

Modular Redundancy Switch N:1 RSCM



The WORK Microwave Redundancy Switch System N:1 can be configured for redundancy configurations with a maximum of eight main units and one spare unit. The redundancy system can be used for Upconverters and Downconverters.

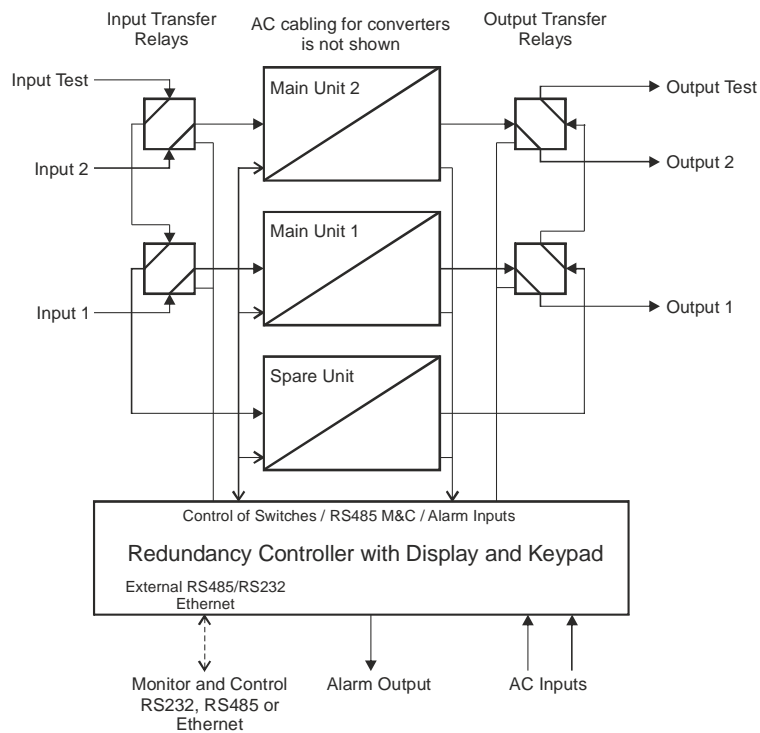
The core of the solution is based on a highly flexible control unit. The required coaxial transfer switches, and waveguide transfer switches are mounted on separate panels or within an outdoor housing. When used in a rack mount installation, redundant switching panels can be added to the system in a modular way if the number of required channels increases over time.

The system can be configured from the front panel of the controller or remotely via RS232, RS422/485, or TCP/IP over Ethernet.

The switching system can be set in automatic mode, whereby an automatic switchover to the spare unit is performed upon detection of an alarm generated by the main unit. In addition, a manual switchover to the spare unit and back can be initiated.

Two power supplies and two AC input connectors within the controller unit guarantee high availability.

The Redundancy Switch System is also available with integrated uplink power control (Option UPC).



2:1 Modular Redundancy Switch System with RSCM-2

Modular Redundancy Switch N:1 RSCM

IF and RF Switch Type Parameters without Cabling							
Relay 75L, 0 ... 2.5 GHz	Impedance: 75 Ω						
	Power handling: 1 W (switching)						
	Connector: 1.6/5.6 female, adapter to BNC female provided						
	Frequency (GHz):	0 ... 1	1 ... 2.5				
V.S.W.R. (max.):	1.20	1.30					
Insertion loss (dB max.):	0.2	0.3					
Isolation (dB min.):	80	70					
Relays 50K, 50Ka26, 50Ka40	Impedance: 50 Ω						
	Power handling: 1 W (switching)						
	Connector: SMA female						
	Frequency (GHz):	0 ... 1	1 ... 4	4 ... 8	8 ... 12.4	12.4 ... 18	18 ... 26.5
V.S.W.R. (max.):	1.1	1.15	1.25	1.35	1.6	1.7	
Insertion loss (dB max.):	0.2	0.2	0.3	0.4	0.6	0.8	
Isolation (dB min.):	85	80	70	65	60	55	
50Ka40, 0 ... 40GHz:	Connector: K female						
	Frequency (GHz):	0 ... 6	6 ... 12.4	12.4 ... 18	18 ... 26.5	26.5 ... 40	
	V.S.W.R. (max.):	1.3	1.4	1.5	1.7	1.9	
	Insertion loss (dB max.):	0.3	0.4	0.5	0.7	0.8	
Isolation (dB min.):	70	60	60	55	50		
Dimension and Weight of a Relay Panel:	483 x 88 + connectors x 96 mm ³ (WxHxD), 2 RU 19" + SMA connectors approx. 1 kg						

