RSWU-4SPDTS

4 Channel Non-reflective SPDT Switch 100 kHz … 8500 MHz

Features

- extremely wideband
- high-speed switching
- wear-free
- non-reflective
- up to 11 switching modules
  (44 Channels) in one system rack

Applications

- receiving systems
- RF switching matrices
- quality assurance
- final testing & verification
- R&D

similar appearance

Scope

RSWU-4SPDTS is a four channel RF SPDT switch suitable for the frequency range 100 kHz … 8500 MHz. The four switches are non-reflective types and can easily be combined with other components in 50 Ohm technology.

RSWU-4SPDTS is designed as a slide-in module for integration into the SR6-11C system platform. It can be controlled either via the SR6-11C low-level 'Binary Interface' or the additional controller unit SR6-CU.

Additional to the SR6-CU module, up to ten RSWU-4SPDTS switching modules can be integrated in one SR6-11C system rack. When using the 'Binary Interface', all 11 slots are available for switching modules.

Remote Interfaces

The optional controller SR6-CU provides the interfaces LAN and USB. These interfaces could be used to control the RSWU modules by SCPI-oriented ASCII commands.

RF Switching Matrices

In combination with the wideband signal combiner unit WSCU8X1R and the wideband signal distribution units of the WSDU series, RF cross point matrices can be realized. WSDU units are available as slide-in modules for SR6-11C, too.

Time-critical Switching

In applications where shortest response times are required, the switch modules can be controlled via the low-level 'Binary Interface' of the SR6-11C system platform.
This interface allows direct programming of the binary data registers inside the RSWU modules.

Synchronous Switching

SR6-11C enables the synchronous execution of multiple commands across the whole system rack. Additionally SR6-11C provides a 'Trigger IO' interface which allows the synchronous coupling of multiple SR6-11C system racks and other compatible devices.

Specifications (general)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ω	
low frequency	f_{min}			100	kHz	
high frequency	f_{max}	8500			MHz	
channel isolation	S_{31}		-120	-80	dB	f ≤ 6 GHz
			-100	-70	dB	f > 6 GHz
transfer power (CW, hot switch)	$P_{in\ HOT}$			+20	dBm	300 kHz ≤ f ≤ 8.5 GHz
				+13	dBm	100 kHz ≤ f < 300 kHz
RF connectors			SMA female			
switch delay	t_{50-50}		4.6		µs	50 % trigger to 50 % RF
switch on time	t_{10-90}		2.8		µs	10 % RF to 90 % RF
switch off time	t_{90-10}		3.4		µs	90 % RF to 10 % RF
maximum DC Voltage	U_{max}			20	V	on any RF Port
typical DC resistance	R_{DC}		4700		Ω	on any RF Port

Specifications (switch closed)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
insertion loss	S_{21}, S_{12}		-0.9	-1.5	dB	f ≤ 1 GHz
			-1.5	-2.5	dB	1 GHz < f ≤ 4 GHz
			-1.8	-3.0	dB	f > 4 GHz
return loss	S_{11}, S_{22}		-10	-7	dB	f < 1 MHz
			-18	-15	dB	1 MHz ≤ f ≤ 2 GHz
			-10	-7	dB	2 GHz < f < 5.5 GHz
			-15	-10	dB	f ≥ 5.5 GHz
transfer power (CW, switch static closed)	$P_{in\ CW}$			+34	dBm	10 MHz ≤ f ≤ 8.5 GHz
				+27	dBm	1 MHz ≤ f < 10 MHz
				+13	dBm	100 kHz ≤ f < 1 MHz
input IP3	IIP3		+60		dBm	@ 834 / 1950 / 2700 MHz
input IP2	IIP2		+110		dBm	@ 834 / 1950 MHz

Specifications (switch open)

