



## KAT5.tv AV Distribution System

### KAT5 AVRX User Guide



## KAT5 AVRX

## Mk2 AV Receiver

## User Guide

Version 1.0  
1<sup>st</sup> August 2005

## Overview

The KAT5 AVRX is a device that receives electronically balanced AV signals over a CAT5 Structured Wiring Scheme

Used with the appropriate KAT5 Transmitter, this allows high quality Stereo Audio and S-Video or Composite Video signals to be distributed over low cost cabling. The quality of the display is the same as would be obtained if the source device were located near the display.

The KAT5 AVRX can be used for the following signal types

- S-Video + Stereo Audio
- 2 Composite Video Signals + 2 Mono Audio signals
- Composite Video + SPDIF Digital Audio + Stereo Audio

The KAT5 AVRX allows Infra Red control signals to be relayed to the source equipment and also regenerates the SCART switching signals from the source equipment.

KAT5 Infra Red is based on a 38kHz Carrier Frequency. The vast majority of Consumer AV Equipment uses remote control frequencies in the range 36kHz to 40kHz and should work with no problems whatsoever. KAT5 Infra Red WILL NOT work with remote controls that use 455kHz or IRDA

## System Requirements

In order to use the KAT5 AVRX you will need either a Structured Cabling scheme or a dedicated CAT5 Cable. You will also require a suitable KAT5 transmitter at the originating end.

### ***Structured Cabling Scheme***

A structured cabling scheme consists of RJ45 outlets (typically 2 or 4 per faceplate) in convenient locations around the building. Each of these are individually numbered and wired back to a Patch Panel using CAT5 cable where different services may be connected to them.

### ***Dedicated Cable***

A dedicated CAT5 cable is run between the location of the source equipment and the location of the display. Wherever possible you should consider installing a structured wiring scheme as this allows much more flexibility for future changes.



# KAT5.tv AV Distribution System

## KAT5 AVRX User Guide

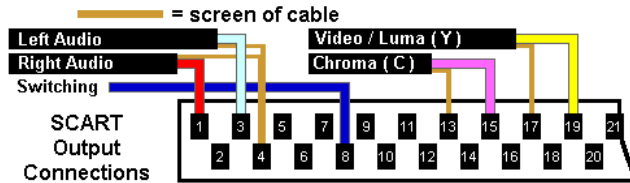
### Installation

#### SCART Socket

Connect the display to the AVRX SCART socket.

If your display does not have a SCART socket you may need to use a suitable adapter.

Connection details are shown below.



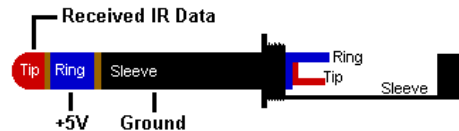
#### Power Supply Input

The KAT5 AVRX requires a Regulated 12V DC Power supply capable of supplying 150mA. The power connector is a 2.1mm DC Power Plug centre positive. The Red Power LED will illuminate to indicate that the supply is active.

#### 2.1mm DC Power Plug



#### 3.5mm IR Receiver Jack



#### Infra Red Receiver

The IR Receiver supplied with KAT5 units is a small black box that should be located where it will receive IR signals in the room. This connects to the 3.5mm Jack Socket marked IR.



The IR Receiver is fitted with a "Blue Receive LED" which flashes whenever IR is received allowing visual feedback that signals are being picked up.

Depending on the format of the IR signals used this may appear to be very dim and of short duration. This LED will respond to ANY IR signals received whether they are valid for the equipment or not. This is not a fault however it could assist in tracking down rogue signals that may be in the room. In particular, laptop computers with the IRDA port active may cause it to flash.

**PLEASE NOTE:** The IR Receiver should not be connected or disconnected whilst the power is ON.

#### CAT5 Cable Connection

The KAT5 AVRX should be connected to the distant KAT5 Transmitter using a fully wired CAT5 cable.



All patch cables should be straight wired not crossover.

**PLEASE NOTE:** The KAT5 AV Distribution System uses the physical medium of CAT5 cable to carry the audio and video signals. KAT5 is **NOT** an Ethernet based product and should not be connected to Ethernet Hubs/Switches/Routers. Doing so may result in damage to your equipment.

