

WSDU-1X8SR

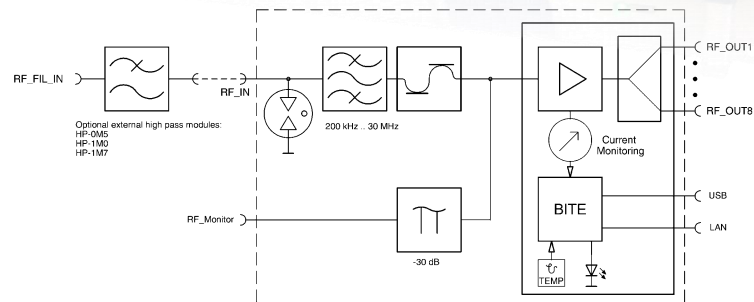
High Dynamic 1X8 Shortwave Signal Distribution Unit 200 kHz ... 32 MHz

Features

- wideband
- extremely high dynamic
- lightning protection
- built-in test function with SNMP function
- RF monitoring port
- variants with AC or DC supply
- optional external filters for LF and VLF suppression

Applications

- receiving stations
- radio monitoring
- direction finding



Scope

WSDU-1X8SR is a wideband multicoupler especially designed for the shortwave frequency range. Due to its excellent dynamic properties, WSDU-1X8SR is suitable in applications with difficult reception conditions. The frequency range extends from 200 kHz up to 32 MHz. For input signal monitoring without interruption the device has a 30 dB coupled RF monitoring port. The device is available in variants with AC or DC power supply.

RF Input Protection

WSDU-1X8SR provides protection against lightning, surges and out-of-band signals. The RF input of the device is equipped with a discharge element, an over level protection and a low pass filter.

Optional RF Filters

For LF and VLF signal suppression 3 high pass filters for 500 kHz, 1 MHz and 1.7 MHz with integrated surge arrestor are available. The filters can be screwed with the RF input socket of the WSDU-1X8SR device.

Lossless 1 to 8 Signal Distribution

The multicoupler utilizes low-noise high dynamic amplifiers. As a result, the distributed input signal is made available at the eight outputs of the multicoupler without any loss in level. The hardware structure of the distribution offers best phase and amplitude balance performance. All RF inputs and outputs have N female connectors.

High Reliability

The internal power supply of WSDU-1X8SR is designed with redundancy. This ensures high availability of the multicoupler. A failure of the power supply causes no complete interruption of the signal path.

Short Wave Distribution Systems

Its high dynamic range makes WSDU-1X8SR ideal for receiving applications where very strong and very weak antenna signals have to be evaluated without mutual influence.

Device Monitoring

WSDU-1X8SR device is equipped with a built-in device monitoring capability which offers optical signalization of the device health as standard.

For remote monitoring a variant with LAN and USB remote interfaces is available. Via the remote interfaces information about operating points of the internal wideband amplifier stages, the module temperature and the device identification can be queried in form of ASCII strings.

The variant with remote monitoring supports SNMP (Simple Network Management Protocol) which enables monitoring without any effort, even in complex environments.

The WSDU-1X8SR is able to identify failures and to inform the supervising system automatically. The LAN remote interface offers SNMPv2 trap function.

RF Specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ohm	
low frequency	f_{min}		200	300	kHz	
high frequency	f_{max}	30	32		MHz	
gain	S_{21}	1.5	2.5	3.5	dB	
gain flatness	ΔS_{21}		± 0.5		dB	
input return loss	S_{11}		-25	-16	dB	
output return loss	S_{22}		-20	-16	dB	
reverse isolation	S_{12}		-30		dB	
output isolation	S_{23}		-27	-23	dB	adjacent channel
amplitude balance	dS_{23}		± 0.02		dB	
phase balance	φ_{23}		± 0.2		deg	
low frequency suppr.	S_{21LOW}		-20		dBr	@ 75 kHz, rel. 16 MHz
high frequency suppr.	S_{21HIGH}		-20		dBr	@ 90 MHz, rel. 16 MHz
1 dB compression	P_{1dB}	+20	+22		dBm	
3 rd order intercept	$OIP3^1$	+35	+38		dBm	$f < 2.5$ MHz
	$OIP3^1$	+38	+43		dBm	$f \geq 2.5$ MHz
2 nd order intercept	$OIP2^2$	+90	+95		dBm	
noise figure	NF		6	8	dB	
maximum input power	P_{in}			+25	dBm	CW, no damage
maximum DC voltage	U_{DC}			20	V	all RF ports
ESD discharge resistor	R_{ESDI}		100		k Ω	RF input
ESD discharge resistor	R_{ESDO}		4.7		k Ω	RF outputs
RF connectors		N female				

