

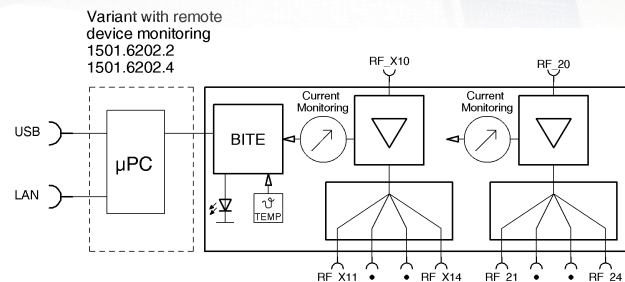
Extremely Wideband Two Channel 1 to 4 Signal Distribution Unit 20 ... 8000 MHz

## Features

- 2 independent RF channels
- without signal losses
- low power consumption
- device monitoring capability
- variant with DC supply available

## Applications

- VHF, UHF and SHF
- signal distributions
- radio monitoring
- receiving systems
- wideband LO distribution
- production and end test
- R&D



## Scope

WSDU-2X4ER is an extremely wideband multicoupler that contains two channels 1 to 4 in a single device. The frequency range for both multicouplers extends from 20 MHz to more than 8000 MHz.

## Lossless Signal Distribution

The RF input signals are amplified by broadband low-noise amplifiers with a wide dynamic range. As a result, the distributed input signals are made available at the four outputs of both 1X4 multicouplers without any loss in level. All inputs and outputs are equipped with N connectors.

## Best Amplitude and Phase Balance

In applications such as LO distribution, a good amplitude and phase balance performance is required. The design of WSDU-2X4ER is optimized for best phase and amplitude balance.

## Device Monitoring

The WSDU-2X4ER device is equipped with a built-in device monitoring capability and offers optical signalization of the device health. The device is furthermore available in a variant with LAN and USB interfaces for remotely controlled health checks. This offers the possibility to query information about biasing of the internal wideband amplifier stages, the temperature and the device identification in form of SCPI-99 oriented ASCII strings. Additionally, the device supports SNMP (simple network management protocol) which makes monitoring an easy task, even in complex environments.

WSDU-2X4ER is able to identify failures and automatically inform the supervising system.

## Alternative DC supply

For the operation in vehicles, the WSDU-2X4ER is also available in variants with DC supply input.

## RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	$Z_{in} / Z_{out}$		50		Ohm	
low frequency	$f_{min}$		10	20	MHz	
high frequency	$f_{max}$	8000	8500		MHz	
gain	$S_{21}$	3	4	5.5	dB	$f \leq 1.0$ GHz
	$S_{21}$	1	3.3	5.5	dB	$1.0$ GHz $< f \leq 7.0$ GHz
		0	3.3	5.5	dB	$f > 7.0$ GHz
gain flatness	$\Delta S_{21}$		$\pm 1.2$		dB	
input return loss	$S_{11}$		-15	-9	dB	
output return loss	$S_{22}$		-17	-13	dB	$f \leq 2.0$ GHz
	$S_{22}$		-13	-10	dB	$f > 2.0$ GHz
reverse isolation	$S_{12}$		-70	-55	dB	
output isolation	$S_{23}$		-30	-20	dB	distance = 1
	$S_{23}$		-50	-40	dB	distance > 1
channel isolation	$CH_{ISO}$		-90	-70	dB	between 1x4 couplers
1 dB compression	$P_{1dB}$	+2.5	+6		dBm	
3 <sup>rd</sup> order intercept	$OIP3^1$	+17	+21		dBm	$f \leq 1$ GHz
	$OIP3^1$	+13	+17		dBm	$1$ GHz $< f \leq 4.0$ GHz
	$OIP3^1$	+10	+15		dBm	$f > 4.0$ GHz
2 <sup>nd</sup> order intercept	$OIP2^2$	+25	+40		dBm	40/60 MHz, 1000/1100 MHz
	$OIP2^2$	+16	+30		dBm	3000/3100 MHz, 3900/4000 MHz
noise figure	NF		9	11	dB	$f < 100$ MHz
	NF		8	9.5	dB	$100$ MHz $\leq f \leq 7.0$ GHz
	NF		8.5	10.5	dB	$f > 7.0$ GHz
input power	$P_{in}$			+10	dBm	CW, no damage
maximum DC voltage	$U_{DC}$			20	V	
ESD discharge resistor	$R_{ESD}$		4.7		k $\Omega$	
RF connectors		N female				rear side

