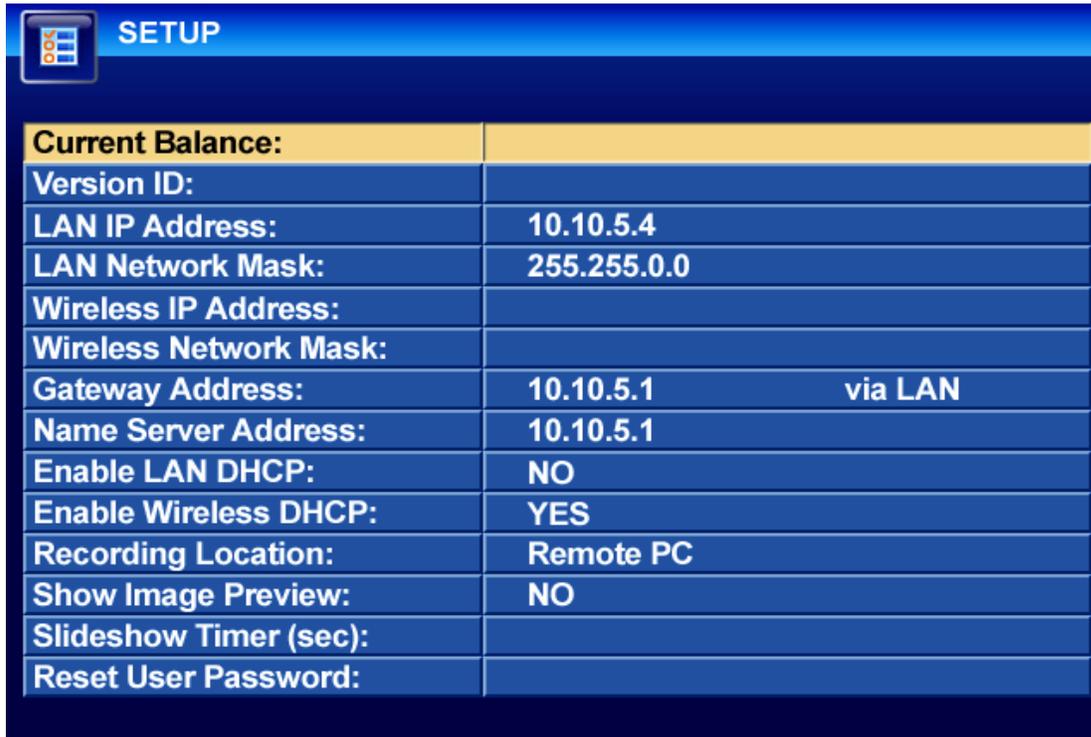
SETUP	
Current Balance:	
Version ID:	
LAN IP Address:	10.10.5.4
LAN Network Mask:	255.255.0.0
Wireless IP Address:	
Wireless Network Mask:	
Gateway Address:	10.10.5.1 via LAN
Name Server Address:	10.10.5.1
Enable LAN DHCP:	NO
Enable Wireless DHCP:	YES
Recording Location:	Remote PC
Show Image Preview:	NO
Slideshow Timer (sec):	
Reset User Password:	

Button	Function
Navigator-UP	Switches to the UP data entry.
Navigator-DOWN	Switches to the DOWN data entry.
Navigator-Left	Deletes one character to the left. Also used to scroll between available data entry options.
Navigator-OK	Saves the data entry.
0-9 Buttons	Enters the numeric digits of the setup entry. To enter "." Press "*".
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the message.

4.1.36. Search Service

The Search function allows the users to search the complete media content accessible by the device. The search will find and sort Video, Audio, Picture, and User content utilizing substring match functions. To switch between different content types the users must select the desired folder type.

Button	Function
Navigator-UP	Switches to the UP data entry.
Navigator-DOWN	Switches to the DOWN data entry.
Navigator-Left	Deletes one character to the left. Also used to scroll between available data entry options.
Navigator-OK	Saves the data entry.
0-9 Buttons	Enters the alpha numeric digits of the search entry. To enter alpha characters, please press multiple times the 0-9 buttons. For example, to enter "A" press the "2" twice.
DEL	Deletes a single character to the left.
Func or Menu	Switches to the upper menu without sending the message.

4.2. Placing and Answering Device Calls

4.2.1. Handset, Speaker Phone and Handset Mode

Handset can be put Off Hook by picking up the Handset or pressing the Speaker button. To Switch between Handset and Speaker, simply press the Hook Flash in the Handset cradle.

4.2.2. Multiple SIP Lines

TORNADO M10/M20 can support up to 4 independent SIP lines. Each line is capable of supporting an independent SIP call leg and with fully functional NAT traversal features. TORNADO M10/M20 supports up to 4 concurrent audio channels in SIP mode and 1 channel in local mode – all channels can be used concurrently and put together in a Conference. Each TORNADO M10/M20 Device can support up to 1000 Speed Dial Numbers.

TORNADO M10/M20 utilizes multiple SIP lines to provide advanced features such as call transfer, call forwarding, 3-way calling, and conference calling.

For all outbound calls, TORNADO M10/M20 utilizes one of the available 4 lines lines. The device sends out CallerID, and Caller Name, as well as all authentication information such as SIP Password to the server that will act as a SIP Proxy or Outbound SIP Proxy. The second device line can be used for making outbound calls as well as receiving inbound calls.

For all inbound calls, TORNADO M10/M20 will use one of the available SIP lines to receive the incoming SIP call. The device will display Caller Name and CallerID information (if available) on the LCD/TV screen. If the device is in a call and another call is received, the Call Waiting indicator will notify the user that another call is coming so that the second call can be processed. At that time the user can either drop the first call and pick up the second call, or put the first call on hold, and pick up the second call. If both calls are active the user can put these calls in a conference call.

A line is defined as "ACTIVE" when it is making or receiving a call including lines that are placed On Hold.

4.2.3. Placing Calls

There are multiple ways to make calls:
1. Regular Dial: Pick up the Handset or Press the Speaker button.
2. Phone Book On-Hook Dial: Select Phone Book Feature or Call History Feature (using UP/DOWN/OK buttons). Select the phone number of the person you wish to call. Pick up the Handset or Press the Speaker button or Press OK button.
3. Phone Book Off-Hook Dial: Pick up the Handset or Press the Speaker button. Select Phone Book Feature or Call History Feature (using UP/DOWN/OK buttons). Select the phone number of the person you wish to call. Press OK.
4. Re-Dial: Pick up the Handset or Press the Speaker button. Press REDIAL.

5. Speed Dial: Pick up the Handset or Press the Speaker button. Enter the Speed Dial index of the number (0-999). Press OK.

4.2.4. Placing Calls using IP Address

Direct IP calling allows two devices to talk to each other in an ad hoc fashion without a SIP proxy. VoIP calls can be made between two devices if:

- Both devices have public IP addresses, or
- Both devices are on a same LAN using private or public IP addresses, or
- Both devices can be connected through a router using public or private IP addresses.
- Both devices are Registered into Proxy that allows NAT traversal

Direct IP calling is supported by the Phone Book functionality. To complete a direct IP dialing first open the Phone Book by pressing UU/DOWN (while On-Hook). Then select the Phone Book entry that you want to dial, and then the IP address of this entry. Press OK, once the IP address entry is selected. IP Address entry part of the Phone Book can be modified via Web or LCD/TV terminal. By pressing the buttons from 0-9,#,* you can switch between characters in a manner similar to mobile devices. All alpha-numeric characters are supported.

4.2.5. Answering Incoming Calls

There are two states when TORNADO M10/M20 receives a call:

1. When receiving an initial call. Besides ringing with selected Ring Tone, the LED will Sequentially flash in red or there will be a message on the device display, taking Handset/SPEAKER/Handset off hook will enable user to hear the calling party in the SPEAKER/Handset. The Caller Name and the Caller ID will appear on the LCD/TV (if available).

2. When receiving second or more incoming calls, besides playing stutter Call Waiting tone, the LED will Sequentially flash in red, and the user will have an option to either drop the first line to pick up the second line or to put the first line on hold and pick up the second line. The Caller Name and the Caller ID will appear on the LCD (if available).

4.2.6. Call Hold

While in conversation, pressing the "FLASH" button will put the calling party on hold. User can resume the conversation by pressing the FLASH button again. Pressing the FLASH button will produce a dial tone and the user will be able to dial a number thus creating a second call.

4.2.7. Call Waiting and Switching between Calls

TORNADO M10/M20 can support up to 4 SIP Lines, thus, user can put an active call on Hold and automatically switch to another line for making an outbound call or answering an incoming call. When receiving second incoming calls, besides playing a stutter Call Waiting tone, the LED will flash in red, and the user will have an option to either drop the first line to pick up the second line or to put the first line on hold and pick up the second line. The Caller Name and the Caller ID will appear on the LCD/TV display (if available).

4.2.8. Call Transfer

TORNADO M10/M20 supports both BLIND and ATTENDED Transfer:
1. Blind Transfer Sequence:
    a. The user has an active call.
    b. The user puts the active call on hold by pressing FLASH or selecting another line and pressing OK.
    c. The user makes a second outbound call.
    d. The user hears the remote party ringing.
    e. The user presses TRANSFER. The Blind Transfer is complete.

