MINICOM
ADVANCED SYSTEMS

DS Vision 3000

User Guide

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1. Welcome

Thank you for buying the DS Vision 3000 system. This system is produced by Minicom Advanced Systems Limited.

This document provides installation and operation instructions for Minicom's DS Vision 3000.

Technical precautions

This equipment generates radio frequency energy and if not installed in accordance with the manufacturer's instructions, may cause radio frequency interference.

This equipment complies with Part 15, Subpart J of the FCC rules for a Class A computing device. This equipment also complies with the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications. These above rules are designed to provide reasonable protection against such interference when operating the equipment in a commercial environment. If operation of this equipment in a residential area causes radio frequency interference, the user, and not Minicom Advanced Systems Limited, will be responsible.

Changes or modifications made to this equipment not expressly approved by Minicom Advanced Systems Limited could void the user's authority to operate the equipment.

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Please include the following information: Guide name, part number and version number (as appears on the front cover).

2. Introduction

The DS Vision 3000 (DS Vision) system from Minicom is an out-of-band solution for the last step in a digital signage network. DS Vision combines video, stereo/audio and serial functions for distributing real-time multimedia content from player to multiple screens up to 300m/1,000ft away.

The DS Vision system distributes Video, Audio and Serial control data from a single content source to up to 128 remote monitors over CAT 5/5e/6 UTP media.

With the DS Vision an administrator can remotely turn the distributed screens on and off, and monitor them either separately or as a unified group. The system also supports Display Data Channel (DDC) signaling, enabling optimal player-screen configuration for better visual experience.

Depending on the cable length the DS Vision broadcasts the video up to resolutions of 1080p HDTV or 1920x1440 @ 60Hz.

DS Vision comes with full RS-232 point-to-point, real-time serial communication (including TX, RX, CTS, and RTS) for the extension of serial devices and player to screen command and information transfer. All handshake lines are supported for maximum compatibility with any serial device.

3. Features

- HD support
- High quality stereo-audio
- 1 to 1, 1 to many serial control
- All speeds up to 57,600
- Distribution over CATx (5/5e/6) cable. (Note! No skew cables are not suitable)
- Multiple mounting options

4. System components

The DS Vision system consists of the following components:

- A Transmitter or Broadcaster + cables + power supply
- Receivers / Receivers Long + power supply
- (Optional) Line Splitters / Line Splitters Long+ Tuning cable+ power supply.
- (Optional) Tuning unit + cable
- CD containing Video Service Utility

Transmitter / Broadcaster

The Transmitter / Broadcaster come in the following models:

- Transmitter 1 port – p/n 0VS50005/R
- Broadcaster 8 port - p/n 0VS50003/R
- Broadcaster 16 port - p/n 0VS50004/R

The figure below illustrates the Broadcaster 8 port model. The ports are the same for the Transmitter and Broadcaster 16 port model, except for the number of System ports. The Transmitter has 1 System port and the Broadcaster 16 port model has 16 System ports.

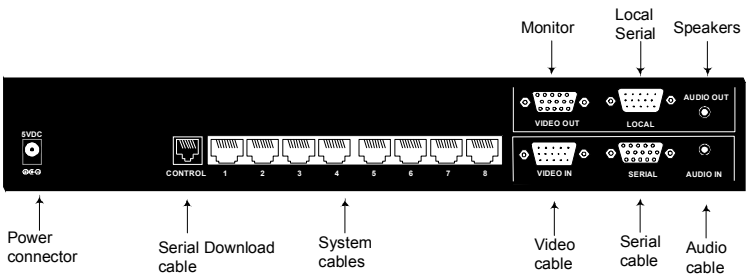

Figure 1 Broadcaster Unit - 8 port

Receivers

The Receivers come in the following models:

- Receiver - p/n 0VS50010/R. Can be up to 110m/360ft from Transmitter/Broadcaster
- Receiver Long - p/n 0VS50001/R. Can be up to 300m/1,000ft from Transmitter/Broadcaster

The figure below illustrates the Receiver and Receiver Long ports

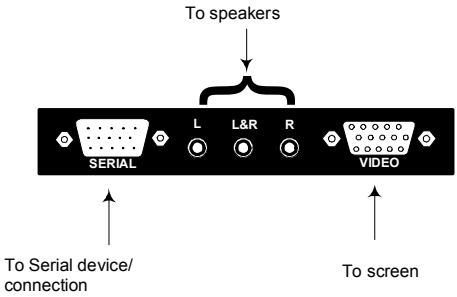

Figure 2 Receiver and Receiver Long – side 1

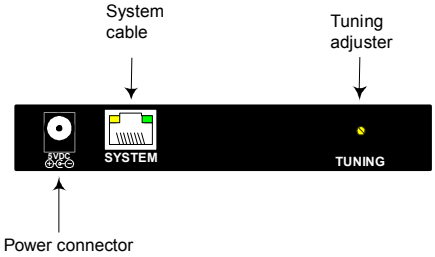

Figure 3 Receiver – side 2

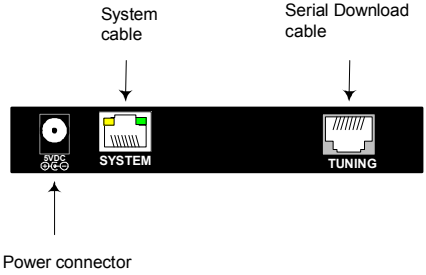

Figure 4 Receiver Long – side 2

Line Splitters

Add Line Splitters / Line Splitters Long to use for clusters or to increase the number of Receivers in the system up to 128 – When using the Broadcaster 16 port.

The Line Splitters come in the following models:

- Line Splitter - p/n 0VS50001/R. Receivers can be up to 110m/360ft from Transmitter/Broadcaster
- Line Splitter Long - p/n 0VS50002/R. Receivers can be up to 300m/1,000ft from Transmitter/Broadcaster)

The figure below illustrates the Line Splitter / Line Splitter Long ports.

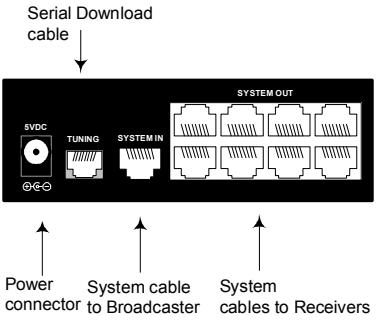

Figure 5 Line Splitter

LEDs

The table below explains the functions of all the LEDs of the units in the system.