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
dimensions	L x W x H	approx. 265 x 482 x 44			mm	19" 1 U, without connectors and handles
weight	m		3.4		kg	
operating temp. range	$T_o$	+5		+40	$^{\circ}$ C	
storage temp. range	$T_s$	-40		+70	$^{\circ}$ C	
ordering information		WSDU-2X4ER		1501.6202.1		variant without remote device monitoring extension, AC supply
		WSDU-2X4ER		1501.6202.2		variant with remote device monitoring extension, AC supply
		WSDU-2X4ER		1501.6202.3		variant without remote device monitoring extension, DC supply
		WSDU-2X4ER		1501.6202.4		variant with remote device monitoring extension, DC supply
Remote ports*	LAN	10/100BaseT		TCP/IP		RJ45 on rear side
	USB	2.0 (high speed)				USB type B

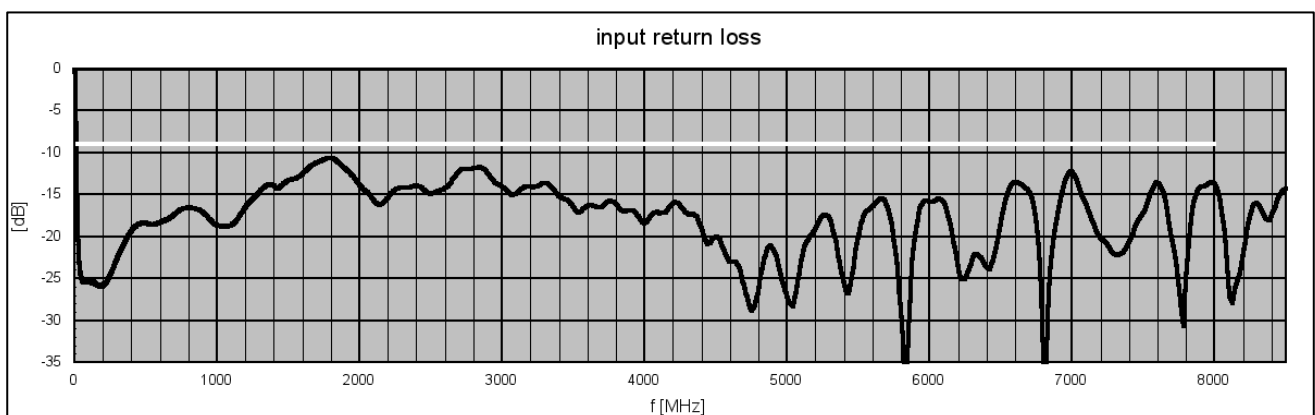
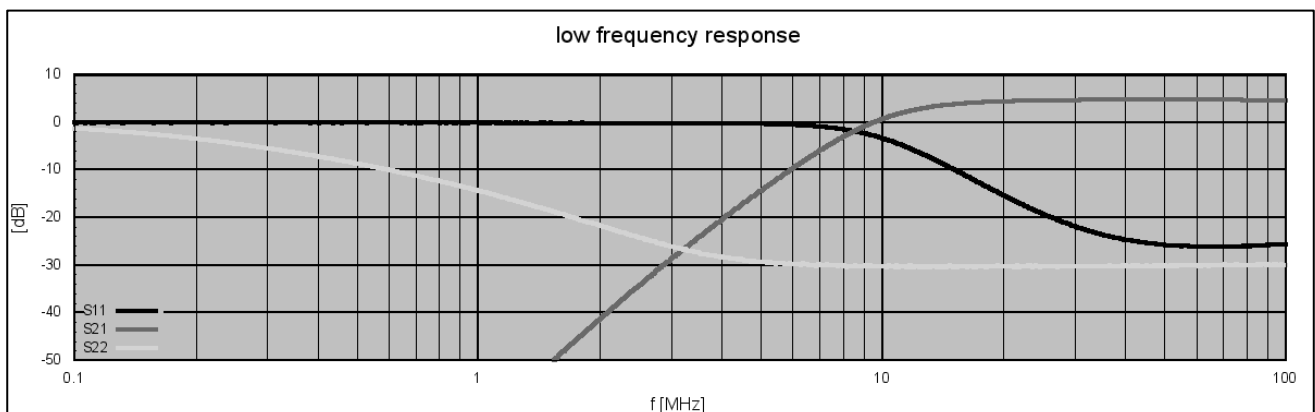
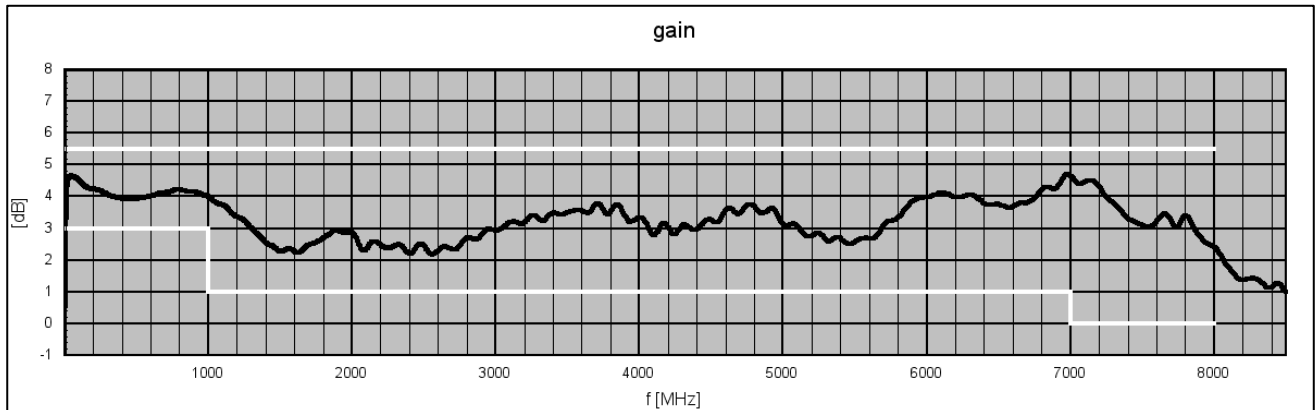
Note 1: Variants with remote device monitoring extension only. P/N: 1501.6202.2. and 1501.6202.4.