Note 1: test frequencies: (space 100 kHz) 1.8 / 1.9 MHz, 2.8 / 2.9 MHz, 5.1 / 5.2 MHz, 10.2 / 10.3 MHz, 20.2 / 20.3 MHz, 20.8 / 20.9 MHz, input level 2 x +3 dBm

Note 2: test frequency pairs: 2.5 / 3.5 MHz, 12 / 15 MHz, 22 / 27 MHz, input level 2 x +3 dBm



Common Specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
AC supply variant						
voltage supply range	U_{AC}	90	230	260	V	50 / 60 Hz AC
power consumption	P		18	50	W	
power socket	X_{AC}	IEC-60320 C14				country specific mains cable
DC supply variant						
voltage supply range	U_{DC}	22	24	30	V	
power consumption	I_{DC}		560		mA	@ 24 V
power socket	X_{DC}	3 pole XLR male				
Dimensions and weight						
dimensions	W x H x D	approx. 482 x 44 x 265			mm	19" 1 U, without connectors and handles
weight	m		3.5		kg	
Environment conditions						
operating temp. range	T_o	+5		+45	°C	
storage temp. range	T_s	-40		+70	°C	
Remote interfaces						
remote ports	LAN	10/100BaseT	TCP/IP			RJ45
	LAN	SNMPv2 trap function				
	USB	2.0 (high speed)				USB type B
Product conformity						
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-1X8SR	P/N: 1502.6102.1		variant with AC supply		
	WSDU-1X8SR	P/N: 1502.6102.3		variant with DC supply		
	WSDU-1X8SR	P/N: 1502.6102.2		AC supply with device monitoring		
	WSDU-1X8SR	P/N: 1502.6102.4		DC supply with device monitoring		

