

## WSDU-1X8LR

High Dynamic 8 Way Multicoupler for Broadcast Signals, 100 kHz ... 4000 MHz

### Features

- wideband
- high dynamic
- lossless signal distribution
- auxiliary input / output



### Applications

- product development, production, product verification, quality assurance
- broadcast signal distribution
- AM, FM, IBOC, DAB, DVB-T, GNSS, SDARS

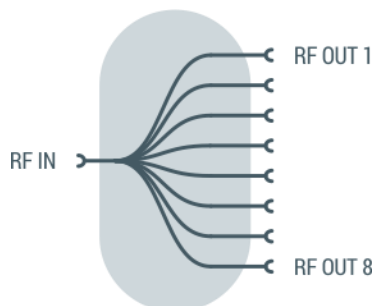
### At a Glance

Multicouplers are needed to distribute a common broadcast signal sources to many outputs without loss in level and low distortion. Modern infotainment components (devices under test) DUTs need a lot of different RF signals for a complete operation. Due the large operating frequency range and the high dynamic range, the WSDU-1X8LR is the fitting solution to multiply RF-signals to up to 8 ports.

The WSDU-1X8LR is the right solution for innovative broadcast signal distribution systems that must cover the frequency range for all signal types, beginning with the AM range up to SDARS satellite radio.

### Simplified Block Diagram

The WSDU-1X8LR distributes the signals from one input to 8 equal outputs without loss in level.



### Lossless 1 to 8 Signal Distribution

The signal at the input is amplified by using broadband low-noise amplifiers with a wide dynamic range -weak signals are linearly amplified even if they occur next to signals with very strong levels-. As a result, the distributed input signal is made available at the eight outputs without any loss in level.

The hardware structure of the distribution offers optimal phase and amplitude balance performance. All inputs and outputs have N female connectors.

### High Port-to-Port Isolation

WSDU-1X8LR features a high port-to-port isolation. The connected receivers are prevented from affecting each other, e.g., via local oscillators or synthesizers.

### Auxiliary Port

For maintenance during operation the auxiliary port offers the complete signal spectrum. It can be monitored without signal interruption. Alternative the auxiliary port can be used for an additional signal injection.