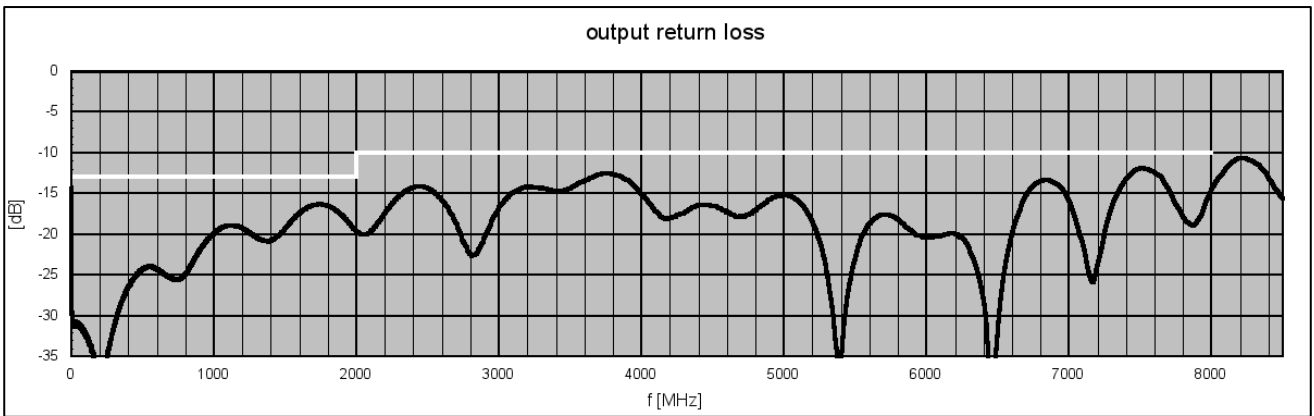


## Power Supply Specifications

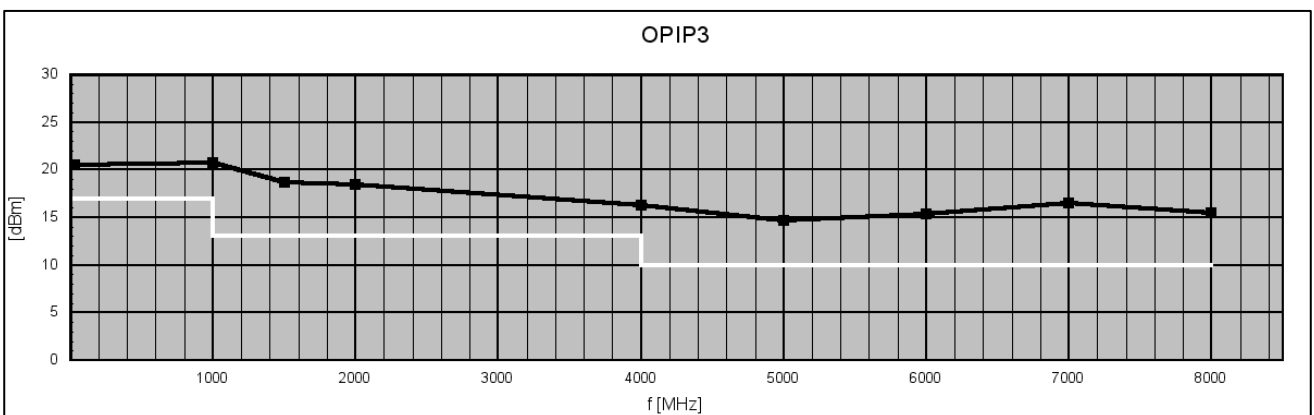
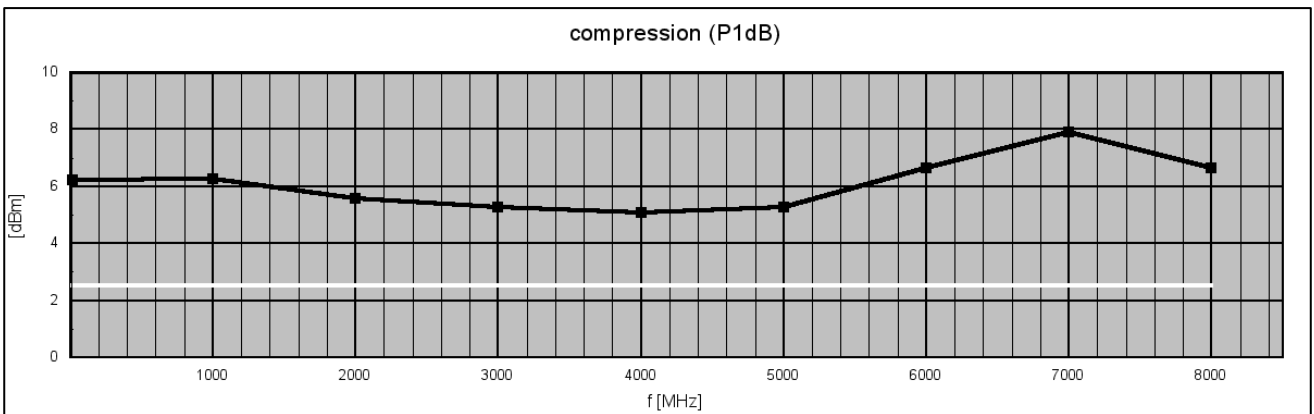
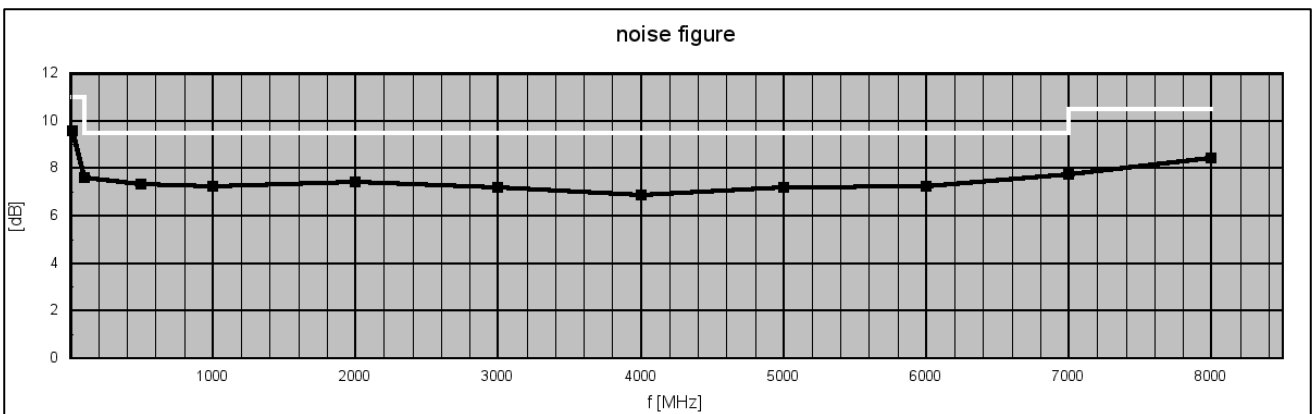
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
<b>Variants with AC supply input</b>							
voltage range	$U_{AC}$	90		260		50 / 60 Hz AC	
power consumption	P		9		VA		
connector	X	acc. IEC 60320-C14					
<b>Variants with DC supply input</b>							
voltage range	$U_{DC}$	12	24	27			
current consumption	$I_{DC}$	380	200		mA	without device monitoring	
connector	X	XLR					3 pole

