

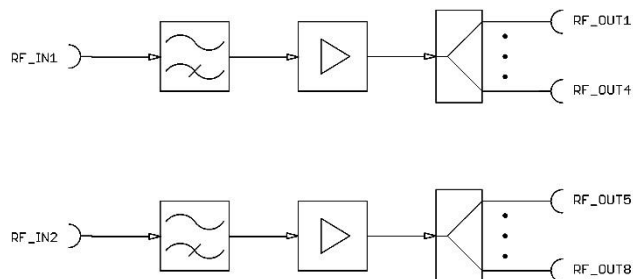
High Dynamic 2 Channel 4 Way Multicoupler 100 kHz ... 4000 MHz, 50  $\Omega$

## Features

- 2 independent RF channels
- wideband
- high dynamic
- lossless signal distribution
- auxiliary input / output
- optional input high pass

## Applications

- AM / FM / DAB / GPS / SDARS / DVB-T
- ISM 433 / 868 / 2400 MHz
- GSM, UMTS, LTE
- signal distributions
- receiving systems
- final testing



## Wideband

WSDU-2X4R is a wideband 2 channel multicoupler that distributes two input signals each to 4 outputs. The frequency range extends from 100 kHz up to more than 4000 MHz.

## 1 to 4 Distribution without any Loss in Signal Level

After the RF input the signal will be amplified using broadband low-noise amplifiers with a wide dynamic range. As a result, the distributed input signal is made available at the eight outputs of the multicoupler without any loss in signal level. All inputs and outputs are performed as N female connectors.

## Wideband Distribution Systems

The wide frequency range makes WSDU-2X4R ideal in applications such as production, research and development (R&D) where several signals in a wide frequency range must be distributed. The compact design in 1 U makes WSDU-2X4R ideally suited for use as a table top, root or storey distributions. In applications where higher output counts are needed, alternative slot-in modules WSDU-1X8 are available.

## V/UHF Receiving Systems

In V/UHF receiving systems such as radio monitoring or directional finding, WSDU-2X4R is available with an optional input high pass for VLF and HF signal suppression.

In directional finding applications, WSDU-2X4R offers excellent amplitude and phase balance performance.

The broadband amplifiers inside the multicoupler have an extremely wide dynamic range. They can linearly amplify exceptionally weak signals even if they occur very close to signals with very strong levels.

## High Port-to-Port Isolation

WSDU-2X4R features high port-to-port isolation to prevent the connected receivers from affecting each other, e.g. via local oscillators or synthesizers.

## RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	$Z_{in} / Z_{out}$		50		Ohm	
low frequency	$f_{min}$		100	150	kHz	
high frequency	$f_{max}$	4000	5000		MHz	
low frequency	$f_{min}$		15	20	MHz	high pass filter option installed
high frequency	$f_{max}$	3600	4000		MHz	high pass filter option installed
gain	$S_{21}$	1.5	3.5	5.0	dB	
amplitude balance			$\pm 0.1$	$\pm 0.5$	dB	$f \leq 3000$ MHz
phase balance			$\pm 3$	$\pm 6$	deg	$f \leq 3000$ MHz
input return loss	$S_{11}$		-17	-10	dB	$f \leq 3500$ MHz
output return loss	$S_{22}$	-	-20	-13	dB	$f \leq 1000$ MHz
			-13	-7	dB	$f > 1000$ MHz
reverse isolation	$S_{12}$		-65	-55	dB	
output isolation	$S_{23}$		-33	-30	dB	distance = 1
			-48	-40	dB	distance > 1
channel separation			-95	-75	dB	
1 dB compression	$P_{1dB}$	+8	+11		dBm	$f \leq 2000$ MHz
		+6	+8		dBm	$2000 \text{ MHz} < f \leq 3000 \text{ MHz}$
		+3	+6		dBm	$f > 3000$ MHz
3 <sup>rd</sup> order intercept	OPIP3 <sup>1</sup>	21	24		dBm	$f = 1000$ MHz
		18	21		dBm	$f = 2000$ MHz
		15	18		dBm	$f = 3000$ MHz
2 <sup>nd</sup> order intercept	OPIP2 <sup>1</sup>	40	54		dBm	$f = 1000$ MHz
		27	38		dBm	$f = 2000$ MHz
		27	38		dBm	$f = 3000$ MHz
noise figure	NF		8.0		dB	$f < 500$ kHz
			7.5	9.0	dB	$500 \text{ kHz} \leq f \leq 2000 \text{ MHz}$
			8.0	9.5	dB	$2000 \text{ MHz} < f \leq 3000 \text{ MHz}$
maximum input power	$P_{in \max}$			+15	dBm	CW, no damage
RF connectors						N female

