TV BOX - ITC KM250/KM320

USER MANUAL

ITC GLOBAL MEDIAL

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Contents

1. Welcome

Thank you for purchasing ITC Global Media award-winning TV BOX KM250/KM320 Digital Media Center. You made an excellent choice and we hope you will enjoy all its capabilities. ITC Global Media Corporation's award-wining TV BOX KM250/KM320 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.itcnetwork.tv

2. Product Overview

2.1. What is Included in the Package

The ITC KM250 device package contains:

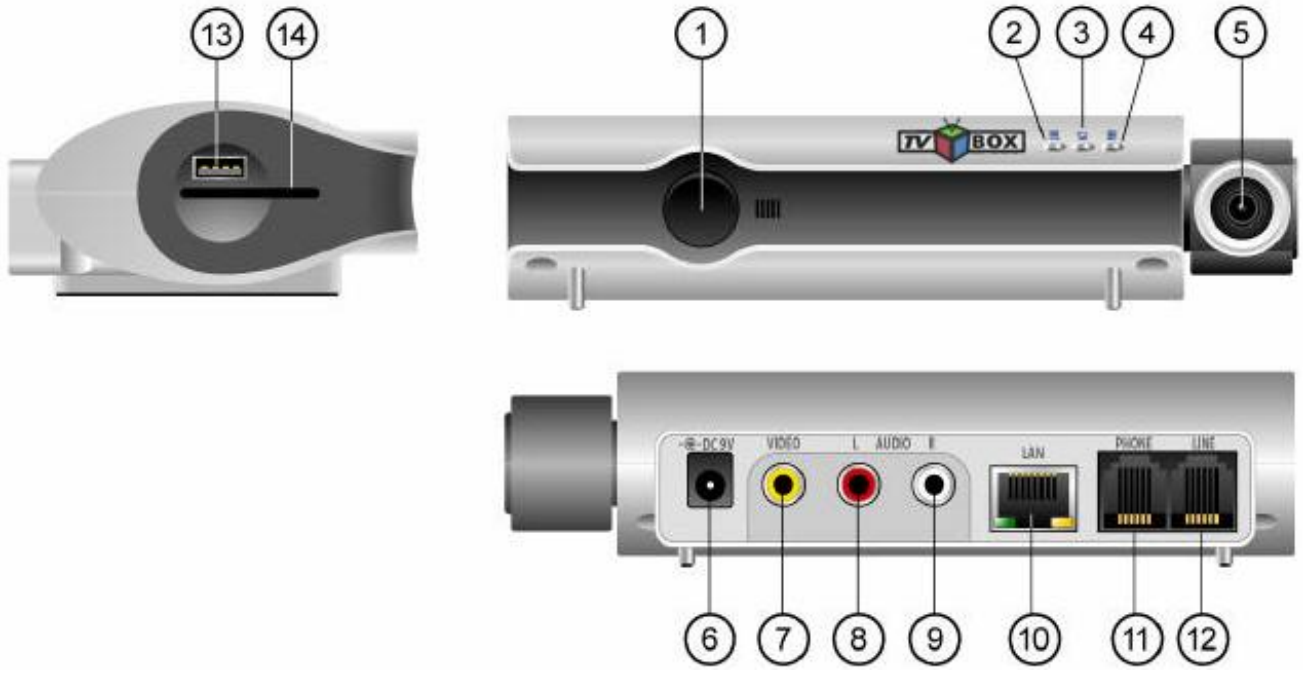
1. One ITC KM250 Main Case
2. One Audio and Video Cable
3. Advanced Infra Red Remote Control
4. One Universal Power Adaptor
5. One Ethernet Cable
6. User Manual

The ITC KM320 device package contains:

1. One ITC KM320 Video Phone
2. One Audio and Video Cable
3. One Universal Power Adaptor
4. One Ethernet Cable
5. User Manual

2.2. Device Controls

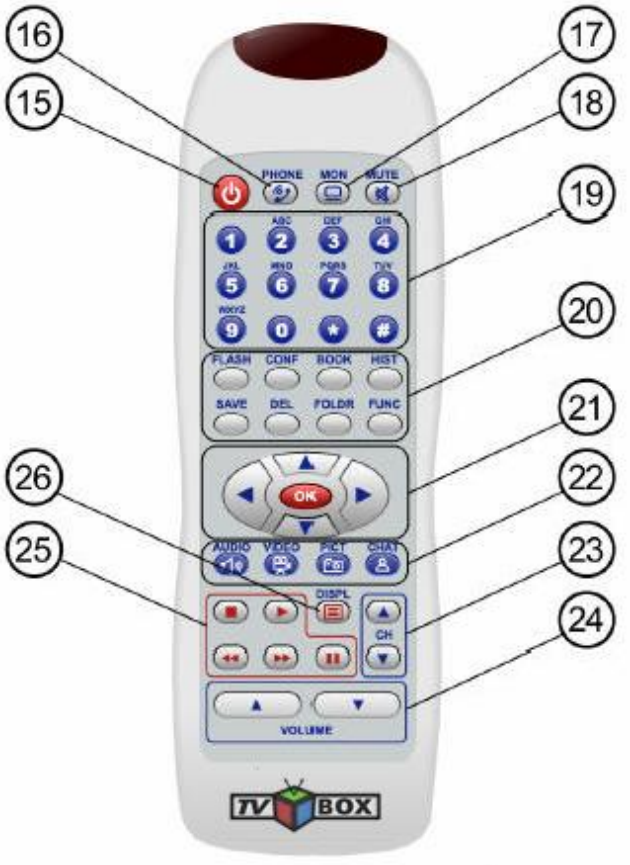
TV BOX - ITC KM250



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.

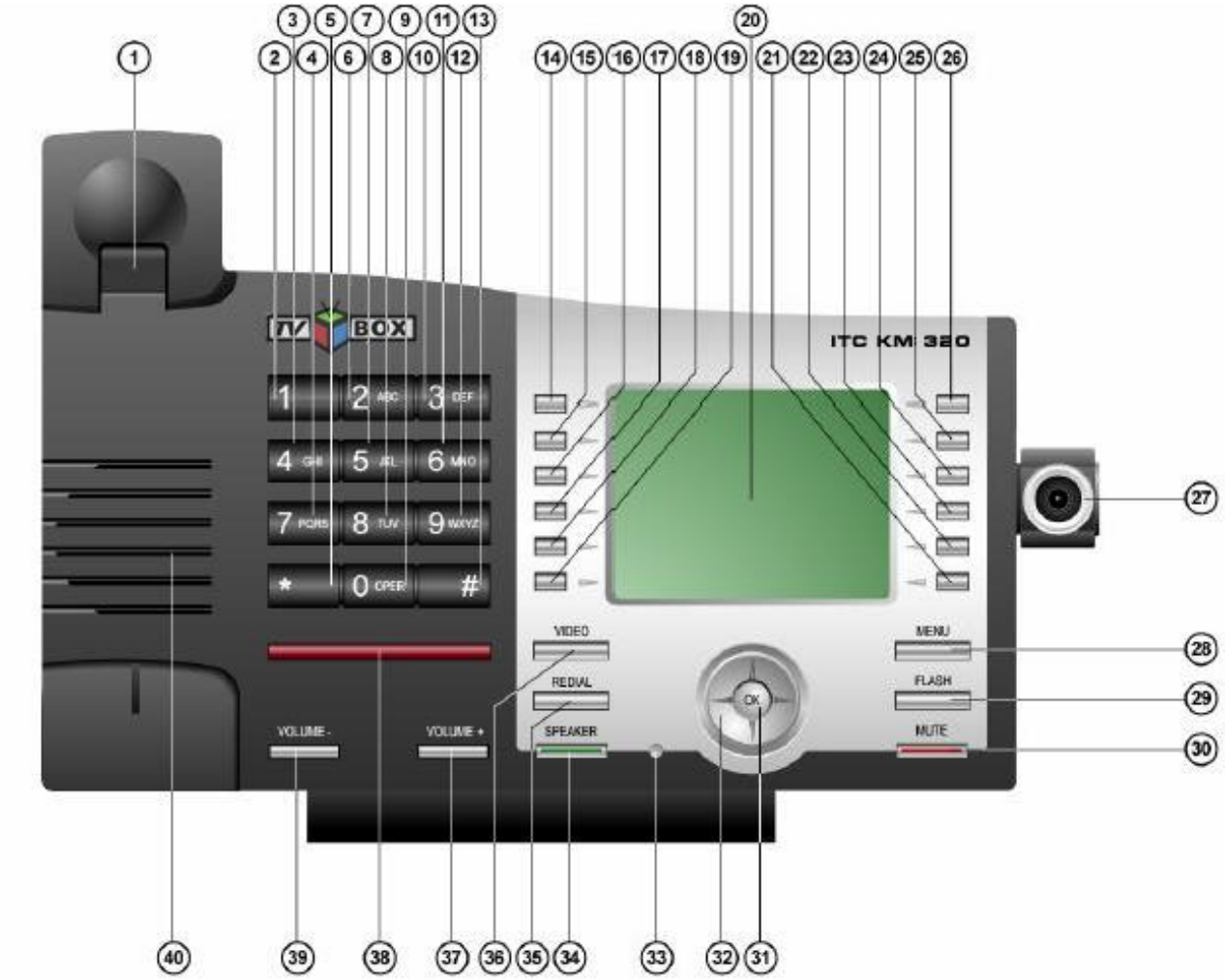
Remote Control for ITC KM250

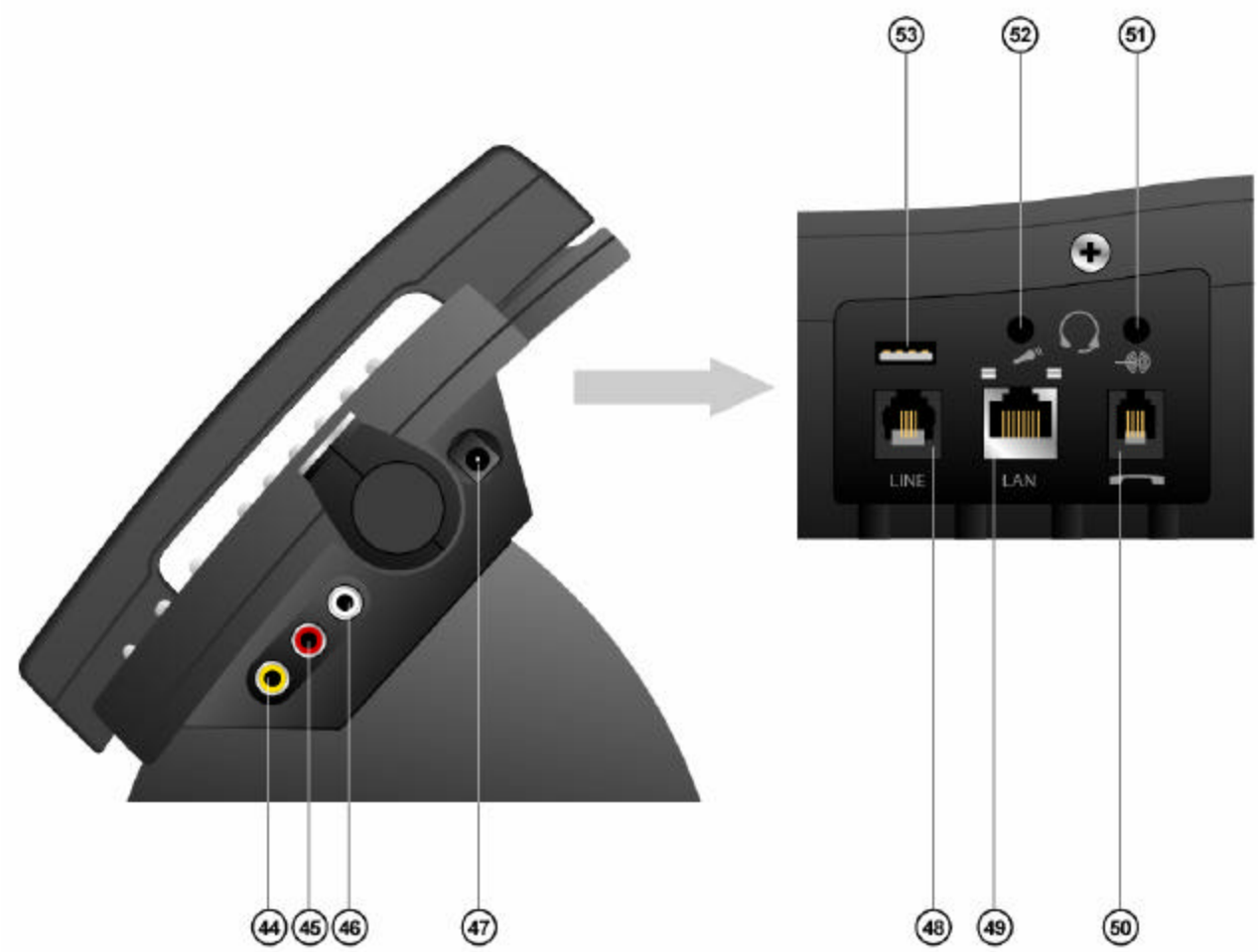


Element	Description
13	USB 1.1 port for External Storage
14	Secure Digital Card for External Storage
15	Turn On/Off the device in Sleep Mode
16	Make Audio calls, pick up phone lines, or hang-up all phone lines
17	Make Video calls, or zoom Video selections.
18	Mute the Audio
19	Alpha-Numeric Characters 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 channel 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 allow to get information about channel selection, to switch between Video conference screens, to

ITC KM320 Color Video Phone




53
52
51
LINE
LAN
44
45
46
47
48
49
50

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

2.3. Safety Compliances

The TV BOX - ITC KM 250/320 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

TV BOX has a reseller agreement with our reseller customer. End user should contact the company from whom you purchased the product for replacement, repair or refund.