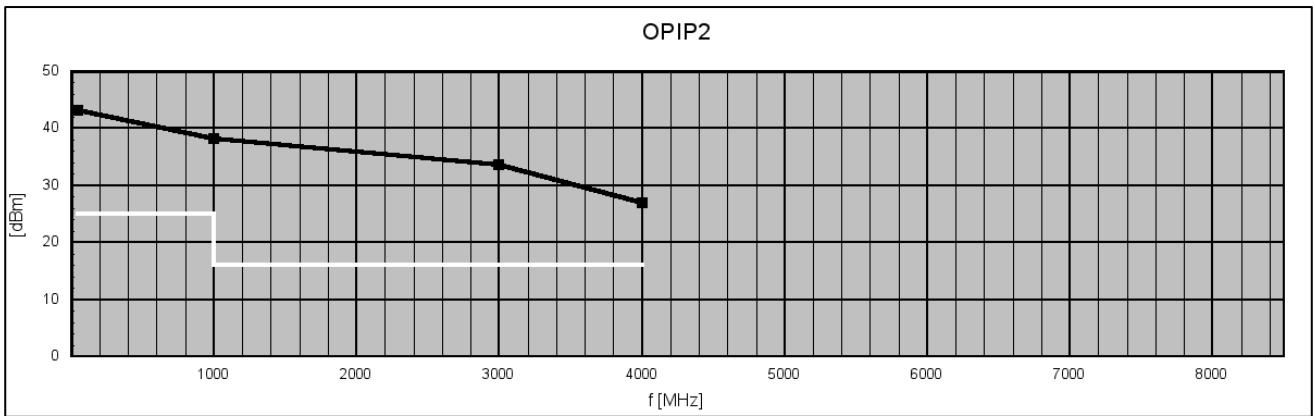
## S-Parameters (typical responses)





