WSDU-1X8ER

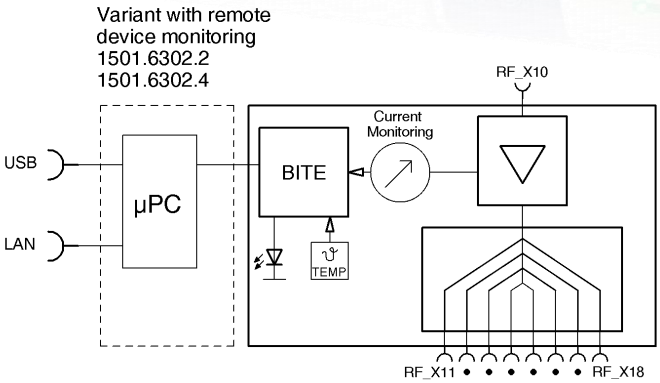
Extremely Wideband 1 to 8 Signal Distribution Unit 20 … 8000 MHz

Features

- extremely wideband
- high dynamic
- 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
- R&D



Scope

WSDU-1X8ER is an extremely wideband multicoupler that contains a (1 to 8) signal distribution. The frequency range extends from 20 MHz to more than 8000 MHz.

Lossless Signal Distribution

The RF input signal is amplified by broadband low-noise amplifiers with a wide dynamic range. As a result, the distributed input signals are made available at the eight outputs without any loss in level. RF 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-1X8ER is optimized for best phase and amplitude balance.

Device Monitoring

The WSDU-1X8ER 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 the monitoring of the device an easy task, even in complex environments.
WSDU-1X8ER is able to identify failures and automatically inform the supervising system.

Alternative DC supply

For the operation in vehicles, the WSDU-1X8ER 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}		15	20	MHz	
high frequency	f_{max}	8000	8500		MHz	
gain	S_{21}	3	5	7	dB	f ≤ 1.0 GHz
	S_{21}	0	3	6	dB	f > 1.0 GHz
gain flatness	ΔS_{21}		±2		dB	
input return loss	S_{11}		-16	-9	dB	
output return loss	S_{22}		-17	-12	dB	f ≤ 6.5 GHz
	S_{22}		-13	-9	dB	f > 6.5 GHz
reverse isolation	S_{12}		-90	-65	dB	
output isolation	S_{23}		-30	-20	dB	distance = 1
	S_{23}		-50		dB	distance > 2
1 dB compression	P_{1dB}	+3	+6		dBm	f ≤ 3.0 GHz
	P_{1dB}	+2	+5		dBm	f > 3.0 GHz
3rd order intercept	OPIP3[1]	+15	+19		dBm	f ≤ 1.5 GHz
	OPIP3[1]	+12	+16		dBm	1.5 GHz < f ≤ 4.0 GHz
	OPIP3[1]	+10	+14		dBm	f > 4.0 GHz
2nd order intercept	OPIP2[2]	+33	+38		dBm	40/60 MHz
	OPIP2[2]	+28	+33		dBm	1000/1100 MHz
	OPIP2[2]	+21	+26		dBm	3000/3100 MHz, 3900/4000 MHz
noise figure	NF		11	13	dB	f < 100 MHz
	NF		9.5	11	dB	f ≥ 100 MHz
input power	P_{in}			+10	dBm	CW, no damage
maximum DC voltage	U_{DC}			20	V	
ESD discharge resistor	R_{ESD}		4.7		kΩ	
RF connectors	NF		N female			

Note 1: P_{in} = 2 x -10 dBm, specified and tested for Δf = 50 MHz

Note 2: P_{in} = 2 x -10 dBm, specified and tested for mentioned frequency pairs
OPIP2 & OPIP3 values are the average of the upper and lower intermodulation distortion.

