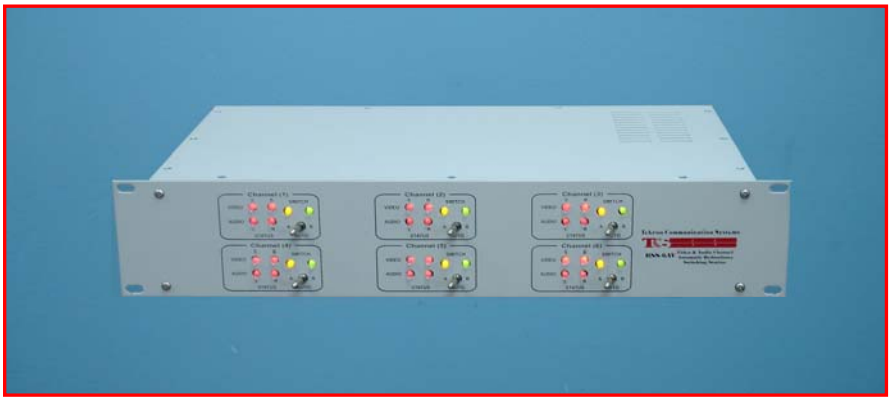
Tekron Communication Systems

RSS-6AV

VIDEO / AUDIO MULTIPLE-CHANNEL AUTOMATIC SWITCHING STATION



Tel# (514) 335-0152 – (800) 387-6797
Fax# (514) 335-0172

info@tekronsystems.com
www.tekronsystems.com

INTRODUCTION

The RSS-6AV is a 2-RU chassis that incorporates six (2X1) automatic video and stereo-audio (channel) with SAP audio-follow switches. Each switch module monitors the main input Video and L/R audio inputs for alarming and its automatic switching operation. An Ethernet IP-port is incorporated with embedded Web-server and SNMP protocol for alarming over the Network and for remote monitor and switch override/control of each switch in the chassis.

The RSS-6AV is typically used for redundancy and disaster recovery applications. It is installed in remote CATV Headend where several channels need backup and thus provide redundancy to TV channels received over (Fiber/STL) transport links or Satellite from the Master Headend. It can also be used to provide reciprocal backup between two remote Headend sites.

Other RSS models are also available to complement the RSS-6AV in TV channel redundancy switching applications at ASI level (RSS-2ASI & RSS-6ASI) for example, or where more input channels need to be switched to a single output (RSS-2B3X1 & RSS-4Eng 5X1).

The RSS-6AV monitors independently the video and audio inputs of the main channels inputs of each switch module in the RSS-6AV chassis, for its automatic switching operation and for remote status monitoring and alarm over an IP-Network.

The IP-port incorporates an embedded server that allows multi-user remote access for monitoring and override/control of the switch from a Web-page using any Web browser. It is also SNMP protocol compatible to send alarms to NOC (Network Operation Center) and remote monitor/control. It also allows out-of-band access over a dial-up line for emergency control of the switch by phone.

A new video monitoring feature has been added in 2009 to the RSS-6AV. It is now capable of monitoring video freeze-frame failure condition. As such, it monitors independently for video “Black” & freeze-frame output conditions, video “Sync” & Left/Right audio level drop to Threshold-alarm levels. This capability makes all Tekron RSS Vide/audio automatic switching models, very versatile for multiple source (digital & analog) switching applications, and especially suitable for digitally received channels (over Fiber or satellite) in which case the Sync is regenerated and the video is always present at the receiver output.

With the addition of video-frame freeze detection capability, the RSS automatic switches offer a solid solution to MPEG decoder redundancy applications.

GENERAL SPECIFICATIONS

CHASSIS

- 19" 2U-high rack-mount chassis
- 85-235Volt AC supply input

FRONT PANEL

- **Input selection 3-way locking toggle switch**
  Overrides the switch automatic operation for manual switch control
  - Middle position - Automatic operation
  - A or B position - Selects A or B inputs in manual control mode
- **Switch and manual override status**
  - Switch status - GREEN main input and RED backup input
  - Operating mode - Yellow=manual and OFF=automatic mode
- **Video and audio presence status**
  - GREEN – Monitored signal above Threshold level
  - RED – Monitored signal below Threshold level
    (Flashing during set delay – Solid after delay elapsed)

BACK PANEL

- **BNC connectors** (per switch module)
  (2) Video inputs (75-ohm)
  (1) Video output (75-ohm)
- **Plug-in (screw-type) terminals** (per switch)
  (2) Balanced Left/Right and SAP Audio inputs
  (1) Balanced Left/Right and SAP Audio output
- **RJ-45 Connector**
  Ethernet-IP Network Port
- **DB-9 Connector (Optional)**
  For dial-in DTMF-tone phone-control
  of the switch in emergency situations.