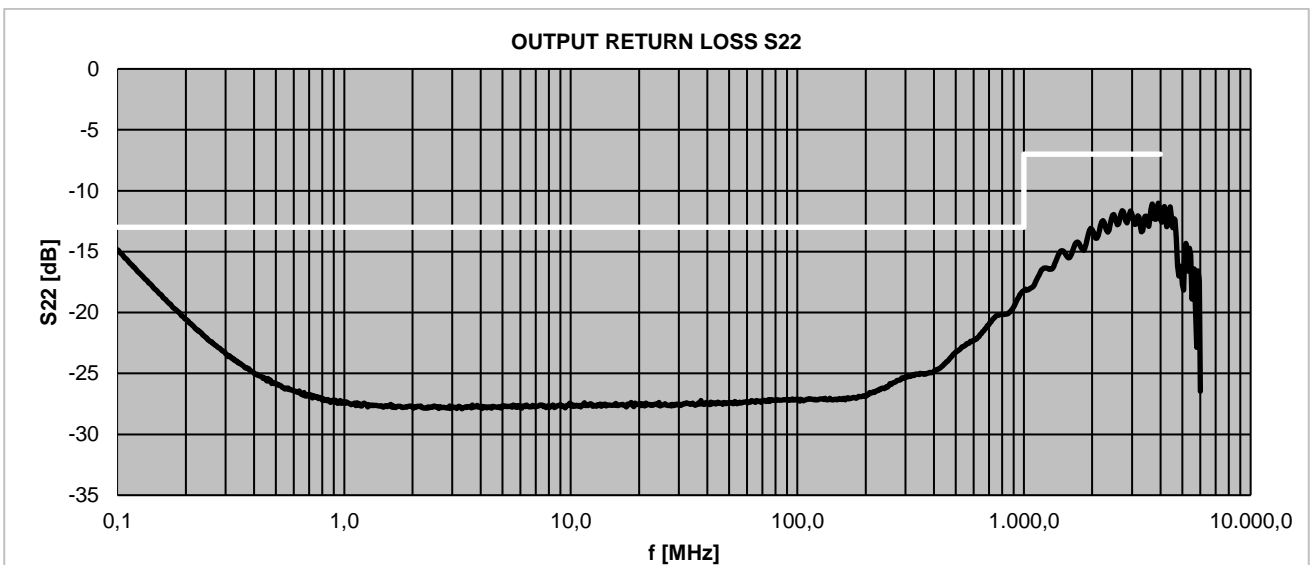
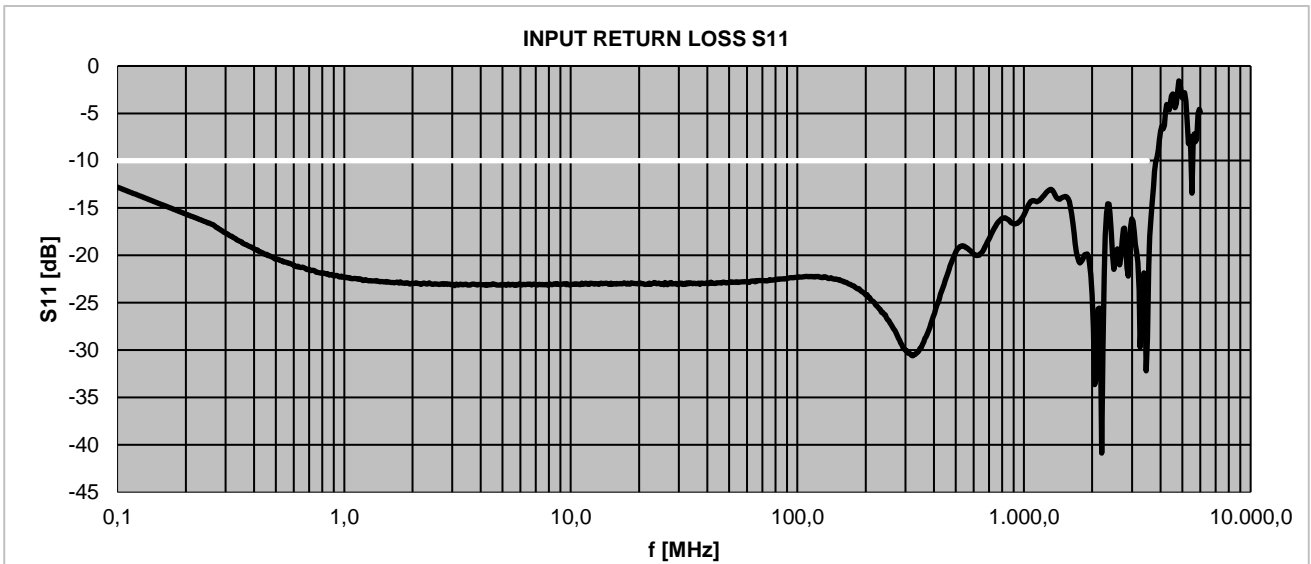
