

KM-901

User's Guide

Copyright© 2011 Beacon Extender Inc. All rights reserved.
Version 4.01

1. Introduction

The KM-901 system is a Multi-PC-Multi-user KVM with audio matrix over IP Ethernet LAN. The system contains elements of KM-901T Transmitter, KM-901R Receiver, KM-901M Management unit, and KM-901S Windows based User Account Management software. Any 100 Mbps, Gigabit, or Fiber Ethernet LAN switches can be used to inter-connect the Transmitters and the Receivers for the KVM with audio matrix over IP Ethernet.

1.1 Specification

KM-901T Transmitter

Video Input: DVI-I (DVI-D + VGA)

Video loop-out: VGA

USB Upstream: Mini-A USB

Audio In: 3.5mm Line-In

Ethernet: 100Mbps RJ-45

Power: DC 12V

KM-901R Receiver

Video Output: DVI-I (DVI-D + VGA)

Local PC KVM Input: HDD15 Female with VGA + USB

Audio Out: 3.5mm Line-Out

USB Down Stream: 2 x USB-A for keyboard/mouse

PS2 Down Stream: 2 x PS2 for keyboard/mouse

Ethernet: 100Mbps RJ-45

Power: DC 5V

KM-901M Management Unit

PS2 Down Stream: 2 x PS2 for keyboard/mouse

Ethernet: 100Mbps RJ-45

Power: DC 5V

Input video & resolution

Input video can be VGA or DVI-D in all standard resolutions from 640 x 480 to 1920 x 1200 @ 60Hz ~ 70Hz and the following special resolutions 1440 x 900, 1400 x 1050, 1680 x 1050, 1360 x 768.

Output video & resolution

Output video can be VGA or DVI-D in all standard resolutions from 640 x 480 to 1920 x 1080 @ 60Hz ~ 70Hz and the following special resolutions 1440 x 900, 1400 x 1050, 1680 x 1050, 1360 x 768.

Output frame rate

640X480@70fps, 800X600@70fps, 1024X768@60fps,
1280X1024@30fps, 1600X1200@30fps, 720X480@60fps,
720X576@50fps, 1280X720@30fps, 1440x900@30fps,
1400x1050@30fps, 1680x1050@30fps, 1360x768@30fps,
1920X1080@25fps

Scalar support: Allows difference input and output resolution, also support input-VGA/output DVI-D, input DVI-D/output VGA

LAN: 100Mbps, Auto-MDIX, Flow control.

Audio: 48 KHz stereo audio

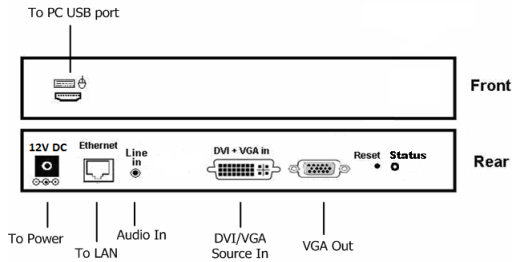
2. Installation Setup

2.1 Install KM-901T Transmitter

1. The video input of the KM-901T is **[DVI-I]** (VGA + DVI-D). You can use the accessory of VGA-to-DVI cable to connect from PC VGA-Out to the KM-901T **[DVI-I]**. Or you can prepare a DVI-to-DVI cable to connect from PC DVI-D to the KM-901T **[DVI-I]**.
2. There is a **[VGA-Out]** on the KM-901T for the VGA loop-out. It is only available when the input video is DVI-A (VGA). You can attach a VGA monitor on this **[VGA-Out]** for local display.
3. Use accessory of audio cable to connect from PC Line-Out to the KM-901T **[Line-IN]**.
4. Use accessory of Mini USB-to-A cable to connect from the KM-901T **[Mini USB]** to PC USB port.
5. Use CAT5e/6/7 cable to connect KM-901T **[Ethernet]** to the Ethernet switch (or directly to the KM-901R). All of KM-901T and KM-901R must be put in the same network and should not be inter-connected with router.
6. Use the included 12V DC power adapter to connect KM-901T **[DC IN]** power socket and plug the power supply to wall.
7. There is a [Status] LED and 2 RJ45 LEDs on the KM-901T, please refer to the below table for the status of KM-901T:

[Status] LED		RJ45 LED		Status
Red	Green	Green	Orange	
On				System OK, network is not connected
Blink			On	System failed
	On	On		System OK, network is connected
	On	On	On	System OK, network overload

8. The [Reset] button on the KM-901T Rear panel can be used for entering "Advance Setup Mode", please refer to Chapter 4. The KM-901T panel diagram is shown as below:



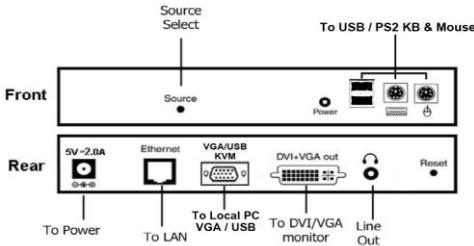
2.2 Install KM-901R Receiver

1. The video output of the KM-901R is **[DVI-I]** (VGA + DVI-D). You can use the accessory of VGA-to-DVI cable to connect KM-901R to the VGA monitor. Or you can prepare a DVI-to-DVI cable to connect KM-901R to the DVI monitor.
2. Use accessory of audio cable to connect KM-901R **[Line Out]** to speaker.
3. Plug keyboard and mouse to the **[PS2]** or optional **[USB]** port.
4. If you have a local PC on the KM-901R, you can use the accessory of VGA/USB KVM cable to connect PC VGA-Out and USB to the KM-901R **[VGA/USB KVM]** port.
5. Use CAT5e/6/7 cable to connect KM-901R **[Ethernet]** to the Ethernet switch (or directly to the KM-901T). All of KM-901T and KM-901R must be put in the same network and should not be inter-connected with router.
6. Connect the included DC 5V 2A power adapter to the DC-IN and plug the power supply to wall. To avoid damage to the KM-901R, please use power adapter in the package and **SHOULD NOT MIX with the power adapter of KM-901T (12V)**.
7. There is a **[Source]** button on the front panel for the system OSD operation menu. Please refer to Chapter 3 for detail.

8. There is a [Power] LED and 2 RJ45 LEDs on the KM-901R, please refer to the below table for the status of KM-901R:

[Power] LED		[RJ45]		Status
Red	Green	Green	Orange	
Off				No Power
On				System OK, network is not connected
Blink			On	System failed
On		On		System OK, network is connected, but not able to link with Transmitter
	On	On		System OK, linked with Transmitter
On	On	On		System OK, dis-connected with Transmitter (the [Power] LED in orange color)
	On	On	On	System OK, network overload

9. The [Reset] button on the KM-901R Rear panel can be used for entering “Advance Setup Mode”, please refer to Chapter 4. The KM-901R panel diagram is shown as below:



2.3 Install KM-901M Management unit

The KM-901M hardware is exactly same as KM-901R, please follow the same above KM-901R installation steps 5, 6 to install the KM-901M to the Ethernet switch and plug in the DC 5V 2A power adapter to the DC-IN. However, you will also need to run the KM-901S software to create and download user accounts information into the KM-901M unit before the whole system can be correctly activated.

3. The KM-901R OSD Menu

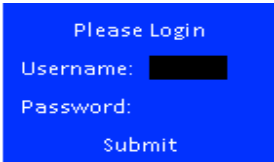
3.1 Login menu

The KM-901R Receiver will search and find any available KM-901M (for User account information) from the network when it is powered ON:



Searching KM-901M

If the KM-901R successfully found any KM-901M unit available in the network with users account information, it will prompt the following Login menu:



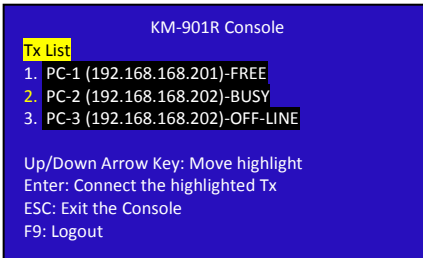
Please Login

Username:

Password:

Submit

Enter correct username/password and press <Tab> key to navigate to [Submit] and press <Enter>. If the name and password is successfully login, the KM-901R will show an OSD menu with authorized Transmitters list as below:



KM-901R Console

Tx List

1. PC-1 (192.168.168.201)-FREE
2. PC-2 (192.168.168.202)-BUSY
3. PC-3 (192.168.168.202)-OFF-LINE

Up/Down Arrow Key: Move highlight
Enter: Connect the highlighted Tx
ESC: Exit the Console
F9: Logout

There is a status field for each Transmitter: FREE, BUSY and OFF-LINE. "FREE" means the Transmitter is not used by any user and is available for the keyboard/mouse remote control. "BUSY" means the Transmitter is currently keyboard/mouse controlled by

another user and is only available for monitoring. "OFF-LINE" means the Transmitter is not on-line in the network. The "*" indicate the currently login Transmitter. Use ↑ ↓ key to navigate to the desired Transmitter and press <Enter> to connect to that PC. The following status message will be displayed on the top of the screen if the connection was successfully established.

```
Tx-name-1 Control
```

"Tx-name-1": name of the current connected KM-901T.