Unit	LED	Function
Transmitter / Broadcaster	Front panel - Green	Power indicator
Receiver / Receiver Long	Rear panel - RJ45 System port. Green / Yellow	Green - Power indicator Yellow solid – unit is connected to the system. Yellow blinking – Bi-directional RS232 communication (only possible with one Receiver / Receiver Long at a time).
Line Splitter / Line Splitter Long	Rear panel - RJ45 System port. Green / Yellow	Green - Power indicator Yellow blinking – unit is connected to the system

Tuning Unit

The optional Tuning Unit p/n 0VS50008 is used to manually tune Receivers Long / Line Splitters or to download preset tuning parameters. The figure below illustrates the Tuning Unit.

Figure 6 Tuning Unit

5. DS Vision applications

The figures below illustrate the versatility of the DS Vision system.

Figure 7 shows a basic installation with a Receiver and Receiver Long. Receivers can be up to 110m/360ft away from the Transmitter/Broadcaster. Receiver Long can be up to 300m/1,000ft away from the Transmitter/Broadcaster

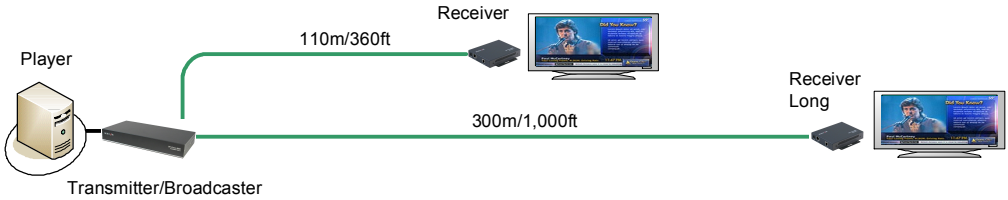

Figure 7 DS Vision basic installation

Figure 8 shows a Line Splitter with connected Receivers up to 110m from the Transmitter/Broadcaster.

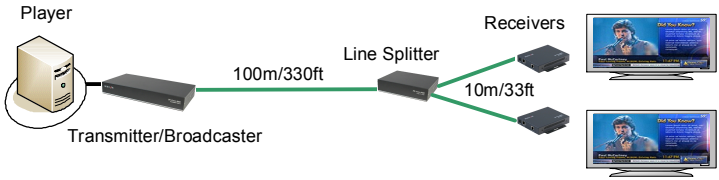

Figure 8 Short cluster

Figure 9 shows a Line Splitter Long with connected Receivers up to 300m from the Transmitter/Broadcaster.

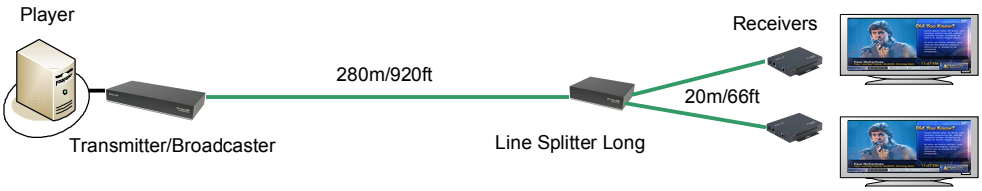

Figure 9 Long cluster

Figures 4 and 5 show different mixed installations with different combinations of Line Splitter and Line Splitter Long and Receiver and Receiver Long.

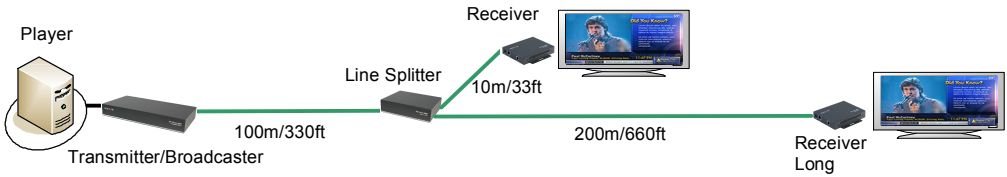

Figure 10 Mixed installation 1

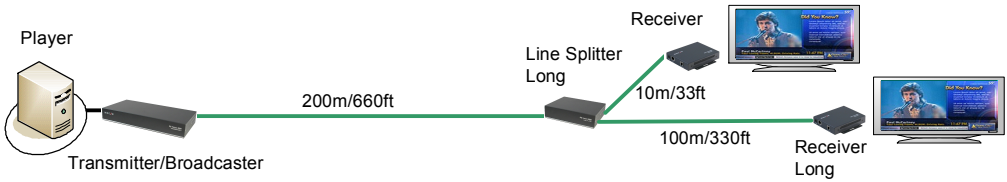

Figure 11 Mixed installation 2

6. Pre-installation guidelines

Place cables away from fluorescent lights, air conditioners, and machines that are likely to generate electrical noise.

7. The DS Vision cables

The DS Vision cables are illustrated below.

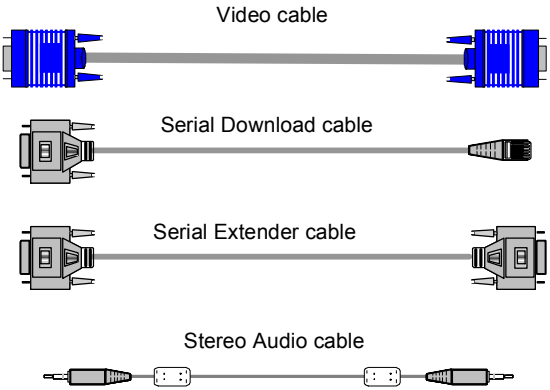

Figure 12 Cables

Connecting the cables

Connect the cables as illustrated in the figure below.

Broadcaster/Transmitter connections

1. Connect the Video cable to the Broadcaster/Transmitter Video In port and the Computer's Video card.
2. Connect the Serial Extender cable to the Broadcaster/Transmitter Serial port and the Computer's Serial port.
3. Connect the Stereo Audio cable to the Broadcaster/Transmitter Audio in port and the Computer's Mic port.
4. To use the Video Service Utility, connect the Serial Download cable to the Broadcaster/Transmitter Control port and the Computer's Serial port.
5. (Optional) Connect a monitor to the Broadcaster/Transmitter Video Out port.
6. (Optional) Connect speakers to the Broadcaster/Transmitter Audio Out port.

