

Redundancy Switch 1:1 Redundancy Controller 1:1 RSCM1



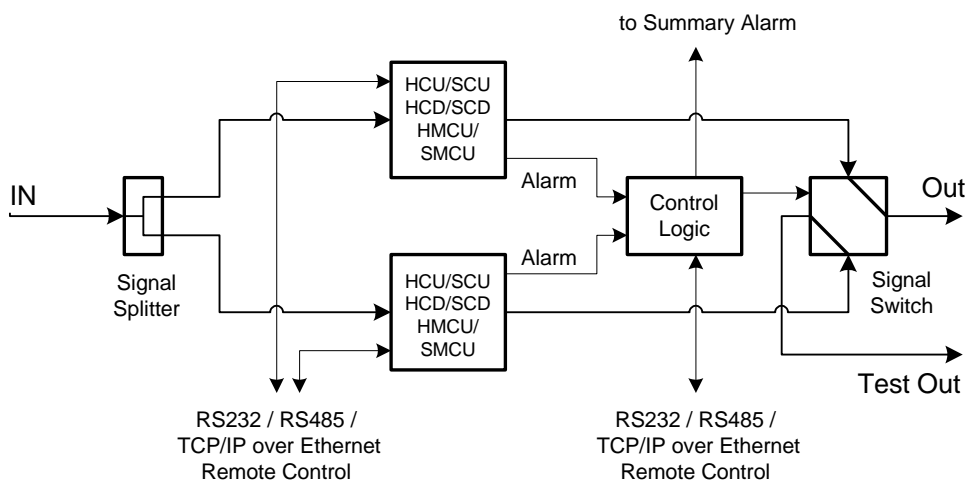
The WORK Microwave redundancy switch 1:1 is used for 1:1 redundancy configurations for upconverters, downconverters, modulator-upconverters, transport stream modulators, demodulators, and modems. It comes standard with a coaxial signal splitter for the input signal and a coaxial signal switch for the output signal. An input signal switch instead of the signal splitter is available as an option. For IP modem applications a similar device, RSC11 is available.

LNAs or even HPAs can be included within the system, as the switch is capable to control external waveguide transfer switches as option. DC power to LNAs can also be provided as option. The switch accepts alarm signals from two types of equipment, so that it can be used for redundancy configurations with e.g. a video encoder and a modulator within one chain.

The units can be controlled from the front panel or remotely via RS 232, RS422/485, or IP over Ethernet.

The unit can operate in automatic mode, whereby an automatic switchover to the standby unit is performed upon detection of an alarm generated by the active unit. In addition, a manual switchover to the standby unit can be initiated. Two power supplies and two AC input connectors guarantee high availability of the unit.

The 1:1 redundancy is also available in an outdoor version, where the signal splitter and the signal transfer relay is mounted within an outdoor switch box. The control unit is similar to the indoor redundancy controller, but does not include any signal splitters or signal switches. The outdoor switch box also includes interfaces for alarms and M&C of outdoor units. A control cable runs from the outdoor switch box to the indoor redundancy controller.