2. Attended Transfer Sequence:
    a. The user has an active call.
    b. The user puts the active call on hold by pressing FLASH or selecting another line and pressing OK.
    c. The user makes a second outbound call.
    d. The user hears the remote party ringing.
    e. The remote party answers the call
    f. The user acknowledges that the remote party wants to accept the call transfer.
    g. The user presses TRANSFER. The Attended Transfer is complete.

Note:
Call Transfer does not depend on SIP Proxy protocol support. The SIP transfer utilizes 2 SIP channels on the device to allow flexibility in transfer implementation. TORNADO M10/M20 can achieve transfer even is simple SIP implementations that utilize simple SIP Proxy support.

4.2.9 3-Way Calling/Conference Call

TORNADO M10/M20 supports 3-way Calling/Conference Call:
3. 3-way/Conference Call Sequence:
    a. The user has an active call.
    b. The user puts the active call on hold by pressing FLASH or selecting another line and pressing OK.
    c. The user makes a second outbound call.
    d. The user hears the remote party ringing.
    e. The user presses CONFERENCE. The Conference Call is complete.
    f. Once the administrator hangs up the call is dropped.

Note:
Conference/3-way Calling does not depend on SIP Proxy protocol support. The SIP conference calling utilizes 4 SIP channels on the device to allow flexibility in conference implementation. TORNADO M10/M20 can achieve conference calling even is simple SIP implementations that utilize simple SIP Proxy support.

4.2.10 Voicemail and Message Waiting Indication

When TORNADO M10/M20 is on-hook, pressing the SPEAKER button will display Enter Voicemail functionality. Press OK to enter the Voicemail service. The Voicemail service supports IVR interaction to allow easy management of Voicemail messages via Web and Device. TORNADO M10/M20 supports built-in Voicemail Server that can store up to 200 messages and allows advanced Unified Voicemail Support such as Voicemail-to-Email and Email Notification. Web Voicemail management and download.
To turn Off and On (toggle) the MWI (Message Waiting Indicator) select MWI On/Off option and press OK. The LED will flash according to the MWI state. To turn Off and On (toggle) the Voicemail functionality select Voicemail On/OF, and press OK.

4.2.11 Mute and Delete

When in active call, press MUTE to mute your end of the voice line. Mute will allow you to talk without the remote party hearing you.

4.2.12 Speed Dial

TORNADO M10/M20 supports 1000 speed dial combinations. The Speed Dial requires Phone Book Speed Dial Index. The Speed Dial can be managed via Phone Book functionality to allow easy Speed Dial number allocation. To access the Speed Dial function, the user must put the device Off-Hook, select the Speed Dial Index and press OK. This will dial the number or the IP address associated with the Speed Dial Index.

4.3. Voicemail Features

TORNADO M10/M20 supports advanced Voicemail functionality that allows the device to function as a stand-alone Voicemail server. All Voicemail features are configured via the Web interface. The following table shows the main Voicemail features:

Feature	Description
Voicemail-to-Email	Automatic forwarding of received Voicemail messages to the user's email address.
Voicemail Notification	Automatic notification via email for received voicemail messages.
Custom Greeting	Custom greeting that the user can record and manage via the device, from a remote device, or upload via Web.
Custom IVR Menu	Custom Voicemail server IVR menu that can be managed via Web to allow multi-lingual file uploading and management. Users can download their own Voicemail IVR menu files.
Device IVR Management	Callers are guided through the IVR menus to allow them to leave and administer messages.
Web Voicemail Management	Web management allows easy configuration of voicemail parameters and IVR behavior.
Web Voicemail Message Download and Administration	Web Voicemail Download and Administration is supported to allow easy voicemail retrieval from remote computers. Users can log in from any place in the world to check their voicemail messages. In addition, every message displays the Caller Name and the Caller ID

	of the caller as well as the duration and the time of the message.
Over the Device Voicemail Management	Users can log in over the device and administer their voicemail messages using the Voicemail IVR system.
Support for over 80 Voicemail Messages	The device can support over 80 voicemail messages based on message duration and size quota. The large number of supported messages allows advanced business use.
Voicemail Call Forwarding	All inbound calls can be automatically forwarded to an external number if configured. This allows users to forward call from the device to their mobile or GSM number for added mobility options. The function does not require specialized external IP Centrex or PBX servers
Message Wait Indicator	The device will initiate a MWI (Message Wait Indicator) once there is a new message via LED blinking and SIP protocol. The device will notify central SIP servers about the message for easy integration with third-party PBX systems.

4.4. Call Features

TORNADO M10/M20 series device supports a list of call features: Call Forwarding, Call Waiting, Caller ID, Caller ID on Call Waiting. Caller ID Block, Disable/Enable Call Waiting, Call Forward, Call Transfer, 3-Way Calling, Conference Calling, etc.

Following table shows the some of the directly accessible call features of TORNADO M10/M20 series device. The other features are accessed via Function Buttons or via LCD/Web menu interfaces.

Key	Call Features
*0#	Redial the last dialed number
*69	Dial the last number that has called the user (call return)
*70	Disable Call Waiting Function (for a single call). Users can enabled and disable call waiting permanently via the Web or LCD interface.
*71	Enable Call Waiting (for a single call). Users can enabled and disable call waiting permanently via the Web or LCD interface
*72XXXXXX	Enable Call Forward and set the forwarding number to XXXXXX.
*73	Disable Call Forward.
*1#	Access Voicemail management menu

5. Configuration Guide

5.1. Configuration with Web Browser

TORNADO M10/M20 series Digital Media Center has an embedded Web server that will respond to HTTP GET/POST requests. It also has embedded HTML pages that allow a user to configure the Digital Media Center through a Web browser such as Microsoft Internet Explorer or Netscape or Mozilla.

5.1.1. Access the Web Configuration Menu

The Digital Media Center Web Configuration Menu can be accessed by the following URI: http://ip-of-the-device
where the Device-IP-Address is the IP address of the device. The default IP address of the device is: http://192.168.0.10. To retrieve the IP address of the device, enter the Graphical menu and select Setup:

5.1.2. User Login Dialog

Once this HTTP request is entered and sent from a Web browser, the TORNADO M10/M20 will respond with the following login screen:

The password is case insensitive with maximum length of 25 characters and the factory default password for "user" is "54321". The default login and password for administrators is "admin" and "12345".

5.1.3. Start Menu
To enter the all configuration options after you log in press the START menu and select Navigator.

5.1.4. System Information Dialog

Upon successful authentication the system will display the following System Information screen. Click on the left end of the line to open the System Information screen.

The System Information is used for information purposes only and does not allow direct data entry. The table below explains the data parameters of the form.

IP Address	This is the IP Address of the device
MAC Address	This is the MAC address of the device.
DNS Server	This is the IP of the DNS server.
Proxy IP	This is the IP Address or the Domain Name of the SIP proxy server
CallerID	This is the Caller ID of the device. This number represents the device number of the device.
Device Status	This is the status of the device. There are two options for this parameter. Not Registered and Registered according to the SIP Registration status. Usually the device requires registration before making calls if its bind to a service provider.

Device Name	This is the system name of the device.
Firmware version	This is the firmware version currently installed on the device.
Configuration Version	This is the configuration version of the device. The version is only updated upon remote configuration via the auto provisioning functionality.
User Role	This is the role of the currently logged user. There are two roles that are supported: "user" and "admin". The "admin" account can modify every device parameter, while the "user" account can only modify small set of parameters to allow the normal device operation.
Current Time	Shows the current time.
Uptime	Shows the time since the last reboot.

To go to the screens that allow actual data entry the user must use the left navigation menu. Once clicked the option opens the appropriate right dialog that allows data entry. All user sessions will be timed out after 10 minutes inactivity to allow high level of security. The "user" and the "admin" views of the system are different so if one user logs in using the "admin" account, he/she will see much different data dialogs. These data dialogs are explained in detail below.

Note:
This manual contains web settings operational guidelines for both Admin and User roles. If logged with the User account, you will notice some sections of the menu or parts of dialog boxes are missing, this is because the User privileges are limited to partial access.

5.1.5. System Configuration Dialog

Edit   ✕

System Configuration

Admin Login:	admin
Admin Password:	12345
User Login:	user
User Password:	54321
IP Via:	DHCP ▼
HTTP Server Port:	
Use NAT:	☐
Use Remote Config:	☐
Remote Config Server:	
Debug Server IP:	
Debug Server Port:	
NTP Server:	ntp.ucsd.edu
Ring Volume:	LOW ▼
Phone In Volume:	5 ▼
Phone Out Volume:	5 ▼
Device Speaker Volume:	25 ▼
Device Microphone Volume:	25 ▼
Country:	USA ▼
Language:	English ▼
Daylight Saving:	☐
Time Zone:	GMT-8 ▼

Camera Settings

Auto Control:	☐
Brightnes:	160 ▼
Auto Exposure Control:	☑
Auto Sensitivity Control:	☑
Saturation:	6 ▼
Hue:	16 ▼
Auto WhiteBalance:	☐
Blue Sensitivity:	100 ▼
Red Sensitivity:	100 ▼

Apply   **Reset**   **Cancel**   **Help**

The dialog allows the device administrator to setup the basic system parameters. Some of the parameters will not be displayed if the user has logged in as "user" account. After entering the data the user must press SAVE to permanently commit it. No reboot is necessary for the data to take effect.