**RF Specification**

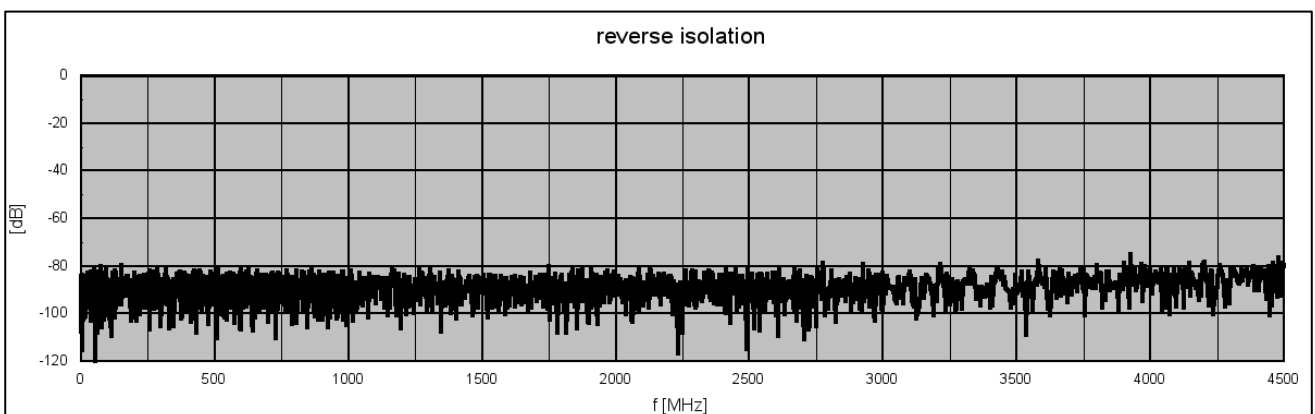
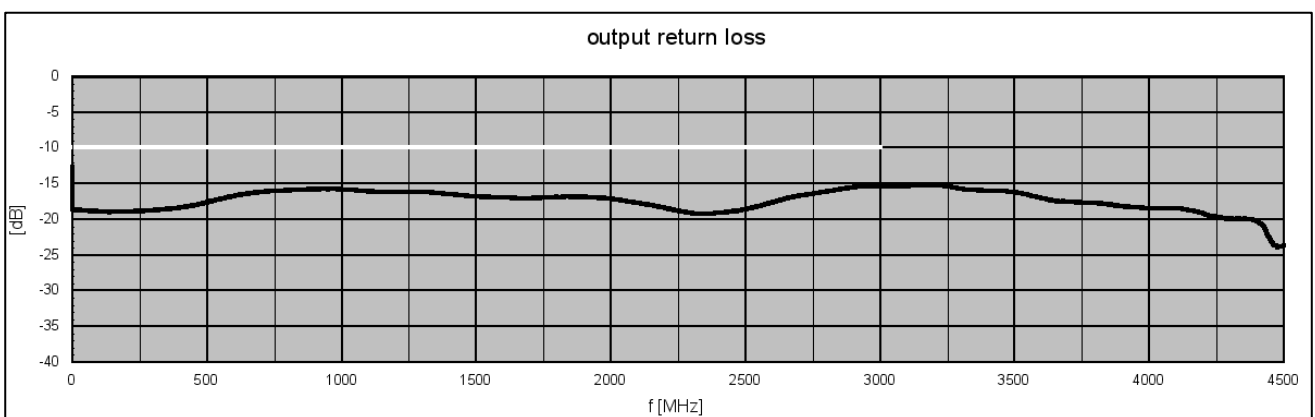
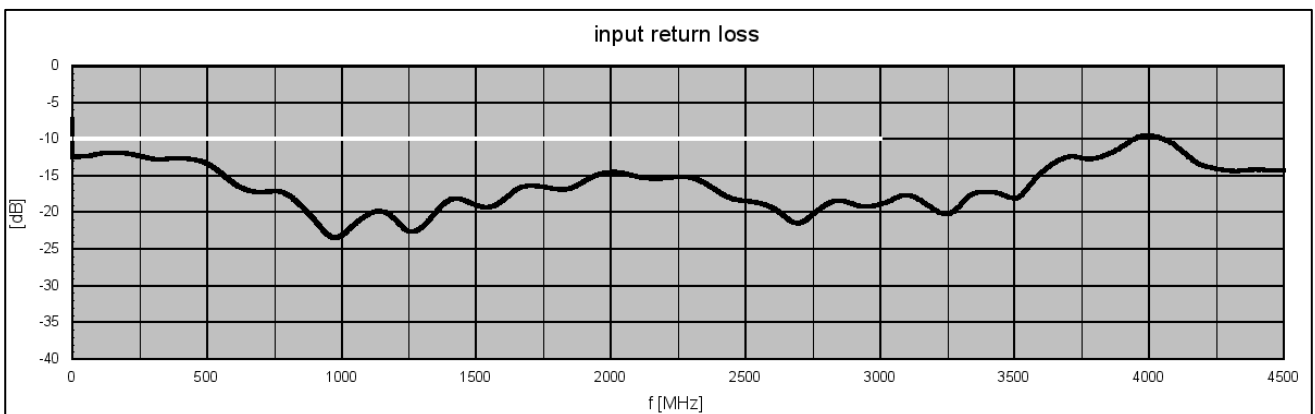
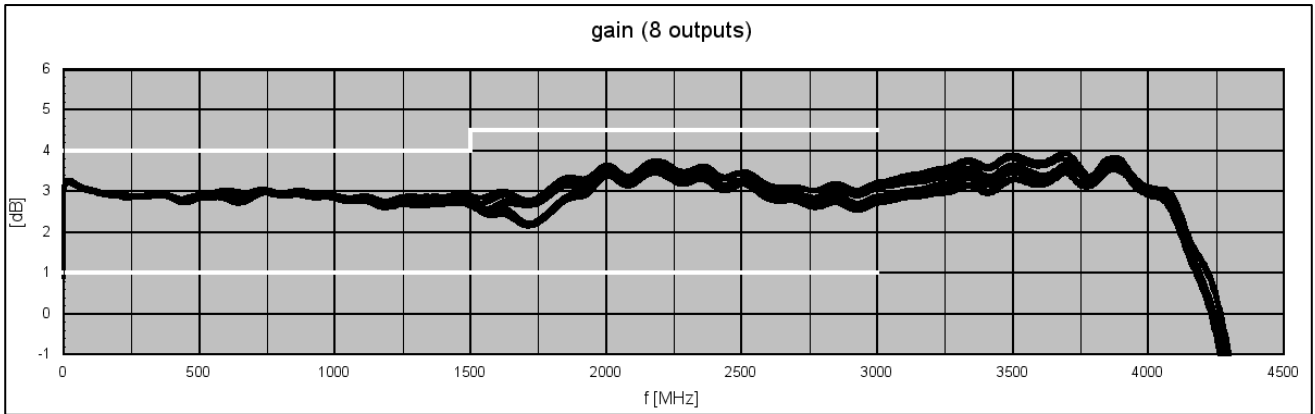
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	$Z_{IN}/Z_{OUT}$		50		$\Omega$	
low frequency	$f_{MIN}$		100	150	kHz	
high frequency	$f_{MAX}$	4000	4500		MHz	
gain	$S_{21}$	1.0	3.0	4.0	dB	$f \leq 1500$ MHz
	$S_{21}$	1.0	3.0	4.5	dB	$1500 \text{ MHz} < f \leq 3000$ MHz
input return loss	$S_{11}$		-14	-10	dB	$500 \text{ kHz} \leq f \leq 3000$ MHz
output return loss	$S_{22}$		-20	-10	dB	$f \leq 3000$ MHz
reverse isolation	$S_{12}$		-90		dB	
output isolation	$S_{23}$		-25	-20	dB	neighbored outputs ( $d=1$ )
	$S_{23}$		-57		dB	distance $> 1$
1 dB compression	$P_{1dB}$	+7	+8		dBm	$f \leq 500$ MHz
	$P_{1dB}$	+5	+7			$500 \text{ MHz} < f \leq 3000$ MHz
3 <sup>rd</sup> order intercept	$OIP3^1$	+16	+20		dBm	$f = 1000$ MHz
	$OIP3^1$	+15	+18		dBm	$f = 2000$ MHz
	$OIP3^1$	+13	+16		dBm	$f = 3000$ MHz
noise figure	NF		11	14	dB	
maximum input power	$P_{in \max}$			+15	dBm	CW, no damage
DC voltage	$U_{DC}$			20	V	input and outputs
ESD discharge resistor	$R_{ESD}$		4.7		k $\Omega$	input and outputs
RF connectors	$X_{RF}$		N female			
monitor coupling	a		-30		dB	bidirectional