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

TV BOX reserves the right to remedy warranty policy without prior notification.

3. Product Features

3.1. Key Features

TV BOX - ITC KM250/320 is a next generation consumer IP device system based on industry open standard SIP (Session Initiation Protocol). Built on innovative technology, TV BOX features market leading superb sound quality and rich functionalities at mass-affordable price. The advanced voice processing capabilities of ITC KM250/320 are imilar to any type of IP Centrex System.

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) Phone Line Support
- Advanced PBX Features
- Call Waiting, Call Forward, Call Hunting
- Automated Call Forwarding to Multiple Numbers
- E.911 Support via FXO Port
- 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)
- One FXS (RJ-11)
- 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
- Optional WiFi/Wireless 2.4 802.11a Interface
- Optional Three FXO (RJ-11)

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 TV BOX 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 ITC KM250:

Model ITC KM250/320

LAN interface	**RJ45 10 Base-T**
FXO interface	**RJ-11**
FXS interface	**RJ-11**
Optional 3 FXO interfaces	**RJ-11**
USB 1.1 interface	**Type A**
Video Camera	**CMOS VGA**
SD Card interface	**Secure Digital (ITC KM250 only)**
Stereo Audio Port	**RCA interface**
Video Port	**RCA Interface**
Wifi/Wireless Interface	**802.11a Protocol**
Infra Red interface	**IR Remote Control (ITC KM250 Only)**
LED	**LED in Yellow, Blue, Mixed color with Function Blink Pattern** **Two LEDS with Yellow Color**
Universal Switching Power Adaptor	**Input: 100-240VAC 50-60 Hz,** **Output: +5VDC, 2A,** **UL certified**
Dimension	**150mm (W), 75mm (D), 40mm (H)**
Weight	**0.22kg (0.7lbs)**
Temperature	**40 - 130oF, 5 – 45oC**
Humidity	**10% - 90% (non-condensing)**
Compliance	**FCC / CE**

4. Using TV BOX - ITC KM250/320

4.1. Getting Familiar with TV/LCD Menu Options

ITC KM250/320 device includes advanced display functionally to allow dynamic and easy device management. The device must be connected to the TV set or to a Motor with RCA video and audio input connectors:

4.1.1. Menu Structure

TV BOX - ITC KM250/320 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
		Picture Browser	5
		User 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
		Help	34
		Exit	35
Communication	**Communication**	Email	40
		Chat/Messenger	41
		Phone Book	42
		Virtual Terminal	43
		Exit	44
Services	**Services**	Program Scheduler	50

	Calculator	51
	Alarm	52
	Wake-Up Call	53
	Setup	54
	Search	55
	Exit	56

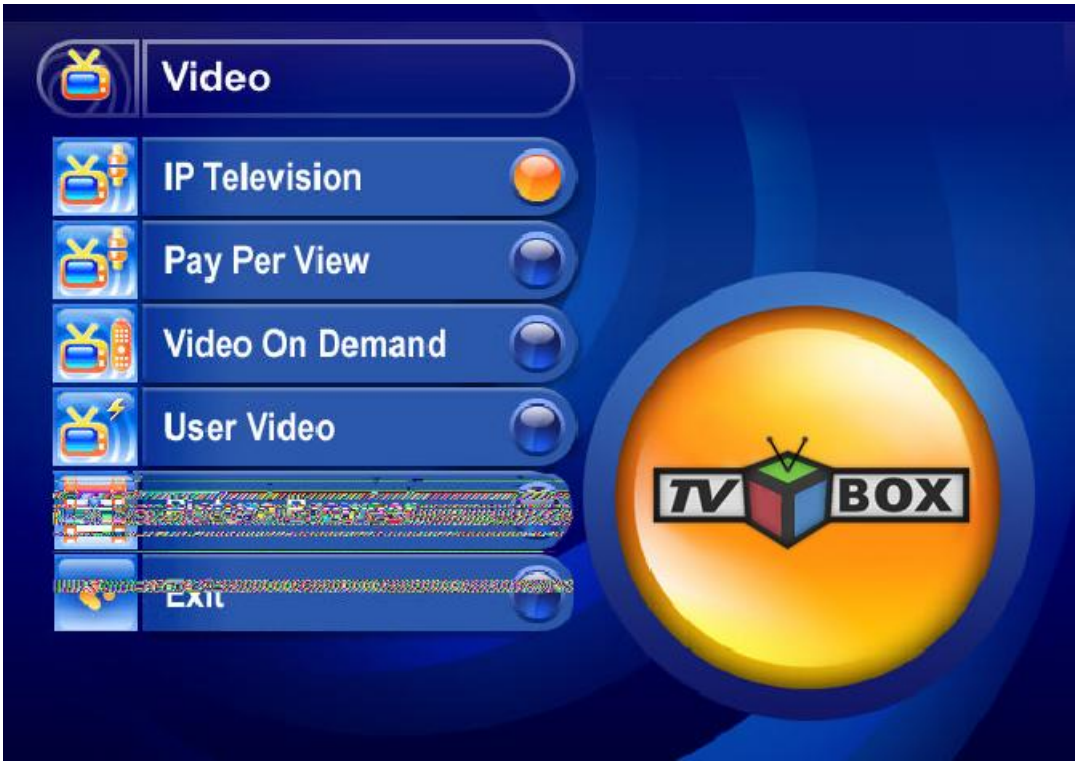
4.1.2. Main Menu

Upon start-up the device will display the main menu. 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 navigator buttons are accessible via the Remote Control (ITC KM250) or via the keypad (ITC KM320). Both devices allow support "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

ITC KM250/320 supports advanced video option to allow users to watch IP Television, Video on Demand, Pay per View, and User Video provided content. The sub-menu is entered after the users select the Video option from the main menu, once they press the “Video” button of the remote control (ITC KM250), or press the “Video” button of the phone set (ITC KM320). 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/Menu	Switches to the upper menu.

4.1.4. IP Television (this function requires service subscription)

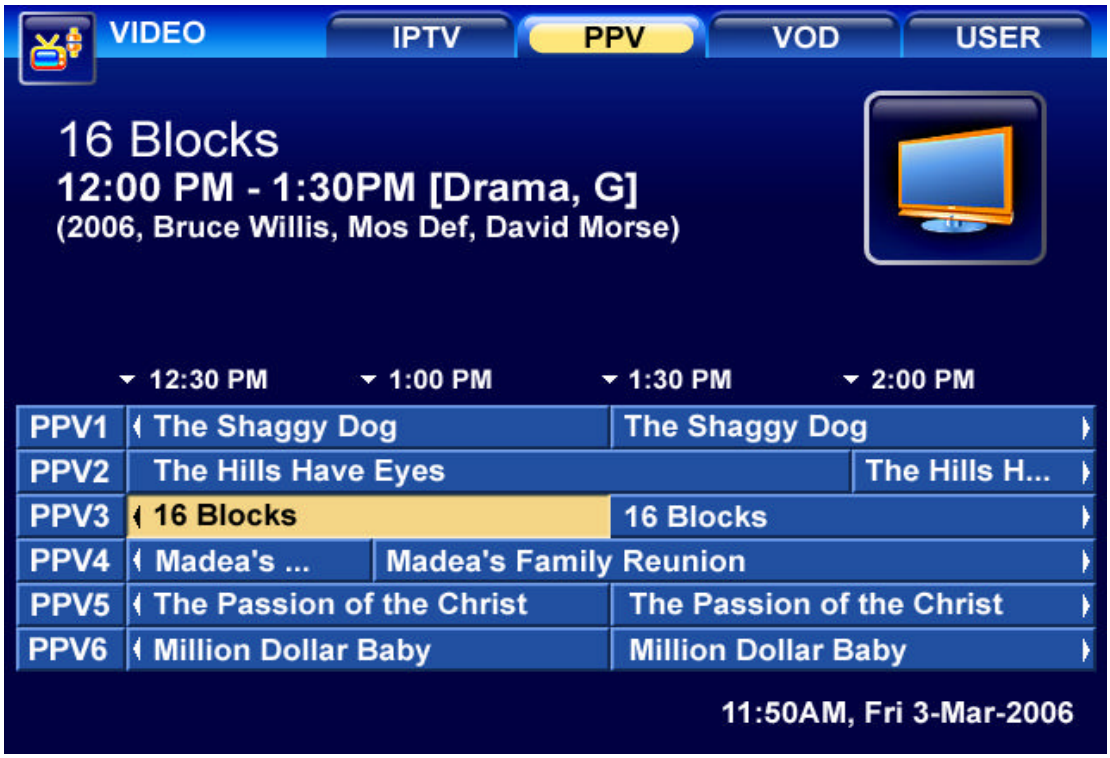
The IP Television function allows the users to watch online IP TV streaming video content. Once selected the function will connect to the remote server and retrieve the data content. The system will display various channel information including name, index, time, rating, artist, and cost information. 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)
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
PAUSE	Pauses the playing of the channel/file
DISPLAY	Switches On/Off Information display mode
MUTE	Mutes the audio output
VOLUME +/-	Increases/Decreases the volume
FOLDR	Switches On/Off folder selection
SAVE	Initiates channel/file recording (if configured)
DEL	Switches On/Off Parental Lock. Requires password.
MON	Switches between digital ZOOM modes. 1x, 2x, 4x
BOOK	Makes the selected channel Favorite

HIST	Switches to viewed content history

4.1.5. Pay Per View (this function requires service subscription)

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)
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
PAUSE	Pauses the playing of the channel/file
DISPLAY	Switches On/Off Information display mode
MUTE	Mutes the audio output
VOLUME +/-	Increases/Decreases the volume
FOLDR	Switches On/Off folder selection
SAVE	Initiates channel/file recording (if configured)
DEL	Switches On/Off Parental Lock. Requires password.

MON	Switches between digital ZOOM modes. 1x, 2x, 4x
BOOK	Makes the selected channel Favorite
HIST	Switches to viewed content history

4.1.6. Video On Demand (this function requires service subscription)

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.

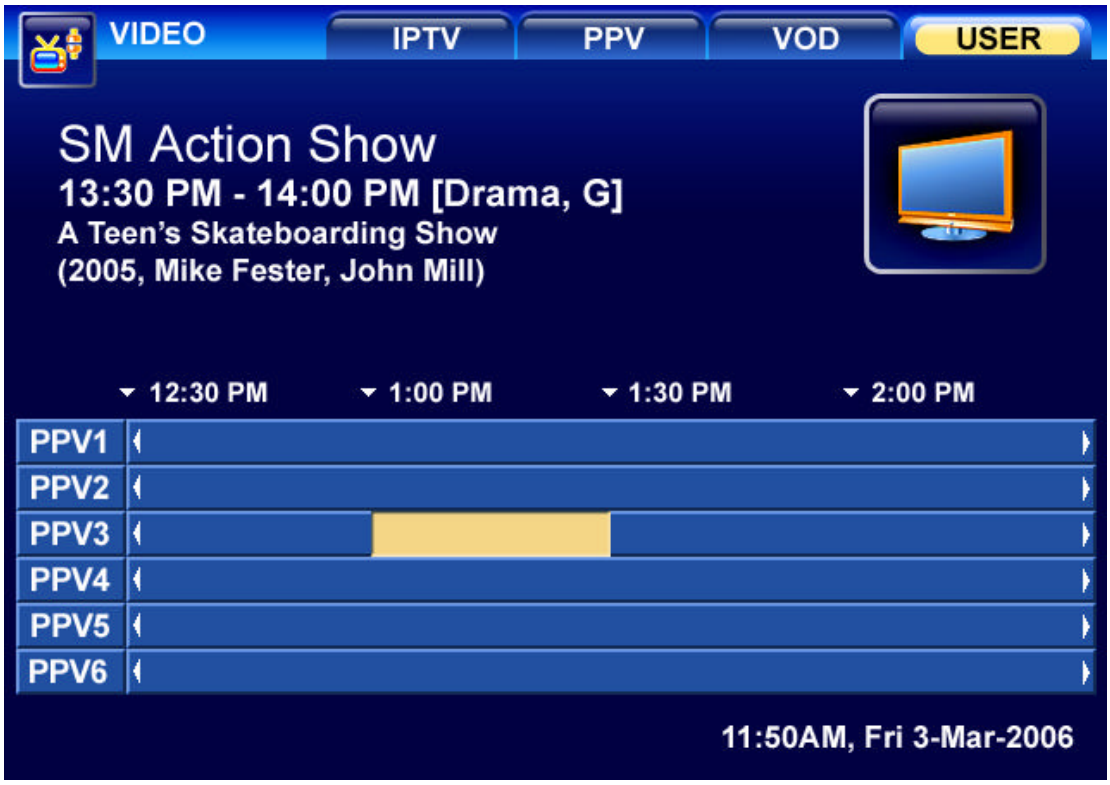
Button	**Function**
Navigator-UP	Switches to the UP channel
Navigator-DOWN	Switches to the DOWN channel
Navigator-LEFT	Moves Left across Folder selection
Navigator-RIGHT	Moves Right across Folder selection
Channel-UP	Moves one page UP (one page has 6 channels)
Channel-DOWN	Moves one page DOWN (one page 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
DISPLAY	Switches On/Off Information display mode
MUTE	Mutes the audio output

VOLUME +/-	Increases/Decreases the volume
FOLDR	Switches On/Off folder selection
SAVE	Initiates channel/file recording (if configured)
DEL	Switches On/Off Parental Lock. Requires password.
MON	Switches between digital ZOOM modes. 1x, 2x, 4x
BOOK	Makes the selected channel Favorite channel.
HIST	Switches to viewed content history

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)
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.