1:1 Redundancy with Signal Splitter

Redundancy Switch 1:1

Redundancy Controller 1:1

Model	RSCM1-xx-xx Redundancy Switch 1:1	RSCM1-OD Redundancy Controller 1:1 for outdoor switch box RSB1-xx-xx
Control Interface to Outdoor Switch Box RSB1-xx-xx:	-	Alarm inputs, control outputs (Connector Type: MIL-C-26482: MS 3120 E 16-26 P)
Signal Input Splitter RSCM1-50K-xx	Connector Type: 3 x SMA female Impedance: 50 Ω Power Handling: 3 W Frequency Range: 6 ... 18 GHz Total Insertion Loss: ≤ 4.4 dB Return Loss: ≥ 13 dB Amplitude Balance: 0.4 dB	
Signal Input Splitter RSCM1-50C-xx	Connector Type: 3 x SMA female Impedance: 50 Ω Power Handling: 3 W Frequency Range: 4 ... 8 GHz Total Insertion Loss: ≤ 4.2 dB Return Loss: ≥ 15 dB Amplitude Balance: 0.4 dB	
Signal Input Splitter RSCM1-50L-xx	Connector Type: 3 x SMA female Impedance: 50 Ω Power Handling: 3 W Frequency Range: 800 ... 2500 MHz Total Insertion Loss: ≤ 4.0 dB Return Loss: ≥ 17 dB Amplitude Balance: 0.3 dB	
Signal Input Splitter RSCM1-50V-xx	Connector Type: 3 x BNC female Impedance: 50 Ω Power Handling: 1 W Frequency Range: 5 ... 300 MHz Total Insertion Loss: ≤ 4.0 dB Return Loss: ≥ 15 dB Amplitude Balance: 0.4 dB	
Signal Input Splitter RSCM1-75V-xx	Connector Type: 3 x BNC female Impedance: 75 Ω Power Handling: 1 W Frequency Range: 5 ... 300 MHz Total Insertion Loss: ≤ 4.0 dB Return loss: ≥ 15 dB Amplitude Balance: 0.4 dB	
Signal Input or Output Transfer Switch RSCM1-50KT-xx RSCM1-xx-50K	Connector Type: 4 x SMA female Impedance: 50 Ω Power Handling: 1 W (switching) Frequency Range: 0 ... 18 GHz Insertion Loss (max.): 0.2 dB (0 ... 1 GHz) 0.3 dB (1 ... 4 GHz) 0.3 dB (4 ... 8 GHz) 0.4 dB (8 ... 12 GHz) 0.6 dB (12 ... 18 GHz) Isolation (min.): 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 (min.): 26 dB (0 ... 1 GHz) 20 dB (1 ... 4 GHz) 17 dB (4 ... 8 GHz) 15 dB (8 ... 12 GHz) 14 dB (12 ... 18 GHz)	
Signal Input or Output Transfer Switch RSCM1-75LT-xx RSCM1-xx-75L	Connector Type: 4 x 1.6/5.6 female (Adapters to external BNC female connectors are provided) Impedance: 75 Ω Power Handling: 1 W (switching) Frequency Range: 0 ... 2.5 GHz Insertion Loss (max.): 0.2 dB (0 ... 1 GHz) 0.3 dB (1 ... 2.5 GHz) Isolation (min.): 80 dB (0 ... 1 GHz) 70 dB (1 ... 2.5 GHz) Return Loss (min.): 20 dB (0 ... 1 GHz) 17 dB (1 ... 2.5 GHz)	
Switching:	Manual or Automatic	
Delay from unit alarm occurrence until IF/RF relay switching	typical 8 ms, max. 20 ms	

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Redundancy Switch 1:1 Redundancy Controller 1:1

Remote M&C Interface:	Protocol: Connection:	SNMP UDP over Ethernet (10 or 100 Mbps, auto sensing), connector RJ-45
	Protocol: Connection:	HTTP (web browser interface) TCP/IP over Ethernet (10 or 100 Mbps, auto sensing), connector RJ-45
	Protocol: Connection:	Multipoint RS232 or RS422/RS485 (configurable), connector DSUB09 female or TCP/IP over Ethernet (10 or 100 Mbps, auto sensing), connector RJ-45
Summary Alarm Interface:	Two potential free contacts (DPDT, Connector DSUB09 female)	
Internal M&C Interface:	RS485 (Connector DSUB09 male)	RS485 (Connector Type: MIL-C-26482: MS 3120 E 16-26 P)
Configuration:	16 DIP switches on rear side for serial interfaces	
Temperature Range:	-30 °C ... 60 °C operating -30 °C ... 80 °C storage	
Relative Humidity:	< 95 % non condensing	
User Interface:	10 LEDs, 4 Function Keys	
DC Output (Option DC):	2x 23.5 V / 0.7 A max.	
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 or with option L 483 x 44 x 470 mm ³ (WxHxD), 1 RU (19") approx. 3 kg	

Specifications are subject to change

Order Information:

RSCM1-[Input Splitter or Switch Type]-[Output Switch Type]-[Options]

Redundancy Switch with splitter, switches included

RSCM1-[Input Splitter or Switch Type]-[Output Switch Type]-OD-[Options]

Redundancy Controller with Outdoor Switch Box

RSCM1-OD-[Options]

Redundancy Controller for Outdoor Switch Box

Possible Options are:

- L housing depth 470 mm
- DC redundant 24V DC output

Examples:

- RSCM1-75V-50K 75 Ω Input Splitter VHF band, 50 Ω Output Transfer Switch 18 GHz
- RSCM1-50KT-50K-L 50 Ω Input Transfer Switch 18 GHz, 50 Ω Output Transfer Switch 18 GHz, housing depth 470 mm
- RSCM1-OD Controller without Splitter and Switch for Outdoor Switch Box RSB1