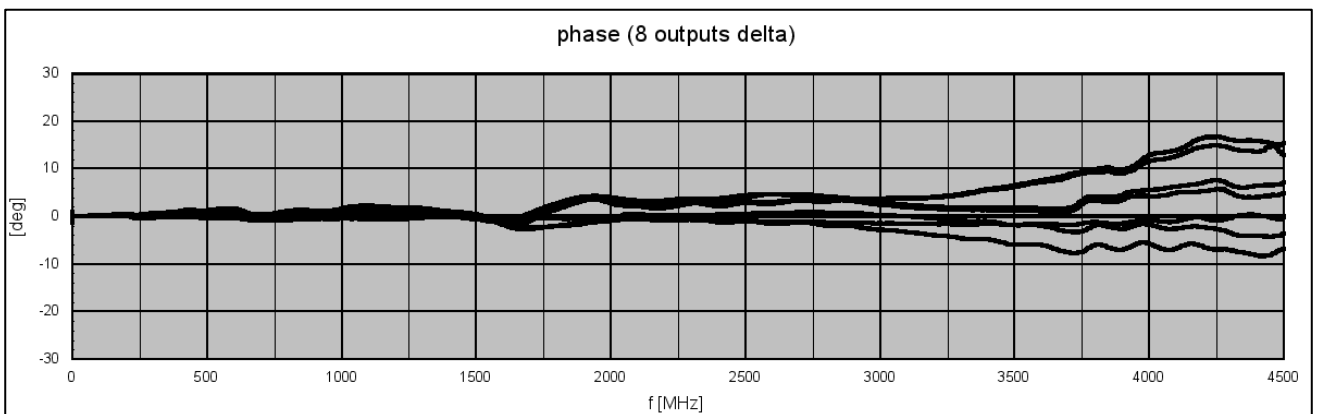
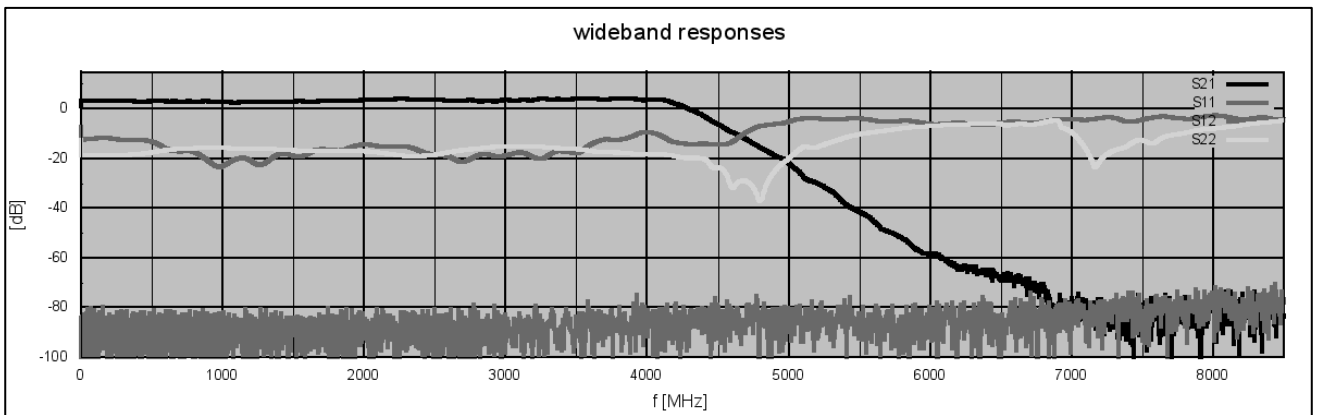
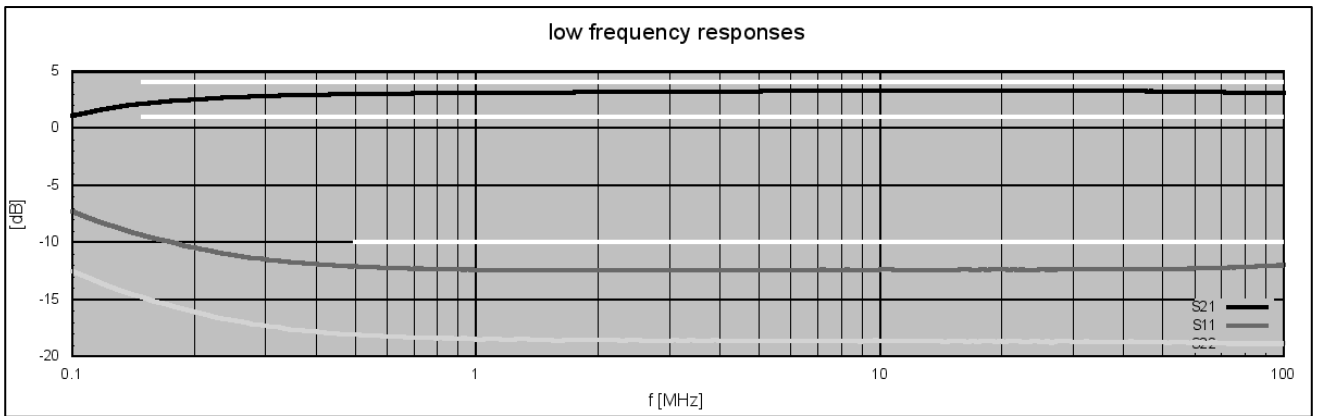
Note 1: frequency space 100 MHz