Receiver /Receiver Long connections

1. Connect the screen to the Video port.
2. Connect the audio/speakers to the Video port.
3. Where relevant connect the Serial connection to the Serial port

Connecting CATx cables

Connect the CATx cables between the System ports of the Broadcaster/Transmitter and Receivers/Receivers Long.

Where there are Line Splitters/ Line Splitters Long:

1. Connect the CATx cables between the System ports of the Broadcaster/Transmitter and the System In ports of the Line Splitters/ Line Splitters Long.
2. Connect the CATx cables between the System Out ports of the Line Splitters/ Line Splitters Long and the System ports of the Receivers/Receivers Long.

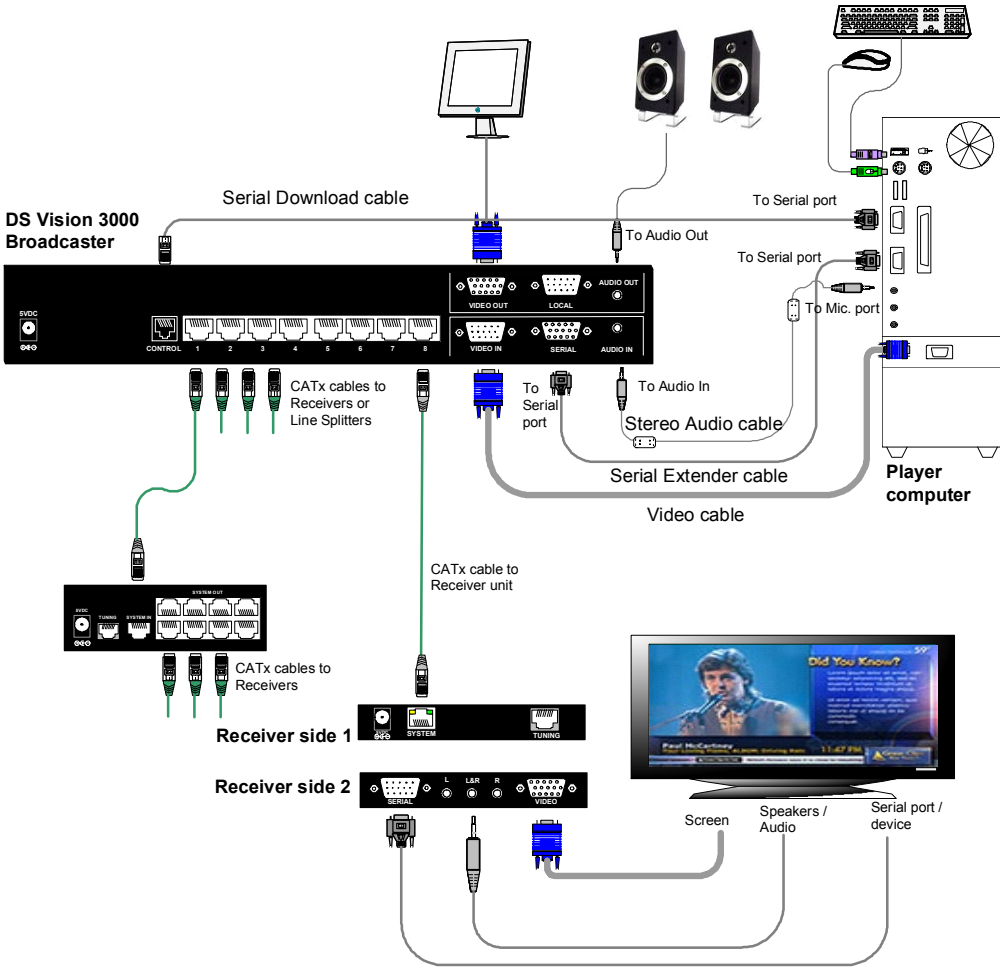

Figure 13 Connection diagram

Connecting to the power supply

Connect the Transmitter/Broadcaster and all Receiver and Line Splitter units to the power supply with 5 VDC, 2.5A from the AC/DC adapters provided. **Ensure correct polarity (Center negative) and voltage.**

Once the system is connected the DS Vision system broadcasts to all remote monitors/speakers. **Note!** You can use the Service Utility provided to broadcast content to specific monitors or groups of monitors, see DS Vision system management on page 12 below.

8. Adjusting the picture quality

When the broadcasted picture needs adjusting:

For the Receiver turn the Tuning adjuster – see Figure 3, using a small screwdriver.

The Receiver Long / Line Splitters can be tuned either via the Service Utility, as explained on page 20, or by using the optional Tuning Unit as follows:

1. Connect the VAU cable (p/n 5CB40607) to the Tuning Unit and the Receiver Long/Line Splitter Tuning port. Once connected, **Minicom DSV-3000** appears in the LCD.
2. Press the Menu key to repeatedly scroll between the following functions:
   - Tables
   - Red
   - Green
   - Blue
   - Brightness
   - HF Emph
   - Save / ESC
3. Select the desired function and adjust it using the up and down arrow keys.
4. Once the adjustment is satisfactory, press the Menu key to scroll to next function.

Downloading a video table

To download a video table:

1. Scroll to Tables
2. Use the arrow keys to browse through all the predefined tables.

3. When you reach the desired table, press the Menu key. MNU=SAVE appears in the LCD and the table downloads. During downloading the LCD message blinks.

4. After downloading one table, a different table can be selected and downloaded.

Saving and exiting

To save all settings in the Receiver Long or Line Splitter unit:

1. Scroll to Save / ESC

2. Press the **up** arrow to save all changes and exit or press the **down** arrow to disregard all changes and exit.

9. DS Vision system management

The DS Vision system comes with a Service utility to configure and control the system. Use the Service utility to:

- Define up to 16 Groups of monitors – (a specific monitor may belong to several Groups).
- Broadcast/disconnect video and/or audio and/or serial data to each monitor or to Groups of monitors.
- View system topology and switching status of each monitor.
- Remotely tune a monitor.
- Remotely upgrade each system component firmware/software or FPGA
- Configure DDC settings
- Return to the factory default settings

10. Installing the Service utility

The Service utility is located on the supplied CD and on our website **www.minicom.com** in the Support section.