Common Specifications

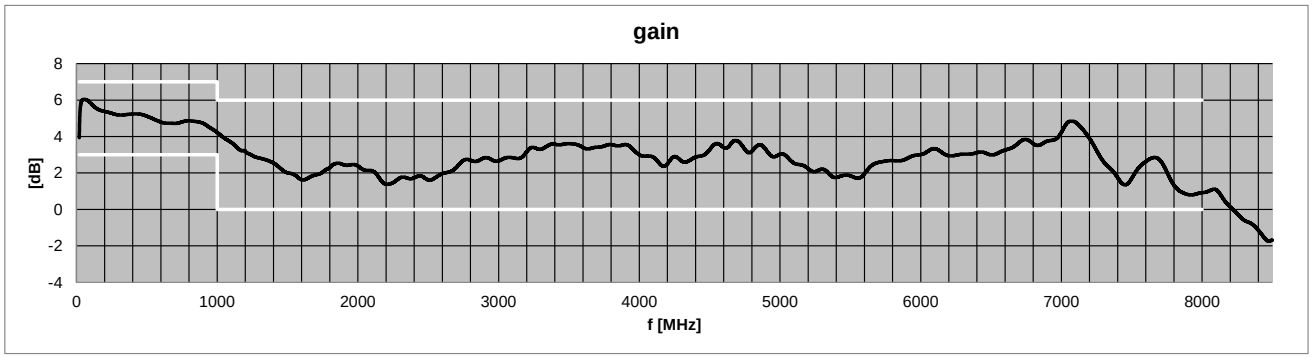
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
dimensions	L x W x H	approx. 265 x 482 x 44				19” 1 U, without connectors and handles
weight	m		3.4		kg	
operating temp. range	T_o	+5		+40	°C	
storage temp. range	T_s	-40		+70	°C	
ordering information		WSDU-1X8ER		1501.6302.1		variant without remote device monitoring extension, AC supply
		WSDU-1X8ER		1501.6302.2		variant with remote device monitoring extension, AC supply
		WSDU-1X8ER		1501.6302.3		variant without remote device monitoring extension, DC supply
		WSDU-1X8ER		1501.6302.4		variant with remote device monitoring extension, DC supply
remote interfaces[1]	LAN	10/100BaseT		TCP/IP		RJ45 on rear side
	USB	2.0 (high speed)				USB type B

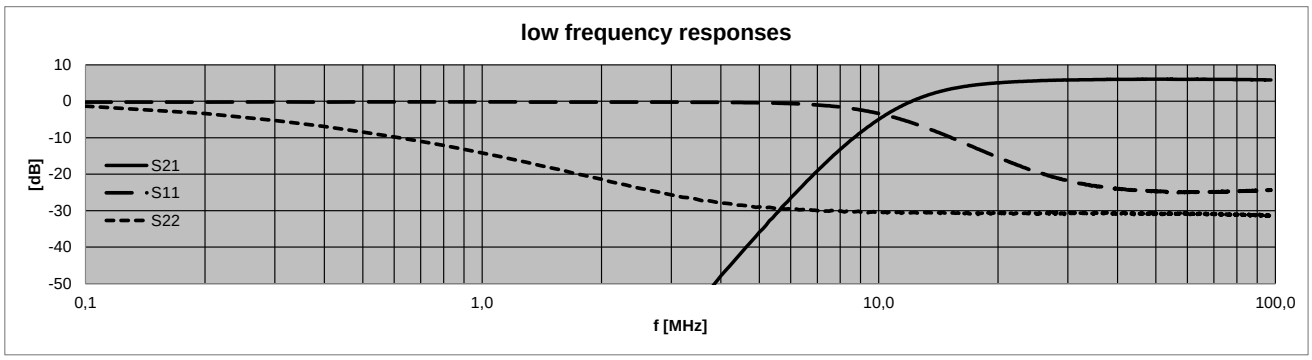
Note 1: Variants with remote device monitoring extension only. P/N: 1501.6302.2 and 1501.6302.4.