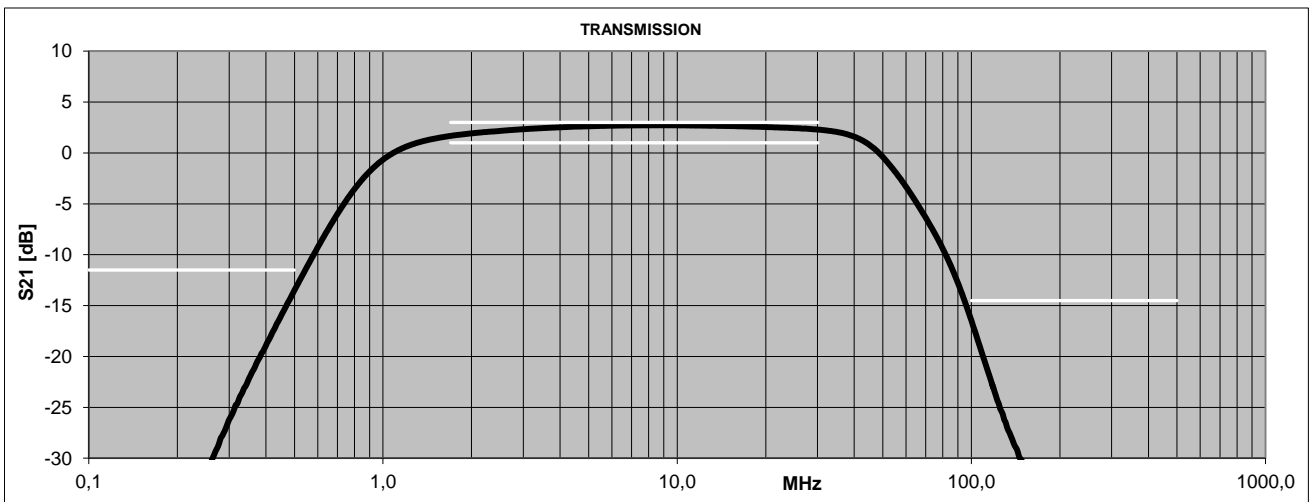
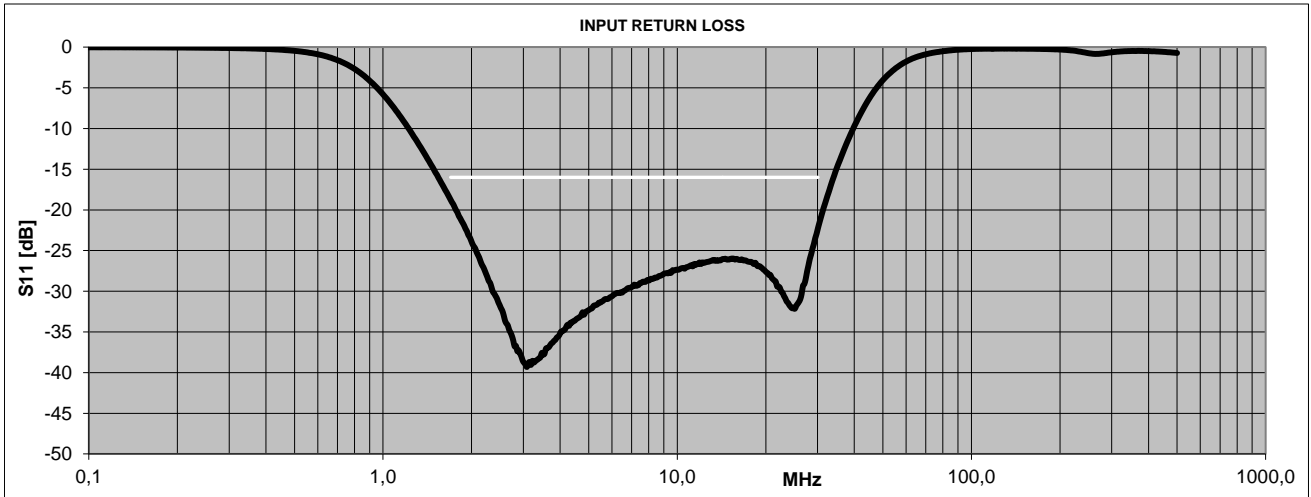


