RMS-2RC Dual RF-Pilot Channel Automatic Switch

The RMS-2RC is a RF-Broadband Automatic Switch, designed for monitoring and the redundancy of RF-Pilot Analog & QAM TV Channels in the CATV Headend. It is frequency agile with remote setting and selection of the RF (pilot) channel(s) to be monitored, whether as a single channel at the modulator output, or optionally from the CATV Broadband feed.

In its standard configuration, the RMS-2RC incorporates two independent 2X1 automatic switches in 1U-high rack-mount chassis, to provide redundancy to both LOW and HIGH Band RF-pilot channels from the same chassis. The RMS-2RC monitors the selected analog or QAM RF-pilot channel at the RF modulator output in the Headend, for automatic switchover (and alarm over IP-Network) to the backup input when the RF level of the main input drops below its threshold setting, with automatic return when the main input is restored above the Threshold level setting with a built-in (remotely adjustable) Hysteresis. The backup input level is also monitored to prevent blind switching, with alarm capability when the backup input is degraded and drops below its Threshold level setting.

The RMS-2RC features Broadband passive switching 5 MHz to 1GHz with minimal insertion loss, excellent RF isolation between inputs and return loss throughout the Band to 1GHz.

The RMS-2RC is equipped with front-panel switch override capability as well as LED indication of the switch position and RF-pilot channel status.

Ethernet/IP & RS-232 ports are available at the back for remote monitoring, alarm and control and RF-input channel selection. The SNMP protocol is used for alarm, remote monitoring and switch control by “Network Operation Center” over the TCP/IP-Network with E-mail text-message Alert capability. The embedded Web-Server allows regional & local technical personal remote access of the RMS-2RC from any Web-browser with password protection for status monitoring, and switch override/control. An optional serial port coupled with an external modem can be used for emergency switch override & control via DTMF phone control over regular telephone dial-up line.

Optional back-chassis terminal connections can also be installed to interface with existing Monitor-n-Control systems at remote sites, to pass status & alarm conditions, and allow remote switch override & control of each of the two switches in the chassis.

For RF-Broadband redundancy applications, the RSS-2R is recommended for Hub sites fiber-feed transport redundancy, and the RSS-3T for multiple Broadband feed application such as for the redundancy of the Broadband amplifiers & Buffers in the Headend. Tekron Communication manufactures a complete line of RMS & RSS products for channel monitoring and automatic switching of analog & Digital Channels and Broadband feeds.
GENERAL FEATURES & OPTIONS:

Fail-safe during power loss: On power loss to the unit, the RMS-2RC will pass the RF pilot channel or Broadband feed of the main input.

Internal RF Termination: Unselected input is internally 75-ohm terminated.

Automatic Switching: Backup input is monitored to prevent blind switching to that input and to send alarms when its level drops below the Threshold setting.

Local status & control: Front panel toggle switch to override & manually switch control, with separate LED’s to indicate the main & backup input status, switch position and switching (automatic or manual) mode.

Remote Status & Control: Remote status monitoring, alarm and switch manual control over TCP/IP Networks via SNMP protocol and from the (embedded Web-server) Web-page. Optional back-chassis relay & contact closure are can be installed to provide status (1-formC relay) and switch control via contact closure and interface with existing Telemetry system at the site, with dial-in DTMF phone switch control.

NEGATIVE 48Volt Supply: Optional NEG 48V-DC internal supply available.

INPUT SWITCHING & FEATURES:

RF input Channel Selection: The RMS-2RC is frequency agile, with remote Pilot channel selection capability of the main input over IP from the Web-page.

RF sensing & Threshold switch adjustment: The main and backup input Threshold levels, at which the RMS automatically switches to the backup input and return to the main input are front panel and separately adjustable.

Hysteresis level adjustment: The Hysteresis approximate value in dB can be changed remotely over IP from the Web-page. This the value that separates the Threshold level below which unit automatically switches to backup input and level at which switch returns to the main input.

Prevent switching to backup input: Automatic switching to the backup input is prevented while it is below its Threshold level setting, unless this feature is remotely disabled from the Web-page or via SNMP.

Disabling switch back to main input: The automatic return of the switch can be disabled remotely (via Web-page, SNMP or dial-up DTMF). This feature is intended to protect against excessive switching in the event of an intermittent problem of the input feed. It maintains the switch in the backup position while the technical staff investigates and resolves the problem.

By default, the RMS-2RC automatically switches to the back-up input when the main input level drops below its pre-set (threshold) level, with automatic return when main input returns to level above that of Threshold & Hysteresis.