4.1.8. Audio Sub-Menu

ITC KM250/320 supports advanced audio options to allow users to listen to Online Radio streams, Audio on Demand streams, and User provided content. The sub-menu is entered after the users select the Audio option from the main menu or once they press the “Audio” button of the remote control (ITC KM250) or press the “Audio” button of the phone set (ITC KM320). 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/Menu	Switches to the upper menu.

4.1.9. Online Radio (this function requires service subscription)

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 (this function requires service subscription)

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

ITC KM250/320 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 (ITC KM250) or press the “Speaker” button of the phone set (ITC KM320). 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/Menu	Switches to the upper menu.

4.1.13. Video/Audio Call (this function may require service subscription)

The Video/Audio Call function allows the users to initiate and accept Audio and Video calls. The device supports up to 4 active lines 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.

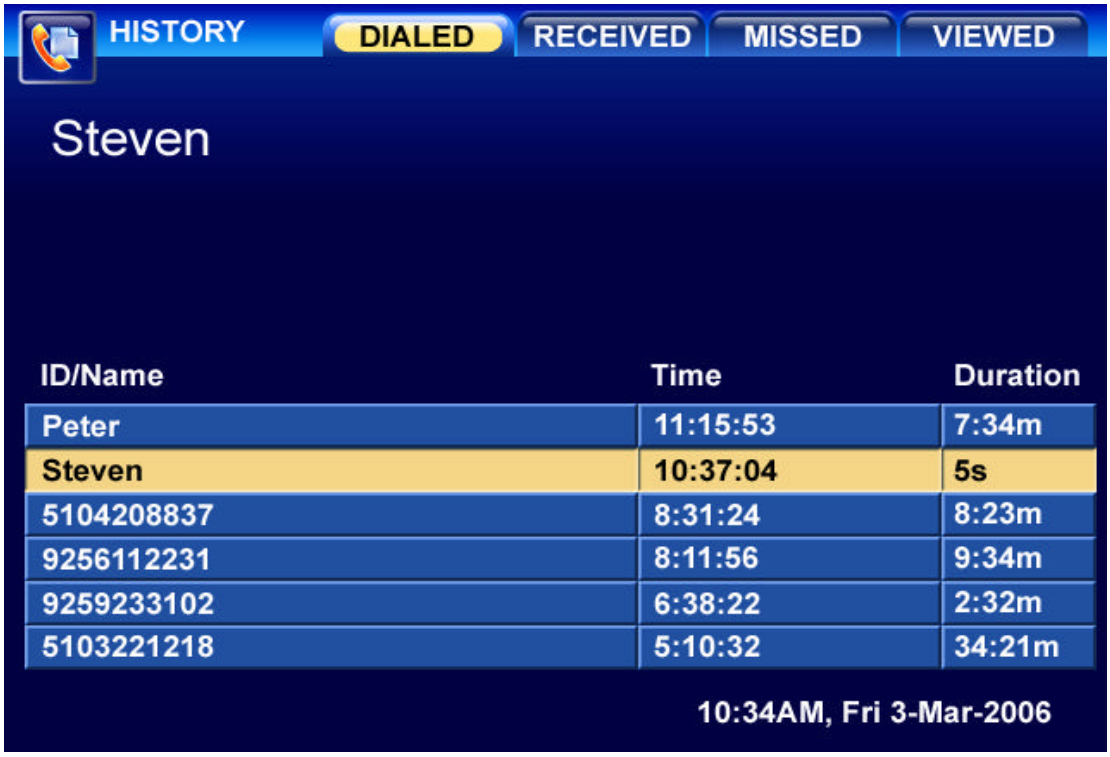
Button	Function
Navigator-UP	Switches to the UP phone line.
Navigator-DOWN	Switches to the DOWN phone line.
Navigator-Left	Moves Left across Function selection.
Navigator-Right	Moves Right across Function selection.
Navigator-OK	Opens the phone line and dials the number. If there is no entered number, 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/Menu	Switches to the upper menu.

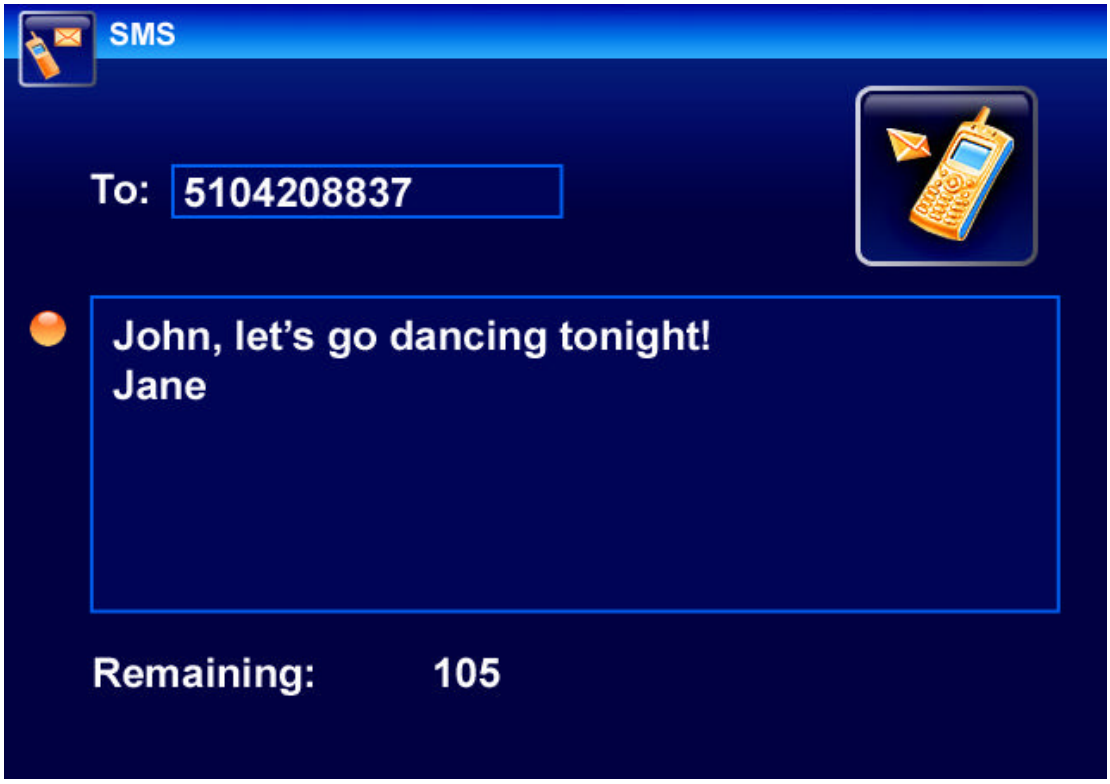
4.1.15. Voicemail Service

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/Menu	Switches to the upper menu.

4.1.16. SMS Sending (this function requires service subscription)

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/Menu	Switches to the upper menu without sending the message.

4.1.17. Information Sub-Menu

ITC KM250/320 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/Menu	Switches to the upper menu.

4.1.18. Weather Service

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/Menu	Switches to the upper menu.

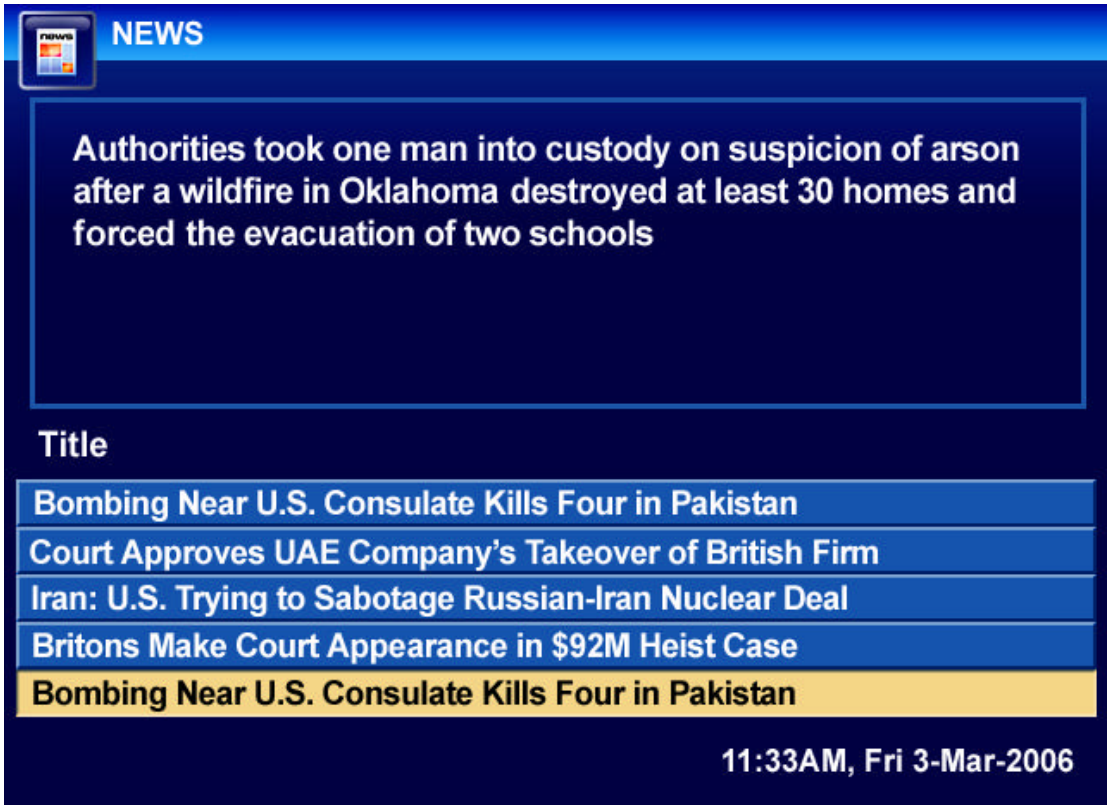
4.1.19. Currency Exchange Service

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.

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/Menu	Switches to the upper menu without sending the message.

4.1.20. News Service

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/Menu	Switches to the upper menu.

4.1.21. Stock Quote Service

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/Menu	Switches to the upper menu without sending the quote request.