**Common Specification**

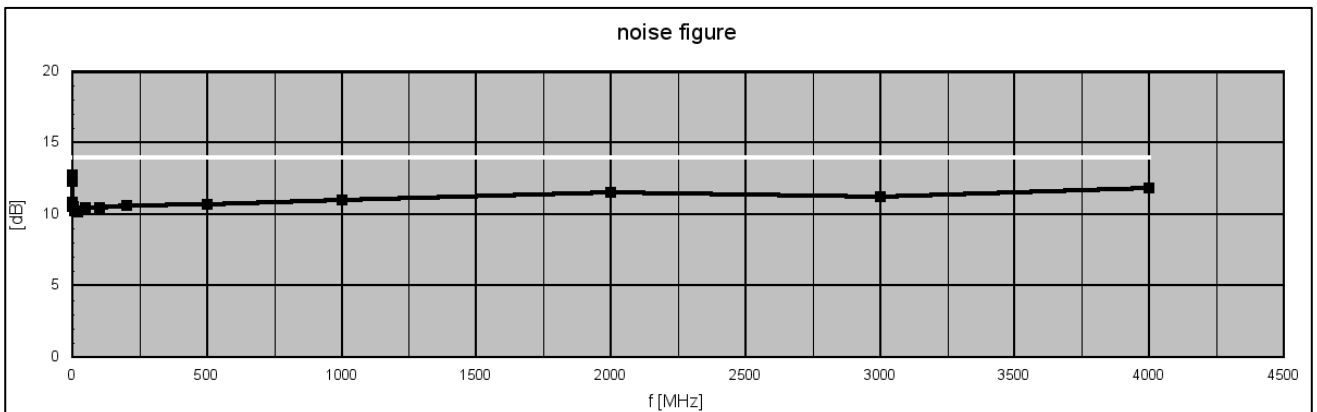
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
<b>AC supply variant</b>						
voltage supply range	$U_{AC}$	90	230	260	V	50 / 60 Hz AC
power consumption	P		13	50	W	
power socket	$X_{AC}$	IEC-60320 C14				country specific mains cable
<b>Dimensions and weight</b>						
dimensions	W x H x D	approx. 482 x 44 x 145			mm	19" 1 U, without connectors and handles
weight	m		3.5		kg	
<b>Environment Conditions</b>						
operating temp. range	$T_o$	+5		+45	$^{\circ}\text{C}$	
storage temp. range	$T_s$	-40		+70	$^{\circ}\text{C}$	
<b>Product conformity</b>						
Electromagnetic compatibility	EU: in line with EMC directive (2014/30/EC)					applied harmonized standards: EN 61326-1 (for use in industrial environment), EN 61326-2-1, EN 55011 (class B), EN 61000-3-2, EN 61000-3-3
Electrical safety	EU: in line with low voltage directive (2014/35/EC)					applied harmonized standard: EN 61010-1
Ordering information	WSDU-1X8LR		P/N: 1107.6152.1			