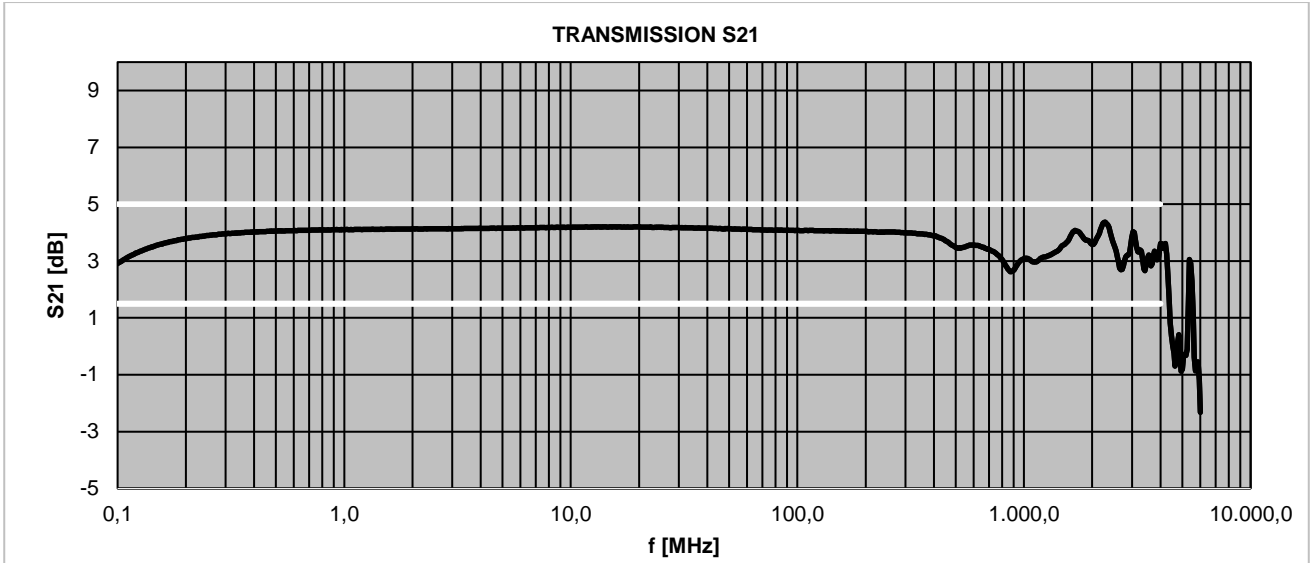
Note 1: frequency space 100 MHz