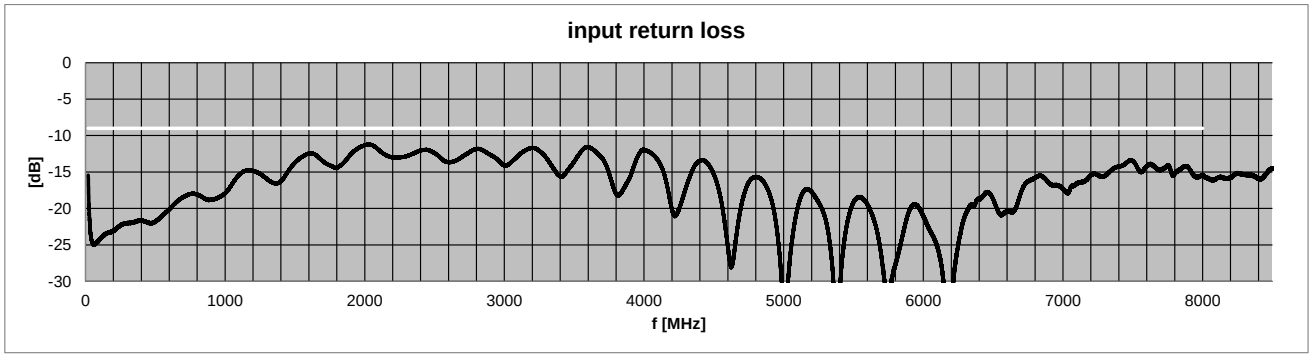
Power Supply Specifications

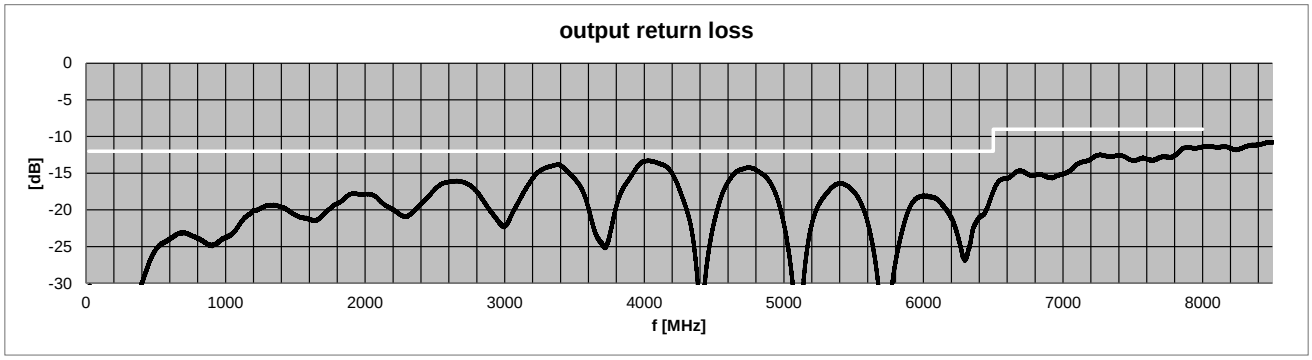
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Variants with AC supply input						
voltage range	U_{AC}	90		260		50 / 60 Hz AC
power consumption	P		9		VA	
connector	X	acc. IEC 60320-C14				
Variants with DC supply input						
voltage range	U_{DC}	12	24	27		
current consumption	I_{DC}		200		mA	without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

S-Parameters (typical responses)