"Control": you are accessing this PC as Master with keyboard/mouse control function.

"Busy": you can only monitor this PC without keyboard/mouse control function.

"Time Out": During the Control, if there is no keyboard/mouse activities for a pre-defined time-out period, the status will be changed to "Time Out" and become "Free" for other users to connect.

During the Control or Monitor, you can switch to another PC by pressing <Ctrl><Ctrl> to get the following Transmitters list OSD:

```
Tx-name-1 CONTROL
KV-901R Console
Tx List
1. * Tx-name-1(192.168.168.201)-BUSY
2. Tx-name-2(192.168.168.202)-FREE
3. Tx-name-2(192.168.168.202)-OFF-LINE

Up/Down Arrow Key: Move highlight
Enter: Connect the highlighted Tx
ESC: Exit the Console
F9: Logout
```


3.2 System menu

By pressing the KM-901R **[Source]** button you can enter the System menu as below:




```
>VGA SYNC
>KM-901T SETTING
>EXIT
```

Press the **[source]** button to navigate each System menu function.

3.2.1 VGA SYNC: This function is only available when the KM-901T is connected with VGA input, and if the picture shifts from screen, this function is used to auto adjust the picture.

3.2.2 KM-901T SETTING: Use this function to setup KM-901T:

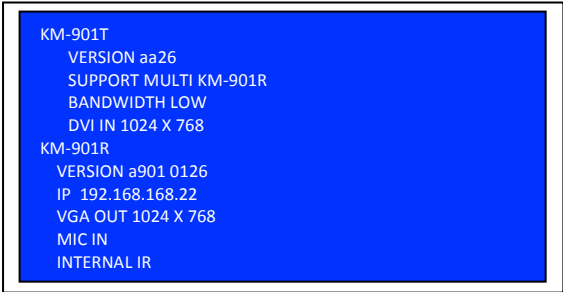


```
>BANDWDITH SETTING
>INFORMATION
>EXIT
```

3.2.2.1 BANDWIDTH SETTING

This function adjusts the bandwidth usage of the KM-901T. There are three levels for selection: LOW, MID, HIGH. Please note to set LOW, it will use lower network bandwidth and get a more efficient performance but will come with lower image quality.

3.2.2.2 INFORMATION: This function shows the KM-901T and KM-901R basic information:



```
KM-901T
  VERSION aa26
  SUPPORT MULTI KM-901R
  BANDWIDTH LOW
  DVI IN 1024 X 768

KM-901R
  VERSION a901 0126
  IP 192.168.168.22
  VGA OUT 1024 X 768
  MIC IN
  INTERNAL IR
```

4. Advanced Setup

This section is in detail for how to assign IP address for KM-901T and KM-901R, and how to upgrade firmware.

4.1 Setup IP address

A HTTP server is embedded in KM-901T and KM-901R for changing IP and firmware upgrade. However, the changing IP and firmware upgrade is available in **Setup Mode** only, not in **Normal Mode**.

For the KM-901R, there are 2 internal IP: the operation IP and configuration IP. The operation IP is changeable but the configuration IP is always fixed at 192.168.168.22.

For the KM-901T, the operation IP is same as configuration IP. The factory default IP is shown on the label under the box. That means, you should remember the final IP, otherwise, you will not be able to configure the KM-901T. In case of missing the final IP, you should use a special software tool to find IP out. Please follow below steps to configure the IP settings:

Step 1: For KM-901R, assign your PC IP in between 192.168.168.1 and 192.168.168.254, excluding 192.168.168.22, and the subnet mask with 255.255.255.0.

For KM-901T, the factory default IP is shown on the label that stuck on the bottom of the KM-901T. The PC IP needs to be on the same network as KM-901T. For example, if the KM-901T IP is 10.100.1.10, you might set your PC IP address as 10.100.1.1 and the subnet mask as 255.0.0.0.

Step 2: Unplug the power plug, hold the **[Reset]** button of the device.

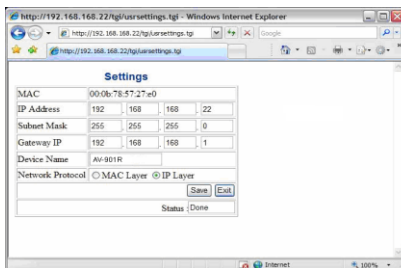
Step 3: Keep holding the **[Reset]** button and plug the power on.

Step 4: Release the **[Reset]** button when you see the **[Status]** (or **[Power]**) LED starts blinking red.