Admin Login	This is the custom login for the "admin" account. Users must keep this login a secret to avoid unauthorized access. If this device is bind to a service provider usually this login will not be disclosed to the device users and the device will be locked for administrative access.
Admin Password	This is the password for the "admin" account. Users must keep this password a secret to avoid unauthorized access.
User Login	This is the custom login for the "user" account. Users must keep this login a secret to avoid unauthorized access. If this device is bind to a service provider usually this login will available to allow users to perform basic administrative functions to the device.
User Password	This is the password for the "user" account. Users must keep this password a secret to avoid unauthorized access.
Default Interface	This is the default network interface that will be selected. If the device does not have a Wireless interface then this interface will be setup to "eth0". If the device has a Wireless device that is used to connect to the Internet then this interface should be set to 'wireless". If the device has a wireless interface but still uses its Ethernet cable to connect then the selection should be "eth0".
IP Via	The selection allows DHCP or Static IP assignment to the Ethernet interface of the device. If DHCP is selected the device will acquire its IP address dynamically.
Static IP	This is the static IP Address of the device. This IP address will be ignored in the DHCP Server selection is enabled. The Static IP address will still be saved in the memory.
NetMask	This is the Network Mask for the Static IP address. The default value is: 255.255.255.0. This network mask will be ignored in the DHCP Server selection is enabled.
Uplink Gateway	This is the IP address of the Uplink Gateway required to connect the device to the outside network (Internet). Usually this is the IP address of the Home router or the Business NAT Firewall. This IP address will be ignored in the DHCP Server selection is enabled.
DNS Server	This is the IP address of the DNS server. The DNS IP address will be ignored in the DHCP Server selection is enabled.
Use NAT	This option allows the device to function as a NAT router for clients to connect to the Internet. If enabled, clients can connect to the device using ether its LAN or wireless interface and use the device as a default router.
Use Remote Config	This option enabled the automated remote provisioning of the device. Once configured, the device will try to retrieve its configuration form the selected remote location in the Remote Config URL field. This option should be enabled if this device is bind to a service provider.
Remote Config Server	This field is used to store the location of the remote configuration script for the device. If this device is bind to a service provider this filed should point to the URL of the provisioning agent or program. The device will automatically insert Version and MAC information into the target URL.
Debug Server IP	This is the IP of the debug server that will accept all debug messages that are spooled from the device. The debug server IP is used to collect all debug messages from the device.
Debug Server Port	This is the Listening Port of the Debug Server that will collect the debug

	information send from the device.
NTP Server	This is the IP address or Domain Name of the NTP (Network Time Protocol) server. The server will be used to synchronize the device's time.
Ring Volume	This is the ringer volume of the device. This volume can also be controlled via the TV or LCD interface.
Phone In Volume	This is the volume that allows control of the audio signal that is sent to the headset.
Phone Out Volume	This is the volume that allows control of the audio signal that is sent from the headset.
Device Speaker Volume	This is the volume that allows control of the audio signal that is sent to the speakerphone or to TV monitor speakers.
Device Microphone Volume	This is the volume that allows control of the audio signal that is sent from the speakerphone or from the device microphone.
Country	This is the location of the device. The information used for accurate Weather information.
Language	This is the language selection of the user. The selection allows service providers to customize the device interfaces to alternative languages.
Daylight Savings	This option should be checked once the region (where the device is located) switches to/from the Daylight Savings time. This parameter controls whether the time will be displayed in daylight savings time or not. If Checked, the displayed time will be 1 hour ahead of normal time
Time Zone	This parameter manages the time zone of the device.
Camera Settings	
Auto Control	Global Auto control for the camera settings. This is the default setting.
Brightness	Manual control for the camera brightness.
Auto Exposure	Auto control for the camera exposure.
Auto Sensitivity Control	Auto control for the camera sensitivity.
Saturation	Manual control for the camera saturation.
Hue	Manual control for the camera hue.
Auto White Balance	Auto control for the camera white balance.
Blue Sensitivity	Manual control for the camera blue sensitivity.
Red Sensitivity	Manual control for the camera sensitivity.

5.1.6. SIP Configuration

TORNADO M10/M20 support advanced SIP functionality to allow it to function as a stand-alone PBX system or an integrated device connected with an external SIP server. In addition, the device supports a Patent-Pending SIP Auto Discovery protocol to allow automated infrastructure build-up without an external SIP Registrar or Proxy server. The below Web interface allows advanced management of this functionality.

SIP Configuration

CallerID:	20597
User Name:	george
SIP Password:	8444#
SIP Signal Port:	5060
Proxy IP/URL Address:	85.14.8.11
Enable Registration:	☐
Registration TTL (sec):	60
Allow Calls w/o Registration:	☑
Outbound Proxy IP/URL Address:	
Enable Auto Discovery:	☑
Auto Discovery Period (sec):	30
Supported Codecs List:	G726-32,G729,G711U,H263
Video Conference Frames Per Second:	2 fps
H263 Parameters:	☐ CIF ☐ QCIF ☐ SQCIF
Enable VAD:	☐
Enable Echo Cancel:	☐
DTMF Support:	⦿ Inband DTMF ◯ Outband DTMF
Jitter Range (ms):	40-120
Packet Size (ms):	
RTP Encription:	☐
RTP Media Port Range:	
RTP TOS:	

[Apply] [Reset] [Cancel] [Help]

Caller ID	This is the caller id of the SIP device. TORNADO M10/M20 supports a single caller ID in default, but can also support more virtual Caller ID numbers utilizing an external SIP Proxy server such as Voicemaster.
User Name	This is the name of the user that operates the device.
SIP Password	This is the alpha-numeric SIP password that is used to authenticate the device when communicating with an external SIP registrar utilizing MD5 encryption. Usually this field is populated with the PIN of the account that is used with the service provider that supports the device.
SIP Signal Port	This is the port that is used for SIP communication. The default value of this port is 5060 but can be changed is necessary to accommodate worldwide operation. Many ISP providers may block port 5060 and to be able to operate in such environments device users may want to change the default SIP port to another value.
Proxy IP/URL Address	This is the IP Address or the Domain Name of the SIP proxy server. Usually providers utilize Domain Name SIP proxy entry to guarantee service failover and redundancy.

Enable Registration	This filed will enable or disable device registration in the defined SIP Registrar. SIP Registration is required to allow NAT traversal and proper call authentication and routing by service providers. In most cases this filed will be checked if the users use external providers to handle their device traffic.
Registration TTL (sec)	This is the Registration Time-To-Live (TTL) parameter in seconds. This parameter defines how long the registration will be active and what is the period between TTL requests to the SIP Registrar. It is also used to ensure that the NAT traversal port is open to be able to accept inbound calls. The default value of this field is:60
Allow Calls w/o Registration.	This filed will allow calls without registration in a Peer-to-Peer scenario. In most cases registration is required if the device is services by service providers.
Outbound Proxy IP/URL Address	This is the IP Address or the Domain Name of the Outbound SIP proxy server. Usually providers utilize Domain Name SIP proxy entry to guarantee service failover and redundancy. The SIP standard for the Outbound SIP Proxy server and the SIP Proxy server to be different servers.
Enable Auto Discovery	TORNADO M10/M20 supports Patent-Pending SIP Auto Discovery via LAN broadcasts to find out other devices that are located within its network. This functionality is extremely useful to identify and setup device infrastructures without the use of external SIP proxy servers. It is commonly used in business offices where devices are located within the same VPN or LAN. Enabling Auto Discovery will make the device aware of other devices and make itself known to other devices.
Auto Discovery Period (sec)	This is the period in seconds that is used by the device to make LAN or VPN broadcasts making itself known and requesting information about other devices. This is part of the Patent-Pending SIP Auto Discovery protocol that the company has developer.
Supported Codecs List	This is the comma-separated list of supported codecs. Supported codecs include: G711A, G711U,G729A,G726, H.264 (Video Conference)
Video Conference Frames per Second	This is the number of frame samples per second that is sent out of the device camera. The number selection allows management of the bandwidth that the video conference takes. The lower the number of frames per second, the lower the bandwidth consumed by the device.
H263 Parameters	This is the selection of the video conference mode resolution. To send the largest picture, set to mode to CIF (default), for smaller picture resolution to QCIF and for the smallest picture resolution SQCIF.
DTMF Support	Selection for DTMF support. The device will send out DTMF signals based on this selection, to ensure that it can properly communicate with all types of SIP equipment. Two options are available: Inband DTMF – allows the device to send the actual sound that represents the DTMF selection. Outband DTMF – allows the device to send the DTMF signal that represents the DTMF selection. In provider infrastructures the usual selection is Outband DTMF since it is more reliable and greatly reduces the misfiring of the DTFM detecting engines.
Jitter Range	This is the Jitter range in milliseconds. High jitter values allow devices to communicate better in high latency networks. Low jitter values are used in low latency networks for improved voice quality. The default value of this filed is: 30-300
Enable Echo Cancel	Checking this option will enable the Echo Cancel of the device. This is

	required to reduce acoustic echo.
Enable VAD	This option will allow activation of the Voice Activated Detection (VAD) functionality which will enhance the overall bandwidth performance of the device reducing the consumed bandwidth with at least 25% percent.
Packet Size	This is the packet size in milliseconds. Packets Sizes vary in different when using different codecs and connect to different gateway servers. The default value is 30 ms packet size.
Encrypt SIP Messages	The option allows SIP messages encryption among SIP proxy, SIP gateway, and SIP CPE devices. This is a proprietary SIP messages encryption protocol.
RTP Encryption	The option allows RTP (voice/video data) encryption among SIP proxy, SIP gateway, and SIP CPE devices. This is a proprietary SIP messages encryption protocol.
RTP Media Port Range	This is the port range for the RTP media. RTP is the stream that carries the encoded voice. Default values are: 16000-63000
RTP TOS	This is the RTP media Type-of-Service (TOS) packet setting. The default value is: 0x10

5.1.7. General PBX Configuration

TORNADO M10/M20 support advanced stand-alone PBX functionality to allow independent PBX feature support that does not rely on external PBX or IP Centrex servers. The below Web interface allows advanced management of this functionality. Click on the left end of the line to open the PBX Configuration dialog.