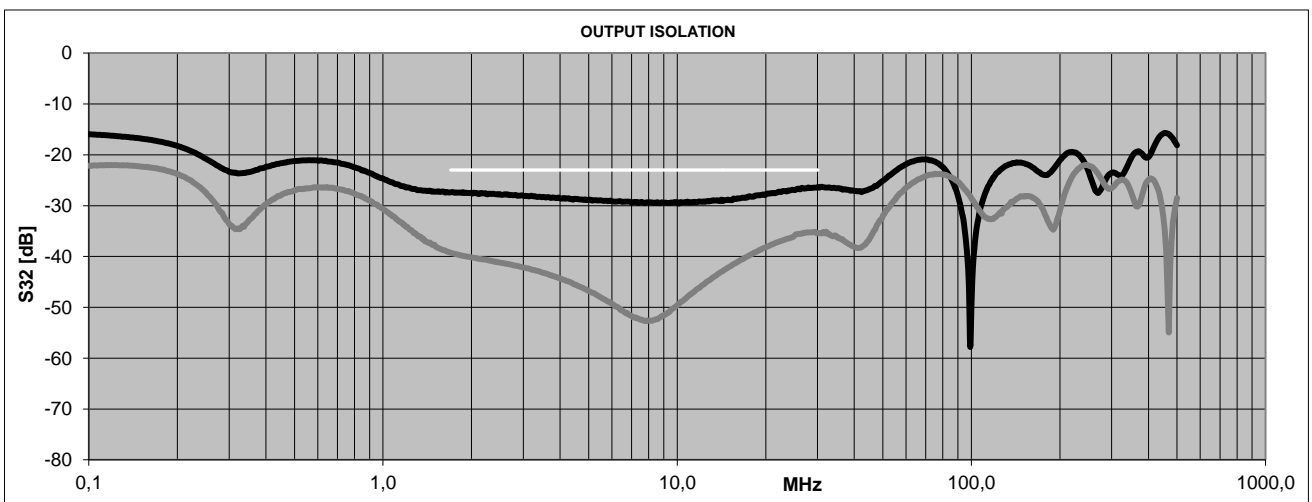
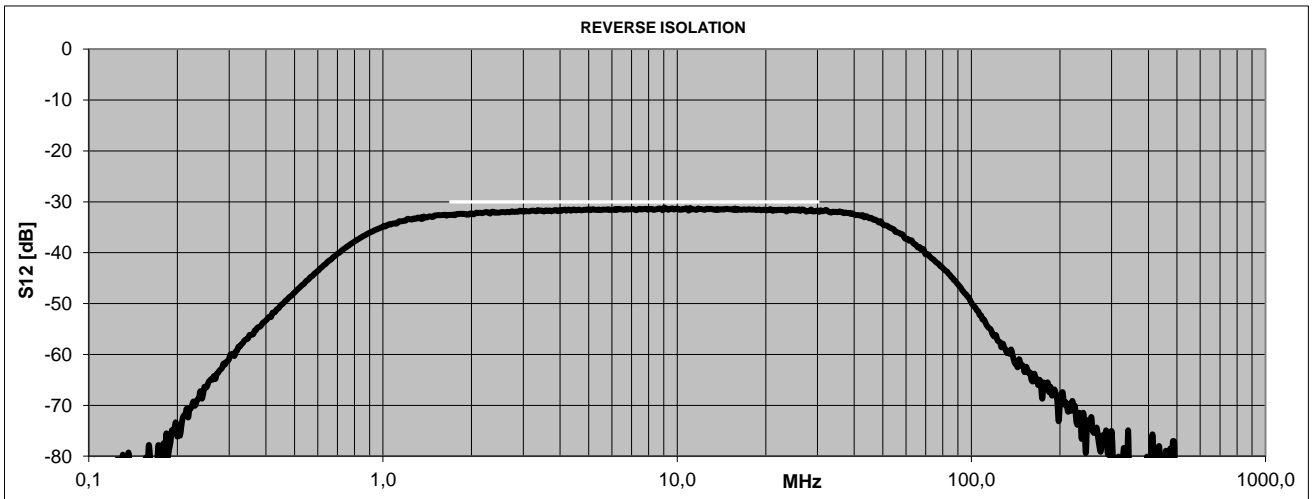
External High Pass Filters (external mountable on RF input connector)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
HP-0M5 (external HP-filter 0.5...30 MHz)						
impedance	Z_{in} / Z_{out}		50		Ohm	
low frequency	f_{min}			500	kHz	
high frequency	f_{max}	30	32		MHz	
pass band loss	S_{21}		-0.2	-0.4	dB	
stop band rejection	S_{21}		-30		dB	$f < 400$ kHz
over voltage protection		90 V surge arrester				
connectors		N male / N female				
ordering information	HP-0M5	P/N: 1502.6301.1			external HP-filter 0.5...30 MHz	
HP-1M0 (external HP-filter 1.0...30 MHz)						
impedance	Z_{in} / Z_{out}		50		Ohm	
low frequency	f_{min}			1	MHz	
high frequency	f_{max}	30	32		MHz	
pass band loss	S_{21}		-0.2	-0.4	dB	
stop band rejection	S_{21}		-30		dB	$f < 800$ kHz
over voltage protection		90 V surge arrester				
connectors		N male / N female				
ordering information	HP-1M0	P/N: 1502.6311.1			external HP-filter 1.0...30 MHz	
HP-1M7 (external HP-filter 1.7...30 MHz)						
impedance	Z_{in} / Z_{out}		50		Ohm	
low frequency	f_{min}			1.7	MHz	
high frequency	f_{max}	30	32		MHz	
pass band loss	S_{21}		-0.2	-0.4	dB	
stop band rejection	S_{21}		-30		dB	$f < 1.3$ MHz
over voltage protection		90 V surge arrester				
connectors		N male / N female				
ordering information	HP-1M7	P/N: 1502.6321.1			external HP-filter 1.7...30 MHz	

