

Redundancy Switch 1:1 for IP Modems RSCI1



This version of a WORK Microwave 1:1 Redundancy Switch is specifically designed for IP modems and IP demodulators. Besides this type also a standard 1:1 Redundancy Switch RSCM1 is available, which can be used for modulators, demodulators and modems with ASI transport stream inputs and outputs.

The 1:1 Redundancy Switch RSCI1 includes for the Gigabit Ethernet traffic interfaces a special type of form C (SPDT) Ethernet switch with RJ45 interfaces, to allow switchover from one IP modem or IP demodulator to the redundant one. This operates together with MAC address announcing methods, initiated automatically by the Gigabit Ethernet traffic interfaces: The IP Modulator who detects that a port is getting active (after switchover) sends a broadcast message that the MAC Address has changed. Equipment receiving this message, typically the next router, needs to react to this message and update its ARP resolution table. This is in IPv4 an extension to RFC 826 and is called Gratuitous ARP. For IPv6 it is defined by RFC 4861, clause 7.2.6 and is called Unsolicited Neighbor Advertisement. The downtime after switchover is approximately less than 5 sec, typically only 2-3 sec and depends mainly on the Ethernet auto negotiation time.

Both IP modems or IP demodulators need to be configured in the same way, have different MAC Addresses, but the same IP Address.

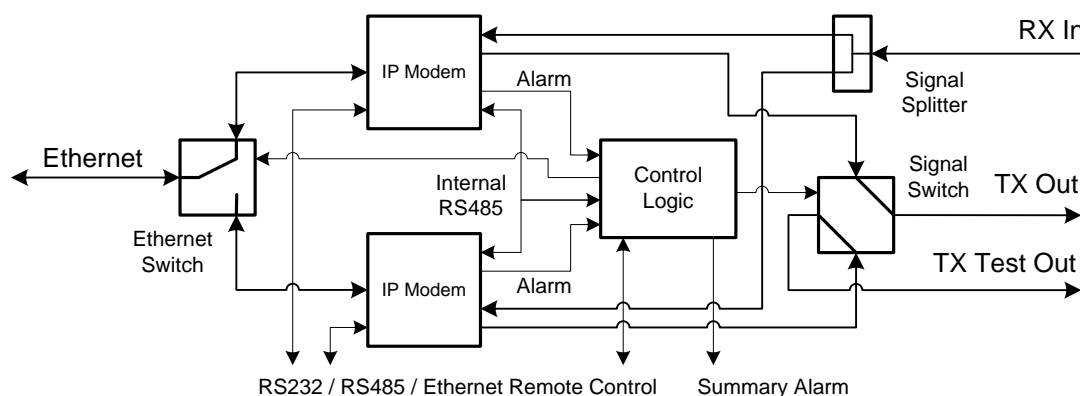
For the RF transmit signal a transfer relay is included. For the RF receive signal also a transfer relay or preferably a signal splitter is available, which can be mounted externally to the unit. For L-Band receive signals also a special signal splitter with integrated switch is available, which allows to provide DC and a 22 kHz tone signal always from the active unit to the LNB.

The 1:1 Redundancy Switch accepts alarm signals from the two IP devices. The unit can operate in automatic mode, where an automatic switchover to the stand by unit is performed upon detection of an alarm of the active unit.

For configurations including a splitter on the receive signal side, where both IP devices can receive the RF signal, also monitoring of the receive conditions of both units is implemented. A switchover is performed in case that, with automatic mode enabled, the active unit indicates a non consistent receive problem compared to the standby unit.

Also a manual switchover to the standby unit can be initiated.

The units can be controlled from the front panel or remotely via RS 232, RS422/485 or Ethernet. Two power supplies and two AC input connectors guarantee very high availability of the unit.