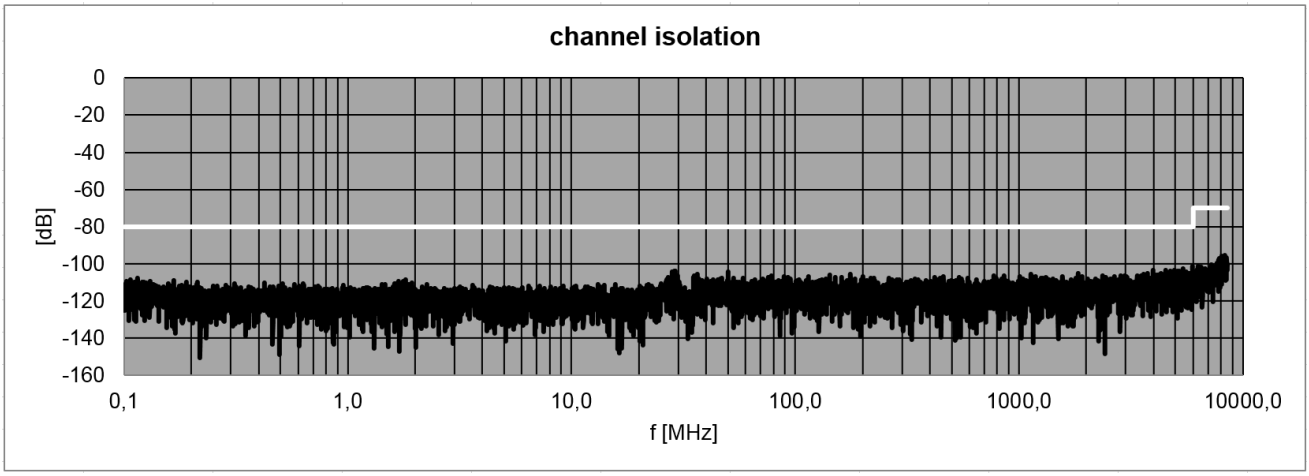
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
return loss (X11, X21, X12, X22, X13, …)	S_{11}			-7	dB	f < 1 MHz
				-17	dB	1 MHz ≤ f ≤ 2 GHz
				-10	dB	f ≥ 2 GHz
off isolation	S_{21}, S_{12}		-47	-40	dB	f ≤ 6 GHz
			-38	-30	dB	f > 6 GHz
terminated power	P_{term} [1]			+23	dBm	600 kHz ≤ f ≤ 8.5 GHz
				+10	dBm	100 kHz ≤ f < 600 kHz