Manual switch: A front panel 3-way toggle switch is available to override the switch automatic operation and select the main or backup inputs. Front panel LED indicates input selection. The switch remote control (from Web-page, via SNMP or by DTMF) is designed to also override the front panel toggle switch.
**SPECIFICATIONS**

**Automatic Switch:** Two independent 2X1 RF-Broadband switch modules  
(75-Ohm impedance with F-type connectors)

**Frequency Band:** 5 MHz to 1002 MHz

**Operation Level:** +30dBm to +60dBm

**Insertion Loss:** 1.0 dB +/- 0.25dB from 5MHz to 1002 MHz

**Return Loss:** 20dB minimum Inputs & Output 5-1002MHz  
24dB minimum RF-Pilot Band 450-550MHz

**In-Out Isolation:** 70dB minimum 5-800MHz - 65dB minimum 800-1002MHz

**Sensing Circuitry:** Monitor selected channel RF level of main input  
Monitor RF-Broadband level of backup input

**Channel Selection:** Remote setting of CATV channels 2 to 137

**Monitor Threshold:** Separate front panel adjustment for main & backup inputs  
Input feed drop below Threshold level triggers alarm and automatic switching

**Hysteresis:** Remote setting of dB-value added to Threshold, above which switch returns to main input and intended as protection against switch flutter during severe RF level fluctuation  
(Setting in 0.1dB steps 0.0 to 99.9 dB)

**Switch Delays:** Remote delay setting before switching to backup input and return to main input (Separate setting 0–999 seconds)

**Fail-safe:** Switch back and/or pass main input on power loss

**Switch Control:** Override automatic switch operation for manual control:  
- Local front toggle switch override and switch control  
- Remotely via Web-page & SNMP from TCP/IP port

**Monitor & Alarm:** Status indication of switch position and input levels:  
- Front panel status LED indication  
- TCP/IP Network SNMP alarm & status monitoring  
- Email alarm of status changes  
- Web-page status monitoring and alarm settings

**Remote settings:** Remote internal switch setting from the Web-page:  
- Set RF-Pilot channel to be monitored for each switch  
- Prevent automatic return to main input automatically  
- Ignore backup input status during automatic switching  
- Set switch delays and Hysteresis  
- IP-address and alarm SNMP & Email settings

**Chassis:** 1U Rack-mount 19” high X 9.75” deep chassis (Weight 10 lbs)

**Power Supply:** 85-235 Volt-AC (60/50 Hz) or NEG 48V-DC (Optional)  
Max power consumption: 8Watt
AUTOMATIC SWITCHING PRODUCTS

TCP/IP Network remote monitor Alarm and Control capabilities
RMS-RSS monitoring & automatic switching products incorporate TCP-IP & RS-232 port for remote monitor/alarm & controls over IP-Networks and dial-up line.

ASI-SDI-SMPTE310M Digital Automatic Redundancy Switch
RSS1-ASI  DVB-ASI Dual-Output (1-RU) 2X1 Automatic Switch
RSS-2ASI  ASI/SDI/SMPTE Channel Dual-switch Automatic Switching (1-RU) Station
RSS-6ASI  ASI/SDI/SMPTE Channel Six-switch Automatic Switching (2-RU) Station

CATV BROADBAND & Channel Redundancy Switching
RSS-2R  CATV 1GHz Broadband & QAM channel Automatic Redundancy Switch
RSS-2D  CATV 1GHz Split-Band Automatic Redundancy Switch
RSS-3T  CATV 1GHz Broadband Triplet-switch Automatic Switching (1-RU) Station
RSS2-T  CATV 1GHz Broadband dual-switch Automatic Switching (1-RU) Station
RSS6-T  CATV 1GHz Broadband six-switch Automatic Switching (2-RU) Station
RMS-2RC Frequency-Agile Dual AGC RF-Pilot Channel Automatic Redundancy Switch
RMS-2V  Frequency agile TV channel Signal Monitor/Alarm and Control station

Satellite LNB/L-Band Automatic Redundancy Switch
RSS-2L  L-Band/LNB Dual-switch Automatic Redundancy Switching (1-RU) Station
RSS-6L  L-Band/LNB Six-switch Automatic Redundancy Switching (2-RU) Station

Digital & Analog Video/Audio Channel Automatic Switch
RSS-2B  Video/Stereo-audio +SAP (3X1) Digital/analog Channel Automatic Switch
RSS-2VAS Video/Stereo-audio (3X1) Digital Channel Automatic Redundancy Switch
RSS-2VD  Video/Stereo-audio (3X1) Digital Channel Automatic Redundancy Switch
RSS-4Eng Video/Stereo-audio (5X1) Digital/analog Channel Automatic Switch
RSS-2AS  Stereo-audio (3X1) Automatic Redundancy Switch

Digital & Analog Video/Audio Channel Automatic Switching Stations
RSS-2AV  Video/Stereo-audio +SAP Dual-switch Automatic Switching (1-RU) Station
RSS-6AV  Video/Stereo-audio +SAP Six-switch Automatic Switching (2-RU) Station
RSS-2B4.5 Video/4.5MHz-audio Dual-switch Automatic Switching (1-RU) Station
RSS-3RV  Hybrid Video-Monitor & RF-Channel three-switch Automatic Switch Station

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