Step 5: After the **[Reset]** button is released, in case of KM-901R, the **[Power]** LED will become orange; in case of KM-901T, the **[Status]** LED will become orange blinking. This indicates the device is in Setup Mode and you can start to setup and get access to the HTTP server of the device. If you are not in this mode, any setup process is in vain.

Step 6: Use a straight Ethernet Cable to connect the PC with the device. (The **[Status]** or **[Power]** LED is still lit in orange.)

Step 7: Ping the connected device through the sequence, Start, Run, cmd, ping [TX IP] or ping 192.168.168.22 (for RX). If you receive the reply, it means the device is ready for setup mode. Use IE browser to open the setup page. For KM-901R, the URL is <http://192.168.168.22>. For KM-901T, the URL is [http://\[TX IP\]](http://[TX IP]). In this page, you can setup IP address, subnet mask, gateway, device name, network protocol and destination.



Device Name: the name of the device.

Network protocol: To be on the safe side, always use IP Layer, and don't use MAC Layer.

Destination: this setting is for KM-901T only. For one-to-one application,

you can use **Unicasting**. For one-to-many application, you must use **Multicasting**.

Step 8: After click **[Save]** button, the settings will be saved and the device will restart.

4.2 Firmware Upgrade

To upgrade the KM-901T and KM-901R, you should save the new firmware into your PC first. **Please disable antivirus software and firewall until the firmware upgrade process is accomplished.**

Step 1: Save the new firmware into your PC first.

Step 2: For KM-901R, assign your PC IP to 192.168.168.11 and the subnet mask with 255.255.255.0.

For KM-901T, assign your PC IP to the same network as KM-901T. For example, if the KM-901T IP is 10.100.1.10, you might set your PC IP as 10.100.1.1 and the subnet mask as 255.0.0.0.

Step 3: Hold the **[Reset]** button of the device.

Step 4: Keep holding the **[Reset]** button and plug the power on.

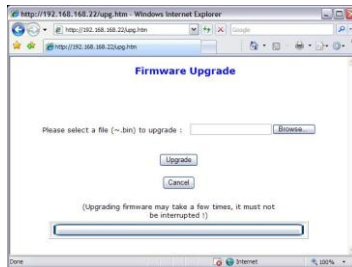
Step 5: The KM-901T **[Status]** or KM-901R **[Power]** LED will blink red. Then you can release the **[Reset]** button.

Step 6: After the **[Reset]** button is released, in case of KM-901R, the **[Power]** LED will become orange; in case of KM-901T, the **[Status]** LED will become orange blinking. This indicates the device is entered **Setup Mode** and you can get access to the HTTP server for firmware upgrade.

Step 7: Use a straight Ethernet Cable to connect the PC with the device. (The **[Status]** or **[Power]** LED is still lit in orange.)

Step 8: Ping the connected device through the sequence, Start > Run > cmd > ping 192.168.168.22 or ping [KM-901T IP]. You will receive the reply if the connection is established. Disable the antivirus and firewall software and use IE browser to get access the web server. Type [http://\[IP\]/upg.htm](http://[IP]/upg.htm) to upgrade the KM-901T firmware. Type <http://192.168.168.22/upg.htm> to upgrade the KM-901R firmware.

Step 9: Navigate to the firmware file and click **[Upgrade]**. Upgrade process may take a few minutes. Please do not turn off PC or the device or unplug the Ethernet cable. It will cause damage of the device. After firmware upgrade is accomplished, turn off the device.



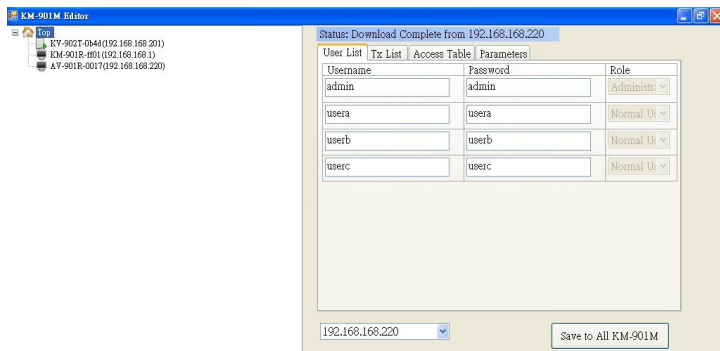
Note: You have to disable antivirus software and firewall before you upgrade firmware. Firmware upgrade process cannot be interrupted so please do not turn off your computer or the upgraded device or disconnect the Ethernet cable until the process is finished. Otherwise the system will crush.