## Common Specifications

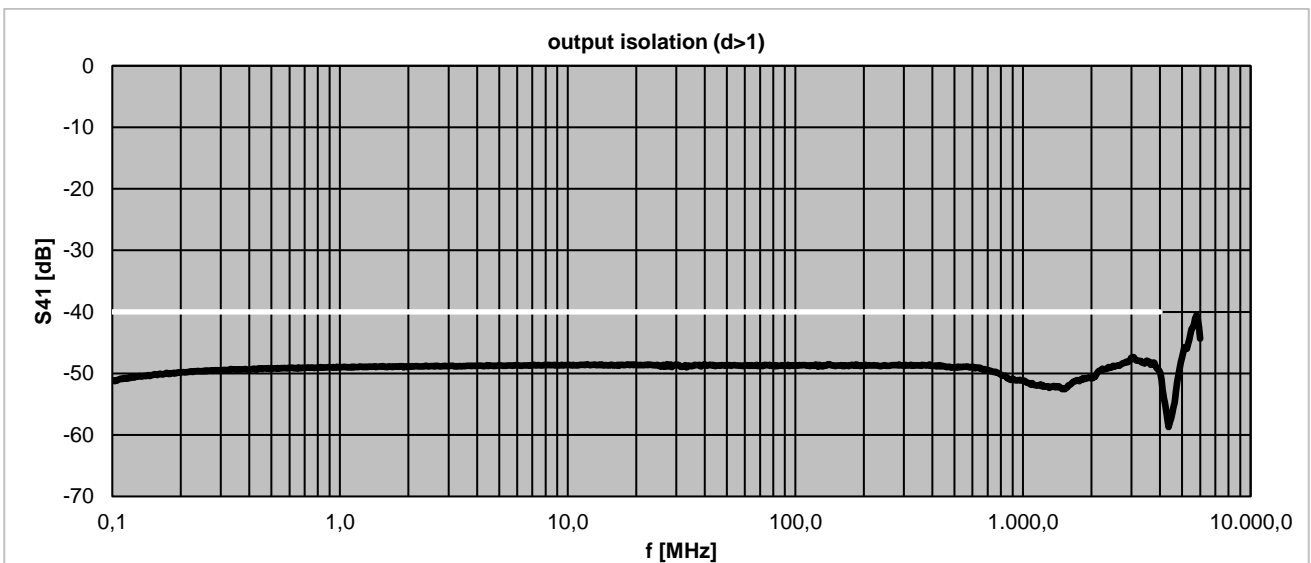
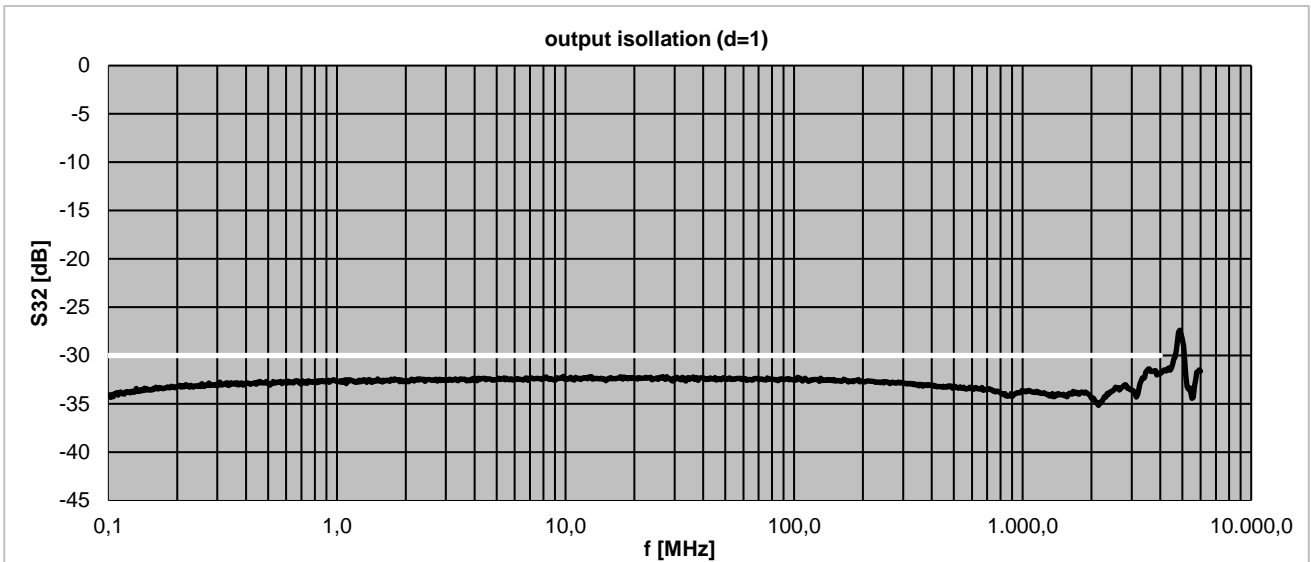
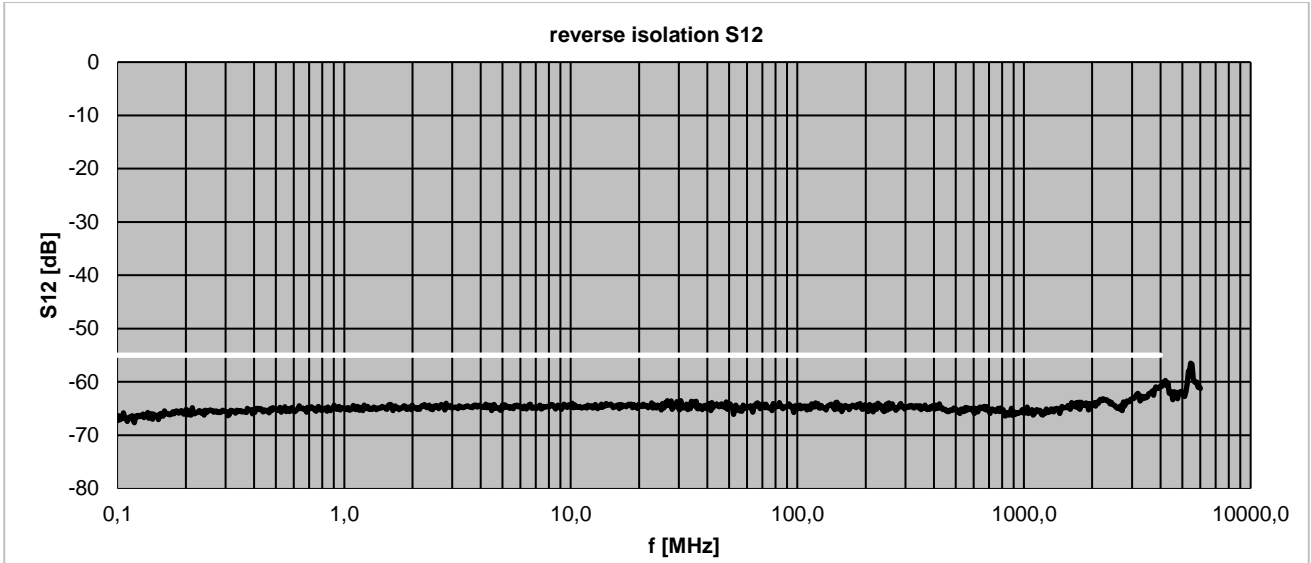
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	U	90	230	260	V	50 / 60 Hz AC
power consumption	P		26	50	VA	
dimensions	L x W x H	approx. 145 x 482 x 44			mm	19" 1 U, without connectors and handles
weight	m		2900		g	
operating temp. range	$T_o$	+5		+45	°C	
storage temp. range	$T_s$	-40		+85	°C	
ordering information		WSDU-2X4R		1107.6202.1		
filter Option		20 MHz HP		1107.6202.O		