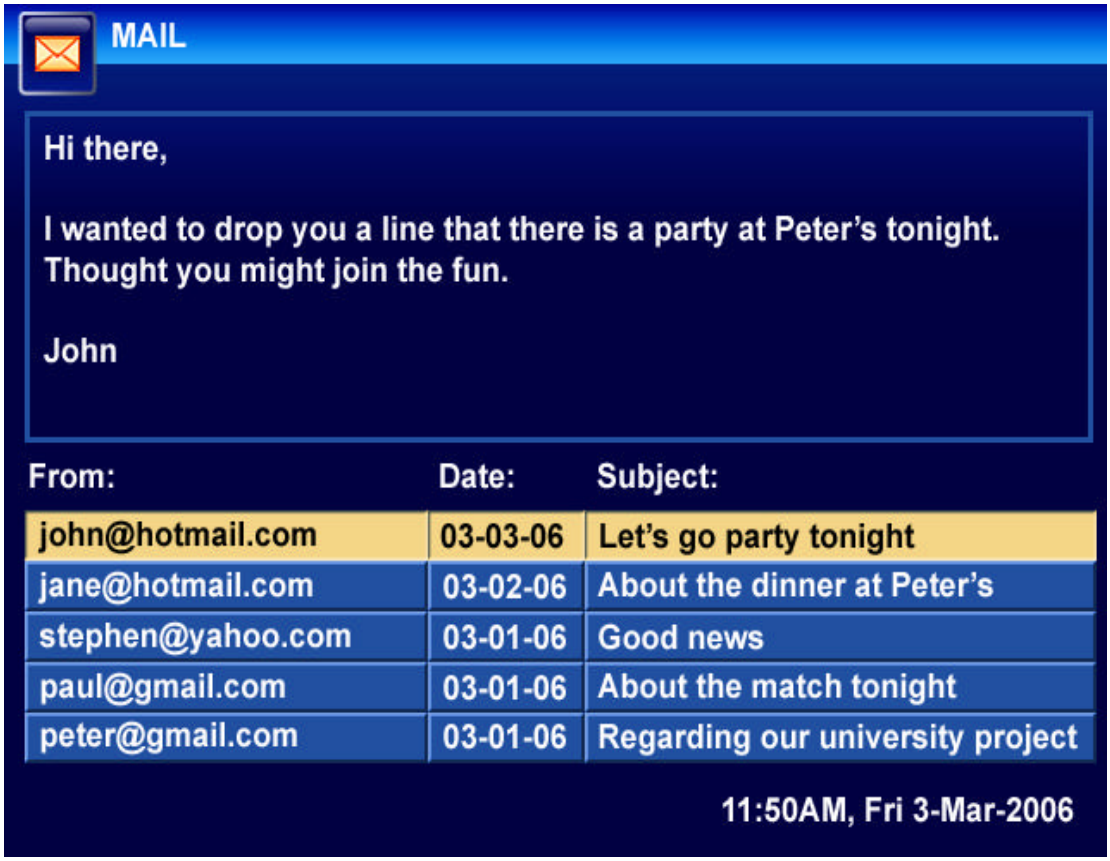
4.1.22. Communication Sub-Menu

ITC KM250/320 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.

4.1.23. Email Service

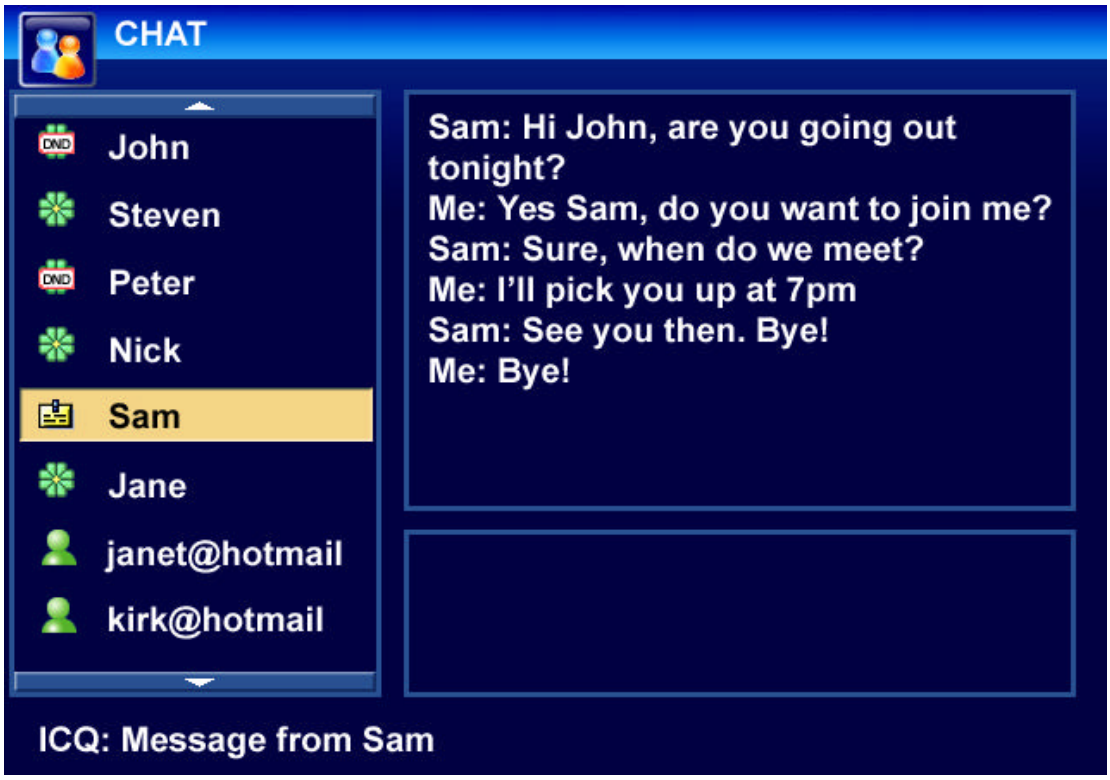
The Email function allows the users to receive and send emails. The service requires a valid external email server that is configured via the Web interface. The device retrieves emails upon startup and requires refresh to retrieve new emails. This is informational service only.



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.

4.1.24. Chat/Messenger Service

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/Menu	Switches to the upper menu without sending the message.

4.1.25. 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/Menu	Switches to the upper menu.

4.1.26. 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/Menu	Switches to the upper menu without sending the message.

4.1.27. Services Sub-Menu

ITC KM250/320 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/Menu	Switches to the upper menu.

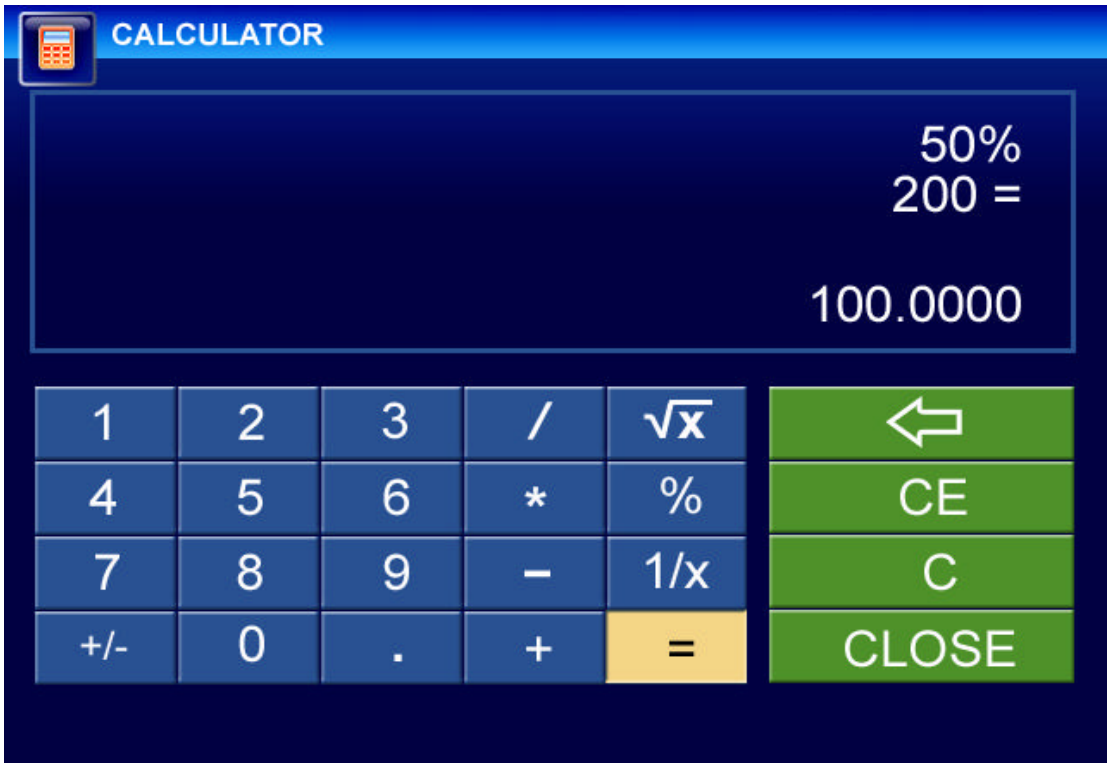
4.1.28. Program Scheduler Service

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/Menu	Switches to the upper menu.

4.1.29. 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/Menu	Switches to the upper menu without sending the message.

4.1.30. 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/Menu	Switches to the upper menu.

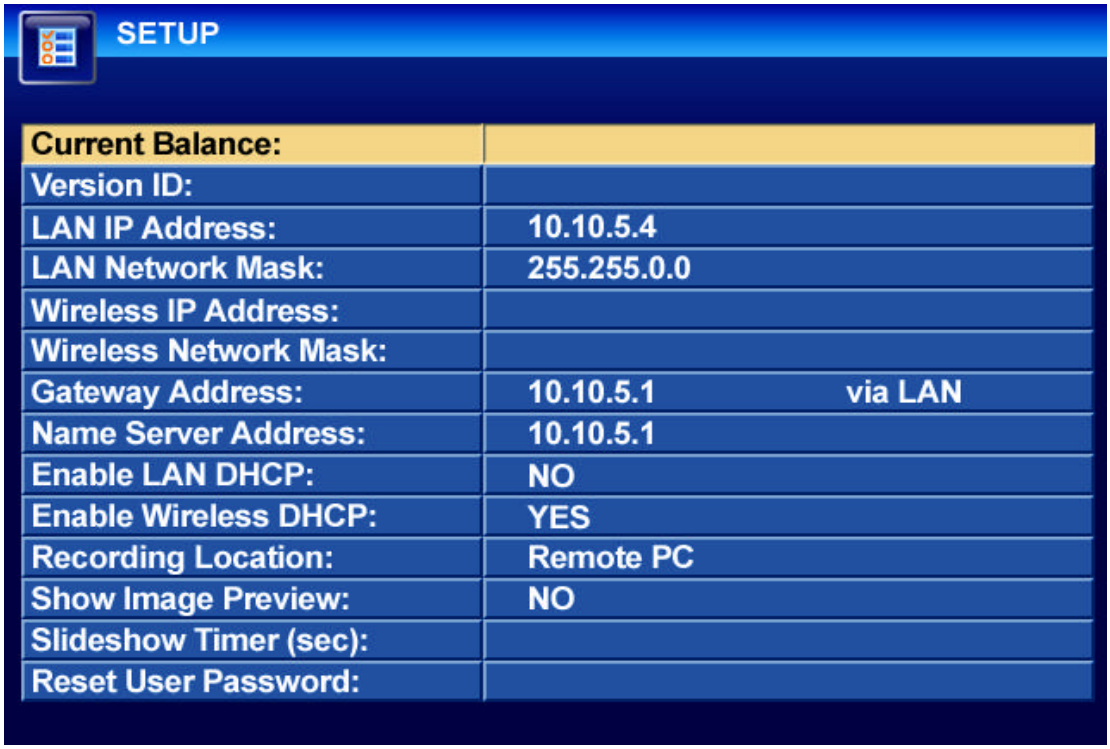
4.1.31. Wake-Up Call

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/Menu	Switches to the upper menu.

4.1.32. 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.



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/Menu	Switches to the upper menu without sending the message.

4.1.33. 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/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

ITC KM250/320 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. ITC KM250/320 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 ITC KM250/320 Device can support up to 1000 Speed Dial Numbers.

ITC KM250/320 utilizes multiple SIP lines to provide advanced features such as call transfer, call forwarding, 3-way calling, and conference calling.

For all outbound calls, ITC KM250/320 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, ITC KM250/320 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 ITC KM250/320 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

ITC KM250/320 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

ITC KM250/320 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. ITC KM250/320 can achieve transfer even is simple SIP implementations that utilize simple SIP Proxy support.

4.2.9 3-Way Calling/Conference Call

ITC KM250/320 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. ITC KM250/320 can achieve conference calling even is simple SIP implementations that utilize simple SIP Proxy support.

4.2.10 Voicemail and Message Waiting Indication

When ITC KM250/320 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. ITC KM250/320 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

ITC KM250/320 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

ITC KM250/320 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

ITC KM250/320 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 ITC KM250/320 series device. The other features are accessed via Function Buttons or via LCD/Web menu interfaces.

Key	**Call Features**
*#	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.