Edit	✕

General PBX Configuration

Administrative Lock:	☐
Enable Message Wait Indicator:	☑
Enable Distinctive Ringing:	☐
Accept Anonymous Calls:	☑
Enable Do-Not-Disturb:	☐
Enable Call Waiting:	☑
Enable Auto Redial:	☐
Enable Minute Reminder:	☐
PBX Server IP Address:	192.168.0.20
CID Black List:	

Apply　**Reset**　**Cancel**　**Help**

Administrative Lock	This option allows service providers to lock the selections for this section to a predefined value so that they can not be managed by the users.
Enable Message Wait Indicator	The option allows user to enable and disable the message wait indicator. If disabled the device will not display via LED or SIP protocol the MWI (Message Wait Indicator) to notify the user that there is a new message left in the Voicemail.
Enable Distinctive Ringing	The device offers custom ring tone functionality that allows CallerID –based ringing. If a caller is identified from within the Phone Book and has a custom ring associated with the Phone Book entry the device will produce a custom ring tone. If this option is disabled the device will not produce custom ring tones.
Accept Anonymous Calls	Allows the device to accept calls from without a caller ID (anonymous calls)
Enable Do-Not-Disturb	This function will allow the device to be put in DND (Do-Not-Disturb) mode. If the selection is active the device will not answer any incoming calls. All calls will be forwarded to Voicemail or to the selected Forwarding Number.
Enable Call Waiting	This option allows the Call Wait function to be disabled. If disabled, the user will not be able to hear a sound notification if there is a second call on the line and view the CallerID details of

	the second caller on the LCD screen.
Enable Auto Redial	This function allows the last number to be redialed automatically if the initial dial attempt returns a busy answer. The device will automatically redial every 10 seconds the last number until it is hung up or the number answers the call.
Enable Minute Reminder	This function will produce a beep sound 10 seconds before the each minute ends. The function allows the suers to control their billable time.
PBX Server IP Address	This function allows PLAR support. The device will first connect to this server and then dials the selected numbers. The PBX DTMF commands are entered directly after the Feature button is pressed.
CID Black List	This is the Called ID black list. The numbers that the device must reject calls from are entered in this field separated by ','.
Enable Outbound Ring Tone	This option will enable ring tones while dialing out.
CID Announcement Ringing	This option will make the system state the caller id via voice IVR while there is an inbound call ring.

5.1.8. Voicemail Configuration

TORNADO M10/M20 support advanced Voicemail functionality to allow independent Voicemail feature support that does not rely on external Voicemail servers. The below Web interface allows advanced management of this functionality.


Administrative Lock	This option enables administrators to lock all options of the Voicemail functionality.
Enable Voicemail	This field enabled and disabled the Voicemail server.

Numeric Voicemail Password	Users can setup the Numeric Voicemail Password that allows access to the Voicemail IVR menu system. The password is used to access the Voicemail from remote location via device. Once connected to the Voicemail the user must press 2 and then enter the Voicemail password to access the Voicemail IVR menu.
Voice Mail Answer After	The field allows the user to configure after how many rings the Voicemail will answer an incoming call. Usually the number of rings is setup to 4 or more to allow sufficient time of the user to pick up the device before the Voicemail answers. If the user wants the Voicemail to answer all calls automatically without ringing this value should be set to 0.
Message Duration	This is the voicemail duration in seconds. The user must reduce the duration of each message to be able to accept more messages.
Enable Custom Announcement	If checked this filed will enable custom user greeting/announcement. The announcement can be changed using the IVR menu of uploaded via Web.
Enabled Voicemail-to-Email	This filed allows support for Unified Messaging. The are three options for select: **No** – there will be no email notification once a new Voicemail arrives **Only Notify** – the system will send an email notification about the Caller ID, Time, and the Duration of the new Voicemail. The Voicemail voice file will NOT be attached. **Attach Message** – the system will send an email notification about the Caller ID, Time, and the Duration of the new Voicemail. The Voicemail voice file will be attached.
Subscriber Email	This is the email that will be used to send the email notification to. The email will be send with or without the Voicemail voice file attachment.
Enable Call Forwarding	This field enabled or disabled call forwarding. If selected and if proper call Forwarding Number is present, the system will forward the call instead of sending it to the Voicemail. Call Forwarding has a priority over the Voicemail.
Call Forwarding Number	This is the Call Forwarding Number where the call will be automatically forwarded after a predefined number of rings. Users can enter alternative device numbers or their mobile/GSM number in this filed to ensure that all incoming calls will be answered.

5.1.9. Voicemail Messages Administration

Voicemail Messages are managed utilizing the "Edit" menu. Subscribers must high-light the desired message first, and then select "Edit". To download or play a Voicemail message, press "Download". To delete a Voicemail message, press "Delete".
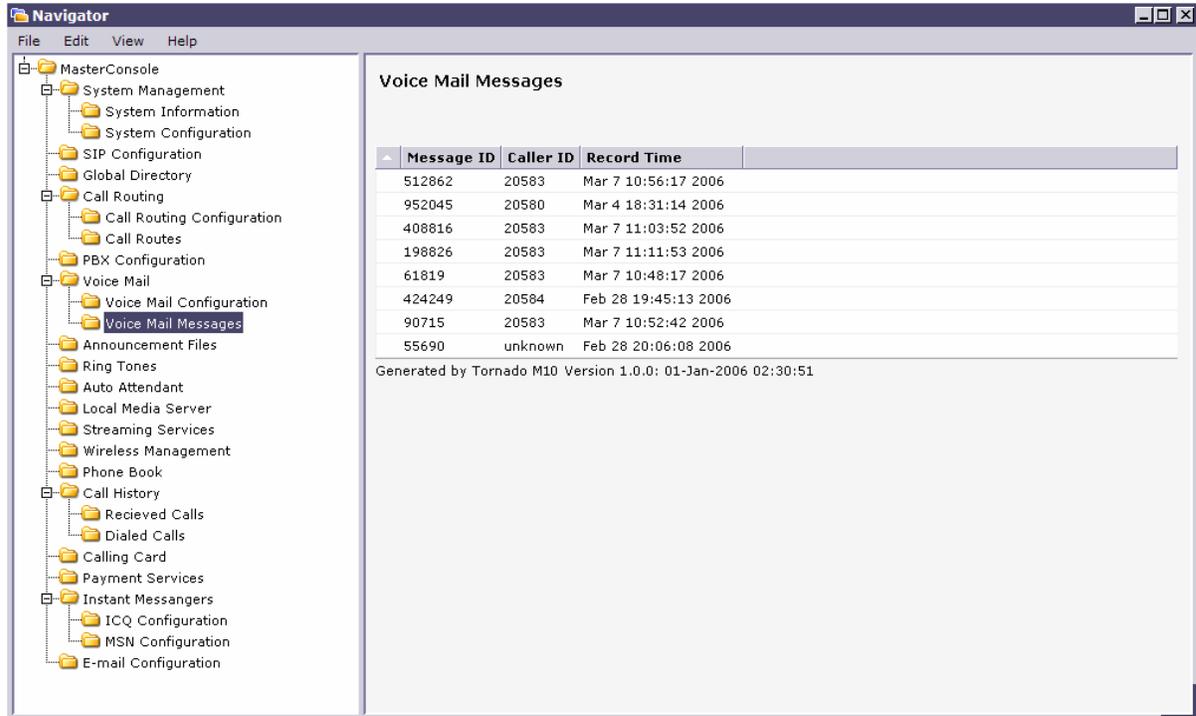
5.1.10. Call Routing Configuration

TORNADO M10/M20 support advanced call routing functionality to allow independent call routing feature support that does not rely on external SIP routing servers. The system supports up to 10 independent routes that can point to SIP proxy servers, SIP gateways (point-to-point), and to FXO device lines. All route matching is done of the longest prefix match first. The system supports advanced route failover to guarantee that all calls find available routes. The below Web interface allows advanced management of this functionality.
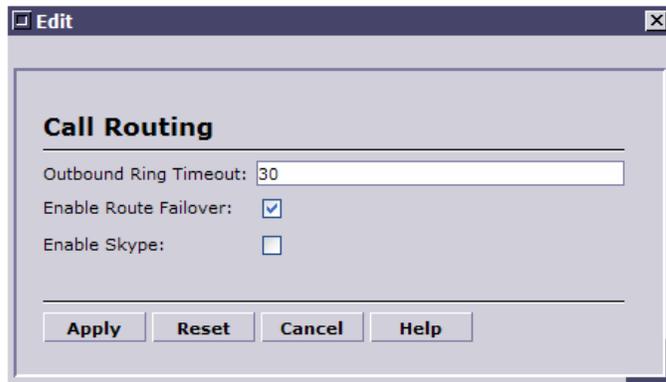