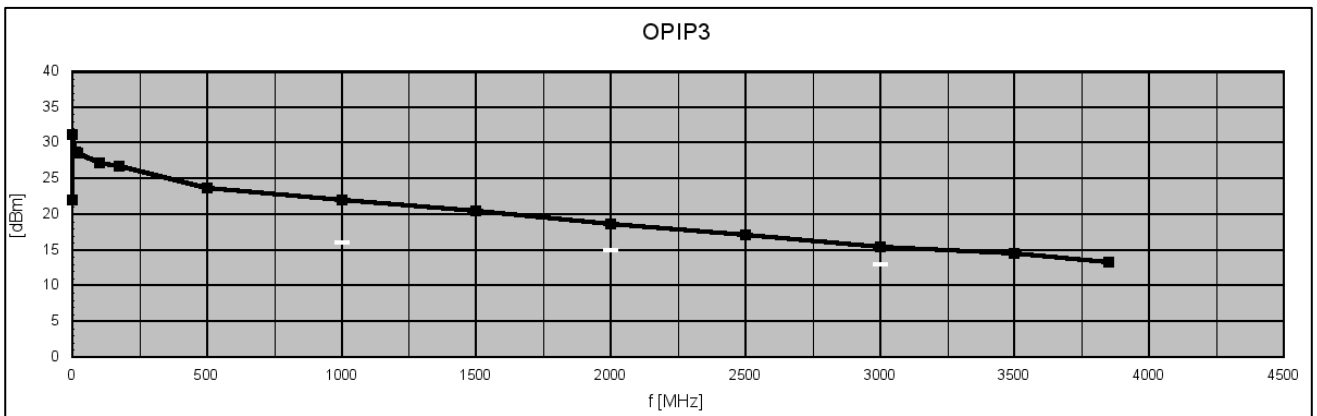
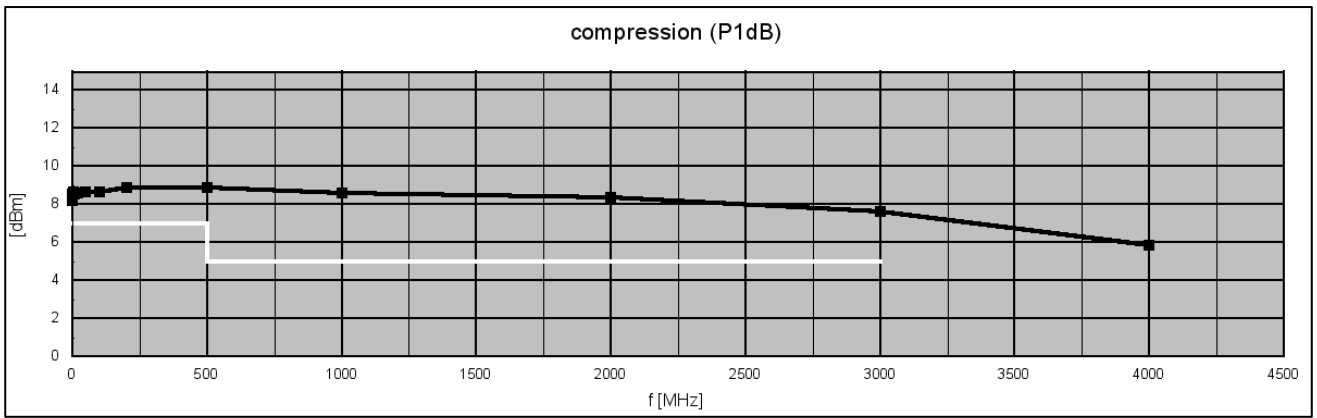