## Dynamic Range (typical responses)



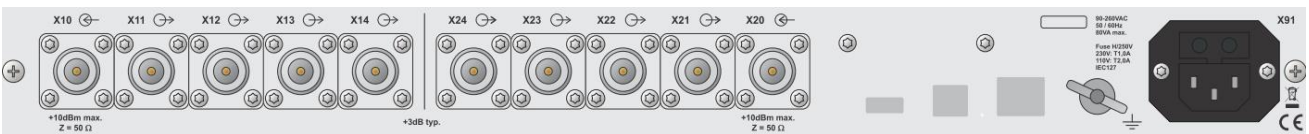


**Front View**

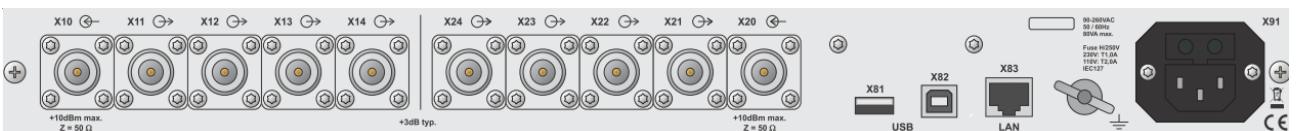


**Rear views (4 variants available)**

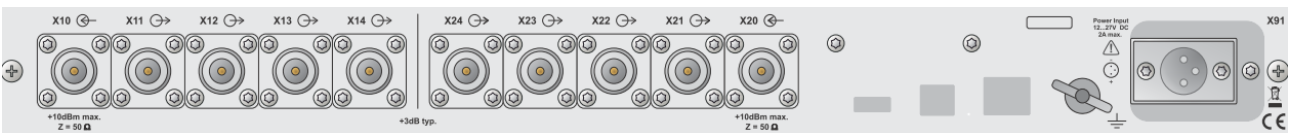
P/N: 1501.6202.1 WSDU-2X4ER, AC supply



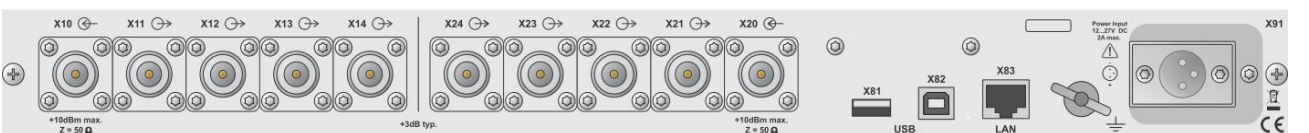
P/N: 1501.6202.2 WSDU-2X4ER with remote device monitoring, AC supply