Note 1: limited to 8 W for the sum of all terminated signals

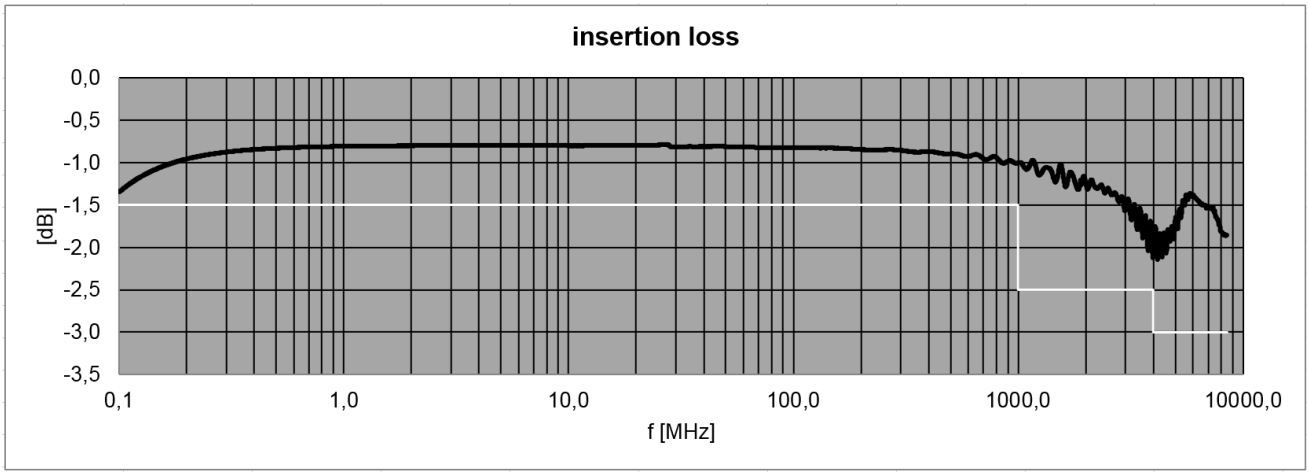
Common Specifications

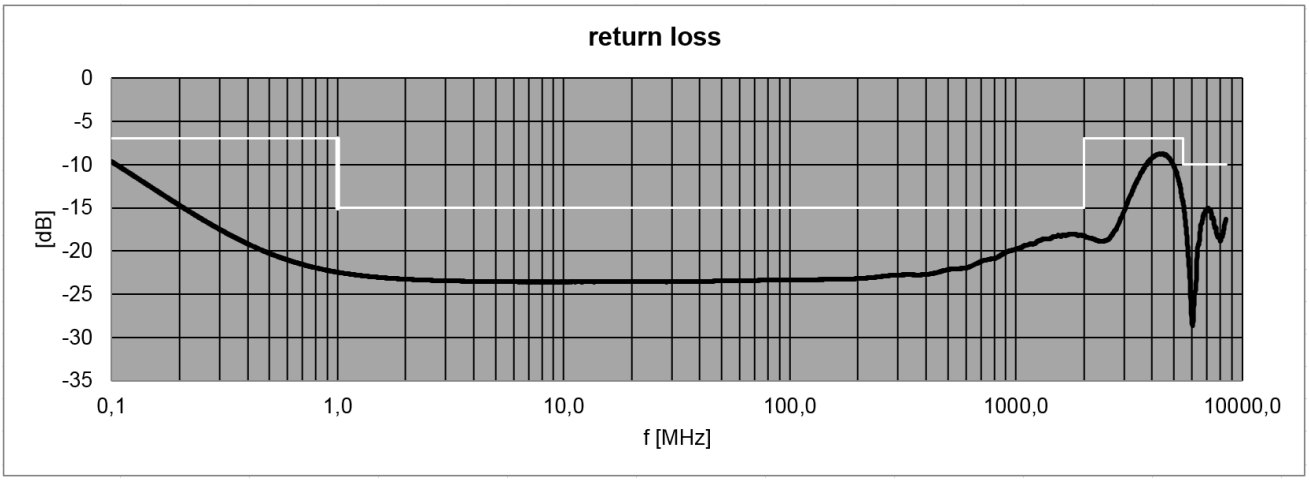
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply		23.5	24.0	24.5	V	via SR6-11C
power consumption			1		W	
dimensions	L x W x H		approx. 197 x 30 x 262		mm	6 U, 6 HP
weight			1400		g	
operating temp. range	T_o	+5		+60	°C	
storage temp. range	T_s	-40		+70	°C	
ordering information	RSWU-4SPDTS			1408.4020.1		

S-Parameters (typical responses)

