WSDU-2X4A

2 Section 4 Way High Dynamic Signal Conditioning Multicoupler, 100 kHz … 4000 MHz

Features

- wideband
- high dynamic
- high level range

Applications

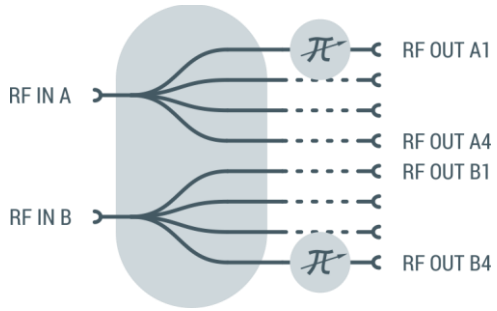
- Broadcast and GNSS distribution
- AM, FM, IBOC, DAB, DVB-T, SDARS
- GNSS: GPS, Galileo, GLONASS, Beidou
- R&D (Research & Development)
- Product validation
- Production

Scope

The WSDU-2X4A is a wideband signal distribution unit consisting two active multicouplers sections. Each output path is equipped with a programmable attenuator. As a result, the level in each of the 4 outputs in both sections can be set individually over a large range. The module operates in the frequency range 100 kHz to more than 4000 MHz. The slot-in module is foreseen for integration into SR6-11C system platform.

Principal Block Diagram

The WSDU-2X4A offers two independent multicoupler sections. Between the sections is high isolation, they can be used separate with different signals without the influence from adjacent channels.



Distribution without Loss in Level

The RF input signals are amplified using broadband low-noise amplifiers with a wide dynamic range. As a result, the distributed input signal is made available at the four outputs in each section with up to 6 dB gain. RF input and the RF outputs are SMA female connector type, located on the rear side of the module.

Wideband Distribution Systems

The wide frequency range makes WSDU-2X4A ideally suited for applications such as research and development (R&D) or production where broadcast and navigation signals must be distributed to many devices under test (DUTs).

High Output Level Dynamic

Each output is equipped with a programmable attenuator with a setting range of 95.25 dB. The attenuations are settable individual for each channel in 0.25 dB steps.

High Output-to-Output Isolation

The WSDU-2X4A features a high output-to-output isolation. Thus, changing the load at an output causes nearly no effects to the power level at the other outputs.

Remote Control

In combination with the SR6-CU controller module, the WSDU-2X4A is remote controllable via standard interfaces USB and LAN with simple SCPI orientated ASCII strings. The WSDU-2X4A has a standby function for energy saving.

Built-In Test Function

Total current consumption, operating points of amplifier stages and internal temperature of WSDU-2X4A are monitored. The module status can be read out via remote interface.

RF Specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
number of RF sections	n_{SEC}		2			
impedance	Z_{IN}/Z_{OUT}		50		Ω	
low frequency	f_{MIN}		100	150	kHz	
high frequency	f_{MAX}	4000	4500		MHz	
gain	S_{21}	5	7	9	dB	f ≤ 1000 MHz, ATT = 0 dB
	S_{21}	4	6	9		f > 1000 MHz, ATT = 0 dB
attenuation range	a	0.00		95.25	dB	
attenuation step size	Δa		0.25		dB	
input return loss	S_{11}		-14	-10	dB	f ≥ 500 kHz
output return loss	S_{22}		-15	-10	dB	
reverse isolation	S_{12}		-80		dB	
output isolation	S_{23}		-40	-35	dB	neighboured outputs (d=1)
	S_{23}		-75		dB	distance > 1
1 dB compression	P_{1dB}	+13	+16		dBm	f ≤ 1 GHz, ATT = 0 dB
	P_{1dB}	+10	+13			f > 1 GHz
3rd order intercept	OIP3[1]	+24	+27		dBm	f = 1000 MHz, ATT = 0 dB
	OIP3[1]	+21	+24		dBm	f = 2000 MHz, ATT = 0 dB
	OIP3[1]	+19	+22		dBm	f = 3000 MHz, ATT = 0 dB
noise figure	NF		12	16	dB	
maximum input power	P_{RF}			+15	dBm	CW, no damage
DC voltage	U_{DC}			20	V	input and outputs
ESD discharge resistor	R_{ESD}		4.7		kΩ	input and outputs
RF connectors	X_{RF}		SMA female			