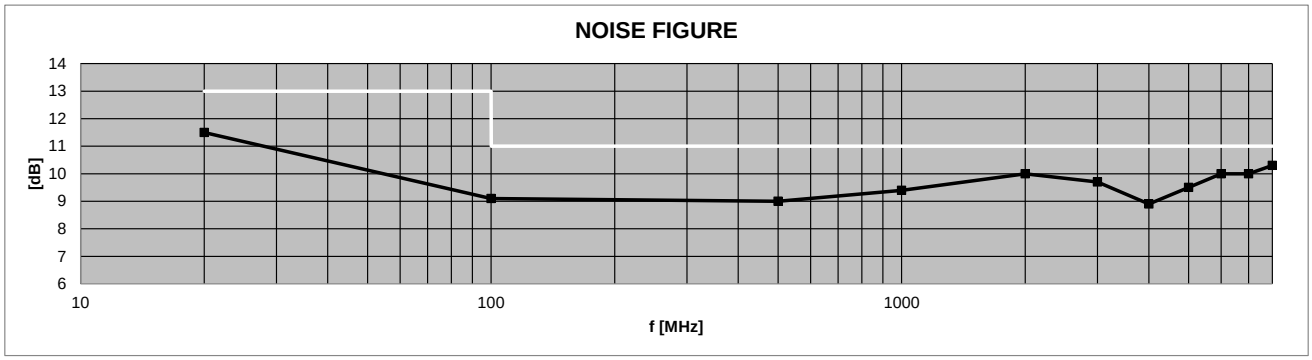


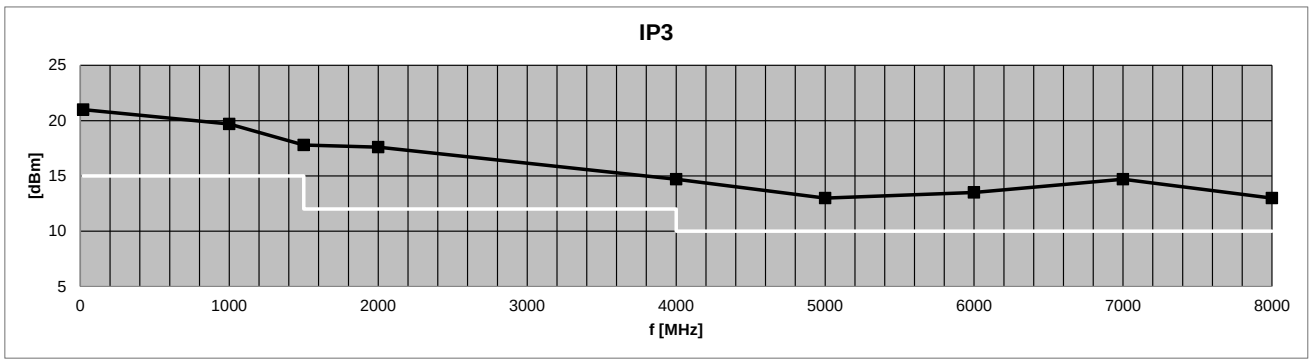


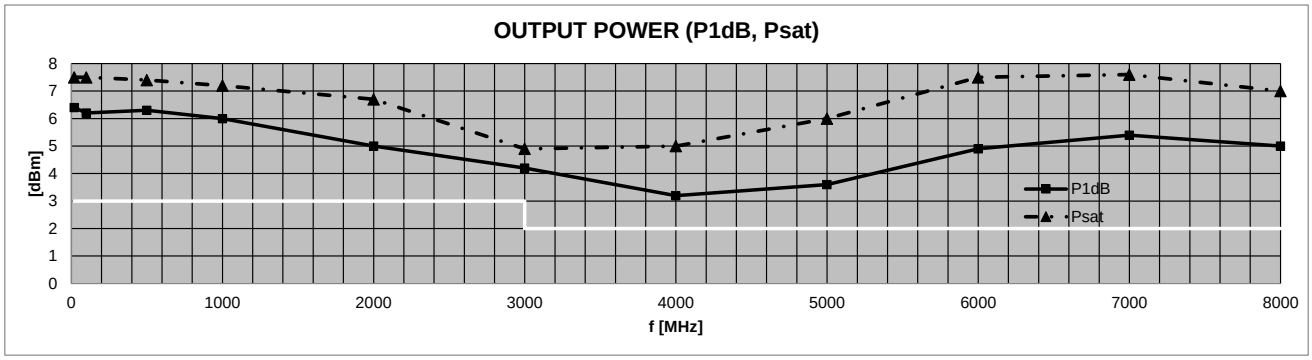


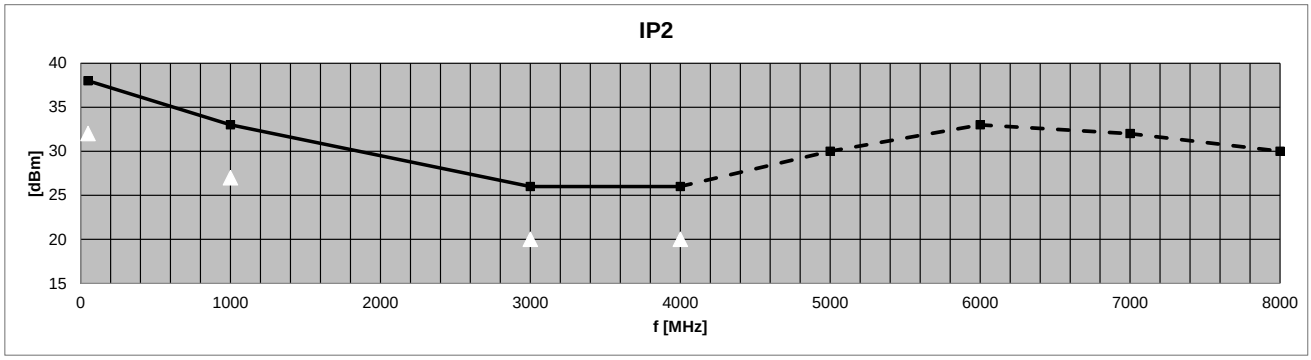


Dynamic Range (typical responses)

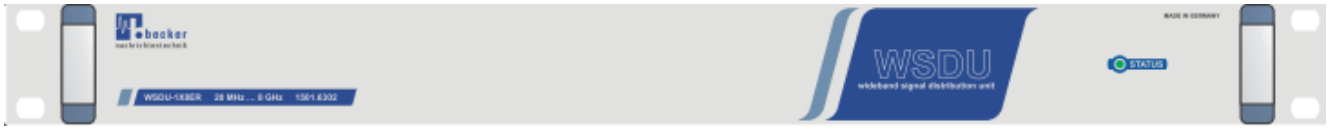








Front View



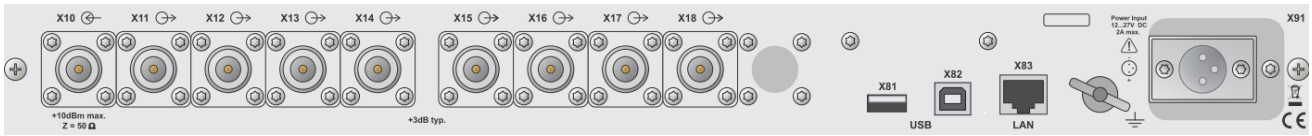
Rear views (4 variants available)