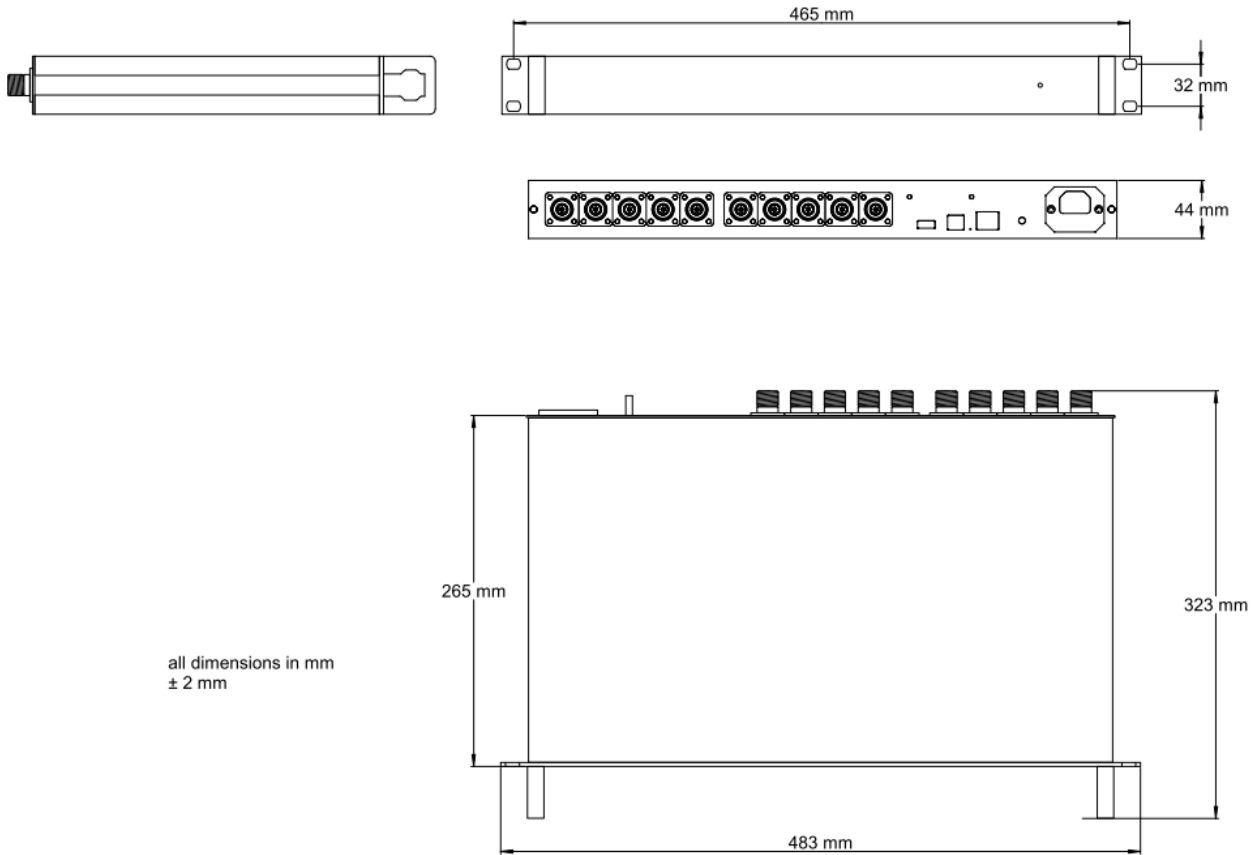
P/N: 1501.6202.3 WSDU-2X4ER, DC supply



P/N: 1501.6202.4 WSDU-2X4ER with remote device monitoring, DC supply



## Dimensions



## Related Products

Product	Description	P/N
WSDU-2X4E+	Extremely Wideband Two Channel 1X4 plus One Channel 1X2 Multicoupler Module 20... 8000 MHz	1501.6200.1
WSDU-1X8ER	Extremely Wideband 1X8 Signal Distribution Unit 20 ... 8000 MHz, 19" 1 U Device	1501.6302.x
WSDU-1X4ER	Extremely Wideband 1X4 Multicoupler 20 ... 8000 MHz, 19" 1 U Device	1501.6102.x
WSDU-1X8R	High Dynamic 8 Way Multicoupler 100 kHz ... 4000 MHz, 19" 1 U Device	1107.6102.1
WSDU-2X4R	High Dynamic Two Channel 1X4 Multicoupler 100 kHz ... 4000 MHz, 19" 1 U Device	1107.6202.1
WSDU-1X8SR	High Dynamic 1X8 Shortwave Distribution Unit 1.7 ... 30 MHz, 19" 1 U Device	1502.6102.1