Install the Service utility on a computer with the following system requirements:

- Intel® Pentium® II or equivalent processor
- Windows XP Professional, Home Edition, or Tablet PC Edition with Service Pack 2; Microsoft® Windows® 2000 with Service Pack 4; Windows 2003 Server; or Windows Vista™
- 128MB of RAM
- 10MB of available hard-disk space

For full functionality of the Service utility the DS Vision system (Broadcaster/Transmitter, Line Splitters and Receivers) must be connected and switched on. You can however configure the system topology manually even when the system is not operational.

Connecting the Serial Download cable

Connect the Serial Download cable to the Control port of the Transmitter/Broadcaster and a Serial port of the computer which has the Service Utility installed.

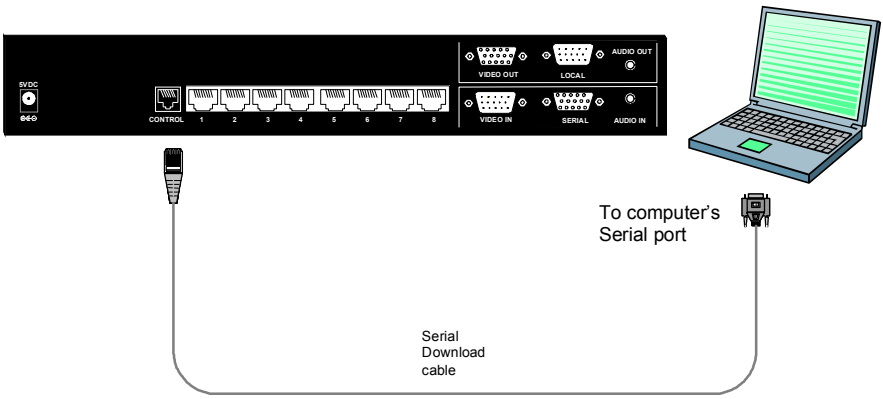

Figure 14 Connecting the Serial Download cable

To open the Service Utility, choose Start/Programs/DS Vision 3000 Service Utility/ DS Vision 3000 Service Utility. The Control window appears, see Figure 15.

Figure 15 Control window

Com port

Choose Tools/Options. The Preferences window appears see Figure 16. In the Com port field select the Com port to which the Serial Download cable is connected to.

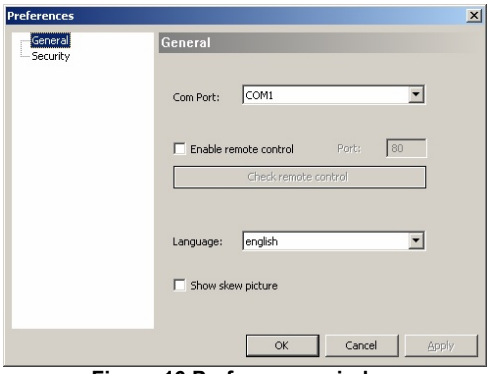

Figure 16 Preferences window

11. Topology

To utilize the Service Utility functions you must configure the system topology. To configure the system topology, click the Topology tab or select View/ Topology. The following appears.

Title line (Indicates if the Utility is online or offline)

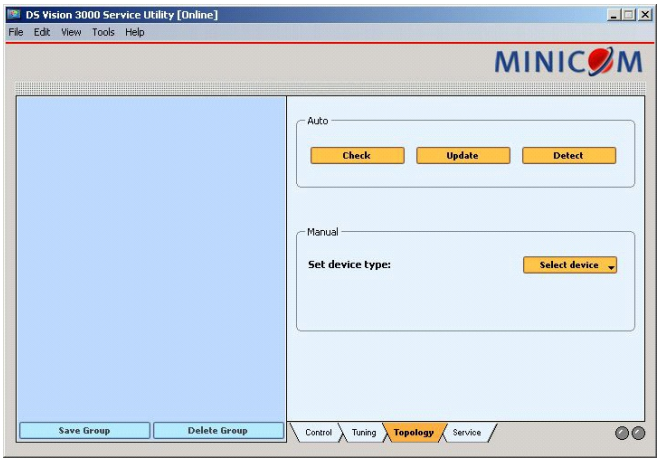

Figure 17 Topology tab

You can detect the topology automatically or configure it manually.

Auto-detect

Note! Auto-detection only works if the Service Utility is online. Check the Title line of the Service Utility window, see Figure 17. When offline, connect to the system by choosing File/Connect.

To auto-detect the topology, click Detect and when prompted click Yes.

A detected topology appears on the left showing all connected DS Vision units, as in the following figure.

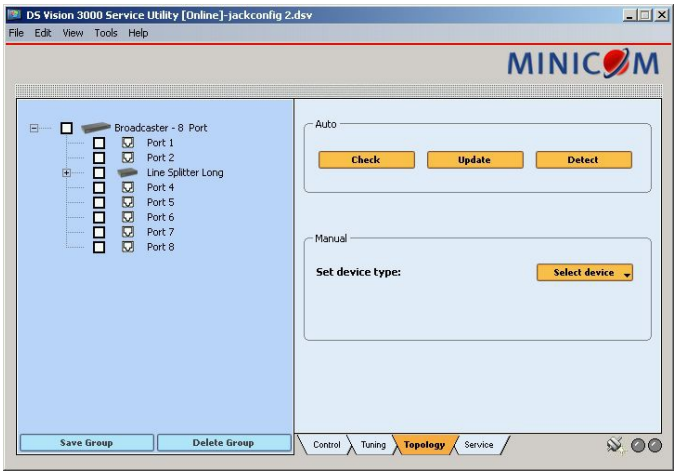

Figure 18 Auto-detected topology

Note! You can detect the current topology at any time by pressing Detect. This fully updates all connected and disconnected ports.

Note!

Auto-detect deletes all names given to particular ports. Naming ports is explained on page 17.

Tip!

Hold the mouse over any of the rows in the menu tree or over any button. A callout appears with information about the device or button function.

Check

When units have been connected or disconnected since last detecting the topology you can check for any changes to the topology.

To do so:

1. Click **Check**. Any new units detected appear as an connected but undefined. You must still define the unit.
2. To define the units connected to the ports, click the checkbox of a port or a number of ports that have the same device connected.
3. Click **Select device**. A drop-down menu appears.
4. Select the device type. Note! When the device is a Line Splitter, repeat the process of defining the connected devices for each port of the Line Splitter.