Note 1: frequency space 100 MHz

Common Specification

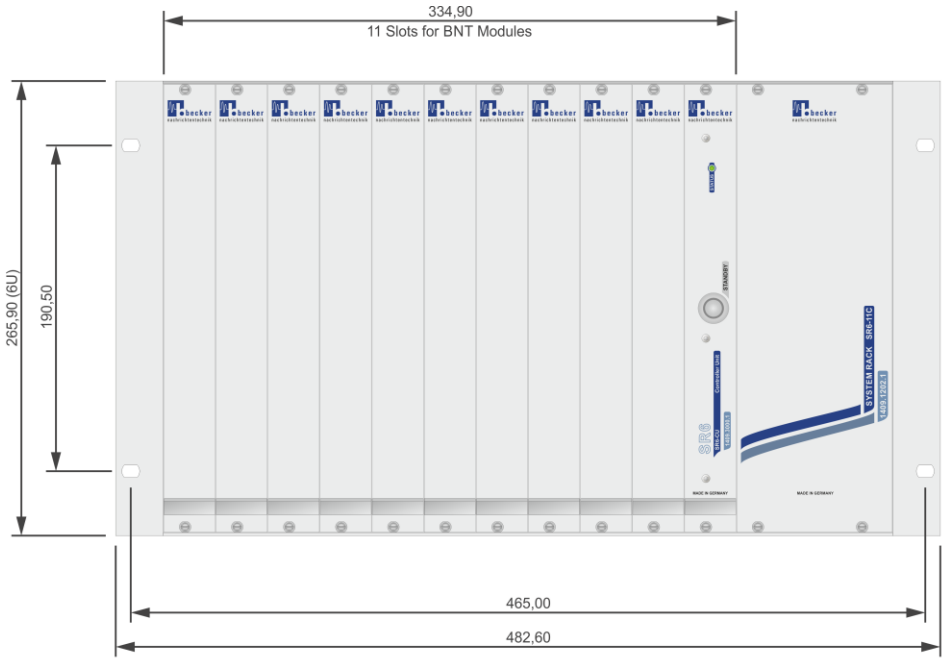
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	U_{DC}	23.5		24.5	V	DC
power consumption	P_{OPR}		14		W	operation
	P_{STB}		1		W	standby
dimensions	W x H x D		approx. 30 x 262 x 197		mm	6 U, 6HP
weight	m		1.2		kg	
operating temp. range	T_o	+5		+55	°C	ambiance
storage temp. range	T_s	-40		+70	°C	
ordering information			WSDU-2X4A	1807.6400.1		

Appearances

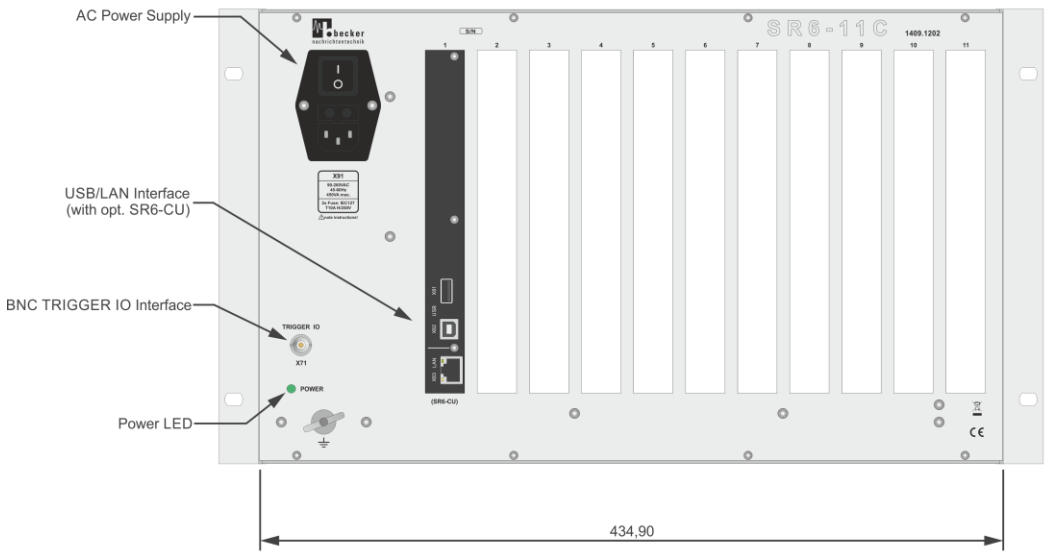
SR6-11C System Platform

The WSDU-2X4L module is foreseen for the integration into the SR6-11C system platform. 11 slots in the SR6-11C can be used for modules like RF switches, matrices, multicouplers, attenuators, BIAS-Ts, level detectors, bi-directional splitters/combiners for signal conditioning and a controller unit. For the module health monitoring the WSDU-2X4L a SR6-CU controller unit is required.