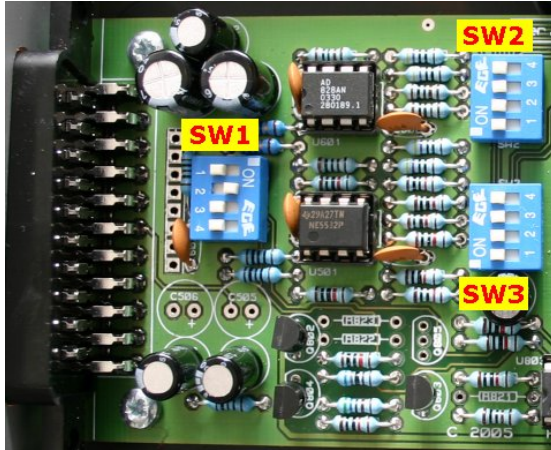


# KAT5.tv AV Distribution System

## KAT5 AVRX User Guide

### Configuration Switches

As supplied, the AVRX is "Ready to Go" without any configuration in most cases. The case of the KAT5 unit can be opened by removing the two Pozidrive screws located on the bottom of the case.



The KAT5 Receiver contains three banks of DIL switches. SW1 is used to determine the operating mode of the KAT5 Receiver.

- SW1.1 S-Video Mixdown
- SW1.2 S-Video or Dual Video
- SW1.3 Local IR Control Disable
- SW1.4 SCART Switching Disable

SW2 and SW3 are the CAT5 cable termination switches and should normally ALL be turned ON.

If the KAT5 Receiver is to be used in a Multidrop configuration ALL switches of SW2 and SW3 must be turned OFF. It is important that ALL 8 of these switches should be in the same position.

### Video format

Switches SW1.1 and SW1.2 should be set as defined in the table below (Default marked \*)

| Source Format | Display Format | SW1.1  | SW1.2 |
|---------------|----------------|--|-------|
| S-Video       | S-Video        | OFF *  | ON *  |
| S-Video       | Composite      | ON   | OFF   |
| Composite     | Composite      | OFF *  | ON *  |
| Composite     | S-Video        | Not Possible. Display must be Composite Video [Note 1] |       |

When used for Composite Video, the second unused video channel may be used to carry an additional composite video signal or SPDIF Digital Audio. See <http://www.kat5.tv/spdif.html> for more information.

### SCART Switching

As supplied, the KAT5 AVRX is configured to respond to SCART switching signals received from the KAT5 Transmitter at the distant end. (Default marked \*)

| SW1.3      | SW1.4 | SCART Switching and IR Disable Switches  |
|------------|-------|--|
| OFF *      | OFF * | Normal Operation - This is how the unit is supplied  |
| ON         | OFF   | Manual IR Control Disabled - This prevents manual control of the SCART switching with IR Remote Control but it will still respond to commands from the source equipment [Note 2] |
| Don't Care | ON    | ALL SCART Control Disabled – The AVRX will not respond to commands from either the source equipment or IR Remote Control   |

### Manual Operation

If the source equipment does not provide SCART switching signals, or if it is desired to override the SCART signals, this may be done by using a Universal Remote Control configured to operate a "Sony Laserdisc Player". [Note 3]

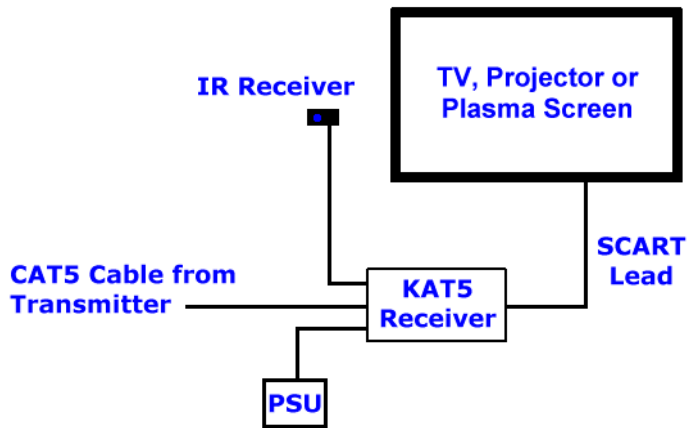
| Button | Mode | Description   |
|--------|------|---|
| 0      | Off  | Disables SCART Switching.                             |
| 1      | Full | Sends out the signal for a 4:3 Full screen picture.   |
| 2      | Wide | Sends out the signals for a 16:9 Wide screen picture. |
| 3      | Auto | No change until the next signal received from source. |

NOTE: Wide screen switching was an amendment to the original SCART specification. Because of this not all equipment may support this option. Equipment that does not implement wide screen switching generally defaults to standard Full screen mode.



## Typical Setup

The diagram below shows a typical setup for a KAT5 Receiver.