Outdoor Redundancy Switch Box 1:1



Outdoor Redundancy Switch Box 1:1 RSB1

Model	RSB1-xx-xx Outdoor Switch Unit 1:1	
Signal Input Splitter RSB1-50K-xx	Connector Type:	3 x N female
	Impedance:	50 Ω
	Power Handling:	3 W
	Frequency Range:	6 ... 18 GHz
	Total Insertion Loss:	≤ 5.0 dB
	Return Loss:	≥ 13 dB
	Amplitude Balance:	0.4 dB
Signal Input Splitter RSB1-50C-xx	Connector Type:	3 x N female
	Impedance:	50 Ω
	Power Handling:	3 W
	Frequency Range:	4 ... 8 GHz
	Total Insertion Loss:	≤ 5.0 dB
	Return Loss:	≥ 14 dB
	Amplitude Balance:	0.4 dB
Signal Input Splitter RSB1-50L-xx	Connector Type:	3 x N female
	Impedance:	50 Ω
	Power Handling:	3 W
	Frequency Range:	800 ... 2500 MHz
	Total Insertion Loss:	≤ 5.0 dB
	Return Loss:	≥ 16 dB
	Amplitude Balance:	0.3 dB
Signal Input Splitter RSB1-75V-xx	Connector Type:	3 x N female
	Impedance:	75 Ω
	Power Handling:	1 W
	Frequency Range:	5 ... 300 MHz
	Total Insertion Loss:	≤ 4.5 dB
	Return Loss:	≥ 14 dB
	Amplitude Balance:	0.4 dB
Signal Input or Output Transfer Switch RSB1-50KT-xx RSB1-xx-50K	Connector Type:	4 x SMA female
	Impedance:	50 Ω
	Power Handling:	1 W (switching)
	Frequency Range:	0 ... 18 GHz
	Insertion Loss (max.):	0.2 dB (0 ... 1 GHz) 0.3 dB (1 ... 4 GHz) 0.3 dB (4 ... 8 GHz) 0.4 dB (8 ... 12 GHz) 0.6 dB (12 ... 18 GHz)
	Isolation (min.):	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 (min.):	26 dB (0 ... 1 GHz) 20 dB (1 ... 4 GHz) 17 dB (4 ... 8 GHz) 15 dB (8 ... 12 GHz) 14 dB (12 ... 18 GHz)

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Outdoor Redundancy Switch Unit 1:1

Signal Output Transfer Switch RSB1-xx-50Ka	Connector Type:	4 x K female (2.9 mm, SMK)	
	Impedance:	50 Ω	
	Power Handling:	1 W (switching)	
	Frequency Range:	0 ... 40 GHz	
	Insertion Loss (max.):	0.3 dB	(0 ... 6 GHz)
		0.4 dB	(6 ... 12.4 GHz)
		0.5 dB	(12.4 ... 18 GHz)
		0.7 dB	(18 ... 26.5 GHz)
		0.8 dB	(26.5 ... 40 GHz)
	Isolation (min.):	70 dB	(0 ... 6 GHz)
60 dB		(6 ... 12.4 GHz)	
60 dB		(12.4 ... 18 GHz)	
55 dB		(18 ... 26.5 GHz)	
50 dB		(26.5 ... 40 GHz)	
Return Loss (min.):	17 dB	(0 ... 6 GHz)	
	15 dB	(6 ... 12.4 GHz)	
	14 dB	(12.4 ... 18 GHz)	
	11 dB	(18 ... 26.5 GHz)	
	10 dB	(26.5 ... 40 GHz)	
Signal Input or Output Transfer Switch Additional Attenuation by internal cabling	Attenuation (max.):	1.6 dB (0.5 GHz)	
		1.7 dB (1 GHz)	
		2.8 dB (10 GHz)	
		3.4 dB (18 GHz)	
		3.9 dB (27 GHz)	
Switching:	Controlled by RSCM1-OD		
Control Interface to Indoor Control Unit RSCM1-OD:	Alarms, control signals, internal M&C (RS485) (Connector Type: MIL-C-26482: MS 3120 E 16-26 S)		
Interface to Converter Units:	2 Alarm Interfaces to sense contact closures at alarm outputs of converter units, internal M&C (RS485) (Connector Type: MIL-C-26482: MS 3120 E 14-19 P)		
Temperature Range:	-30 °C ... 60 °C operating -30 °C ... 80 °C storage		
Relative Humidity:	< 100 %		
Dimension and Weight:	190 x 100 x 190 mm ³ (WxHxD) approx. 2 kg		
Degree of Protection:	IP 67 (acc. IEC 529)		

Specifications are subject to change

Order Information:

RSB1-[Input Splitter or Switch Type]-[Output Switch Type]

Example:

RSB1-50L-50Ka 50 Ω Input Splitter L band, 50 Ω Output Transfer Switch 40 GHz