Specifications are subject to change

Controller RSCM Parameters	
Monitoring and Control Interface:	Protocol: SNMP
	Connection: UDP over Ethernet (10 or 100 Mbps, auto sensing), connector RJ-45
	Protocol: HTTP (web browser interface)
	Connection: TCP/IP over Ethernet (10 or 100 Mbps, auto sensing), connector RJ-45
User Interface:	Protocol: Multipoint
	Connection: RS232 or RS422/RS485 (configurable), connector DSUB09 female or TCP/IP over Ethernet (10 or 100 Mbit/s, auto sensing), connector RJ-45
Summary Alarm Interface:	LCD (VFD as option), 2 x 40 characters, 4 cursor keys, 2 function keys, Status LED's
Interface to Indoor Redundancy Sets:	Controller alarm out, two potential free contacts (DPDT, connector DSUB09 female)
Interface to Indoor Spare Unit:	Main unit alarm and IF/RF-relay-control (8x connector DSUB15 female)
Communication Interface to Indoor Units:	Alarm (connector DSUB15 female)
Insertion loss compensation:	RS485 (connector DSUB09 male)
Switching:	For each channel attenuation and equalization ¹⁾ offsets can be set to compensate for influences of cable and relay differences in case of a replacement.
Delay from unit alarm occurrence until IF/RF relay switching:	Manual or Automatic Typical 100 ms, max. 400 ms (depending on connected spare unit)
Uplink Power Control Algorithm (only with Option UPC):	Configurable parameters: <ul style="list-style-type: none"> • Uplink power control on/off, master and per converter • Maximum gain increase for each converter in reference to clear sky gain • Sampling and update period 0.3 to 5.0 seconds • Ratio between decrease of beacon signal and increase of transmission signal for each converter • Clear sky value of DC beacon receiver signal • Sustain period in seconds (up 3600 s) for which the uplink power control keeps the last gain increase value (in case of deep fade conditions where the beacon receiver can lose lock for some period of time) Monitors for: <ul style="list-style-type: none"> • DC signal from beacon receiver • Calculated attenuation of beacon signal • Current gain increase of transmission signal for each converter
Beacon Receiver Interface (only with Option UPC):	Differential DC Input: Voltage Range DC-In+: 0 ... +12 V related to Ground Voltage Range DC-In-: -12 ... +12 V related to Ground DC-In+ - DC-In-: 0 ... +12 V Input Impedance: approx. 10 kΩ +5 V Output to shift Input Voltage Range to -5 V ... +5 V Beacon Receiver Alarm Input: TTL Input, Pull-Up to 5 V with 1 kΩ, suitable for external relay closure to GND Connector DSUB9 male (on provided special cable where necessary)
Temperature Range:	-30 °C ... 60 °C operating, -30 °C ... 80 °C storage The LC-Display is operational: -20 °C ... 60 °C.
Relative Humidity:	<95% non-condensing
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: 25 VA / 7 W
Mains Power Input Connector:	2 x IEC C14
Mains Fuse:	2 x 2 x 2.0 A time-lag fuse
Dimension and Weight of Redundancy Controller:	483 x 44 x 270 mm ³ or with option L 483 x 44 x 470 mm ³ (WxHxD), 1 RU (19") approx. 4 kg

¹⁾ If supported by converters

Specifications are subject to change

Modular Redundancy Switch N:1 RSCM

Order Information for Redundancy System:

RSCM-[Number of Main Units]-[IF Switch Type]-[RF Switch Type]-[Options]

consists of Indoor Controller and Indoor Relay Panel(s)
Number of Main Units: 1 to 8

Possible options are:

UPC	Uplink Power Control
VFD	VF Display
L	long housing, depth 470 mm

Examples:

RSCM-4-75L75L-50K	4:1 system with two 75 Ω 2.5 GHz IF and one 50 Ω 18 GHz RF relays per main unit for 2-Channel-Converters
RSCM-2-50K-50Ka26	2:1 system with one 50 Ω 18 GHz IF and one 50 Ω 26 GHz RF relays per main unit

Order Information for Controller:

RSC[Number of Main Units]-[Number of IF Relays]-[Number of RF Relays]-[Options]

Indoor controller for use with Indoor Relay Panels only
Number of Main Units: 1 to 8
Number of IF Relays: 1 to 4, omit if 1
Number of RF Relays: 1 or equal to Number of IF Relays, omit if 1
Limitation: Number of Main Units * Number of IF Relays ≤ 8

Possible options are:

UPC	Uplink Power Control
VFD	VF Display
L	long housing, depth 470 mm

Examples:

RSC2-2-UPC	2:1 Controller with Uplink Power Control for use with Indoor Relay Panels with 2 IF and 1 RF relays per main unit
RSC8	Controller for up to 8 main units for use with Indoor Relay Panels with 1 IF and 1 RF relays per main unit

Order Information for Relay Panel:

RSP-[Main Unit]-[IF Switch Type]-[RF Switch Type]

Relay panel, standard with max. 4 relays
Main Unit: Un[-m]

Examples for Relay Panel:

RSP-U1-2-50K-50Ka26	Indoor Relay Panel for Unit 1 and Unit 2 with one 50 Ω 18 GHz IF and one 50 Ω 18 GHz RF relays per main unit for Single-Channel-Converters
RSP-U1-50K50K-50K	Indoor Relay Panel for Unit 1 with two 50 Ω 18 GHz IF and one 50 Ω 18 GHz RF relays for 2-Channel-Converters
RSP-U7-8-75L-50K	Indoor Relay Panel for Unit 7 and Unit 8 with one 75 Ω 2.5 GHz IF and one 50 Ω 18 GHz RF relay per main unit