5. Configuration Guide

5.1. Configuration with Web Browser

ITC KM250/320 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 ITC KM250/320 will respond with the following login screen:

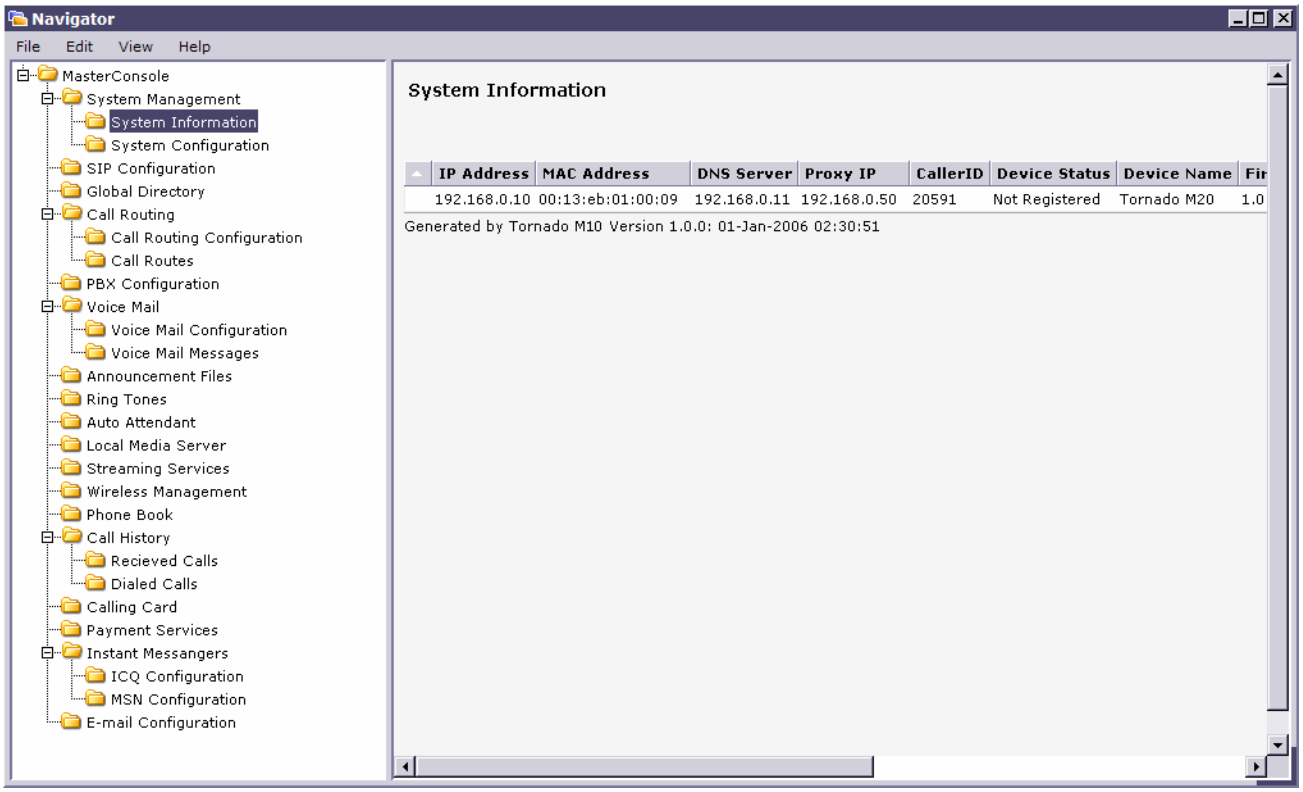
The password is case insensitive with maximum length of 25 characters and the factory default password for “user” is “54321”. The default login and password for administrators is “admin” and “12345”.

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 Configuration 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.

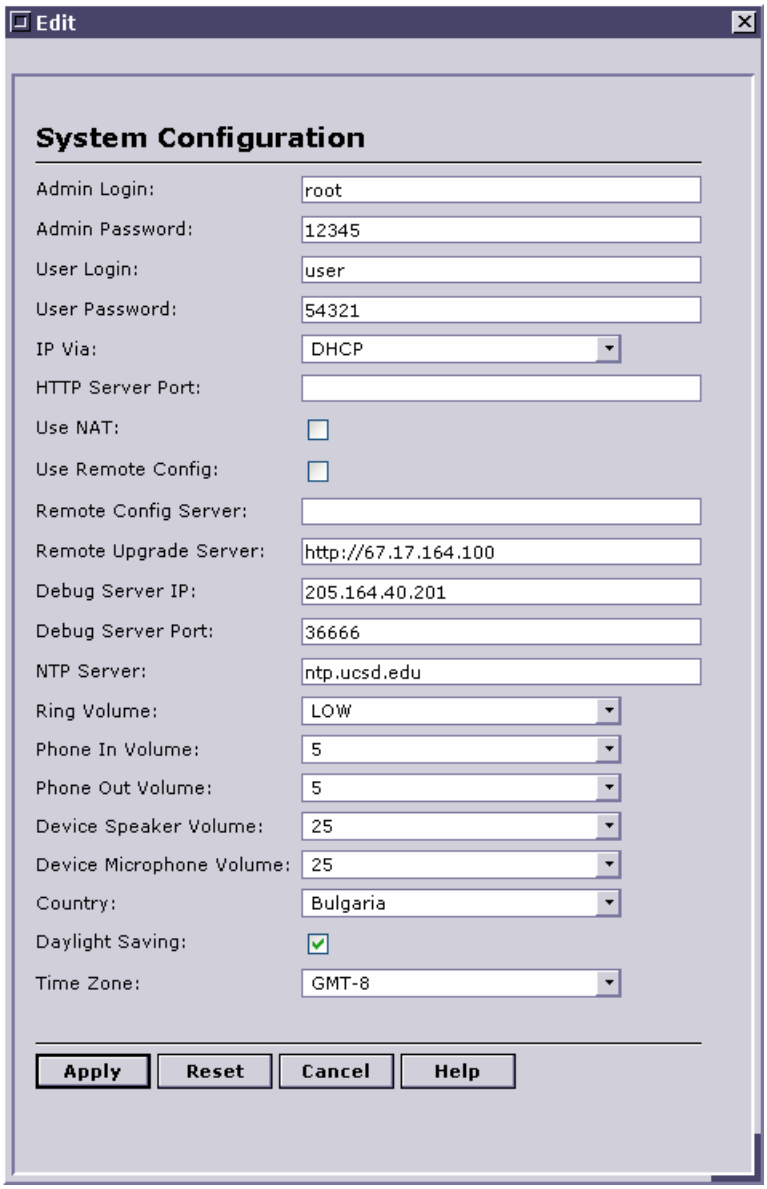
IP Address	This is the IP Address of the device
MAC Address	This is the MAC address of the device.
DNS Server	This is the IP of the DNS server.
Proxy IP	This is the IP Address or the Domain Name of the SIP proxy server
CallerID	This is the Caller ID of the device. This number represents the device number 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.

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.

5.1.5. System Configuration Dialog

The below 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.



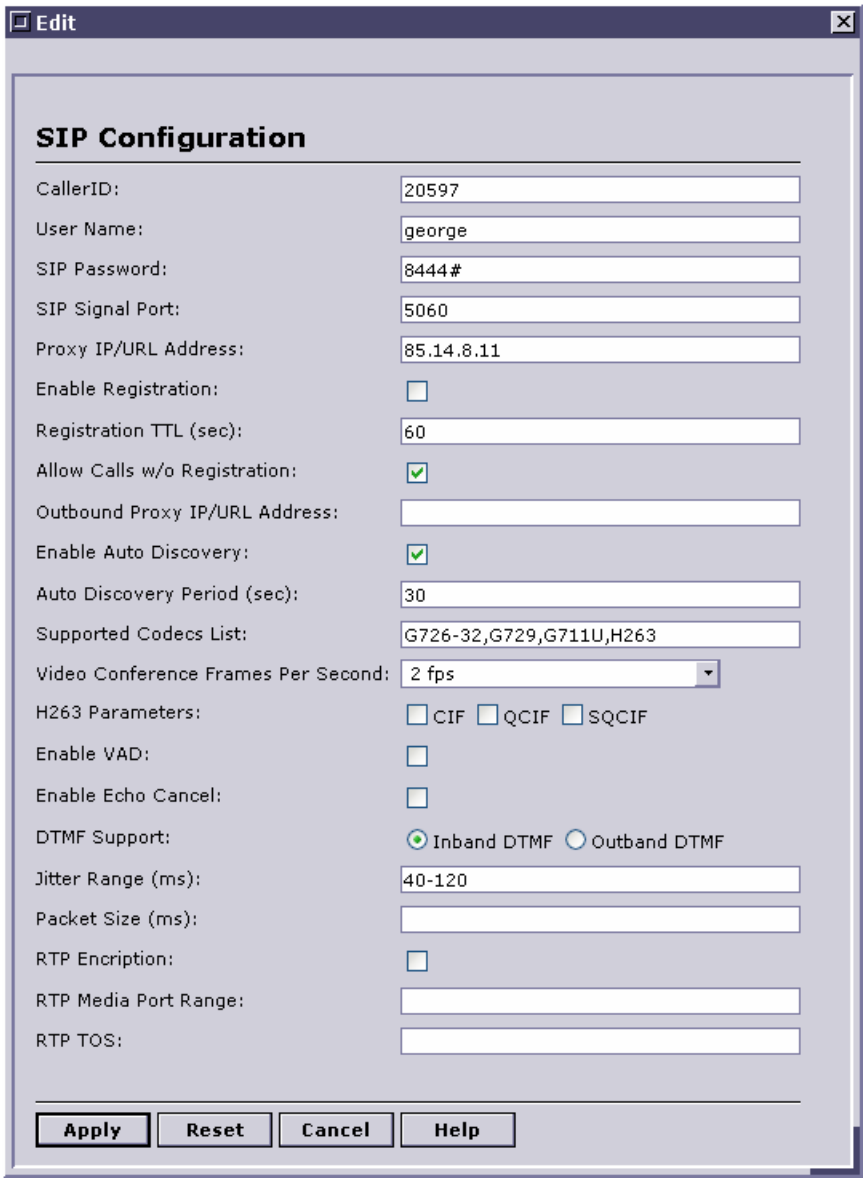
Admin Login	This is the custom login for the “admin” account. Users must keep this login a secret to avoid unauthorized access. If this device is bind to a service provider usually this login will not be disclosed to the device users and the device will be locked for administrative access.
Admin Password	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.
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.
HTTP Server Port	This is the HTTP server port. It can be customized to allow connection via HTTP in environments where the traditional HTTP ports are filtered.
Use NAT	This option allows NAT (network address translation) utilization if the device supports multiple network adapters such as Ethernet and Wireless network adapter.
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.
User 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 URL	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.
Auto Upgrade	This option is used to enable device auto upgrading. Once checked the device will retrieve information form the URL location specified in the Remote Upgrade URL and attempt to retrieve newer firmware images. This option is also used by service providers to allow automated management and upgrade of large number of devices.
Remote Upgrade URL	This is the URL location of the firmware image that the will retrieve and automatically install. The URL is usually a dynamic CGI script that allows selective upgrade based on reported device version. 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.
Ring Volume	This is the Ring Volume
Phone In Volume	This is the volume of the audio from the phone to the FXS port of the device
Phone Out Volume	This is the volume of the audio from the FXS port of the device to the phone
Device Speaker Volume	This is the volume of the device speaker or RCA audio output
Device Mic Volume	This is the volume of the device microphone
Country	This is the country location of 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.
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.

5.1.6. SIP Configuration

ITC KM250/320 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.

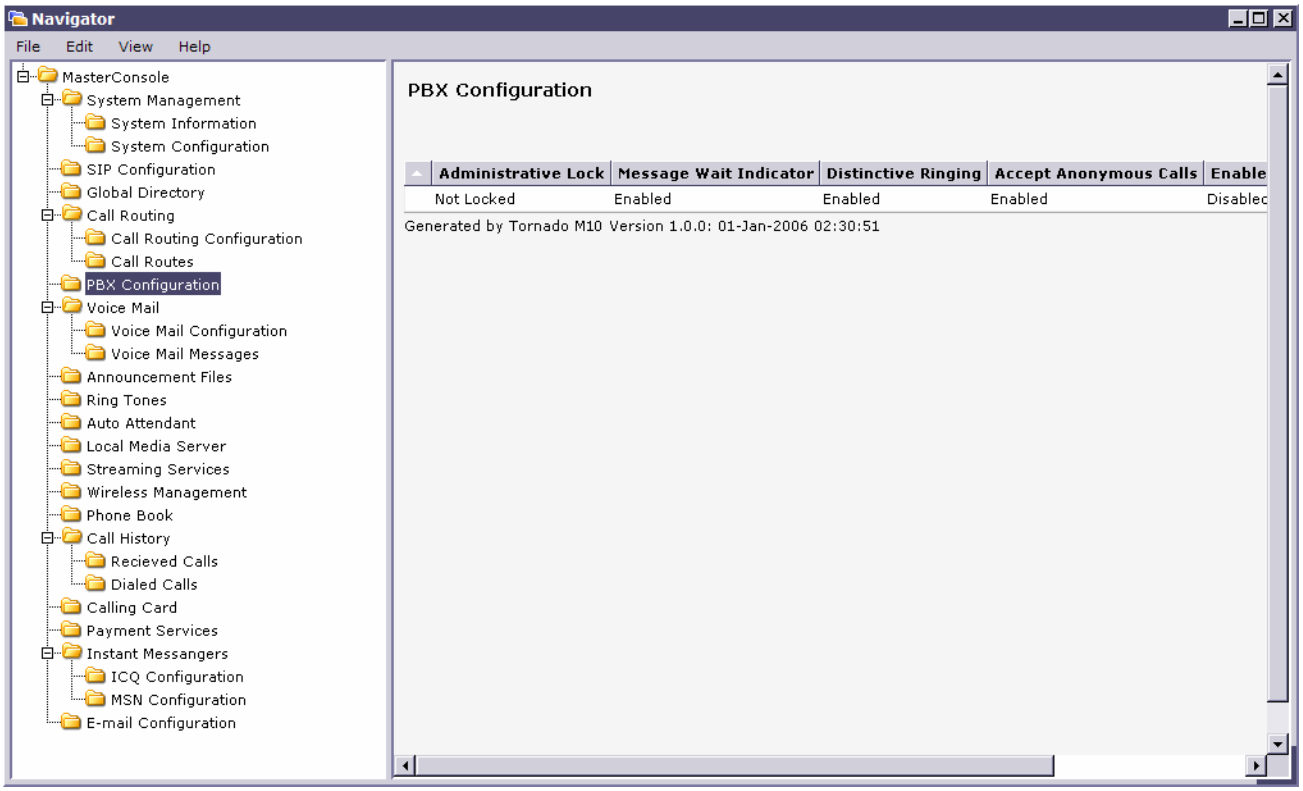


Caller ID	This is the caller id of the SIP device. ITC KM250/320 supports a single caller ID in default, but can also support more virtual Caller ID numbers utilizing an external SIP Proxy server such as Voicemaster.
User Name	This is the name of the user that operates the device.
SIP Password	This is 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	ITC KM250/320 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	This is the number of frames per second in video conference mode. The higher the FPS (frames per second) the better the video conference quality and the higher the bandwidth consumption.
H263 Parameters	This is the video resolution of the camera output. The highest veideo resolution is CIF. Available parameters are: CIF, QCIF, 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.
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

ITC KM250/320 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.