Route ID	This is the Route Index. This is the route index. All matches are done based on the longest prefix match first and then if the prefixes are the same on the Route Index.
Prefix	This is the prefix that needs to be matched against the number. All

	outbound calls are compared against the existing prefixes and then routed based on longest prefix match and route index. If the Enable Route failover is checked, the system will try all available routes in sequence until the call is successful or fails.
Route To	This field displays the IP Address or the Domain Name of the terminating SIP End Point. The filed may be an IP Address or a Domain Name or the keyword DEVICE. If the field is the IP address of a SIP proxy server or SIP gateway, the system will automatically route and terminate the call to it. If the keyword DEVICE is used (available only in M10, M20, and M30 systems) the system will attempt to terminate the call via existing FXO device line.
Translation	This field allows automated number translations. Number Translation allows conversion of a dialed number into another number to normalize it according to the termination End Point that is selected. For example, a number may need some sort of country or area code prefix before being sent out to the termination server. For more information about translation algorithms please refer to Appendix T

Outbound Ring Timeout	The device will terminate the call attempt if the call is not connected to the called station within a predefined period of time in seconds. This timeout allows manageable route failover procedure to ensure that all calls are timely connected to their destination. The Default Outbound Ring Timeout is 30 seconds.
Enable Route Failover	This selection allows route failover for all outbound calls. This route failover is enabled, the device will attempt to reconnect to the number utilizing alternative routes that exist in its routing table.
Enable Skype	This selection will allow calls to be accepted from or send to the Skype network. The Skype support requires Digital Media Center software to be installed on the subscriber desktop. The Skype software should also be installed on the same desktop as the DMC software.

5.1.11. Phone Book Configuration

TORNADO M10/M20 support advanced Phone Book functionality to allow easy contact management and selection. The system supports unlimited number of support entries that include comprehensive information about the contact on file. The Phone Book is managed via the Web. To delete a Phone Book entry, select the entry and then click on "Edit" and then "Delete". Click on the left end of the line to open the Phone Book Configuration dialog.


5.1.12. Phone Book Entry Configuration

TORNADO M10/M20 support advanced Phone Book Entry management functionality to allow easy contact management and selection. The Phone Book is managed via the Web.

Caller Name	Press the Caller Name button to enter the Phone Book Entry dialog to modify the contact information.
General Number	This is the general device number of the contact person.
Home Number	This is the home device number of the contact person.
Mobile Number	This is the mobile device number of the contact person.
Office Number	This is the office device number of the contact person.
Fax Number	This is the fax number of the contact person.
IP Address	This is the IP Address of the device of the contact person.
Ring Tone	This is the Ring Tone selection for the contact person. To create custom ring tones, users must select the Ring Tone that will identify calls from this contact.
Address	This is the Address of the contact person.
Email	This is the email of the contact person.
Speed Dial	This is the speed dial index. The index should be between 1 and 99. If the speed dial is required the subscriber must dial the speed dial index followed by "#".

5.1.13. Distinctive Ring Tone Configuration

TORNADO M10/M20 support advanced Distinctive Ring Tone management functionality to allow easy configuration of inbound ring tones based on contact profile in the Phone Book. Users can upload up to 20 ring tones. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law files with *.au extension. . To delete a Ring Tone entry, select the entry and then click on "Edit" and then "Delete". Click on the left end of the line to open the Ring Tone Configuration dialog.
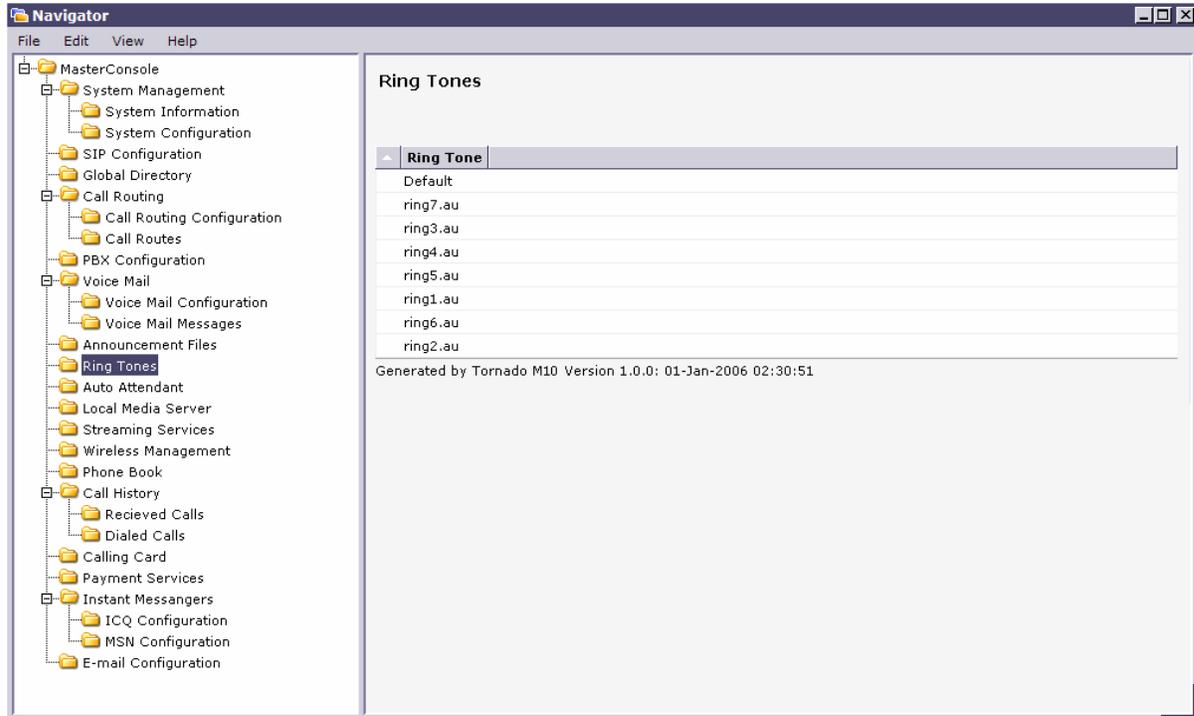
Ring Tone	This is the Name of the Ring Tone. This name also is used for Phone Book entry selection purposes. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law files with *.au extension.
Download File	Pressing the DOWNLOAD button the users can download the existing ring tone onto their computer.
Upload File	Pressing the BROWSE/UPLOAD FILE buttons the users can upload an existing inbound ring tone from their computer into the TORNADO device. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law files with *.au extension.
Upload Default	Pressing the BROWSE/UPLOAD DEFAULT buttons the users can upload a default inbound ring tone from their computer into the TORNADO device. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law files with *.au extension.
Upload Outbound	Pressing the BROWSE/UPLOAD OUTBOUND buttons the users can upload a default outbound ring tone from their computer into the TORNADO device. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law files with *.au extension.
Delete File	Pressing the DELETE button the users can delete the existing ring tone.

5.1.14. Call History List

TORNADO M10/M20 support advanced Call History List that displays all dialed numbers, received inbound calls and viewed content objects. This is a View-Only form. If the Caller ID button is pressed, the system will open the Phone Book Entry dialog to allow the proper contact information to be modified and stored as a Phone Book Entry. Click on the left end of the line to open the Call History Configuration dialog.

5.1.15. Announcement Files Configuration

TORNADO M10/M20 support advanced Announcement File management functionality to allow multi-language support and easy customization for the IVR files in the system. Users can record their own files in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law format with *.au extension. Once recorded the files can be uploaded and will be permanently stored in the IVR system. The Voicemail Announcement Files are managed via the Web. The menu will allow UPLOAD and DOWNLOAD of pre-recorded audio files to create custom IVR environment.
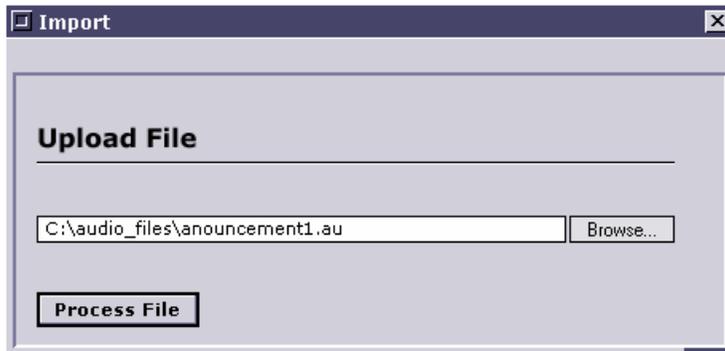
5.1.16. Calling Card Application Mode