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Model	Item	
RSCI1-0-xx	-	no internal signal splitter or switch is included
RSCI1-50K-xx or RSCI1-50K	Internal Signal Transfer Switch	Connector Type: 4 x SMA female Impedance: 50 Ω Power Handling: 1 W (switching) Frequency Range: 0 ... 18 GHz Insertion Loss: <0.1 dB (0 ... 1 GHz) <0.2 dB (1 ... 4 GHz) <0.3 dB (4 ... 8 GHz) <0.4 dB (8 ... 12 GHz) <0.5 dB (12 ... 18 GHz) Isolation: >85 dB (0 ... 1 GHz) >80 dB (1 ... 4 GHz) >70 dB (4 ... 8 GHz) >65 dB (8 ... 12 GHz) >60 dB (12 ... 18 GHz) Return Loss: >26 dB (0 ... 1 GHz) >21 dB (1 ... 4 GHz) >16 dB (4 ... 8 GHz) >15 dB (8 ... 12 GHz) >14 dB (12 ... 18 GHz)
RSCI1-xx	-	no external signal splitter or switch is included
RSCI1-xx-75LD	External Signal Splitter (including diodes for DC)	Connector Type: 3 x F female Impedance: 75 Ω Power Handling: 100 mW Frequency Range: 500 ... 2400 MHz Insertion Loss: 5.0 ... 6.2 dB Return Loss: >20 dB DC Path: max 30 V, 1 A, diode decoupling
RSCI1-xx-75LR	External Signal Splitter (including DC relay switch)	Connector Type: 3 x F female Impedance: 75 Ω Power Handling: 100 mW Frequency Range: 500 ... 2400 MHz Insertion Loss: 5.0 ... 6.2 dB Return Loss: >20 dB DC Path: max 30 V, 500 mA Form C (SPDT) relay
RSCI1-xx-50V	External Signal Splitter	Connector Type: 3 x BNC female Impedance: 50 Ω Power Handling: 1 W Frequency Range: 5 ... 300 MHz Insertion Loss: 3.0 ... 4.0 dB Return Loss: >15 dB Amplitude Balance: 0.4 dB
RSCI1-xx-75V	External Signal Splitter	Connector Type: 3 x BNC female Impedance: 75 Ω Power Handling: 1 W Frequency Range: 5 ... 300 MHz Insertion Loss: 3.0 ... 4.0 dB Return Loss: >15 dB Amplitude Balance: 0.4 dB
RSCI1-xx-50KT	External Signal Transfer Switch	Connector Type: 4 x SMA female Impedance: 50 Ω Power Handling: 1 W (switching) Frequency Range: 0 ... 18 GHz Insertion Loss: <0.1 dB (0 ... 1 GHz) <0.2 dB (1 ... 4 GHz) <0.3 dB (4 ... 8 GHz) <0.4 dB (8 ... 12 GHz) <0.5 dB (12 ... 18 GHz) Isolation: >85 dB (0 ... 1 GHz) >80 dB (1 ... 4 GHz) >70 dB (4 ... 8 GHz) >65 dB (8 ... 12 GHz) >60 dB (12 ... 18 GHz) Return Loss: >26 dB (0 ... 1 GHz) >21 dB (1 ... 4 GHz) >16 dB (4 ... 8 GHz) >15 dB (8 ... 12 GHz) >14 dB (12 ... 18 GHz)

Specifications continued next page

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Specifications continued:

Ethernet Hardware Switch	Connector: Type:	3 x RJ45 10/100/1000 Mbps
	MAC Address announcing scheme, initiated by IP traffic ports of IP devices after switchover:	IPv4: according to extension of RFC 826, Gratuitous ARP IPv6: according to RFC 4861, clause 7.2.6, Unsolicited Neighbor Advertisement
Switching:	Manual or Automatic	
Remote M&C Interface:	Protocol: Connection:	SNMP UDP over Ethernet (10/100 Mbps, auto sensing), IPv4, connector RJ-45
	Protocol: Connection:	HTTP (web browser interface) TCP/IP over Ethernet (10/100 Mbps, auto sensing), IPv4, connector RJ-45
	Protocol: Connection:	Multipoint RS232 or RS422/RS485 (configurable), connector DSUB09 female or TCP/IP over Ethernet (10/100 Mbps, auto sensing), IPv4, connector RJ-45
Summary Alarm Interface:	Two potential free contacts (DPDT, Connector DSUB09 female)	
Internal M&C Interface:	RS485 (Connector DSUB09 male)	
Configuration:	16 DIP switches on rear side / serial interface	
Temperature Range:	-30°C ... 60°C operating -30°C ... 80°C storage	
Relative Humidity:	<95 % non condensing	
User Interface:	10 LEDs, 4 Function Keys	
Mains Power Input:	2 x 100 ... 240 V AC nominal, 90...264 V AC max, 50...60 Hz, Redundant Power Supply, Hot swap	
Mains Power Consumption:	Max: 16 VA / 8 W Typ: 10 VA / 5 W	
Mains Power Input Connector:	2 x IEC C14	
Mains Fuse:	2 x 2 x 2.0 A time-lag fuse	
Dimension and Weight:	483 x 44 x 270 mm ³ (WxHxD), 1 RU (19") approx. 3 kg	

Specifications are subject to change

Order Information:

RSCI1-[internal RF Switch Type] -[external RF Splitter or Switch Type]

Examples:

RSCI1-50K-75LD

RSCI1-50K-75LR

RSCI1-50K-50KT