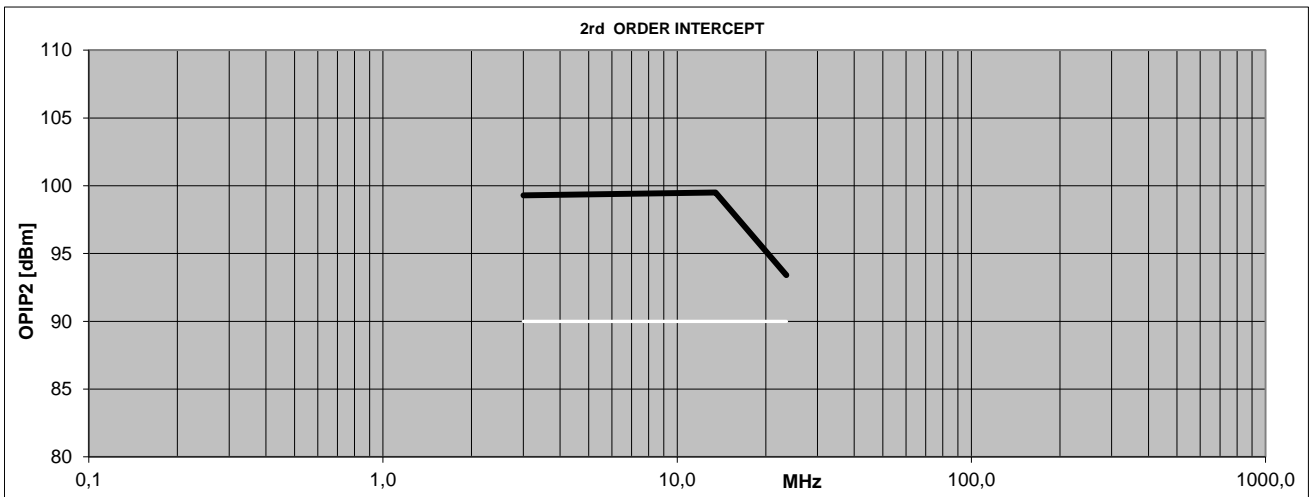
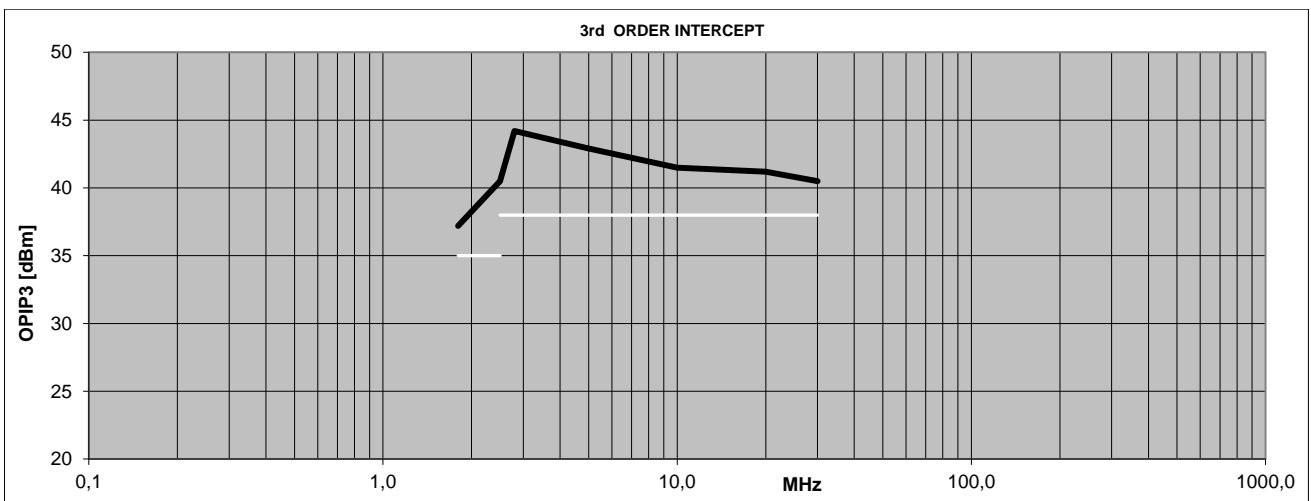
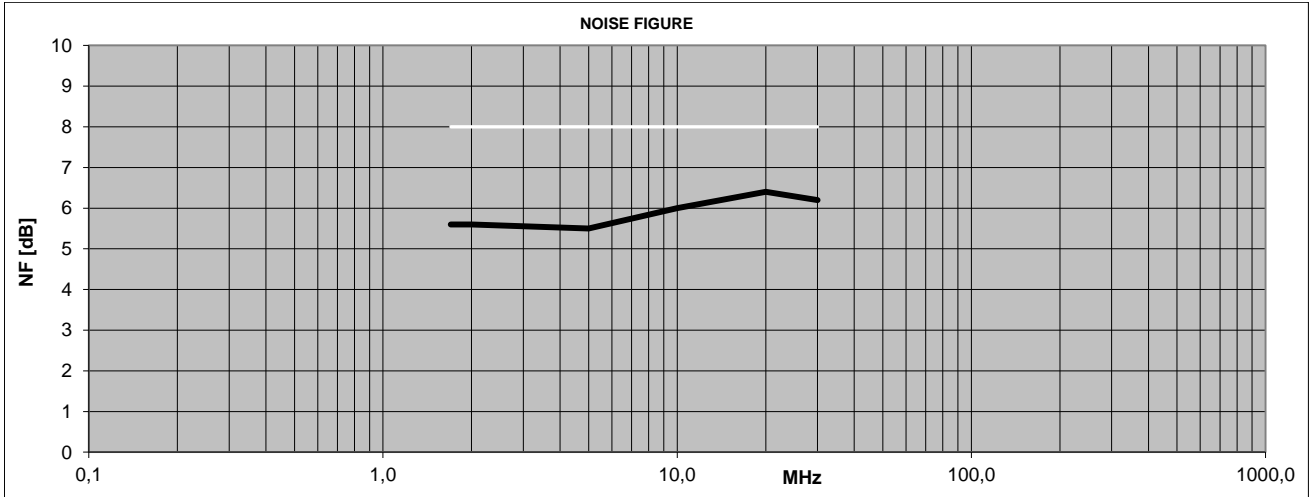