TORNADO M10/M20 support advanced Calling Card functionality to allow easy and fully automated calling card function suitable for automated call shop and other pre-paid device applications. Using the below form administrators can enable the Calling Card mode of the device. Once the Calling Card mode is enabled the subscribers will need to enter a PIN code to authenticate before they can dial any number. Radius Authentication, Authorization, and Accounting (AAA) is done automatically utilizing a VoIP billing server such as the VoiceMaster server. The administrator must check the Enable Calling Card checkbox, enter the IP address of the Billing server into the Calling Card Server text box, and then press the SAVE button. Once the SAVE button is pressed the system will start working in a Calling card mode.
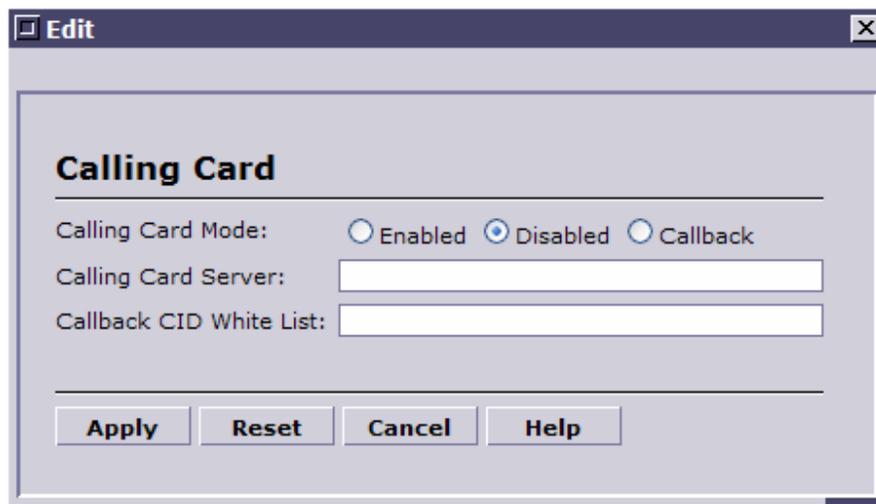
Calling Card Mode	Enables or Disables the Calling Card IVR. Also allows the device to function in callback mode whereas once the call is received from an authorized number, the device will callback this number and process the call.
Calling Card Server	This is the IP address of the server that will authenticate and authorize the calling card entries.
Callback CID White List	This is the list of Caller ID numbers that the device will accept and process callback requests from. If a call is received from such number the device will produce a busy signal and then call back the number within 10 seconds. The list of numbers should be comma delimited.
Apply	Saves the changes to the form.

5.1.17. Global Directory Configuration

The Global Directory function allows all Tornado devices to register into one global directory provided by the subscriber. This way all subscribers can make free phone calls within the Global Directory community.
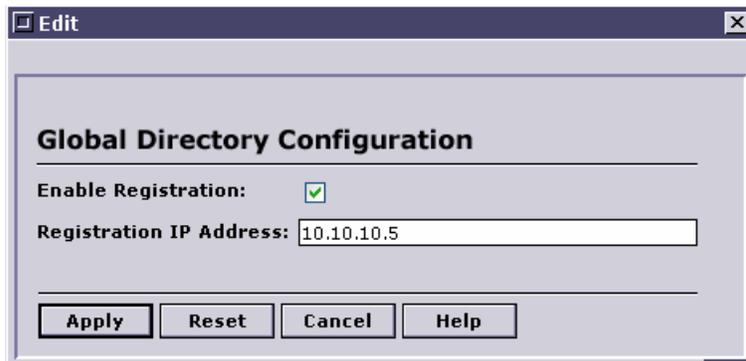
Enable Registration	Enables and Disables the Global Directory function.
Registration IP Address	This is the IP address of the Global Directory server.
Apply	Saves the changes to the form.

5.1.18. Auto Attendant/Virtual Configuration

The Auto Attendant/Virtual Office function allows advanced virtual office services. The device will accept incoming calls, provide IVR auto attendant services, and allow subscribers to setup their specific Virtual office requirements.
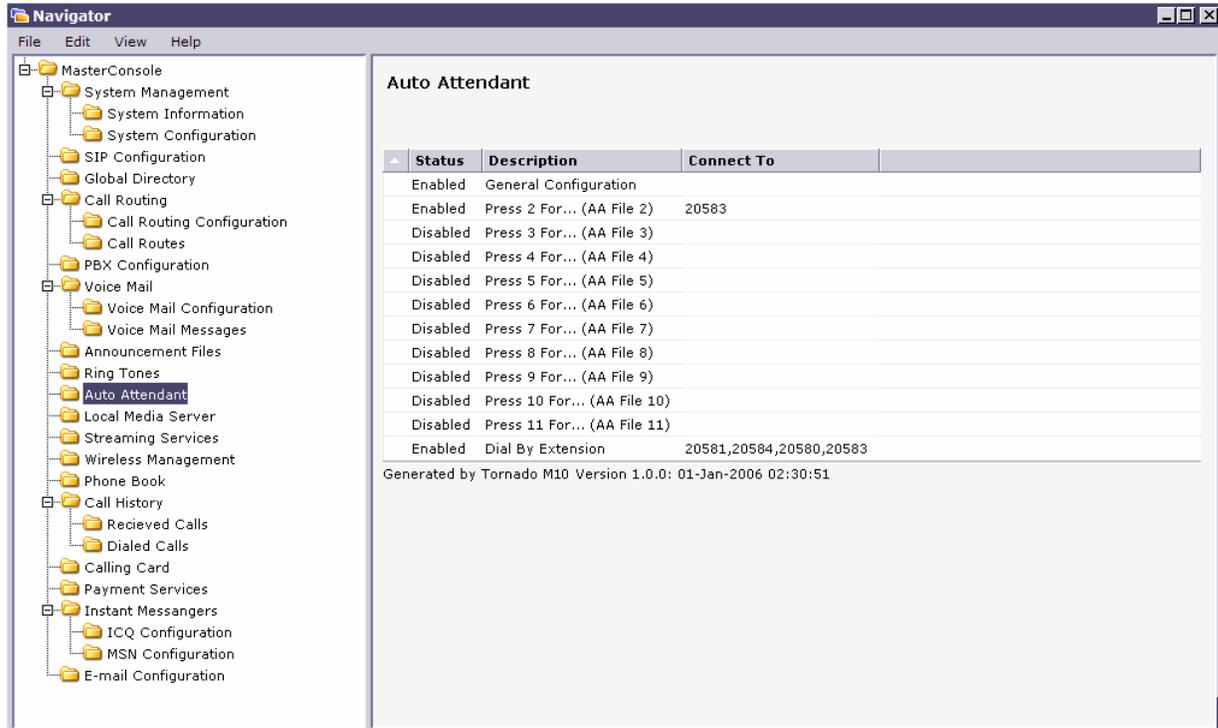
Virtual Office can be setup to allow different types of interaction and call processing. In addition, the "Connect To:" numbers support call hunting with entering multiple numbers separated by comma.

Description	This is the description of the Auto Attendant message.
Enable	This is the status of the Auto Attendant message. If checked the messages will be played in Auto Attendant mode.
Connect To	This is the number that the call will be routed to once the selection is complete.
Apply	Saves the changes to the form.

General Configuration of Auto Attendant:

Enable Auto Attendant	This function allows the Auto Attendant to start once a call is

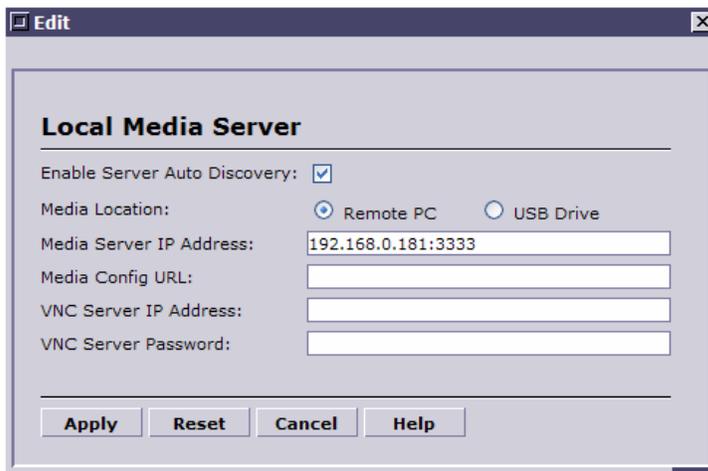|	
	received.
Business Days	These are the days that the Auto Attendant will answer call and direct selections.
Business Hours	This is the hour selection for the time period the Auto Attendant will process calls.
Apply	Saves the changes to the form.

5.1.19. Local Media Server

Local Media Server functionality allows subscribers to use their Tornado device to read and write file to remote computers running Digital media Software for Windows. The results of this function are displayed in the User sections such as the User Video, User Audio, and User Picture sections. The function allows the device to act as a DVR/PVR unit and perform dynamic recording of Video and Audio content. The function allows the device to connect to the DMC server and process files.

Enable Server Auto Discovery	This function allows Digital Media Center server auto discovery. If enabled, the device will accept DMC broadcasts and link automatically to the DMC server.
Media Location	This function allows the device to point its DVR/PVR function to different media to read and write files. If set to 'Remote PC" the device will read and write files to the DMC desktop. If set to 'USB Driver" the device will read and write files to the USB drive.
Media Server IP Address	This is the IP address of the media server that has DMC software running. If the server has a custom port the address should be specified as DMC_SERVER_IP:PORT
Media Config URL	This is the URL of the configuration files that has the index of local and remote content objects. The device will use the information located in the index file with extension AVH. The format of the AVH file should be: NAME|TYPE|SIZE|LOCATION|DESCRIPTION| **For example:** Movie 1|AVI|1.2G|http://205.164.40.177/a.avi| Movie 2|AVI|600M|http://205.164.40.177/a1.avi| Jazz|MP3|N/A|http://64.236.34.67:5190/stream/1010|Smooth Jazz|

VNC Server IP Address	This is the IP address of the VNC server that the subscriber will connect to. The VNC/Desktop Sharing is used for telecommunication and remote management.
VNC Server Password	This is the password of the VNC server. If configured, the password is submitted automatically. If not configured, the subscriber must enter it manually once they use the VNC Communication function.
Record Directory	This is the IP address and the directory that will be scanned and used to save the recorded files.
Apply	Saves the configuration changes.