**S-Parameters (typical responses)**



**Dynamic Range (typical responses)**





## Appearances

### Front View

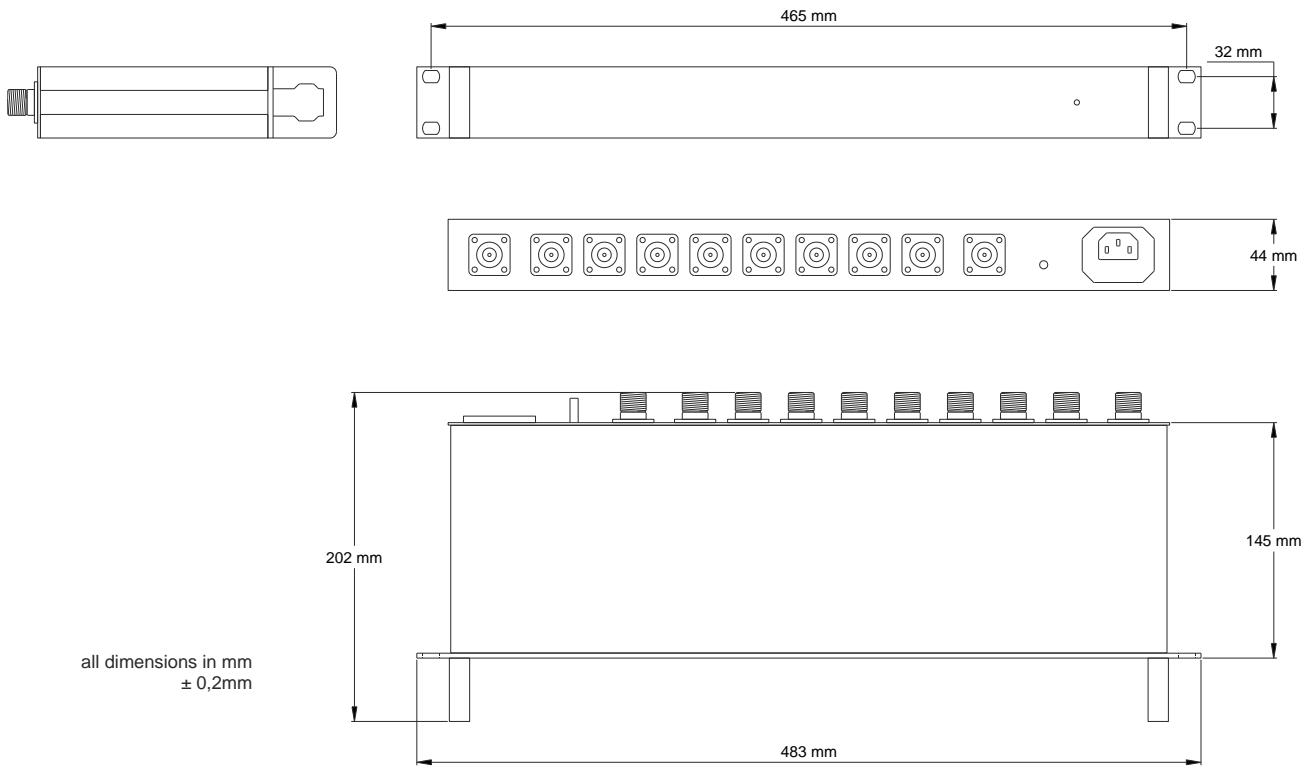


### Rear View



## Dimensions





**Related Products** (Multicouplers and Matrices)

Product	P/N	Description
WSDU-1X8SR	1502.6102.x	High Dynamic 1X8 Shortwave Signal Distribution Unit 200 kHz ... 30 MHz LAN remote interface with SNMPv2 trap function. Variants with AC or DC power supply.
WSDU-1X8LR	1107.6152.1	High Dynamic 8 Way Multicoupler for Broadcast Signals 100 kHz ... 4000 MHz
WSDU-2X4LR	1107.6252.1	High Dynamic 2 Section 4 Way Multicoupler for Broadcast Signals 100 kHz ... 4000 MHz
WSDU-1X8ER	1501.6302.x	Extremely Wideband 1 to 8 Signal Distribution Unit 20 ... 8000 MHz LAN remote interface with SNMPv2 trap function. Variants with AC or DC power supply.
WSDU-2X4ER	1501.6102.x	Extremely Wideband 2 Section 1X4 Signal Distribution Unit 20 MHz... 8000 MHz. LAN remote interface with SNMPv2 trap function. Variants with AC or DC power supply.
RSWM-4X4R	1205.4102.x	Wideband 4X4 Switching Matrix, non-blocking- 2 variants: 100 kHz ... 4000 MHz and 20 MHz ... 4000 MHz, LAN remote interface with SNMPv2 trap function.
RSWM-4X8R	2103.4302.1	Wideband Non-Blocking 4X8 Switching Matrix 20 MHz ... 4000 MHz LAN remote interface with SNMPv2 trap function.
RSWM-8X8R	2103.4502.1	Wideband Non-Blocking 8X8 Switching Matrix 20 MHz ... 4000 MHz LAN remote interface with SNMPv2 trap function.
RSWM-4X4ER	1205.4202.1	Extremely Wideband 4X4 Switching Matrix 20 ... 8000 MHz, -non-blocking- LAN remote interface with SNMPv2 trap function.
RSWM-4X8ER	2103.4402.1	Extremely Wideband 4X8 Switching Matrix 20 ... 8000 MHz, -non-blocking- LAN remote interface with SNMPv2 trap function.
RSWM-8X8ER	2103.4602.1	Extremely Wideband 8X8 Switching Matrix 20 ... 8000 MHz, -non-blocking- LAN remote interface with SNMPv2 trap function.