S-Parameter (typical responses, with external 1.7 MHz high pass filter “HP-1M7” installed)





Dynamic Range (typical responses, with 1.7 MHz high pass filter “HP-1M7” installed)



Appearances

Front View



Rear View (variant AC supply with device monitoring, P/N: 1502.6102.2)



Related Products

Product	P/N	Description
WSDU-1X8R	1107.6102.1	High Dynamic 8 Way Multicoupler 100 kHz ... 4000 MHz. 90...260 V AC power supply.
WSDU-1X8R	1107.6102.2	High Dynamic 8 Way Multicoupler 100 kHz ... 4000 MHz. 18...28 V DC power supply.
WSDU-2X4R	1107.6202.1	High Dynamic 2 Section 4 Way Multicoupler 100 kHz ... 4000 MHz. 90...260 V AC power supply.
WSDU-2X4R	1107.6202.2	High Dynamic 2 Section 4 Way Multicoupler 100 kHz ... 4000 MHz. 18...28 V DC power supply.
WSDU-1X8SR	1502.6102	High Dynamic 1X8 Shortwave Signal Distribution Unit 200 kHz ... 30 MHz, 90...260 V AC power supply. Variant with LAN remote interface with SNMPv2 trap function available.
WSDU-1X8SR	1502.6102	High Dynamic 1X8 Shortwave Signal Distribution Unit 200 kHz ... 30 MHz, 18...28 V DC power supply. Variant with LAN remote interface with SNMPv2 trap function available.
WSDU-2X4ER	1501.6202	Extremely Wideband 2 Section 1X4 Signal Distribution Unit 20 MHz... 8000 MHz, 90...260 V AC power supply. Variant with LAN remote interface with SNMPv2 trap function available.
WSDU-2X4ER	1501.6202	Extremely Wideband 2 Section 1X4 Signal Distribution Unit 20 MHz... 8000 MHz, 18...28 V DC power supply. Variant with LAN remote interface with SNMPv2 trap function available.
WSDU-1X8ER	1501.6302	Extremely Wideband 1 to 8 Signal Distribution Unit 20 ... 8000 MHz, 90...260 V AC power supply. Variant with LAN remote interface with SNMPv2 trap function available.
WSDU-1X8ER	1501.6302	Extremely Wideband 1 to 8 Signal Distribution Unit 20 MHz... 8000 MHz, 18...28 V DC power supply. Variant with LAN remote interface with SNMPv2 trap function available.