5.1.20. Streaming Services

Streaming Services functionality allows subscribers to use their Tornado device to provide Video, Audio and other media services. The Streaming Services configuration allows easy service configuration and simplified service management. The Streaming Services require service subscription.

Enable Streaming Services	Enables and Disables the Streaming services for this device
Content Server IP Address	This is the IP address of the server that provides streaming services.

	Usually this is the IP address of the SysMaster Voicemaster streaming server.
Hope Page	This is the page that the device will access once it is initially started.
Auto Play Channel	This function allows the device to play a user defined or central channel once it is initially started.
Enable Parent Control	This function allows parent control over all provided content. For content with centrally provided adult rating, parent control is always enabled.
Parent Control Password	This is the parent control password. Parents can change the password via the Web interface or via the TV/LCD interface of the device.
Video Standard	Tornado devices support either PAL or NTSC video standard. NTSC is usually used in North America, while PAL is used in the other parts of the world.
Auto Reconnect	This function will make the device to reconnect if the connection between the device and the server fails.
Buffering Time	This is the buffering time in seconds. Buffering is required for all TCP connection to ensure the good quality of the reception even in bad network conditions.
Enable Subtitles	This function will enable subtitle support if the provider of the service sends subtitles for the selected channel.
Subtitle Font Size	This function allows management of the subtitle font size.
Show Image Preview	This function will enable image preview while browsing for PICTURE content only.
Slideshow Timer	This parameter will define the timeout between picture changes while Pictures are in play/preview mode. This parameter is relevant for PICTURES only.
Quick Tuning	Allows quick channel tuning. Once the channel is changed the system will automatically tune to it, instead waiting for user prompt.
Use Sub-Node IP Address	This will enable sub-node usage to support UDP multicast to unicast stream conversion.
Sub-Node IP Address	This is the IP address of the sub-node.
Apply	Saves the configuration changes.

5.1.21. User Objects

User Objects functionality allows users to define their own objects. The defined objects will appear in the User selections of the IPTV, VOD, PPV, and Audio sections of the device interface. For example, user can define local files on this USB Driver or remote files on the Web (example: usb://file.avi or http://server_ip/media.mp3)

Object Index	This is the index of the object. The index is used to allow easy sorting of the object in the user section.
Object Name	This is the name of the object that will appear in the User list.
Object Type	This is the type of the object. Based on the type the object will appear in different objects lists such as IPTV, VOD, etc.
Object Location	This is the location of the user-defined object. The location can be local (on the USB or SD Card) or remote (on the remote web server). To access local objects point to their location using the following format: For USB Drive: /usb/file For SD Card: /mmcsd://file For Web: http://server_ip/file
Object Duration	This is the time in seconds that the object will be played. If the value is '0' then the object will play until its end.
Apply	Saves the configuration changes.

5.1.21a. Play Lists

User Play Lists functionality allows users to define their own play lists of objects. The defined play lists will appear in the selections of the IPTV, VOD, PPV, and Audio sections of the device interface.

Play List Index	This is the index of the play list. The index is used to allow easy sorting of the play list in the media section.
Play List Name	This is the name of the play list that will appear in the media section..
Play List Type	This is the type of the play list. Based on the type the play list will appear in different media lists such as IPTV, VOD, etc.
Assigned Objects	These are the objects that are assigned to the play list.
Apply	Saves the configuration changes.

Start Time	This is the start time of the object in the play list. The object play can start at a pre-defined time or run sequentially. The start time of any object will take precedence over sequential object play.
End Time	This is the end time of the object in the play list. The object play can stop at a pre-defined time. The end time of any object will take precedence over sequential object play.
Duration	This is the duration of the object play. Once the duration limit is reached the object is stopped and the next object is played.
Priority	This is the object play priority. Priority numbers identify the object play sequence. For example is an object has a priority of '0 then it will be played first, followed by the object with priority of '1', etc.
Apply	Saves the configuration changes.

5.1.22. Wireless Services

Wireless Services functionality allows subscribers to manage the Wireless peripherals of their Tornado M10/M20 device. The Tornado supports optional Wireless devices that can connect to a remote 2.4Ghz WIFI Access Point.

Wireless Device Status	Enables and Disables the Wireless device
SSID Name	This is the Wireless network name that will be used for uplink connection.

Auto Connect	This option allows the device to auto connect to the selected SSID.
IP Via	This defines the method that will be used to acquire IP address. There are two options. DHCP option allows the IP address to be acquired dynamically. Static IP allows the IP to be assigned explicitly.
Static IP	This is the static IP Address of the device. This IP address will be ignored in the DHCP Server selection is enabled. The Static IP address will still be saved in the memory.
NetMask	This is the Network Mask for the Static IP address. The default value is: 255.255.255.0. This network mask will be ignored in the DHCP Server selection is enabled.
Uplink Gateway	This is the IP address of the Uplink Gateway required to connect the device to the outside network (Internet). Usually this is the IP address of the Home router or the Business NAT Firewall. This IP address will be ignored in the DHCP Server selection is enabled.
DNS Server	This is the IP address of the DNS server. The DNS IP address will be ignored in the DHCP Server selection is enabled.
TX Power	This is the Transmit power parameter. The default value is 16dbm. The maximum power parameter is 22dbm.
Encryption Key Type	This is the encryption key type. The default is hexadecimal number.
Encryption Mode	This is the encryption mode. 64bits and 128bits are supported.
Mode	This is the wireless mode. The system can either operate as a client or as an Ad-Hoc server (supports up to 6 client connections)
TX Mode	This is the transmission power mode of the device. The higher the number the more powerful the wireless transmission.
Apply	Saves the configuration changes.

5.1.23. Payment Services

The payment service is used to allow payments via vouchers to a centrally located payment server. The Payment Services require service subscription.

Enable Payment Services	Enables and Disables the Payment services for this device
Payment Server IP Address	This is the IP address of the payment server that will accept voucher payments initiated directly from the Tornado device.
Apply	Saves the configuration changes.

5.1.24. Chat/Messenger Services

Chat/Messenger Services allow subscribers to use their Tornado device to chat online using on MSN, ICQ, or AOL community groups. The Chat/Messenger Services require service subscription.

MSN subscribers can use the MSN configuration dialog to setup their tornado device to communicate with all MSN community groups.

MSN Status	Enables and Disables the MSN chat service for this device.
MSN User ID	This is the MSN User ID or Hotmail account
MSN Password	This is the MSN password.
Apply	Saves the configuration changes.

ICQ subscribers can use the ICQ configuration dialog to setup their tornado device to communicate with all ICQ community groups.

ICQ Status	Enables and Disables the ICQ chat service for this device.
ICQ User ID	This is the ICQ User ID or Hotmail account
ICQ Password	This is the ICQ password.
Apply	Saves the configuration changes.

5.1.25. Email Services

Email Services allow subscribers to use their Tornado device to send and receive emails.

E-mail Status	Enables and Disables the E-mail service for this device.
E-Mail	This is the E-mail of the subscriber
Account Name	This is the user account name in the name server. Usually this is the email part before the '@'. For example user@sysmaster.com means that the user name is 'user'
Password	This is the E-mail password.
PO3 Server	This is the IP or domain name of the POP3 email server that will be used to access the email. Sometimes the POP3 server name is the same as the email server name. Check with your email provider for the POP3 server details.
Apply	Saves the configuration changes.

5.1.26. DHCP Server

DHCP Services allow the device to function as a DHCP server for clients that use it to connect to the Internet.

Edit

DHCP Server

Enable DHCP Server: ○ Yes ⦿ No

Listen Interface: ⦿ LAN ○ Wireless

[Apply] [Reset] [Cancel] [Help]
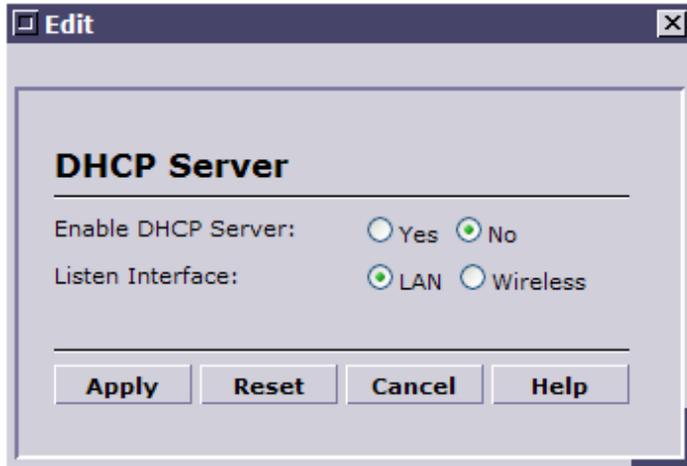
Enable DHCP Server	This option allows the DHCP server to be enabled.
Listen Interface	This option defines which interface the DHCP server will listen to: LAN or Wireless.
Apply	Saves the configuration changes.