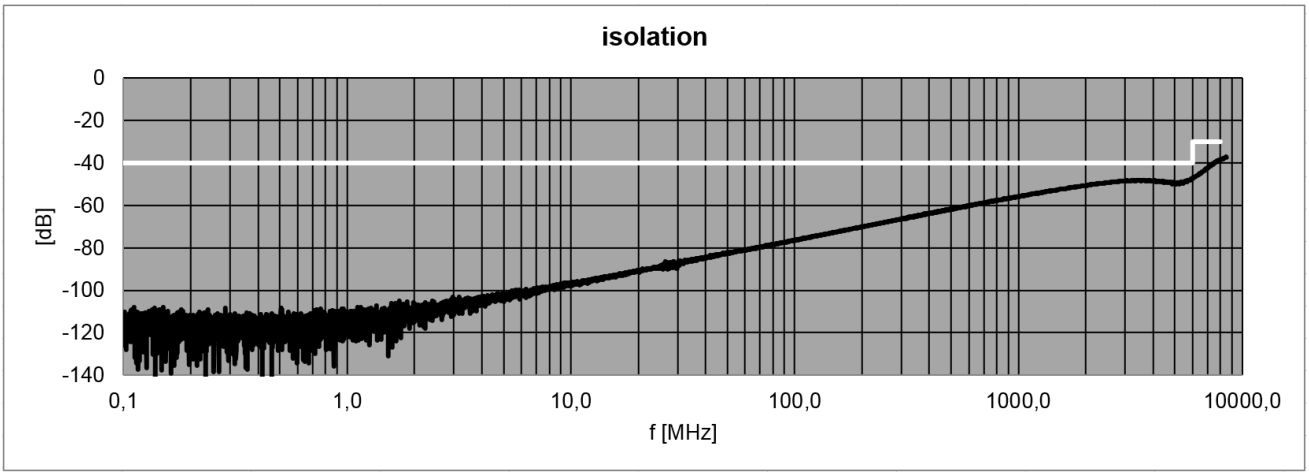


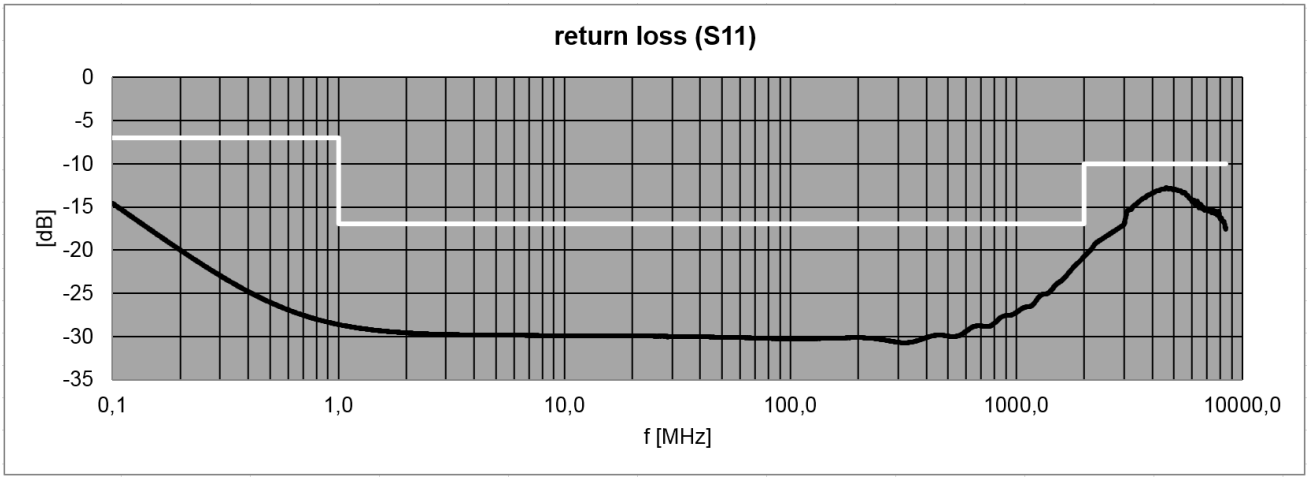
Switch Closed



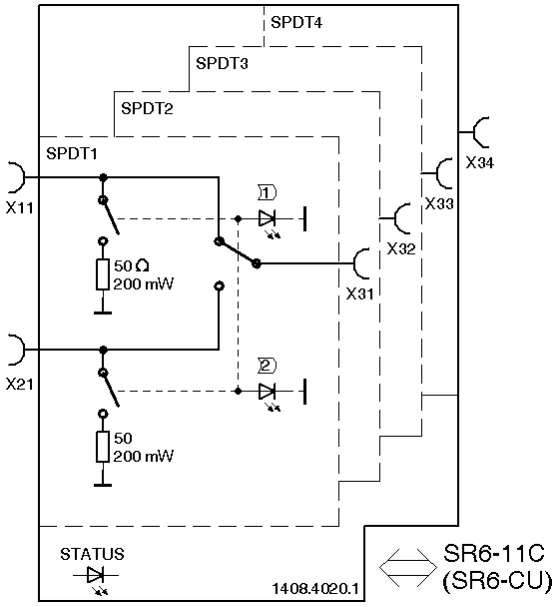


Switch Open





Block Diagram



Front View (similar appearance)

Rear View (similar appearance)

Related Products

Product	Description	P/N
SR6-11C	System platform with 11 slots	1409.1202.1
SR6-CU	Controller unit with LAN and USB	1409.3000.1
WSDU1X8	8 way multicoupler 100 kHz … 4000 MHz	1202.6100.1
WSCU8X1R	High dynamic 8 way combiner 100 kHz ... 4000 MHz, 50 Ω	1208.6102.1
RSWU-8SPSTS	8 channel non-reflective SPST switch 100 kHz … 8500 MHz	1408.4000.1
RSWU-2SP4TS+	2 channel non-reflective SP4T switch+ 1 channel SPDT, 100 kHz … 8500 MHz	1408.4030.1
RSWU-4SPDTR18	4 channel reflective SPDT Switch DC … 18 GHz	1408.4100.1
RSWU-4SPDTR40	4 channel reflective SPDT Switch DC … 40 GHz	1408.4110.1