Note! **Check** does not update the topology, it detects any new connections and units that are disconnected appear with a yellow exclamation mark.

Update

To add new devices to the present topology click **Update**. The new devices appear. Units that are disconnected appear with a yellow exclamation mark.

Manual

You can display the topology manually whether the system is online or offline.

To display the topology manually:

1. Click **Select device**. A drop-down menu appears.
2. Select the connected Transmitter/Broadcaster. The selected topology appears on the left, see Figure 19. If the Service Utility is online you can see which ports have devices connected. In Figure 19 a device is connected to port 6.

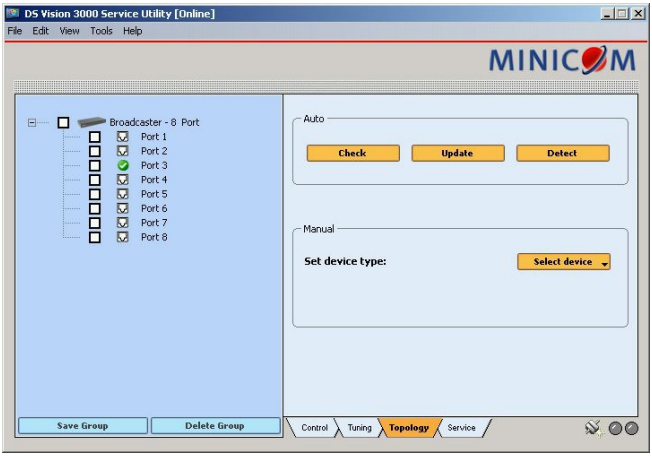

Figure 19 Manually displayed topology

3. To define the units connected to the ports, click the checkbox of a port or a number of ports that have the same device connected.

4. Click 

. A drop-down menu appears.

5. Select the device type. Note! When the device is a Line Splitter, repeat the process of defining the connected devices for each port of the Line Splitter.

Naming a port

To give a port an identifying name:

1. Check the port number (ensure that no other ports are checked). In the manual section, **Set device name:** appears.

2. Type a new name for the port - You can give ports identical names. This name appears immediately on the left.

Saving a topology

To save a topology choose File/Save or Save as. Save the topology.

To restore the topology choose File/Restore. Find the saved topology and click Open. The stored topology appears. Note! The most recent saved topologies appear in the File menu.

Saving a Group

You can save a Group to include particular ports. Once defined, you can send instructions to the defined Group without needing to choose the individual ports.

To save a Group:

1. Select the ports you want to include in the Group.

Click 

. The Enter name box appears.

Type a name for the group and click OK. The Group appears on the left.

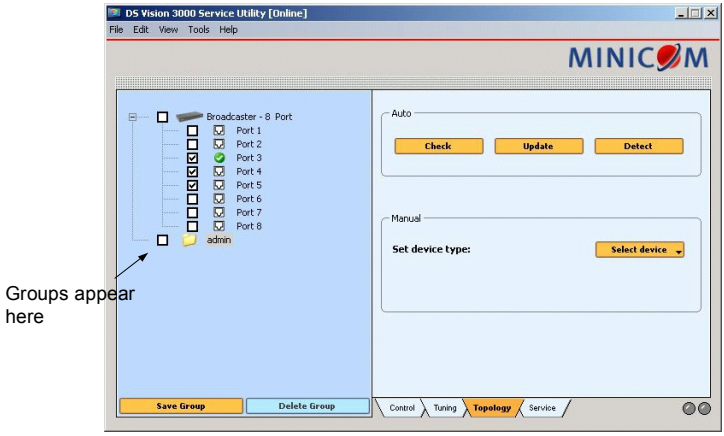

Figure 20 Saving a Group

To see the selected ports of a Group, hold the mouse over the Group name or folder or check box, a callout appears showing the selected ports.

Deleting a Group

To delete a Group:

Select the Group and click Delete Group.

12. Controlling the system

To control the system:

Click the Control tab or choose View/Control, the Control window appears, see Figure 21.

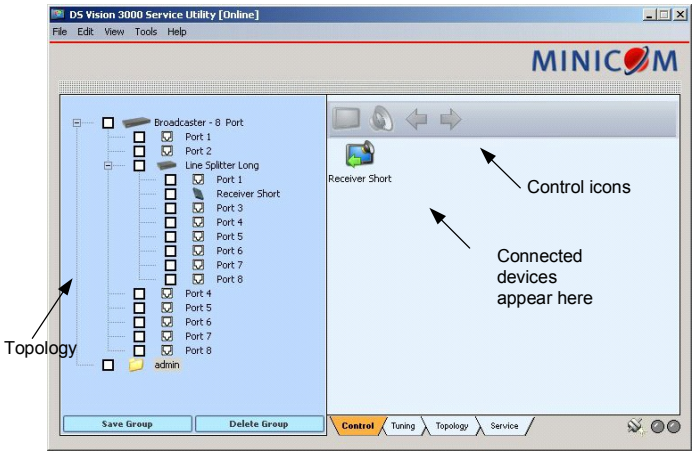

Figure 21 Control window

The table below explains the functions of the Control icons:

Icon	Function
	Video broadcasting to remote unit
	Audio broadcasting to remote unit
	Serial command to remote unit
	Bi-directional Serial command

Selecting the ports to command

You can select the ports to command in any of the following ways.

From the topology on the left hand side:

Tick the individual checkboxes of the units you want to send a command. Or tick the desired Group – all commands will then be sent to all units in the Group.

From the icons on the right hand side:

Click an icon to select it. To select more than one icon, hold down **Shift** or **Ctrl** and select the desired icons.

Selecting all

To select all:

Choose Edit/Select All.

Sending commands

Once the desired units are selected send the desired command by pressing the appropriate Control icon. By default all signals (video, audio, Serial) are broadcast.

Sending/blocking video

Click  to toggle between sending and blocking video. When receiving video the device icons appear like this:  .

When not receiving video the device icons appear like this:  .

Sending/blocking Audio

Click  to toggle between sending and blocking audio. When receiving audio the device icons appear with a speaker like this:  .

Sending/blocking a Serial command

Click  to toggle between sending and blocking a Serial command. When sending a Serial command the device icons appear with an arrow like this:  .

Sending/blocking a bi-directional Serial command

When sending a Serial command, you can send a bi-directional Serial command to a single Receiver / Receiver Long.