Add

DHCP Leases Configuration

ID:	0
Subnet:	192.168.0.1
Subnet Mask:	255.255.255.0
Clistn MAC:	00-11-D8-7E-21-8A
Client IP:	192.168.0.10
Client Mask:	255.255.255.0
First IP:	192.168.0.1
Last IP:	192.168.0.200
Default Gateway:	192.168.0.1
Primary DNS:	192.168.0.1
Secondary DNS:	192.168.0.2
Lease Time:	0 hours

[Apply] [Reset] [Cancel] [Help]
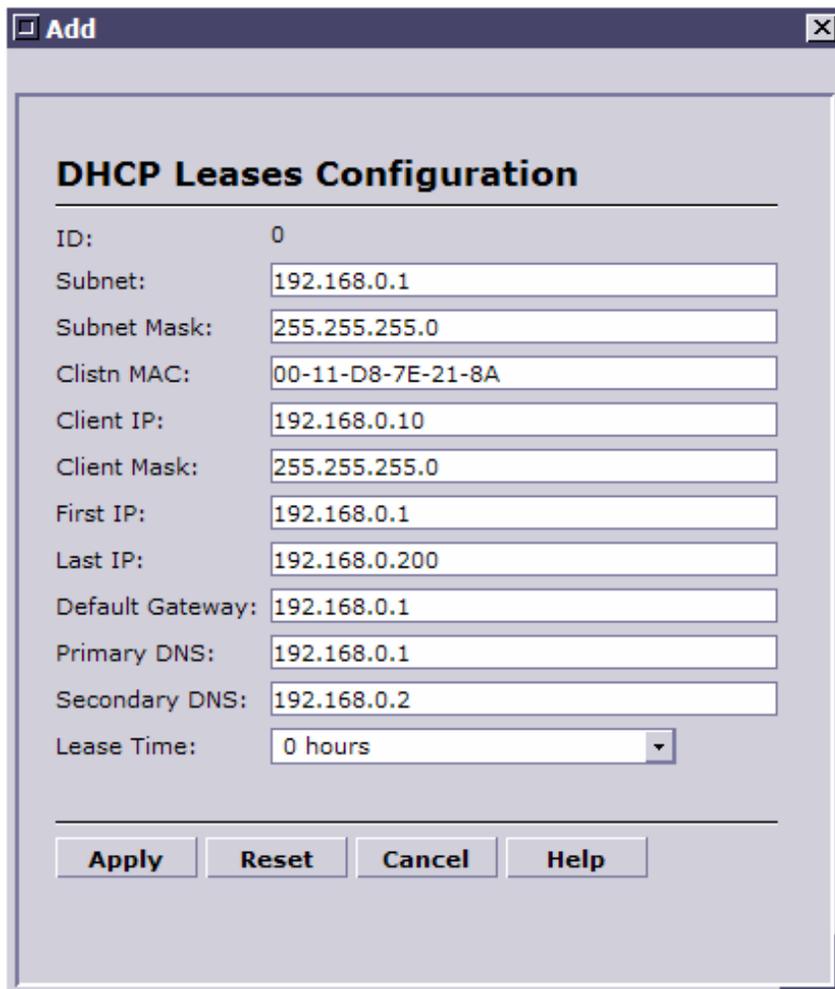
First IP	This is the first IP address to be distributed.
Last IP	This is the last IP to be distributed.
Subnet Mask	This is the network mask of the client IP addresses.
Default Gateway	This is the default gateway IP address.
Primary DNS	This is the IP address of the primary DNS server.
Lease Time	This is the lease time in hours for the IP address distribution. Once the lease time expires the IP address may be distributed to a different server.
Apply	Saves the configuration changes.

5.1.27. Home Automation

Home Automation Services allow the device to function as a management server for X10 power clients that are connected to the same power line within a house. The function allows the devices to be managed remotely via Web or Phone so that subscribers can access their M10/M20 device and power on/off different home appliances connected to X10 devices.

Enable Home Automation	This option allows the Home Automation server to be enabled.
Apply	Saves the configuration changes.

Picture of Home Devices

Device ID	This is the ID of the X10 client device
House Code	This is the house code of the X10 device
Unit Code	This is the unit code of the X10 device.
Device Status	This is the status of the x10 device. 'OFF' will turn off the device. 'ON' will turn on the device.
Dim	This is the light or power 'dim' parameter to allow high electrical current management.
Enable Time Control	This is the time control management.
Work Days	These are the days of the week that will make the selection enabled.
Start At	This is the start time of the selection.
Stop At	This is the stop time of the selection.
Description	This is the description of the selection.
Apply	Saves the configuration changes.

5.1.28. Remote Configuration Upgrade

TORNADO M10/M20 support advanced Auto Provisioning management functionality to allow easy and centralized device management. Using the below form users can download the device configuration from the defined remote location that is stored in the System Configuration dialog. The user must select START and then press the "Get Remote Configuration" option. Once the OK button is pressed the system will request the remote configuration and automatically provision and configure itself (if newer configuration version is found on the central server). The Auto Provisioning is managed via the Web.

5.1.29. Remote Firmware Upgrade

TORNADO M10/M20 support advanced Firmware Upgrade management functionality to allow easy and centralized device management. Using the below form users can download the device firmware from the defined remote location that is stored in the System Configuration dialog. The user must select START and then press the "Upgrade Firmware" option. Once the OK button is pressed the system will request the firmware upgrade and automatically upgrade its firmware (if newer firmware than the already installed is found on the central server).

5.1.30. Remote Configuration Extract

Users can reboot the device at any time without danger to the data in the configuration or the Voicemail files, utilizing two procedures:

1. By unplugging its power supply.
2. Using the "Reboot Device" option in the START menu. To use the Web software reboot the use must select the "Reboot Device" option and then press OK when prompted. The device will reboot automatically. After the device comes back online the user must login utilizing the standard login procedure.

5.1.31. Saving the Configuration Changes

Users can submit all changes without the need to reboot by pressing the SAVE button in all supported dialogs. The only exceptions are the dialogs that support the Remote Configuration Upgrade, Remote Firmware Upgrade, or the Reboot Device dialogs.

5.2. Remote Configuration and Firmware Upgrade

SysMaster Corporation TORNADO M10/M20 can be automatically configured from a central provisioning server by setting the proper Remote URL Locations in the System Configuration dialogs.

The default values for these locations are:

1. For the Remote Configuration and Auto Provisioning
http://server_ip/cgi-bin/if.cgi?run=mgetcf

2. For the Remote Firmware Upgrade
http://server_ip/cgi-bin/if.cgi?run=mdown

5.2.1. Remote Configuration Upgrade

TORNADO M10/M20 will attempt to contact the http://server_ip/cgi-bin/if.cgi?run=mgetcf HTTP/URL
location for configuration upgrade and will attach some additional information such as its MAC address and
Version number (the version number is numeric).
For example to provision itself the device will submit the following request:
http://server_ip/cgi-bin/if.cgi?run=mgetcf&mac=0004766f1d4d&ver=11

The response of the server will be the configuration file for the device based on its MAC and Version
parameters. If no file is returned (empty file with name "none"), then there is a problem with either the
MAC (MAC can not be found) or the Version (there is no a newer configuration version on file).

If a valid file is returned, it will have one of the following names
1. "none" - there is no newer configuration available or the MAC/Version is invalid.
2. sm_X.cfg – where X is a random alpha-numeric string that is used to encode and decode the
   configuration file. The Auto Provisioning utilizes RC4 and MD5 encryption algorithms that are
   required for secure device management.
3. sm_0.cfg – the file is in TEXT format and is not encrypted.

Service provider can use either encrypted or regular files for Auto Provisioning. SysMaster Corporation
strongly recommends the usage of file encryption. If providers have an interest to implement configuration
file encryption, they should send a request to their SysMaster Corporation sales representative
(sales@sysmaster.com) and apply for a provider license. The used encryption is proprietary and requires
that all provider that want to use encryption complete some necessary NDA and other paperwork to ensure
the security of the provided know-how.

All configuration parameters that are supported can be provisioned centrally. Some configuration
parameters can be later changed by users that have "user" account access. All configuration parameters can
be changed by users that have "admin" account access. Usually service providers lock the "admin" account
access to prevent the end-users from changing main SIP and System configuration parameters and make the
device function as a part of a proprietary infrastructure.

5.2.2. Remote Firmware Upgrade

TORNADO M10/M20 will attempt to contact the http://server_ip/cgi-bin/if.cgi?run=mdown HTTP/URL
location for configuration upgrade and will attach some additional information such as its MAC address and
Version number (the version number is numeric).
For example to upgrade its firmware the device will submit the following request:
http://server_ip/cgi-bin/if.cgi?run=mdown&mac=0004766f1d4d&ver=2

The returned file will be with one of the following names:
1. "none" - there is no newer firmware available or the MAC/Version is invalid.
2. "tornado.Y.X.bin" – where X is a number represents the current version number of the downloaded
   firmware upgrade. Y represents the device type.

The returned binary file is used to upgrade the device. Once it is downloaded by the device, it will reboot
itself.

5.2.3. Hardware Test Procedure

TORNADO M10/M20 will attempt to test its hardware in any mode. To start the test procedure, users must enter the key sequence *123456# using the remote control or keyboard.

To exit test mode, users must power down the device.