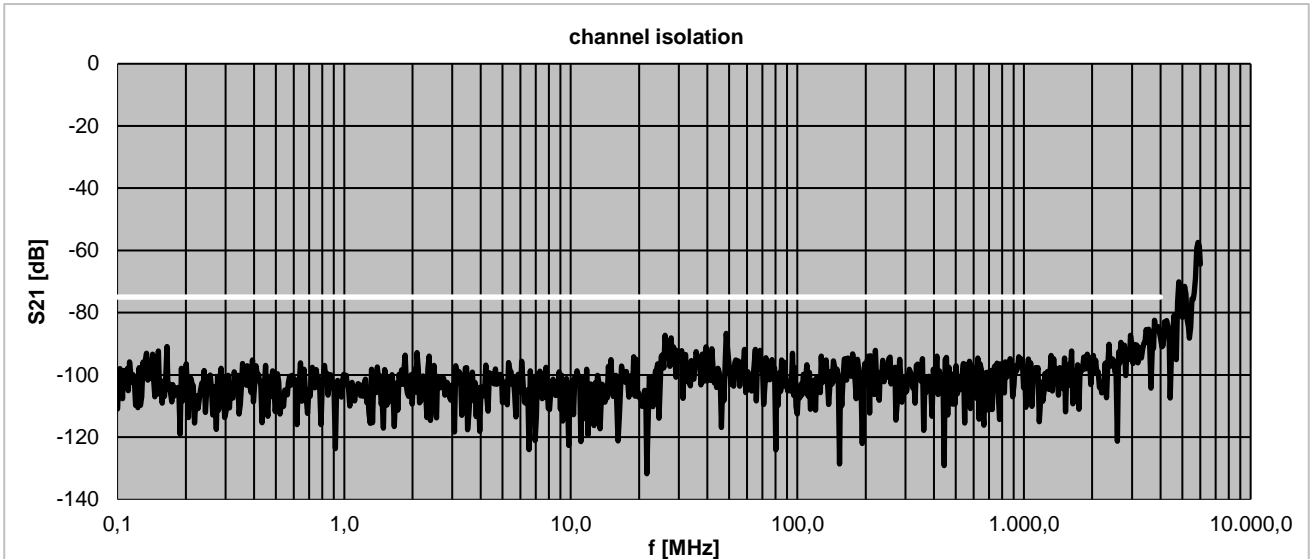


**S-Parameters (typical responses)**

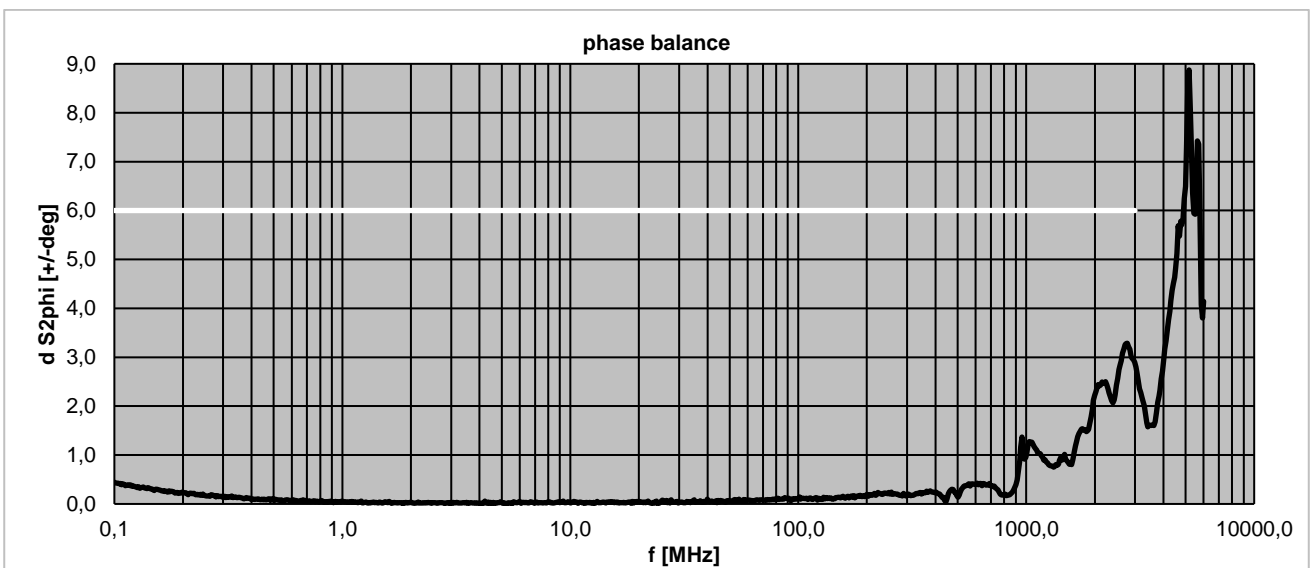
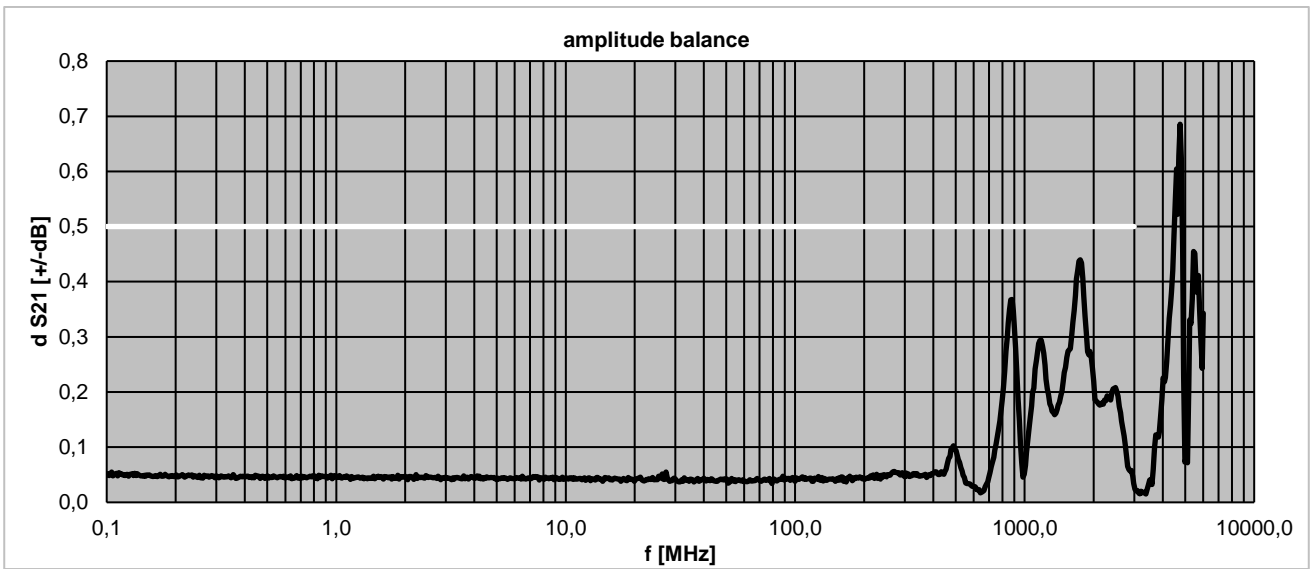