Click  to send the bi-directional Serial command. The device icon appears with a double arrow like this:  . Click again to block the bi-directional Serial command. You can then send the bi-directional Serial command to a different Receiver / Receiver Long.

13. Tuning Receivers Long (or Line Splitters) via the Service Utility

You can tune the Receivers Long / Line Splitters with the Service Utility from the Transmitter/Broadcaster position or from the Receiver Long / Line Splitter itself. The advantage of tuning from the Receiver Long, is that you can see the tuning on the screen as you perform it. From the Line Splitter position you can be closer to the screen than from the Transmitter/Broadcaster position.

To tune from the Transmitter/Broadcaster position:

Connect the Serial Download cable to the Control port of the Transmitter/Broadcaster and the Serial port of a computer which has the Service Utility installed.

To tune from the Receiver Long or Line Splitter position:

Connect the Serial Download cable to the Receiver Long or Line Splitter Tuning port and the Serial port of a computer containing the Service Utility. See the figure below.

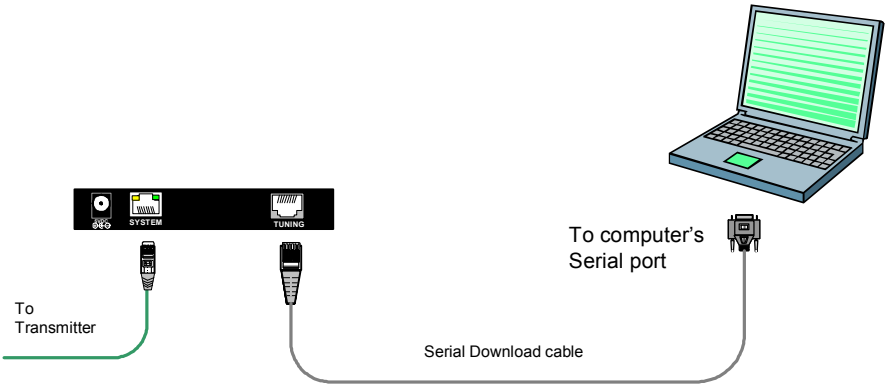

Figure 22 Connecting the Serial Download cable to the Receiver Long

1. Open the test card located on our website www.minicom.com/support/skew.png or www.minicom.com/support/skew.gif or, on the supplied CD. Or open the Service Utility and choose Tools/Options, the Preferences window appears, see Figure 16 above. Check Show Skew Picture. When you click the Tuning tab the test card appears in the background. See Figure 23. This image will help you get the best screen image. It can also help to correct skew.

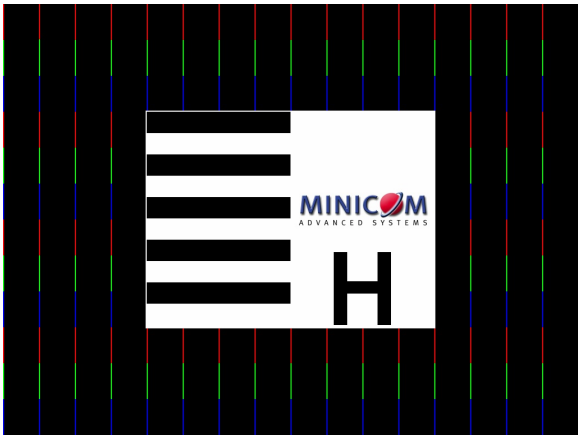

Figure 23 Test card

2. Click the Tuning tab or select View/Tuning. The Tuning window appears see Figure 24.

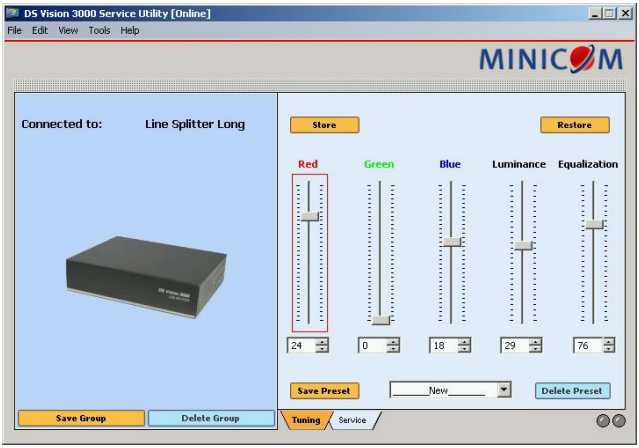

Figure 24 Tuning window

3. The Drop-down menu contains preset tuning configurations for distances of between 1m and 300m. **Note!** These presets were made using a test cable which may not be an exact match for the cable that you are using. Choose the preset distance that is closest to the actual distance in meters between the Player and remote screen.

4. For fine tuning use the sliding bars to adjust the image. The bars are as follows.

Luminance – image brightness

Equalization – image sharpness

Red, Green, Blue

Red, Green and Blue are for red, green and blue delay. When transmitting video over CATx cables a horizontal misalignment (skew) between the red, green and blue components inevitably occurs. This is because the different length of each pair causes the signals to reach the monitor at different times.

To see which signal is slower or faster look at the test card and see which of the colors are not aligned. For example in Figure 25, red is the slowest color. You would therefore delay green and blue until they align with red.

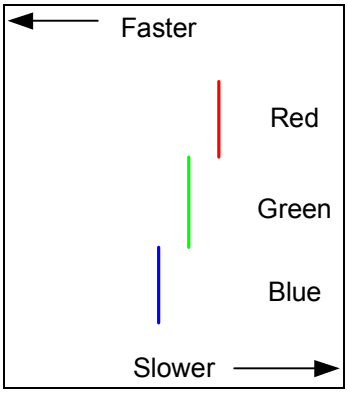

Figure 25 RGB signals

5. Once you have a satisfactory image, press **Store** to keep the present tuning configuration.
6. Click **Save Preset** to save the tuning configuration for future use. The Enter Name box appears.
7. Type a name for the preset and click OK. The tuning configuration now appears in the drop-down menu.

Delete preset - to delete a tuning configuration from the drop-down menu, click **Delete preset**.

Restore – If after changing values you change your mind, you can restore the values to how they were the last time the **Store** button was pressed by pressing **Restore**.