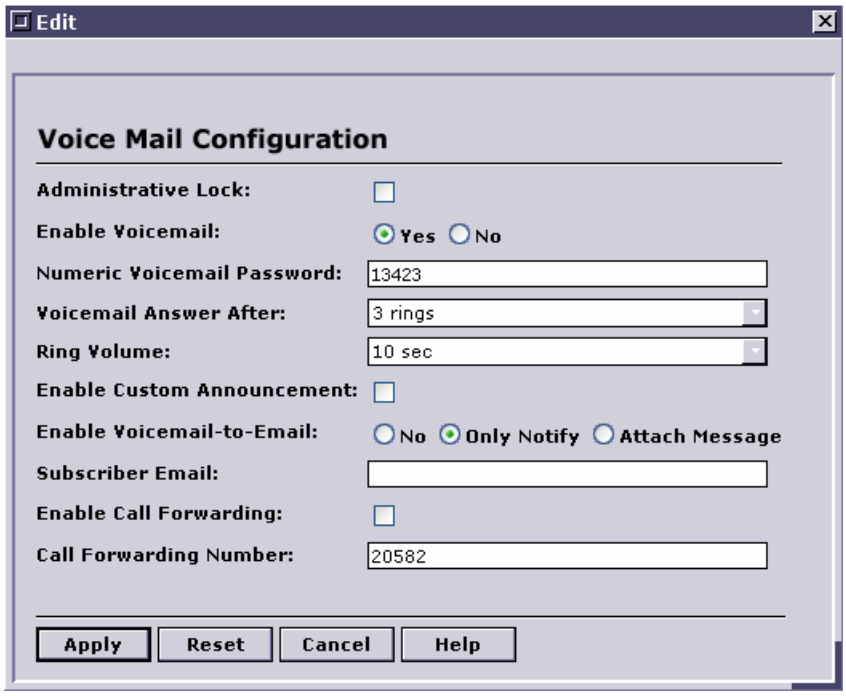


Enable Message Wait Indicator	The option allows user to enable and disable the message wait indicator. If disabled the device will not display via LED or SIP protocol the MWI (Message Wait Indicator) to notify the user that there is a new message left in the Voicemail.
Enable Distinctive Ringing	The 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 Wait	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.
PBX Server IP Address	This is the address of the PBX server that will interpret the PBX

	DTMF commands that the device can send. The PBX DTMF commands are entered directly after the Feature button is pressed.

5.1.8. Voicemail Configuration

ITC KM250/320 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.

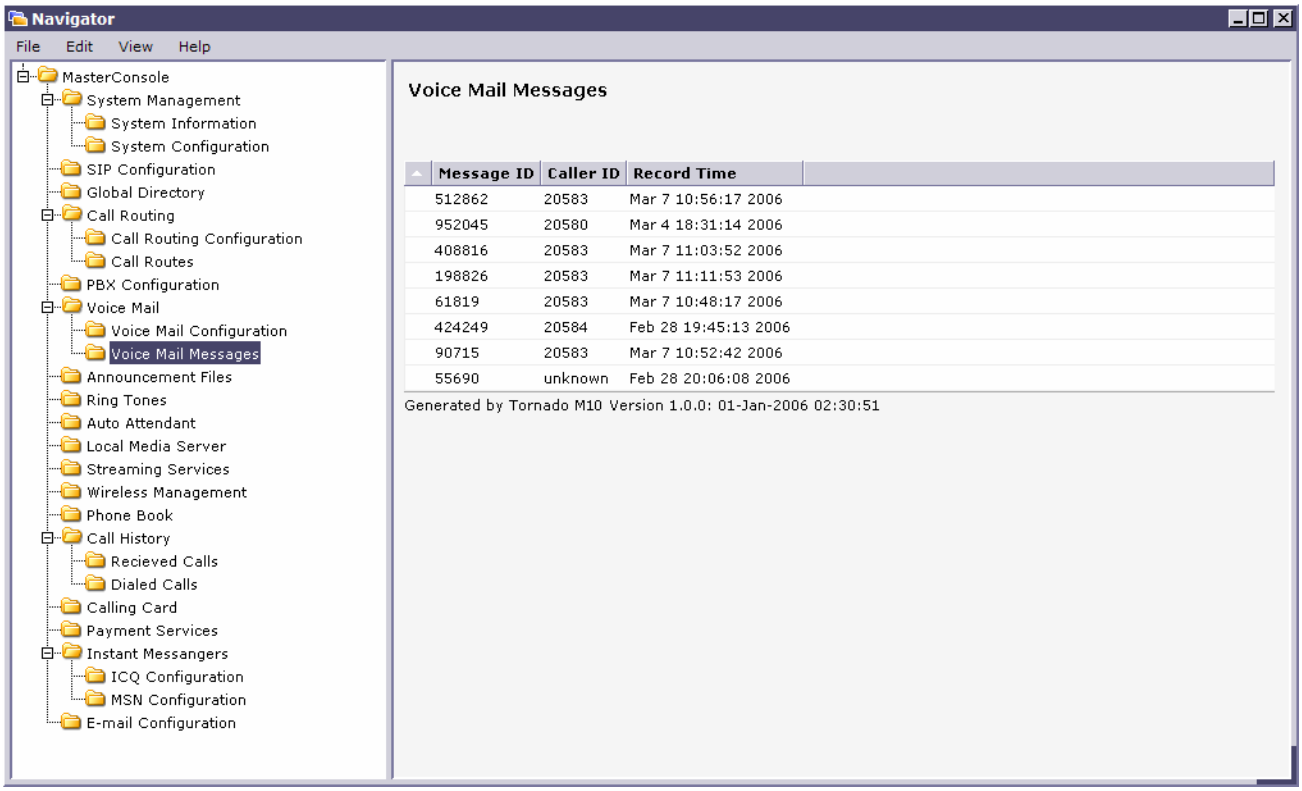


Administrative Lock	This option enables administrators to lock all options of the Voicemail functionality.
Enable Voicemail	This field enabled and disabled the Voicemail server.
Numeric Voicemail Password	Users can setup the Numeric Voicemail Password that allows access to the Voicemail IVR menu system. 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.
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.

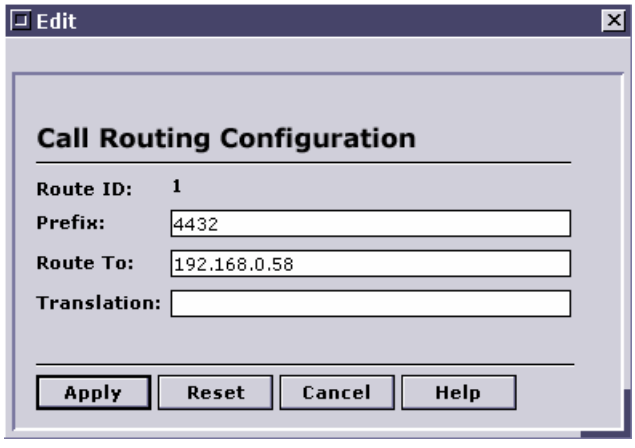
5.1.9. Voicemail Messages Administration

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

ITC KM250/320 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.

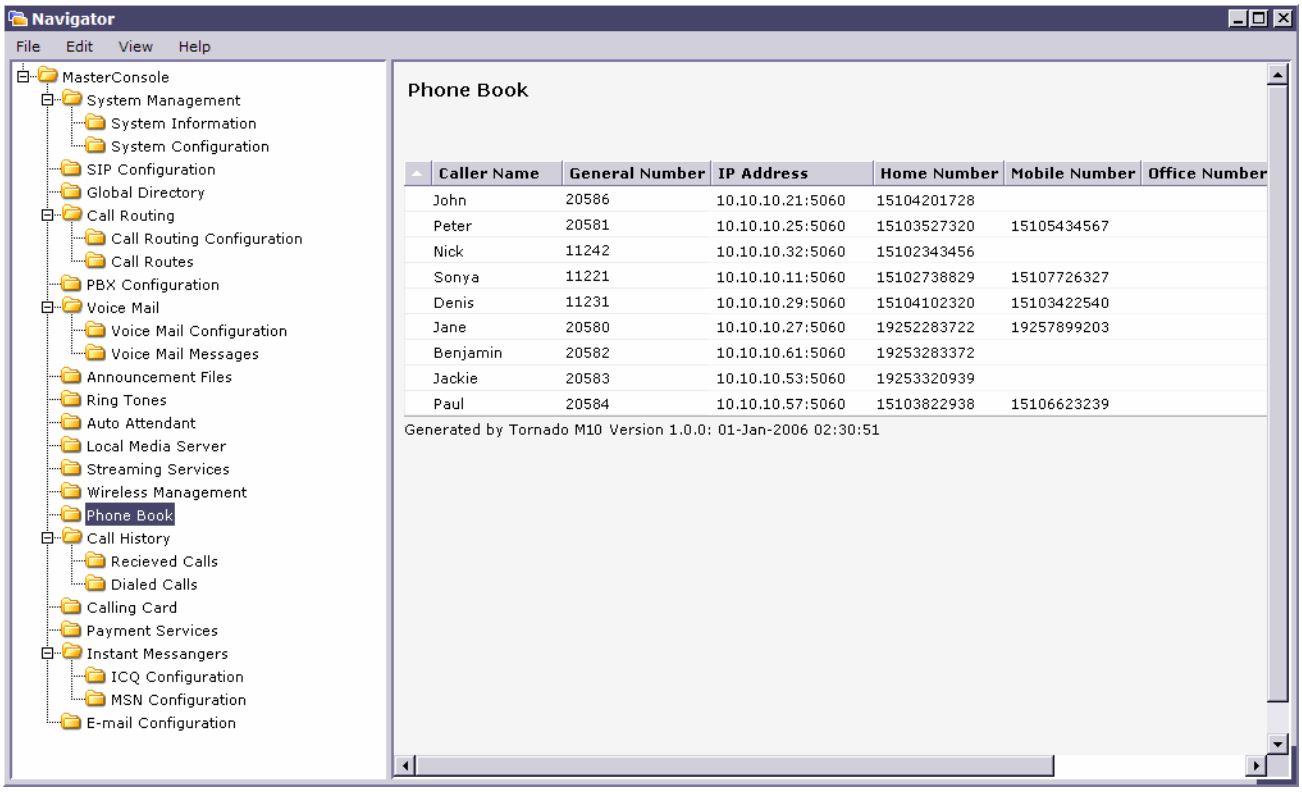


Route X	This is the Route Index. This is the route index. All matches are done based on the longest prefix match first and then if the prefixes are the same on the Route Index.
Prefix	This is the prefix that needs to be matched against the number. All

	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 ITC KM250 and KM350 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.

