Compact Redundancy Switch 1:1, 2:1
RSCC-1, RSCC-2

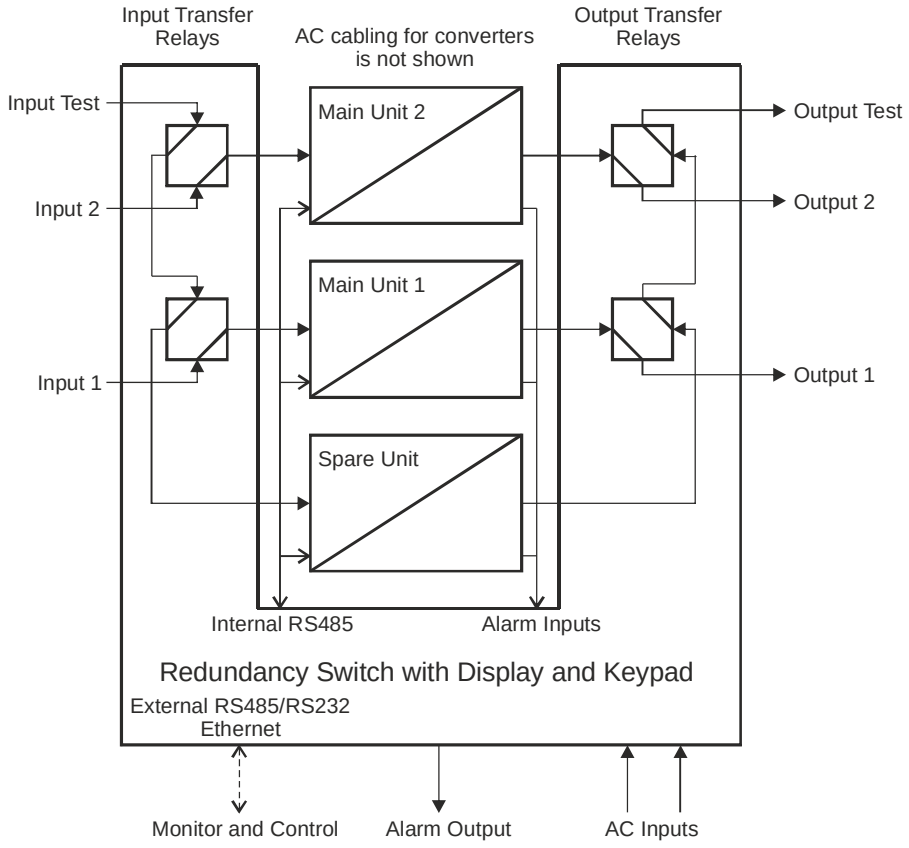
The WORK Microwave Redundancy Switch RSCC-1/RSCC-2 is a compact solution for a 1:1/2:1 redundancy system. It can be used for Upconverters and Downconverters. The system includes up to 6 coaxial transfer switches, which are integrated into the housing.

The system can be configured from the front panel 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 unit guarantee high availability.

The Redundancy Switch RSCC-2 is also available with integrated uplink power control (Option UPC).



2:1 Redundancy Switch System with RSCC-2

Compact Redundancy Switch
RSCC-1, RSCC-2

Possible configurations for RSCC-1								
Number of RF paths	**0**		**1**		**2**	**3**	**1 - 4**	**5 - 6**
Number of IF paths	**1 - 4**	**5 - 6**	**1 - 3**	**4 - 5**	**2**	**3**	**0**	
Only in Long Housing		**X**		**X**		**X**		**X**

Possible configurations for RSCC-2						
Number of RF paths	**0**		**1**		**1 - 2**	**3**
Number of IF paths	**1 - 2**	**3**	**1**	**2**	**0**	
Only in Long Housing		**X**		**X**		**X**

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)					
50K, 0 … 18 GHz: **50Ka26, 0 … 26.5 GHz:**	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	

Controller RSCC 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
	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
User Interface:	LCD or as option VFD with 2x 40 characters, 4 cursor keys, 2 function keys, Status LED's	
Interface to Converter Units:	1x connector DSUB15 female, provided cable splits signals to:	
Unit Alarm:	- 3x DSUB09 male	
Unit Communication Interface:	- RS485 (3x connector DSUB09 male)	
Summary Alarm Interface:	- Controller alarm out, two potential free contacts (DPDT, connector DSUB09 female)	
Insertion loss compensation:	For each channel attenuation offsets and equalization offsets (if supported by converters) can be set to compensate for influences of cable and relay differences in case of a replacement.	
Switching:	Manual or Automatic	
Delay from unit alarm occurrence until IF/RF relay switching:	typical 100 ms, max. 400 ms (depending on connected spare unit)	
Uplink Power Control Algorithm (only with Option UPC):	Configurable parameters:	• 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:	• 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.	

Compact Redundancy Switch
RSCC-1, RSCC-2

Controller RSCC Parameters, continued	
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:	483 x 44 x 270 mm³ or with option L 483 x 44 x 470 mm³ (WxHxD), 1 RU (19") approx. 5 kg

Specifications are subject to change

Order Information:

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

Compact Redundancy Switch with integrated relays
Number of Main Units: 1 or 2
max. 4 relays in short housing, max. 6 relays in long housing with option L

Possible Options are:

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

Examples:

RSCC-2-50K50K-50Ka26-L	Compact Redundancy Switch 2:1 with two 50 Ω 18 GHz IF and one 50 Ω 26 GHz RF relays per main unit in long housing for 2-Channel-Converters
RSCC-1-50K50K50K-50K	Compact Redundancy Switch 1:1 with three 50 Ω 18 GHz IF and one 50 Ω 18 GHz RF relays for 3-Channel-Converters
RSCC-2-50K-50K-UPC-VFD	Compact Redundancy Switch 2:1 with Uplink Power Control, VF Display, one 50 Ω 18 GHz IF and one 50 Ω 18 GHz RF relays