P/N: 1501.6302.1 WSDU-1X8ER, AC supply

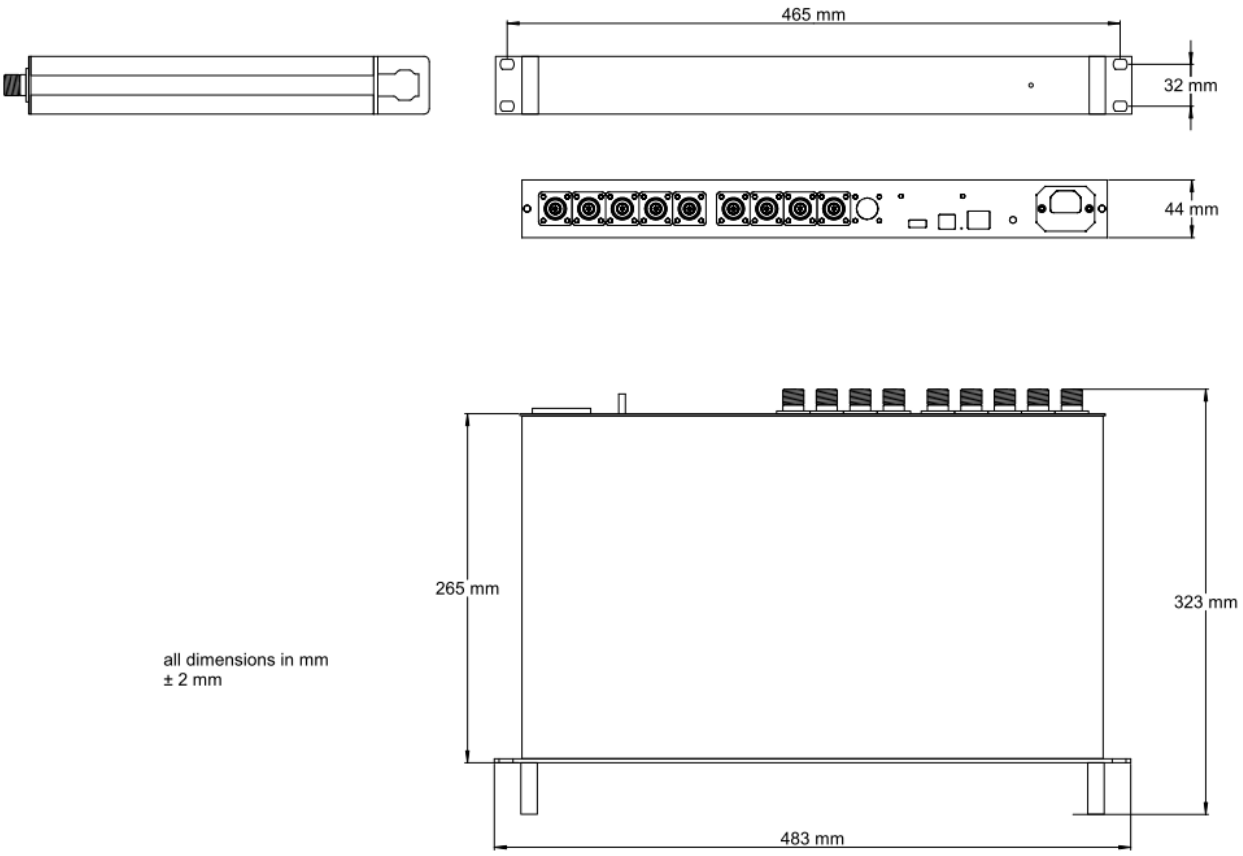
P/N: 1501.6302.2 WSDU-1X8ER with remote device monitoring, AC supply

P/N: 1501.6302.3 WSDU-1X8ER, DC supply

P/N: 1501.6302.4 WSDU-1X8ER with remote device monitoring, DC supply



Dimensions



all dimensions in mm
± 2 mm

Related Products

Product	Description	P/N
WSDU-2X4E+	Extremely Wideband Two Channel 1X4 plus One Channel 1X2 Multicoupler Module 20... 8000 MHz, Slot-In Module	1501.6200.1
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-1X4ER	Extremely Wideband 1X4 Multicoupler 20 … 8000 MHz, 19” 1 U Device	1501.6102.x
WSDU-2X4ER	Extremely Wideband Two Channel 1X4 Signal Distribution Unit 20 … 8000 MHz, 19” 1 U Device	1501.6202.x
WSDU-1X8SR	High Dynamic 1X8 Shortwave Distribution Unit 1.7 … 30 MHz, 19” 1 U Device	1502.6102.1