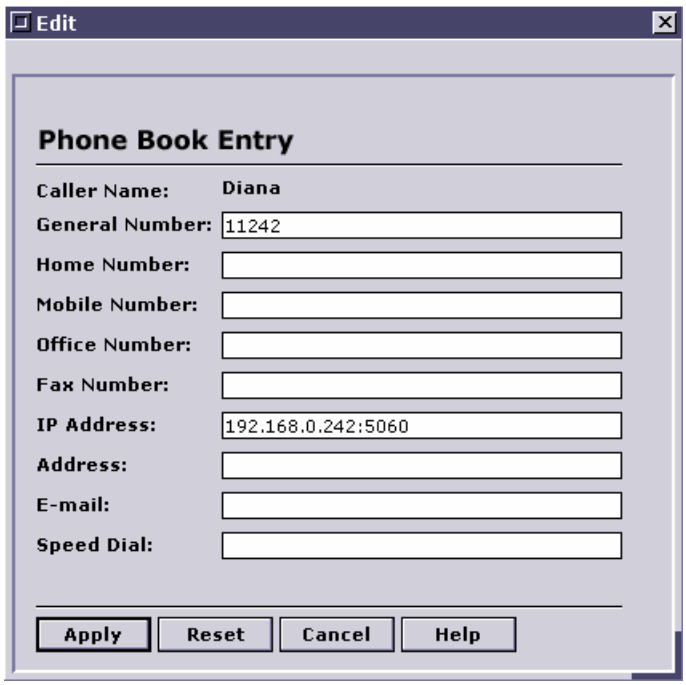
5.1.11. Phone Book Configuration

ITC KM250/320 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

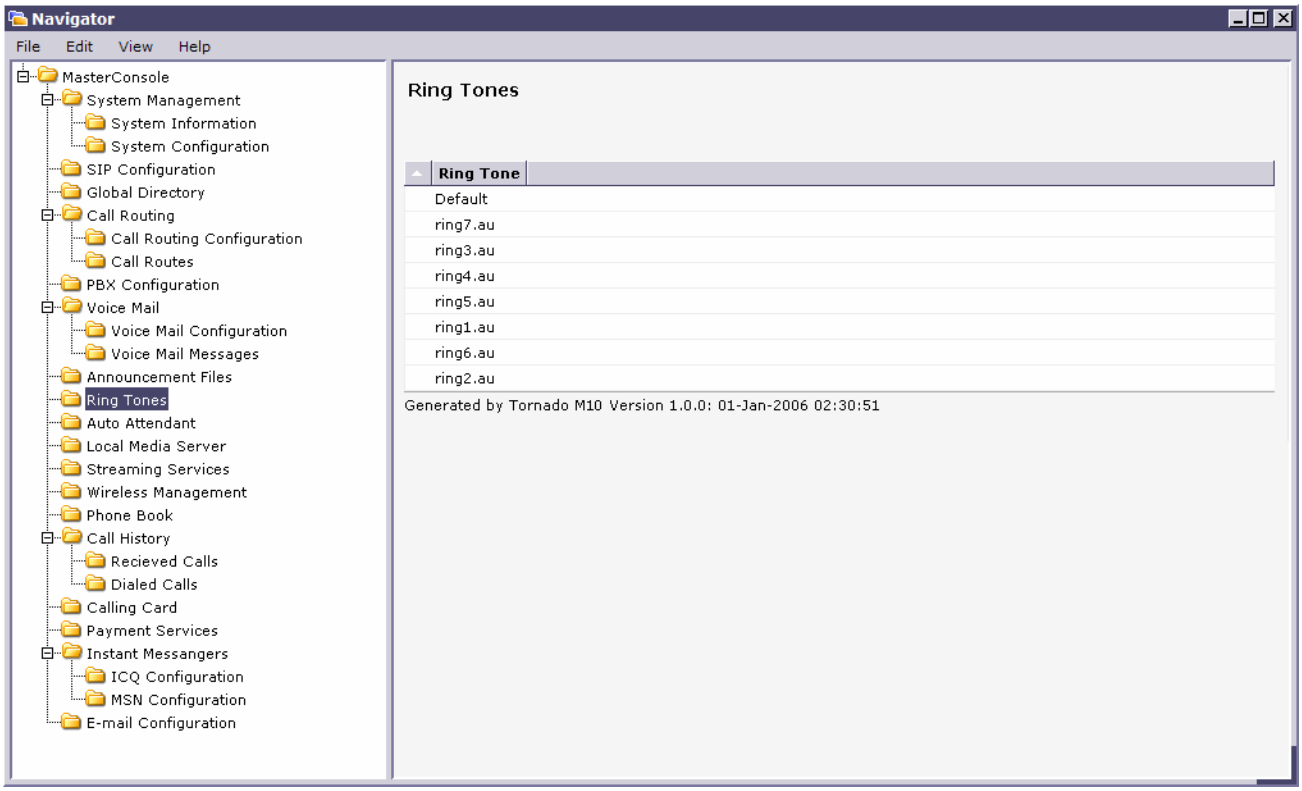
ITC KM250/320 support advanced Phone Book Entry management functionality to allow easy contact management and selection. The Phone Book is managed via the Web.



Caller Name	Press the Caller Name button to enter the Phone Book Entry dialog to modify the contact information.
Home Number	This is the general 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.

5.1.13. Distinctive Ring Tone Configuration

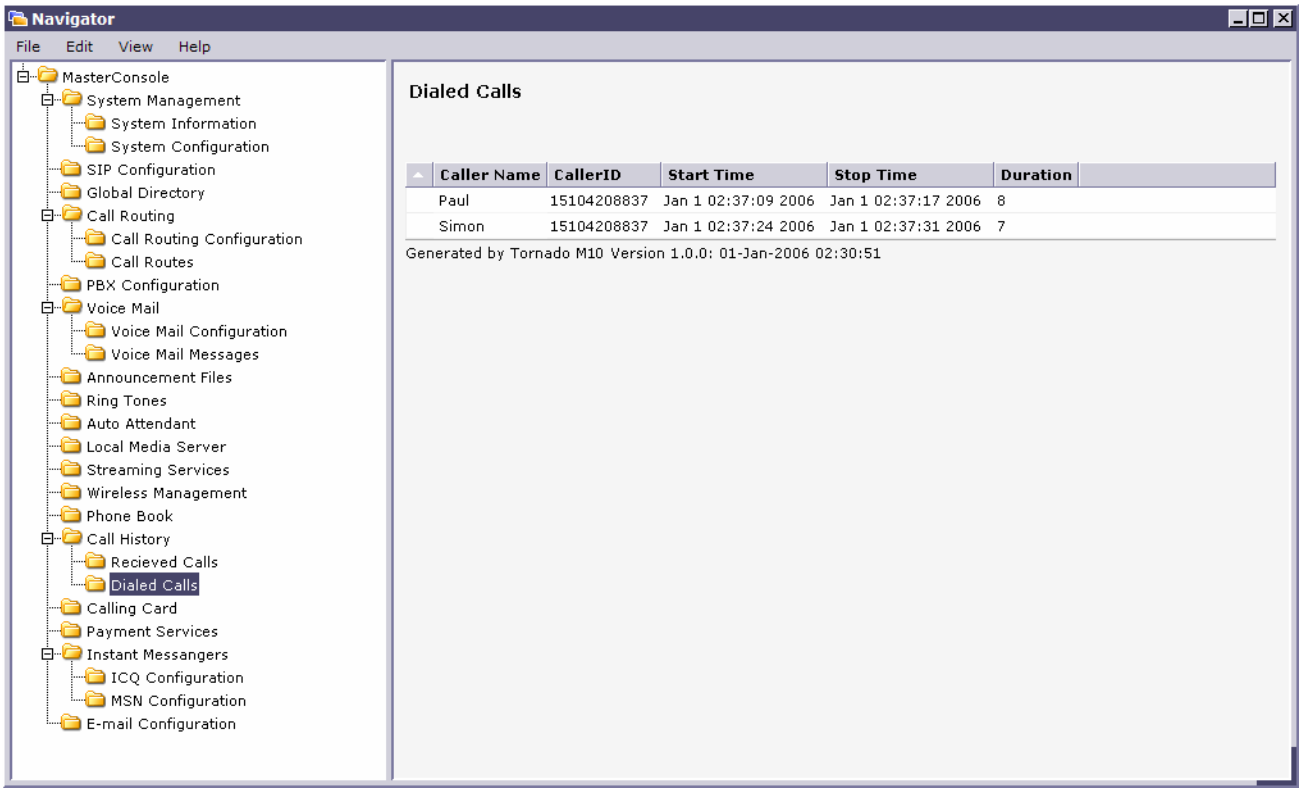
ITC KM250/320 support advanced Distinctive Ring Tone management functionality to allow easy configuration of inbound ring tones based on contact profile in the Phone Book. Users can upload up to 20 ring tones. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law 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	Pressing the DOWNLOAD button the users can download the existing ring tone onto their computer.
Delete	Pressing the DELETE button the users can delete the existing ring tone.
Upload	Pressing the BROWSE/UPLOAD buttons the users can upload an existing ring tone from their computer into the TV BOX device. The system allows only ring tones that are recorded in 8-bits, 8000Hz, Mono, Nextsun PCM Mu-law files with *.au extension.

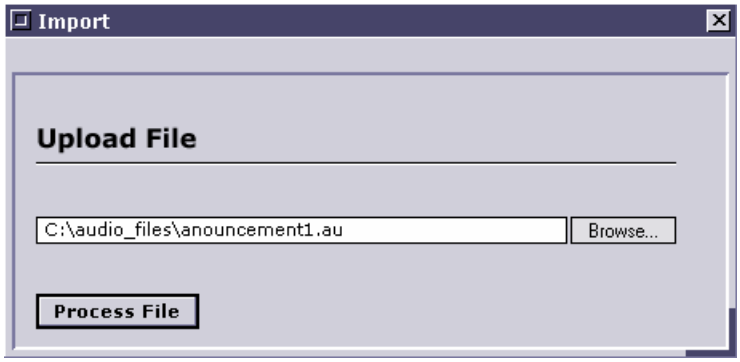
5.1.14. Call History List

ITC KM250/320 support advanced Call History List that displays all dialed numbers and received inbound calls. All fields are self explanatory. 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.



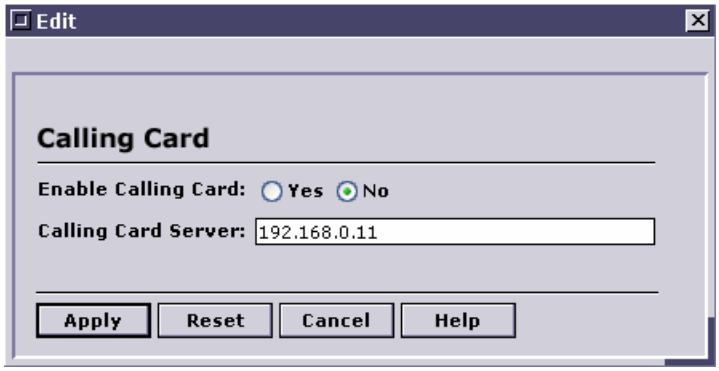
5.1.15. Voicemail Announcement File Configuration

ITC KM250/320 support advanced Voicemail 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

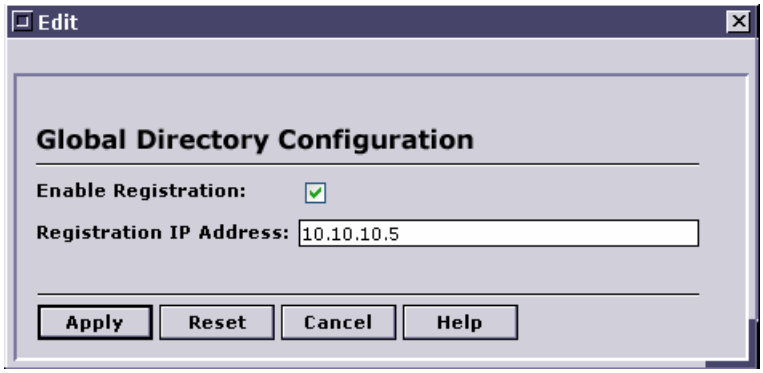
ITC KM250/320 support advanced Calling Card functionality to allow easy and fully automated calling card function suitable for automated call shop and other pre-paid device applications. Using the below form administrators can enable the Calling Card mode of the device. Once the Calling Card mode is 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.



Enable Calling Card	Enables or Disables the Calling Card IVR.
Calling Card Server	This is the IP address of the server that will authenticate and authorize the calling card entries.
Apply	Saves the changes to the form.