Isolation

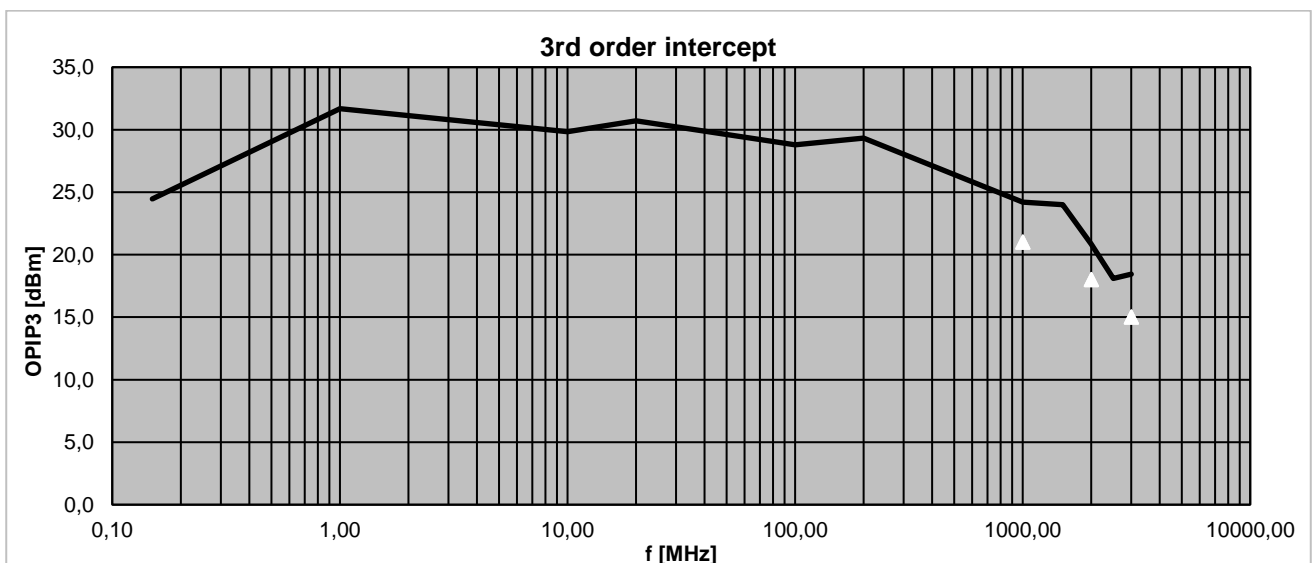
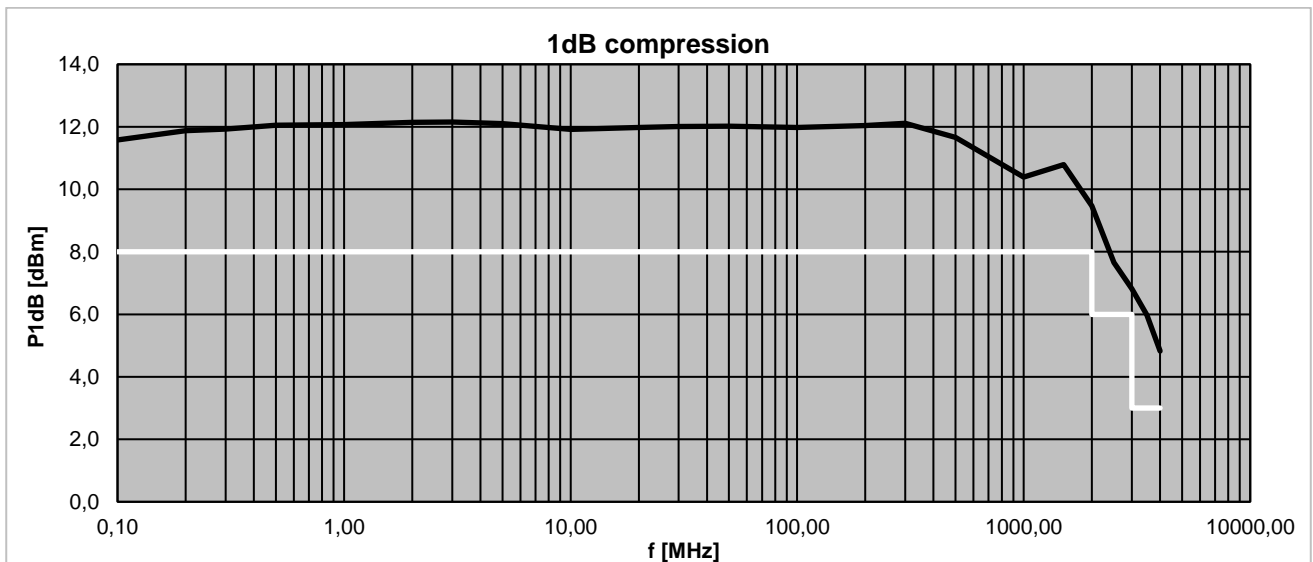
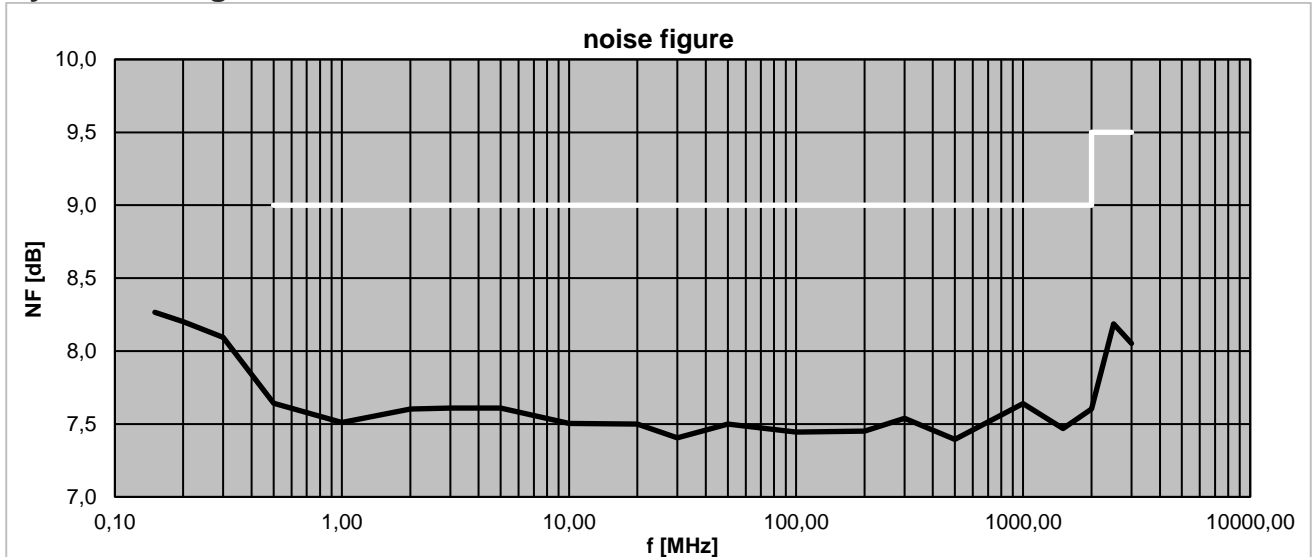