Dimensions of SR6-11C System Platform



Front View



Rear View

Depth 180,00

all dimensions in mm

Front View

Rear View

SR6-11C System Platform

Related Products

Product	Description	P/N
SR6-11C	System Platform with 11 Slots for Modules	1409.1202.1
SR6-CU	Controller Unit with LAN and USB Remote Interface	1409.3000.1
Unidirectional Products: Active Multicouplers, Matrices, Level Detectors		
WSDU-1X8L	8 Way Multicoupler Module, 100 kHz … 4000 MHz	1807.6100.1
WSDU-2X4L	2 Section Hi Dynamic 4 Way Multicoupler Module, 100 kHz … 4000 MHz	1807.6200.1
WSDU-2X4E+	2 Section 1x4 plus 1x2 Multicoupler Module, 20 … 8000 MHz	1501.6200.1
WSDU-1X8U	Ultra-Wideband 8-Way Multicoupler Module, 100 kHz … 18000 MHz	2109.6000.1
WSDU-1X8S	High Dynamic 1x8 Shortwave Multicoupler Module, 300 kHz … 30 MHz	1502.6100.1
WSDU-1X8A	8 Way High Dynamic Signal Conditioning Multicoupler, 100 kHz … 4000 MHz	1807.6300.1
WSDU-2X4A	2 Section 4 Way High Dynamic Signal Conditioning Multicoupler, 100 kHz … 4000 MHz	1807.6400.1
WSDU-1X2PM	2 Channel, 5 W Multicoupler with ALC Capability, 20 MHz…3000 MHz	1606.6000.1
RSWM-4X4	4x4 Switching Matrix -Non-blocking-, 100 kHz … 4000 MHz or 20 MHz … 4000 MHz	1205.4100.1
RSWM-4X4E	4x4 Ultra-Wideband Switching Matrix -Non-blocking-, 20 MHz … 8000 MHz	2001.4100.1
RFLD-8RE	8 Channel True Power RF Level Detector, 1 MHz … 8000 MHz	1505.8000.1
Bi-Directional Products: Switches, Matrices, Attenuators, Delay Lines, BIAS-Ts, Splitters/Combiners, Filters		
BSDU-1X8A	8 Way Bi-directional Signal Conditioning Splitter Module, 500 … 9000 MHz	2109.6200.1
BSDU-2X4A	2 Section 4 Way Bi-directional Signal Conditioning Splitter Module, 500 … 9000 MHz	2109.6250.1
RSWU-2SP4TS+	2 Channel Non-reflective SP4T Switches plus 1 Channel SPDT Switch, 100 kHz … 8500 MHz	1408.4010.1
RSWU-8SPSTS	8 Channel Non-reflective SPST Switch, 100 kHz … 8500 MHz	1408.4000.1
RSWU-4SPDTS	4 Channel Non-reflective SPDT Switch, 100 kHz … 8500 MHz	1408.4020.1
RSWU-8SPST-CS	8 Channel High Isolation SPST with DC Load Simulation, 100 kHz … 7500 MHz	1811.4100.1
BSWM-4X4E	4x4 High Isolation Bi-Directional Switching Matrix –Blocking-, 100 kHz … 7500 MHz	1205.4600.1
ATT-8E	8 Channel Digital Step Attenuator 0 … 31.75 dB, 100 kHz … 8000 MHz	1503.4000.1
DLL-4	4 Channel Programmable Delay Line 0 …1700 ps, 250 MHz … 4000 MHz	1303.4200.1
PT-4CS	4 Channel Programmable DC Sink 0 … 400 mA, 100 kHz … 8500 MHz	1605.2020.1
PT-4CL	4 Channel Wideband DC Load, 100 kHz … 8500 MHz	1605.2040.1
FBS-1590	L1 Band GNSS Notch Filter	1511.5100.1