AUTOMATIC SWITCHING

Internal settings:

- Fixed built-in Hysteresis
- Individually adjustable Threshold level of monitored inputs

Remote Settings:

- To set delays before switching for video & audio loss and restoration
- To disable/enable automatic switch return to main input
- To disable/enable audio monitoring from affecting automatic switching

SWITCH SPECIFICATIONS

VIDEO/AUDIO INPUTS

- Two video and Left/Right +SAP audio inputs
- Video: 1-volt p/p level
  Audio: No restriction on level (based on +4dBu in setting Threshold level)
- Video: 75-ohm impedance BNC connectors
  Audio: Balanced on (screw-type) terminal connectors

OUTPUT SIGNALS:

- **Video/audio switch output:** Defaults to main input on power loss.
- **Remote monitoring/Control:**
  - Web-page Monitor and control.
  - SNMP alarm, monitor and switch control.
  - SNMP & Web-page to maintain switch in main position if backup input is absent.

AUTOMATIC SWITCHING & CONTROL

- The detection circuit switches automatically to the backup input, when the main input video or audios drop below their respective threshold levels, or when certain conditions are met such as a video freeze-frame or black output. It switches automatically back to the main input when signal is restored, after set delay time.
- An input is considered in failure condition when either the video “Sync” or Left & Right audios drop below their respective Threshold level, or when the video output is either Black or is a still picture.
- The front panel toggle (locking) switch overrides the switch automatic operation and allows selection between the main and backup inputs.
- The switch can also be remotely controlled over IP-Network via SNMP commands or from the (embedded Web-server) Web-page, and via DTMF-phone control over a dial-up telephone line.
  Remote switch control overrides both of the front panel toggle switch and the RSS switch automatic operation.
- Remote control allows switch selection between main & backup inputs.

MONITORING SPECIFICATIONS

VIDEO MONITORING SPECIFICATIONS

- Video Sync, black and still-picture are monitored for automatic switching operation, remote IP alarm and front panel status indication.
- Presence status indication of video sync pulse level is compared to threshold level setting, with a default setting of 20IRE and an internal threshold adjustment for each video input between 15-35 IRE.
- Presence status indication of video black level is compared to threshold level setting, with a default fixed setting of 7.5IRE.
- Presence status indication of video Freeze-frame failure condition.
- Variable Built-in delay before automatic switching to backup input after video failure is detected:
  - Delay is adjustable remotely from Web-page in second increments.
  - Unless otherwise requested, default delay factory setting is 45 seconds.
- Variable Built-in delay before automatic switchback to the main input after the video returns to its normal condition:
  - Delay is adjustable remotely from the Web-page in second increments.
  - Unless otherwise requested, default delay factory setting is 10 seconds.

AUDIO MONITORING SPECIFICATIONS

- Left and Right audio levels of the main input are independently monitored for alarm and automatic switching operation.
- Presence status indication of audio level is compared to threshold level setting, with a default setting of -26dB below a nominal level of +4dBu (600-ohm) input. An Internal threshold (pot) adjustment is possible for each audio from 0 to -40dB below nominal level.
- Variable Built-in delay before automatic switching to the backup input and before switching back to the main input, after audio (both Left & Right) drop below their respective Threshold level settings:
  - Delay is adjustable remotely from Web-page in second increments.
  - Unless otherwise requested, default delay factory setting is 60 seconds before switching to backup input and 10 seconds before switching back.

CATV HEADEND & HUB SITE AUTOMATIC REDUNDANCY PRODUCTS

Tekron Communication Systems is focused on providing innovative solutions to TV and FM signal and RF Broadband feed Switching, Monitoring, and Control in remote CATV Headend & Broadcast transmission sites. All of Tekron RMS Monitoring/alarm, RSS automatic switching and MX scheduled/controlled switching products and systems are IP-Network enabled with SNMP protocol and Web-interface for remote monitoring, alarm and control.

Automatic switching for Channel & Broadband Feed Redundancy Applications

Digital ASI-SDI-SMPTE310M Channels

RSS1-ASI - Dual-output ASI automatic switch, for the redundancy of local Broadcast channels received from studio.

RSS-2ASI - Dual ASI automatic switching station, for the redundancy of local Broadcast channels received from studio.

RSS-6ASI - Six (2X1**)** ASI automatic switching station, for the redundancy of local Broadcast channels received from studio.

Digital/Analog Video-Audio Channels

RSS-2B - 3X1 Video/Stereo-audio +SAP automatic switch.

RSS-2AS - 3X1 stereo audio automatic switch, monitors L&R audio inputs to switch, c/w internal audio generator third input.

RSS-4Eng - 5X1 Video/Stereo-audio automatic switch with internal generator.

RSS-3RV - Triple (2X1) RF Broadband redundancy switching station that monitors main input Video for RF channel automatic switching.

RSS-2AV - Triple (2X1) Video/Stereo-audio +SAP automatic switching station.

RSS-6AV - Six (6X1) Video/Stereo-audio +SAP automatic switching station.

L-Band / LNB Feed

RSS-2L - Dual L-Band automatic switching station, for the redundancy of the Horizontal & Vertical LNB feeds from the same chassis.

RSS-6L - Six (2X1) L-Band automatic switching station, for redundancy farm satellite dish LNB feeds and L-Band Fiber transport links.

CATV Broadband Feed & QAM Channels

RSS-2R - CATV Broadband automatic switch, for Hub site transport feed & QAM channels.

RSS-3T - CATV Broadband Triple A/B automatic switching station, for Headend Broadband amplifier and Buffer redundancy.

RSS-6T - Six (2X1) CATV Broadband automatic switching station, for redundancy of RF Broadband feeds and QAM channels.