5.1.17. Global Directory Configuration

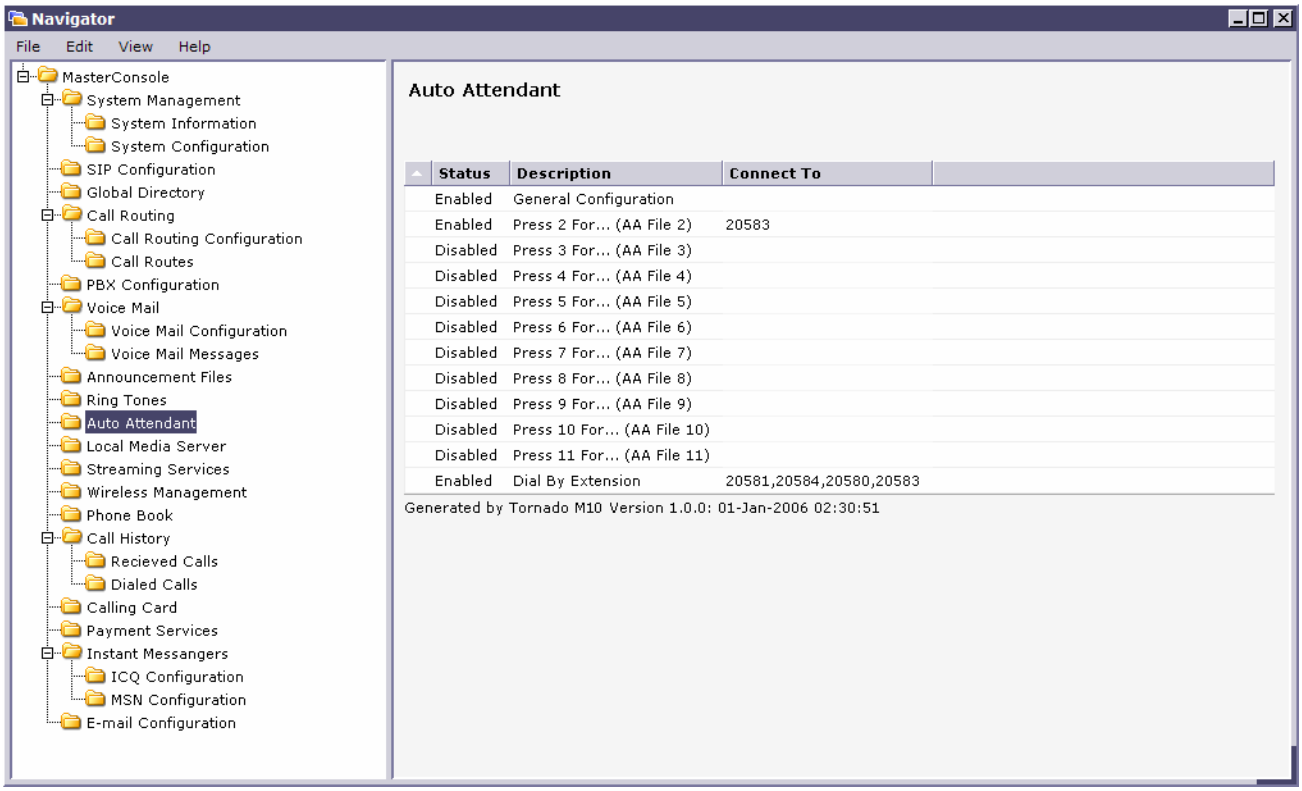
The Global Directory function allows all TV BOX devices to register into one global directory provided by the subscriber. This way all subscribers can make free phone calls within the Global Directory community.



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

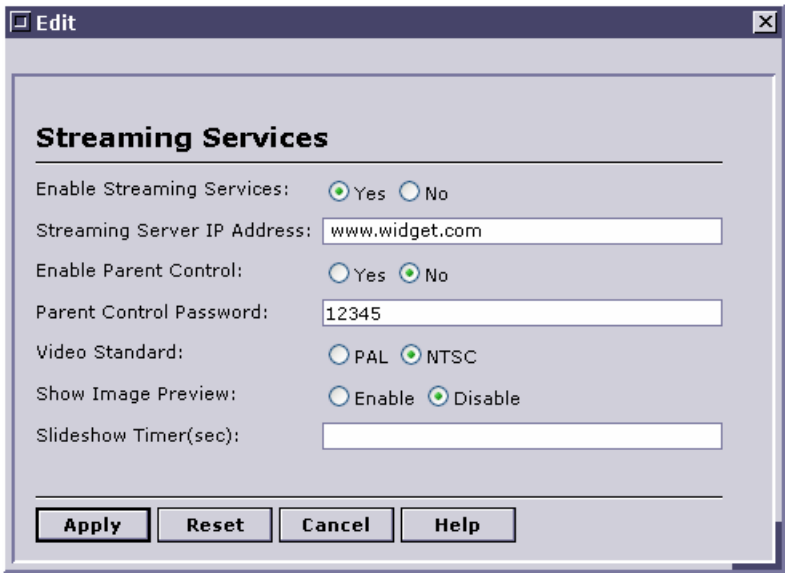
The Auto Attendant/Virtual Office function allows advanced virtual office services. The device will accept incoming calls, provide IVR auto attendant services, and allow subscribers to setup their specific Virtual office requirements.



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.

5.1.19. Streaming Services

Streaming Services functionality allows subscribers to use their TV BOX 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.

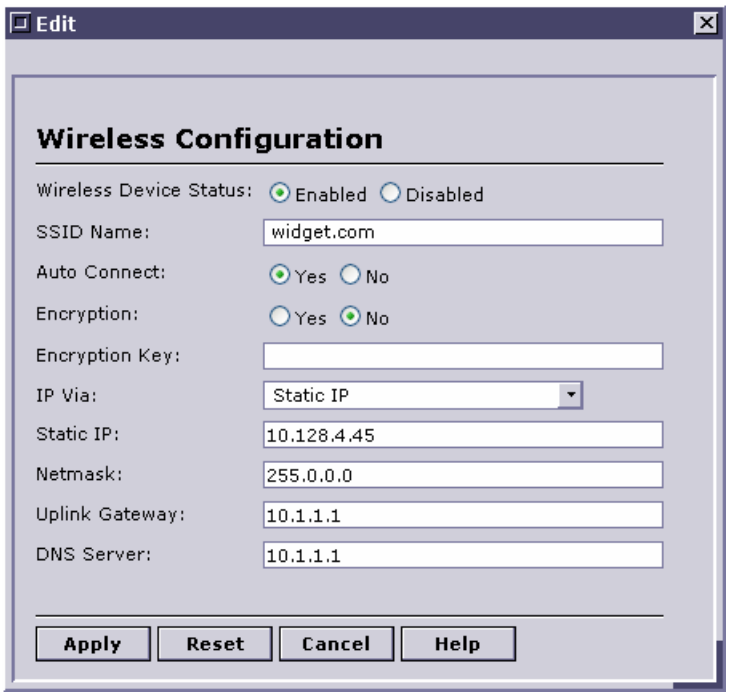


Enable Streaming Services	Enables and Disables the Streaming services for this device
Streaming Server IP Address	This is the IP address of the server that provides streaming services. Usually this is the IP address of the TV BOX Voicemaster streaming server.
Enable Parent Control	This options enables or disabled the parent control
Parent Control Password	This is the parent control password. It must be numeric.
Video Standard	TV BOX 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.
Show Image Preview	This option enables the image preview while selecting image to display in the Picture Browser mode.
Slideshow Timer	This is the slideshow timer in seconds that defines the interval between rotating the images in the slide show.
Apply	Saves the configuration changes.

5.1.20. Wireless Services

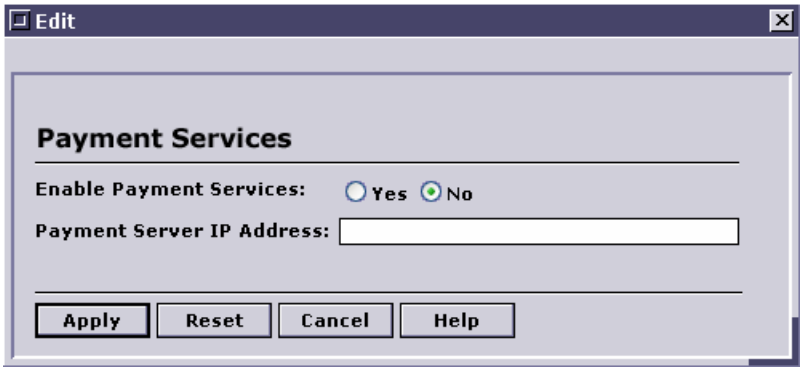
Wireless Services functionality allows subscribers to manage the Wireless peripherals of their ITC KM250/320 device. The TV BOX supports optional Wireless devices that can connect to a remote 2.4Ghz WIFI Access Point.



Wireless Device Status	Enables and Disables the Wireless device
SSID Name	This is the Wireless network name that will be used for uplink connection.
Encryption	This option enabled or disables Wireless encryption connection. To connect with Encryption the uplink Access Point should support Encryption as well.
Encryption Key	This is the Encryption Key that will be used to encrypt the data.
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.
Apply	Saves the configuration changes.

5.1.21. Payment Services

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

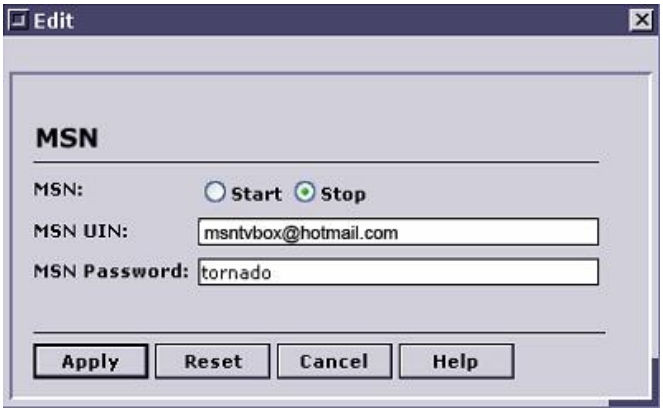


Enable Payment Services	Enables and Disables the Payment services for this device
Payment Server IP Address	This is the IP address of the payment server that will accept voucher payments initiated directly from the TV BOX device.
Apply	Saves the configuration changes.

5.1.22. Chat/Messenger Services

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

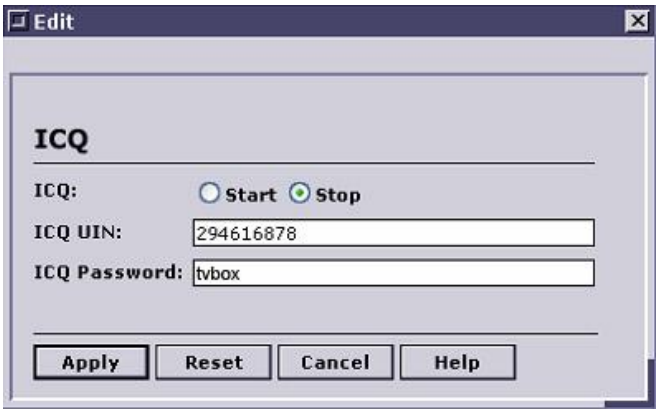
MSN subscribers can use the MSN configuration dialog to setup their TV BOX device to communicate with all MSN community groups.



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.

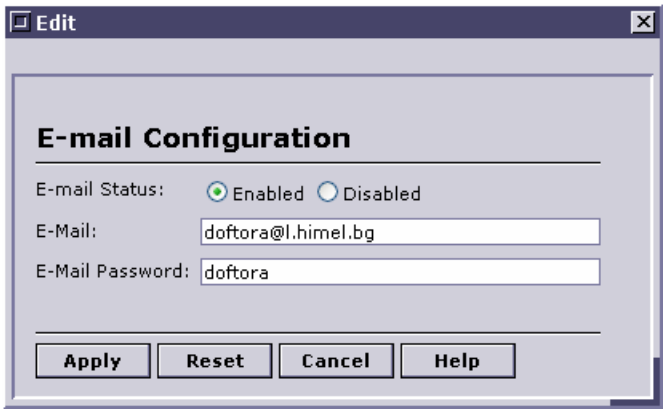
ICQ subscribers can use the ICQ configuration dialog to setup their TV BOX device to communicate with all ICQ community groups.



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.

5.1.23. Email Services

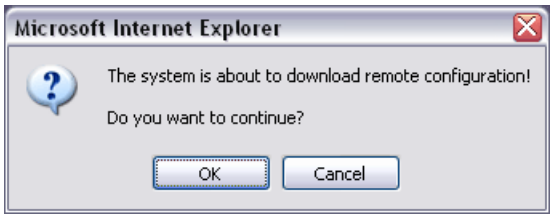
Email Services allow subscribers to use their TV BOX device to send and receive emails.



E-mail Status	Enables and Disables the E-mail service for this device.
E-Mail	This is the E-mail of the subscriber
E-Mail Password	This is the E-mail password.
Apply	Saves the configuration changes.

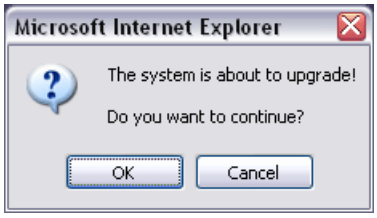
5.1.24. Remote Configuration Upgrade

ITC KM250/320 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.



5.1.25. Remote Firmware Upgrade

ITC KM250/320 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).



5.1.26. 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.

5.1.27. 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

TV BOX - ITC KM250/320 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

ITC KM250/320 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. TV BOX strongly recommends the usage of file encryption. If providers have an interest to implement configuration file encryption, they should send a request to their TV BOX Corporation sales representative (itc@itcnetwork.tv) 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

ITC KM250/320 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. “tvbox.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.