14. Remote Tuning

You can tune the Receiver Long and Line Splitters from any laptop or other mobile device via a web browser. Through the browser you access the player running the Service utility via the local network. This enables you to tune the screen when standing in front of it without the need to be physically connected to the Receiver Long / Line Splitter. The Service Utility must be installed on the players but is not needed on the remote tuning device. Figure 26 illustrates the basic concept.

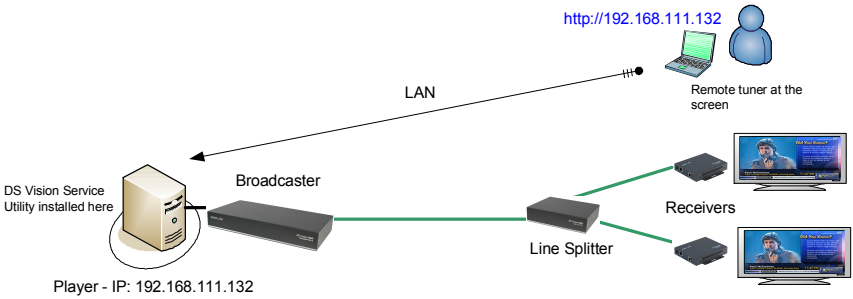

Figure 26 Remote tuning

At the player the setup is done as follows:

1. Connect the Serial Download cable to the Broadcaster/Transmitter and player.
2. Open the Service Utility and choose Tools/Options, the Preferences window appears, see Figure 16 above.
3. Select the **Enable Remote Control** checkbox, the software starts a small web server in the background allowing other computers on the network to access it. The **Check Remote Control** button un-grays. Click the button to display a local browser to indicate that the remote option is enabled and functioning.
4. To verify the IP address of the player, click Start/Run, type “CMD” press Enter, type “IPConfig” press Enter. The IP address appears.

The tuning at the remote laptop/device is done as follows:

1. Open a browser and type the IP address of the player. For example in Figure 26 the remote tuner accesses the tuning facility by typing the IP address http://192.168.111.132.
2. Press Enter. A list of all Receivers Long and Line Splitters connected to the player appears, see Figure 27.

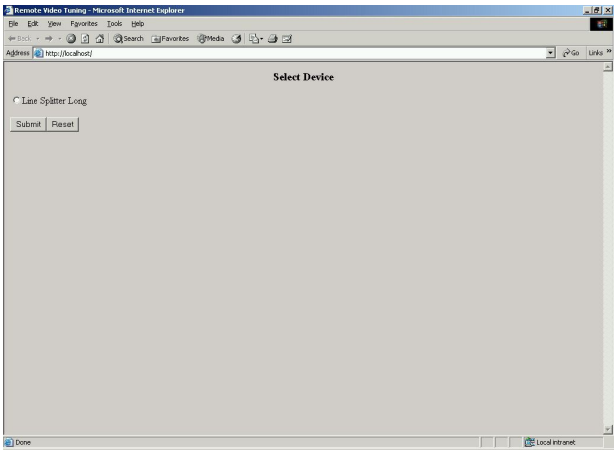

Figure 27 Select device web page

3.Select a unit and press **Submit**. The tuning page appears, see Figure 28.

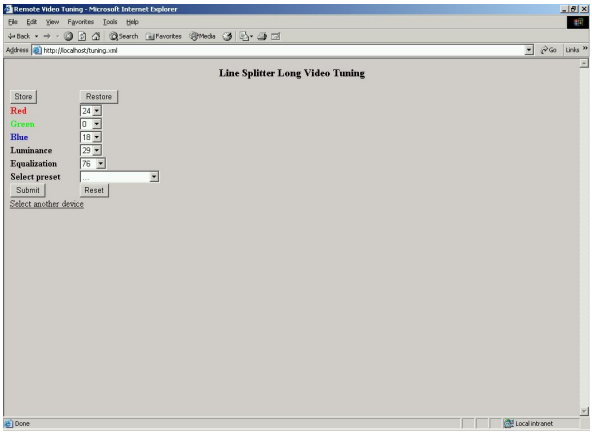

Figure 28 Remote tuning web page

4.Adjust the setting until you have a satisfactory picture. Press Submit to activate the new values. Press Store to save the new values. Restore – If after changing values you change your mind, you can restore the values to how they were the last time the Store button was pressed by pressing Restore.

5.Press reset to return to the default values.

6.Select another device to tune by clicking **Select another device** or close the webpage.

Figure 29 gives an overview of the remote tuning.

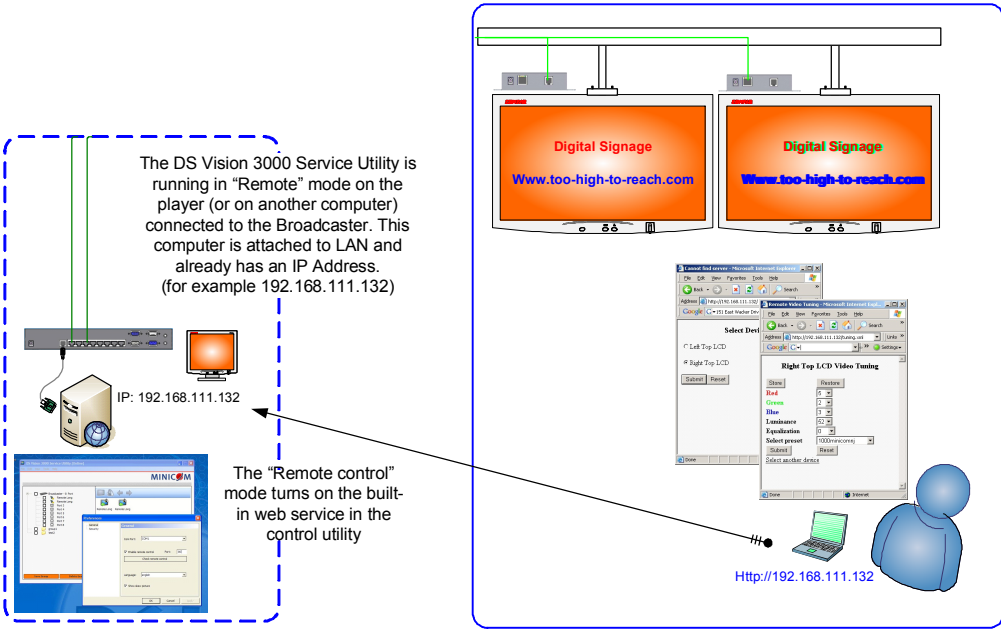

Figure 29 Remote tuning setup

15. Service

You can do the following from the Service window:

- Upgrade firmware
- Configure DDC settings
- Return to the factory default settings
- Configure the Broadcaster’s Serial port

Click the Service tab, the service window appears, see Figure 30.