5. KM-901S User Management Software

The KM-901S is Windows-based User Management software for the system administrator to manage KM-901M from his/her PC.

.Net Framework 2.0 or above is required when you install the software. **To install, double click SETUP.EXE and follow the setup wizard. After the installation is finished, click “KM-901M Editor” icon to start the software.**

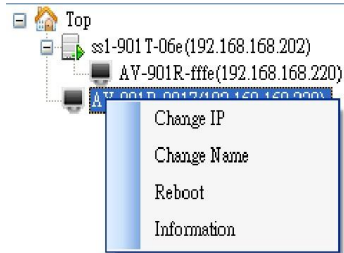
The KM-901M main screen is split up into two frames: on the left is a Tree view of the Transmitters (TX) and the connected Receivers (RX); on the right is an editor, which consists of four Tab pages: User List, TX List, Access Table, Parameters.



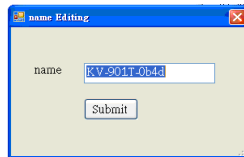
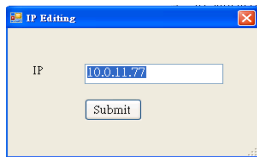
When the program starts, it will search the network for TX, RX and KM-901M, and display their relationships on the left frame. In addition, it will try to download data from KM-901M, and display them on the right frame.

5.1 Change IP and change Name

Right-click the device you desire to change, and a context menu will show up:



Select **[Change IP]** or **[Change Name]** and type the IP or name on the pop-up window, and click **[Submit]**:

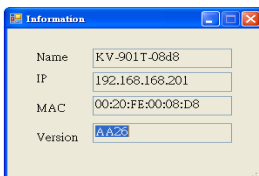


5.2 Reboot the device

Right-click the device you desire to reboot, select **[Reboot]** from the menu.

5.3 Information

Right-click the device, select **[Information]**, a window will pop up with information about the device. The value in the version field may or may not display the version; when it fails to detect the version, it will display "N/A".



5.4 KM-901M Editing

Status: Download Complete from 192.168.168.220

User List Tx List Access Table Parameters

Username	Password	Role
<input type="text" value="admin"/>	<input type="text" value="admin"/>	Administrat...
<input type="text" value="usera"/>	<input type="text" value="usera"/>	Normal Us...
<input type="text" value="userb"/>	<input type="text" value="userb"/>	Normal Us...
<input type="text" value="userc"/>	<input type="text" value="userc"/>	Normal Us...

192.168.168.220

Save to All KM-901M

On the top is a status bar, showing the information of events taking place. On the bottom is a drop-down, listing all the KM-901M devices found on the network. More than one KM-901M is possible, but the program will display the data from only one of them; and hopefully, each KM-901M has the same data as all the others. But still, you can try to download data from a specified KM-901M by selecting from the drop-down list.

On its right is a save button, and it will save the data back to all the KM-901M.

On the center is the editor.

User List tab: is a collection of login accounts, and currently there are only four available. Note that the Role field is disabled for the current version, which means there is no further distinction for each user.

TX List tab: All you need to do is to modify the IP field. The first field (+) is reserved and not for editing. The Name field is not for

editing either; KM-901M will query the network and update the name according to the IP you typed in.

User List	Tx List	Access Table	Parameters
		IP	Name
		+ 192.168.168.201	KV-902T-0b4d
		+ 192.168.168.202	ssl-901T-06e
		* [dropdown]	

At the end there is always a blank line for addition. To add an entry, just type the IP in the last blank line. To remove an entry, just click on one, and click the "X" button on the left. The other two arrow keys are for sorting.

User List	Tx List	Access Table	Parameters
	1 KV-902T-0b4d (192.168.168.201)	2 ssl-901T-06e (192.168.168.202)	
1 admin	✓	✓	

Access Table tab: which displays the relationships of the TX and the users. As the above picture implies, the cell that has a tick sign inside means the user is allowed to access the TX. You can click once to put on the tick sign, and click again to clear the cell.

User List	Tx List	Access Table	Parameters
			Allowed Idle Minutes (0-255) <input type="text" value="1"/>

Parameters tab: Allowed Idle Minutes. Normally there is only one user that can control the TX through the keyboard and mouse; the other users who connect with the same TX can only watch, and will not be able to control until the controlling user either logs out or idles away the specified period of time. This setting helps prevent the user from monopolizing the TX if he is not using

it. If the field is set to 0, however, there will be no check; the user can retain the control even when he is not using it.

When all the four pages are finished, don't forget to click the "Save to All KM-901M" button to save the setting to all KM-901M Management units.