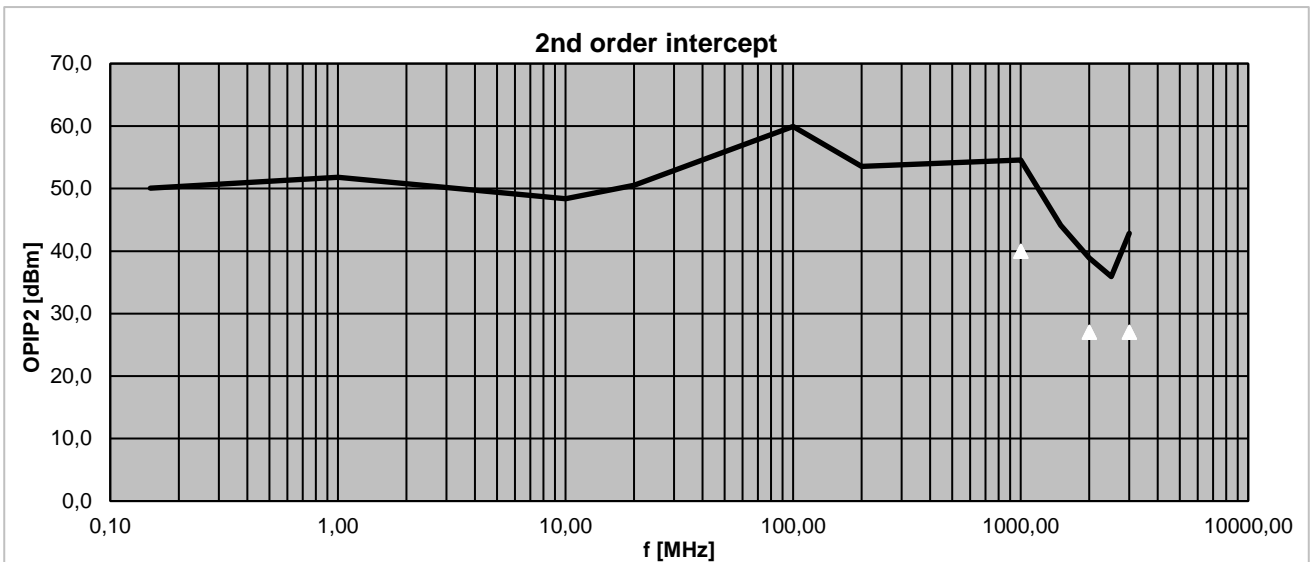


**Balance**



## Dynamic Range





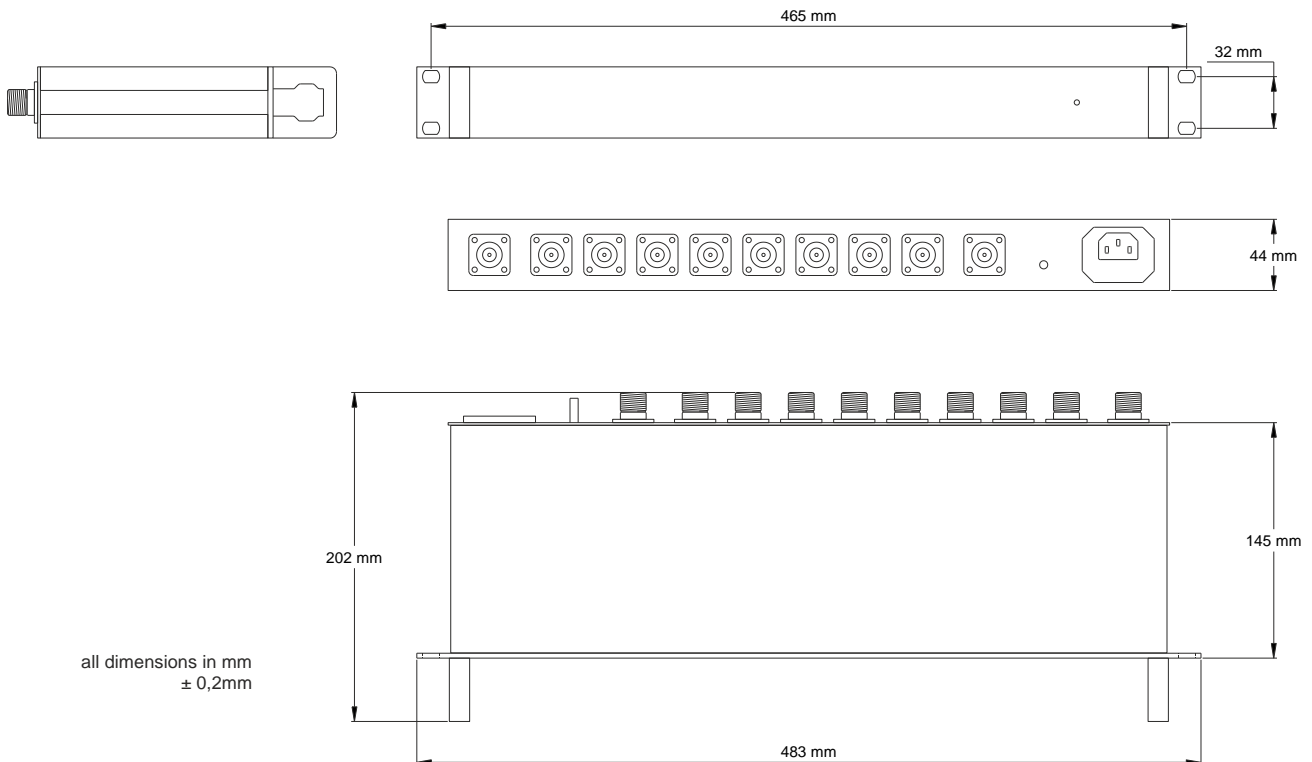
## Front View



## Rear View



## Dimensions



## Related Products

Product	Description	P/N
WSDU-1X8	High Dynamic 1X8 Multicoupler Module 100 kHz ... 4000 MHz	1202.6100.1
WSDU-1X8R	High Dynamic 1X8 Multicoupler 100 kHz ... 4000 MHz	1107.6102.1
WSDU-1X8SR	High Dynamic 1X8 Shortwave Signal Distribution Unit 1.7 ... 30 MHz	1502.6102.1
WSDU-1X4ER	Extremely Wideband 1X4 Signal Distribution Unit 20 ... 8000MHz	1501.6102.1
WSDU-1X8ER	Extremely Wideband 1X8 Signal Distribution Unit 20 ... 8000MHz	1501.6302.1
WSDU-2X4ER	Extremely Wideband Two Channel 1X4 Signal Distribution Unit 20 ... 8000 MHz	1501.6202.1