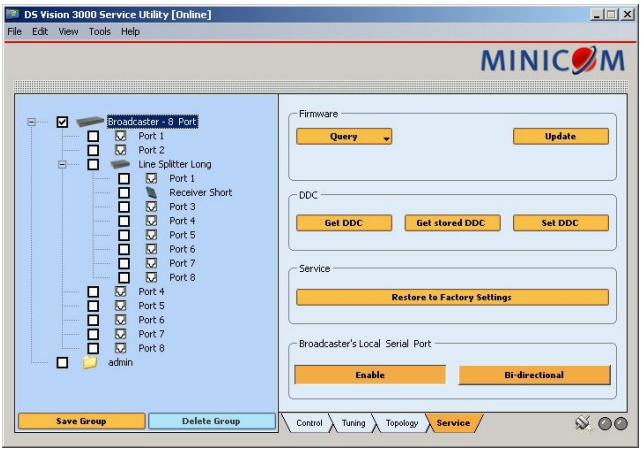

Figure 30 Service window

Firmware

Upgrade firmware to improve functionality and fix bugs. Firmware updates can be found on the Minicom website www.minicom.com in the Support section.

1.Save the firmware update on your hard drive.

2.Select the unit you want to upgrade, Broadcaster etc.

3.Click the Query button, a list of the firmware versions you can update appears:

Hardware, firmware, loader or FPGA. When you click one of them, the current version appears.

4.Click **Update**. The Open box appears.

5.Find the firmware update and upload it.

Display Data Channel (DDC) hotkey

Display Data Channel (DDC) is a VESA standard for exchanging information between a monitor and a video adapter.

Update the DDC during the initial installation of the system, this will enable emulation of the DDC information to the computer when it boots the next time.

To update the DDC:

1.Select a Receiver and press Get DDC to read the DDC from the monitor attached to it and save it to file.

2.Select the Transmitter/Broadcaster and press Set DDC to read from the saved file and upload it to the Transmitter/Broadcaster.

Note! Update the DDC information if you add or replace a monitor with a different resolution / refresh rate.

Get stored DDC button – Once you have saved the DDC information of a Receiver's monitor on a computer's hard disk, you can retrieve this information using the Get stored DDC button if for example you dismantle and then re-install the system.

Service

To restore factory defaults press Restore to factory settings. **Note!** All configuration and tuning adjustments will be lost.

Broadcaster's Local Serial port

This is for Serial control of the local monitor. There are 2 options.

- **Enable** - Connects the system serial data to the local monitor- downstream only.
- **Bi directional -** Enables serial bi-directional connections with the local monitor – like any remote monitor in the system.

16. Security

Choose Tools/Options. In the Preferences window click Security. The Security screen appears.

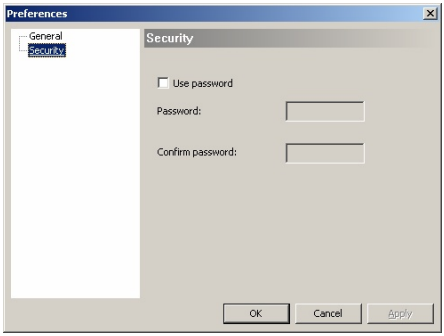

Figure 31 security window

Here you can set up a password to require password access to the service Utility.

17. Technical specifications

Resolution	HDTV up to 1080p. Up to 1920x1440 @ 60Hz. Depending on the cable length and quality
Input/Output video signals **Video Signals**	Analog signal red, green, blue 0.7v, p-p 75 Ohm
Sync	TTL compatible
Horizontal/Vertical sync polarity	Positive/Negative
System cable	CATx(5/5e/6) UTP/ FTP 2x4x24 AWG solid wire cable
Maximum distance	300m / 1,000ft
Skew compensation	Up to 63 nsec
DDC	Complies with VESA DDC 2 specifications
RS232 connection	Full serial = RXD, TXD, DTR, DSR, RTS, CTS
Serial baud rate	Up to 57,600 bps
Audio	Stereo Frequency response: 20 Hz to 20 kHz, +/-1 dB. Signal-to-Noise Ratio (SNR): 80 dBA. Total Harmonic Distortion and Noise (THD+N): 0.017%. Stereo crosstalk: -70 dB. Input impedance: 10k Ohms. Line level output; supports multimedia speakers. Maximum I/O levels: 3.1Vp-p (line level).
Serial	Broadcaster / Transmitter – DCE Receivers - DTE
Operating temperature	5°C to 40°C / 41°F to 104°F
Storage temperature	-40°C to 70°C / -40°F to 158°F
Warranty	3 years

	Transmitter, Broadcaster 8/16	Line Splitter/Line Splitter Long
Cables & Connectors	VGA In - HDD15M VGA Local - HDD15F Stereo audio In/Out – Jack PL 3.5mm Serial In- DB9F Serial Local- DB9M System Out - 8/16 RJ45 Control – RJ11 Power LED – Green (front panel)	System In - RJ45 System Out - RJ45 Control – RJ11 Power LED – Green (front panel)
Dimensions	292.5x 153.6x41.5mm	138x153.7x41.5mm
Power	External Adaptor 5VDC 2.5A	External Adaptor 5VDC 2.5A
Order Number	Broadcaster 8 0VS50003/R Broadcaster 16 0VS50004/R	Line Splitter 0VS50009/R Line Splitter Long 0VS50002/R

	Receiver/Receiver Long	Video Tuning Unit
Cables & Connectors	System In - RJ45 Screen - HDD15F Audio Out – 3 Jack L,R, L&R Serial Out- DB9M Tuning- potentiometer / RJ11 Power LED – Green (on RJ45)	To Receiver- RJ11 3 button tuning
Dimensions	147x 145x26mm (including mounting)	93.7x62.1x28mm
Power	External Adaptor 5VDC 2.5A	Powered from the Receiver
Order Number	Receiver 0VS50010/R Receiver Long 0VS50001/R	Video Tuning Unit 0VS50008/R

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