

Extremely Wideband 4X4 Switching Matrix 20 ... 8000 MHz

## Features

- extremely wideband
- high dynamic
- non-blocking

## Applications

- receiving systems
- signal distributions
- research & development (R&D)
- test equipment
- laboratory



## Overview

RSWM-4X4ER is an extremely wideband switching matrix with four inputs and four outputs, designed in 50 Ohm technology. The device can be controlled either via the remote interfaces LAN and USB (SCPI-based ASCII-commands) or via MMI on the front panel.

## Excellent RF Characteristics

Its high dynamic and excellent properties in terms of linearity make this device the right choice for demanding applications, where reproducible results must be obtained.

## Synchronous Operation

Like many other products of Becker Nachrichtentechnik GmbH, the devices of the RSWM series offer a TRIGGER IO port. This interface provides a precise trigger pulse which complies with the physical execution of the applied switching command. On the other hand, external pulses can be applied to this port in order to trigger the execution of queued switching commands. Therefore it is possible to link multiple devices to a synchronous switching compound.

## Compact & Robust Design

The compact dimensions in 19" 1 U construction of the RSWM device make it ideally suited for installations in system racks or for use as a table top device.

## RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	$Z_{in} / Z_{out}$		50		Ohm	
low frequency	$f_{min}$		20		MHz	
high frequency	$f_{max}$		8000		MHz	
gain	$S_{21}$		3.5		dB	$f \leq 1.0$ GHz
	$S_{21}$		2		dB	$f > 1.0$ GHz
gain flatness	$\Delta S_{21}$		$\pm 1.5$		dB	
input return loss	$S_{11}$		-15		dB	
output return loss	$S_{22}$		-17		dB	$f \leq 6.5$ GHz
	$S_{22}$		-13		dB	$f > 6.5$ GHz
1 dB compression	$P_{1dB}$		5		dBm	
3 <sup>rd</sup> order intercept	OIP3 <sup>1</sup>		+21		dBm	$f \leq 1.5$ GHz
	OIP3 <sup>1</sup>		+16		dBm	$1.5 \text{ GHz} < f \leq 4.0 \text{ GHz}$
	OIP3 <sup>1</sup>		+13		dBm	$f > 4.0 \text{ GHz}$
2 <sup>nd</sup> order intercept	OIP2 <sup>2</sup>		+45		dBm	40/60 MHz, 1000/1100 MHz
	OIP2 <sup>2</sup>		+33		dBm	3000/3100 MHz, 3900/4000 MHz
noise figure	NF		9		dB	$f < 100$ MHz
	NF		8		dB	$f \geq 100$ MHz
channel isolation	$S_{21}$		-25		dB	@ 8 GHz
	$S_{21}$		-40		dB	$f \leq 3.0$ GHz
	$S_{21}$		-30		dB	$3.0 \text{ GHz} < f \leq 6.0 \text{ GHz}$
	$S_{21}$		-25		dB	$6.0 \text{ GHz} < f \leq 8.0 \text{ GHz}$
output isolation	$S_{32}$		-30		dB	
input power	$P_{IN}$		+10		dBm	CW, no damage
RF connectors						N female

Note 1:  $P_{in} = 2 \times -10$  dBm, specified and tested for  $\Delta f = 50$  MHz

Note 2:  $P_{in} = 2 \times -10$  dBm, specified and tested for mentioned frequency pairs

OIP2 & OIP3 values are the average of the upper and lower intermodulation distortion

## Common Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	V <sub>supply</sub>	90		260	V	50 / 60 Hz AC
power consumption	P <sub>supply</sub>		36		VA	
dimensions	L x W x H	approx. 450 x 482 x 44			mm	19" 1 U, without connectors and handles
weight			10		kg	
operating temp. range	T <sub>o</sub>	+5		+ 40	°C	
storage temp. range	T <sub>s</sub>	- 40		+ 70	°C	
ordering information		RSWM-4X4ER		1205.4202.1		
remote ports	LAN	10/100 BaseT		TCP/IP		RJ45 on rear side
	USB	2.0 (high speed)				USB type B

## Front View



## Related Products

Product	Description	P/N
RSWM-4X8SR	8X8 shortwave switching matrix	1205.4312.X
RSWM-4X4R	Non-blocking 4X4 switch matrix 20 MHz ... 4000 MHz	1205.4102.X