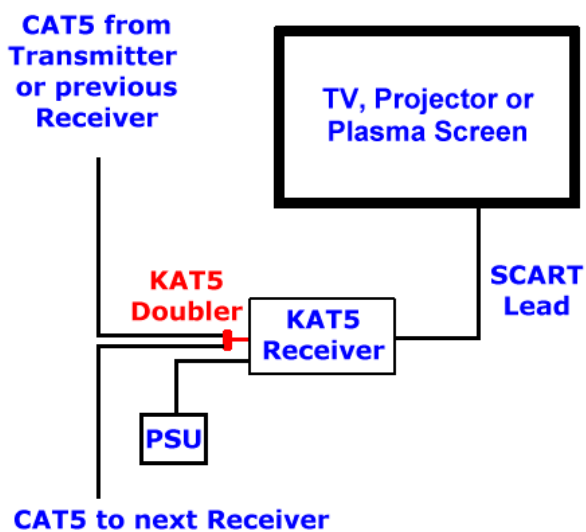


## Multidrop Setup

A more detailed explanation of multidrop can be found at <http://www.kat5.tv/daisychain.html>

Multidrop allows more than one receiver to be driven by a single transmitter. In a Multidrop system the cable must be run from the transmitter to one or more intermediate receivers and finally the receiver at the end of the line. Any receivers used in intermediate rooms MUST have the termination disabled by using the DIP switches SW2 and SW3. All eight of these switches should be turned off.

**PLEASE NOTE:** When a receiver is configured for an intermediate room, its IR Repeater and SCART Switching functionality are disabled. The receiver at the end of the line must have its termination enabled and will still have full IR Repeater and SCART control functions.





### Common Problems

This section covers basic fault finding for a KAT5 installation. More detailed fault finding information can be found at <http://www.kat5.tv/troubleshooting.html>

**Loss of one audio or video channel.** This is almost always a cabling fault. KAT5 uses all eight wires in a CAT5 cable and a broken termination or reversed pair will cause a channel to stop working. Ensure that the CAT5 patch cords are fully wired and not crossover cables.

**Picture is Black and White.** There are several possible causes for this problem.

1. The source and display are expecting different formats of video signal.  
Eg Source is set to S-Video, display is set to Composite Video.
2. Either the source or display does not support S-Video via SCART. In this case you will need to use a SCART Adapter and MiniDin + Phono Leads.
3. Video format switches incorrectly set in AVRX. Refer to the table for correct settings.
4. Fault on the Brown/White pair between the Transmitter and Receiver.

**Picture is bright and colours appear washed out.** This indicates that the video levels are incorrect and is caused by incorrect termination. Check the termination switches in the AVTX and AVRX are correctly set for the way your system is configured.

**Picture is dark and may be unstable.** This indicates that the video levels are incorrect and is caused by multiple terminations. If you have a Multidrop installation, ensure that the termination is disabled in all the intermediate receivers (SW2 1-4 and SW3 1-4). If the transmitter is being fed from a SCART splitter block ensure that the terminations (SW1 1-4) in the AVTX are turned OFF.

**Infra Red Repeater not working.** The feedback LEDs on the IR Receiver and IR Emitter should indicate whether a signal is being received and retransmitted. Check that the termination switches in the AVRX are turned ON (SW2 1-4 and SW3 1-4). The IR Emitter may not be in the optimum position on the source equipment. IR functionality is not available for intermediate receivers.

**Buzzing or picture disturbance when IR is relayed.** Ensure that ALL eight switches of SW2 and SW3 in the AVRX are ON. This can also be caused by a faulty CAT5 cable.

### KAT5 Support

KAT5 support is available from several sources.

Email [support@kat5.tv](mailto:support@kat5.tv) with details of your problem or use the discussion forums.

<http://www.automatedhome.co.uk/modules.php?name=Forums&file=viewforum&f=19> is a web based forum hosted by AutomatedHome.co.uk

<http://groups.yahoo.com/group/kat5-users/> is an email based forum hosted on Yahoo Groups

### Notes

1. Composite to S-Video converters are available but there is no increase in picture quality.
2. If you use a Sony Laser Disc player you will need to disable local IR control of KAT5 to avoid accidentally controlling KAT5 whilst trying to use your Laser Disc player.
3. Many universal remote controls are capable of controlling a Sony Laserdisc Player. Refer to the manual for your remote control for the proper device code. Some "One 4 All" remote controls use the code 193.



Designed and manufactured in the UK

© 2001 – 2005 KAT5.tv

The latest version of this document can be found at <http://www.kat5.tv/docs/avrx.pdf>

End of document