# BSDU-2X4A

Wideband 2-Section 4-Way Signal Conditioning Splitter/Combiner 500…9000 MHz

**Features**

- extremely wideband
- lossless signal distribution
- health monitoring with SNMP function
- slot-in module for SR6-11C system platform

**Applications**

- Air interface emulation
- R&D (Research & Development)
- Product validation


*similar appearance*

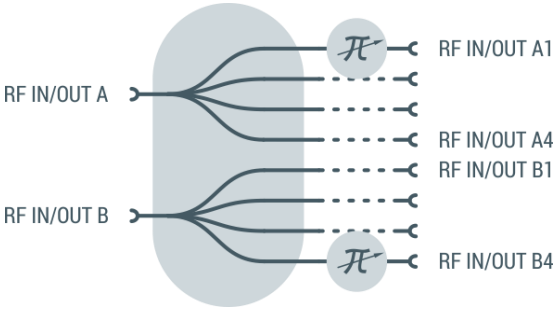
**Scope**

BSDU-2X4A is a wideband bi-directional splitter/combiner slot-in module, that distributes and combines signals from one common port to 4 equivalent ports in two separate sections. Each channel is equipped with a signal conditioning unit to individually adjust the signal level.

The frequency range extends a frequency range from 500 MHz to more than 9 GHz and is therefore suitable for the latest Wi-Fi and cellular communication channels such as 802.11ax, and 5G NR mmWave.

The module is suitable for use in air interface emulation applications and can be used in a flexible manner due to its excellent characteristics.

**Principal Block Diagram**




**Module Monitoring**

In combination with the SR6-CU controller module, the BSDU-2X4A offers module monitoring function. The health status can be read out via LAN and USB remote interface of the SR6-CU controller module. The health status gives information about operating points of the internal wideband amplifier stages and the temperature of the RF module. Also, identification can be queried in form of ASCII strings.

The LAN remote interface offers SNMPv2 (simple network management protocol) trap function for an operation in complex environments.

In combination with the SR6-11C controller unit the BSDU-2X4A is able to identify failures and to inform the supervising system automatically.

## RF Specification

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| impedance | $Z_{IN}/Z_{OUT}$ | | 50 | | Ω | |
| low frequency | $f_{MIN}$ | | 500 | | MHz | |
| high frequency | $f_{MAX}$ | 8.5 | 9 | | GHz | |
| insertion loss | $S_{21}$ | -16 | -14 | | dB | f = 0.5 GHz |
| | $S_{21}$ | -17 | -15 | | dB | f = 1 GHz |
| | $S_{21}$ | -18 | -16 | | dB | f = 2 GHz |
| | $S_{21}$ | -19 | -17 | | dB | f = 3 GHz |
| | $S_{21}$ | -23 | -21 | | dB | f = 5 GHz |
| | $S_{21}$ | -26 | -24 | | dB | f = 7 GHz |
| | $S_{21}$ | -30 | -28 | | dB | f = 8.5 GHz |
| attenuation range | a | 0.00 | | 95.25 | dB | |
| attenuation step size | Δa | | 0.25 | | dB | |
| input return loss | $S_{11}$ | | -10 | -8 | dB | f < 1.1 GHz |
| | $S_{11}$ | | -17 | -10 | dB | f ≥ 1.1 GHz |
| output return loss | $S_{22}$ | | -17 | -10 | dB | |
| output isolation | $S_{23}$ | | -18 | -12 | dB | d = 1, f < 2GHz |
| | $S_{23}$ | | -35 | -26 | dB | d = 1, f ≥ 2 GHz |
| | | | -45 | | dB | d > 1, f ≥ 4 GHz |
| input power | $P_{in}$ | | | +33 | dBm | RF COM port, CW, no damage |
| | $P_{in}$ | | | +28 | dBm | RF DIST ports, CW, no damage |
| maximum DC voltage | $U_{DC}$ | | | 20 | V | all RF ports |
| ESD discharge resistor | $R_{ESD}$ | | 4.7 | | kΩ | all RF ports |
| RF connectors | NF | SMA female | | | | |

## Common Specification

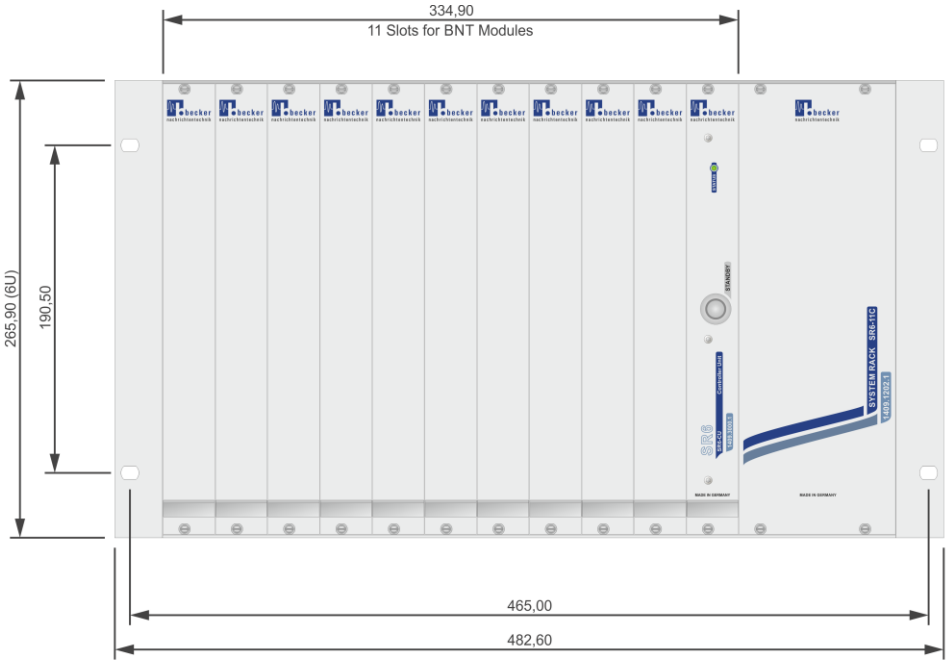
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| power supply | $U_{DC}$ | 23.5 | | 24.5 | V | DC |
| power consumption | $P_{DC}$ | | 170 | | mW | operation |
| dimensions | W x H x D | approx. 30 x 262 x 197 | | | mm | 6 U, 6 HP |
| weight | m | | 1.2 | | kg | |
| operating temp. range | $T_o$ | +5 | | +55 | °C | ambiance |
| storage temp. range | $T_s$ | -40 | | +70 | °C | |
| ordering information | | BSDU-2X4A | | 2109.6250.1 | | |

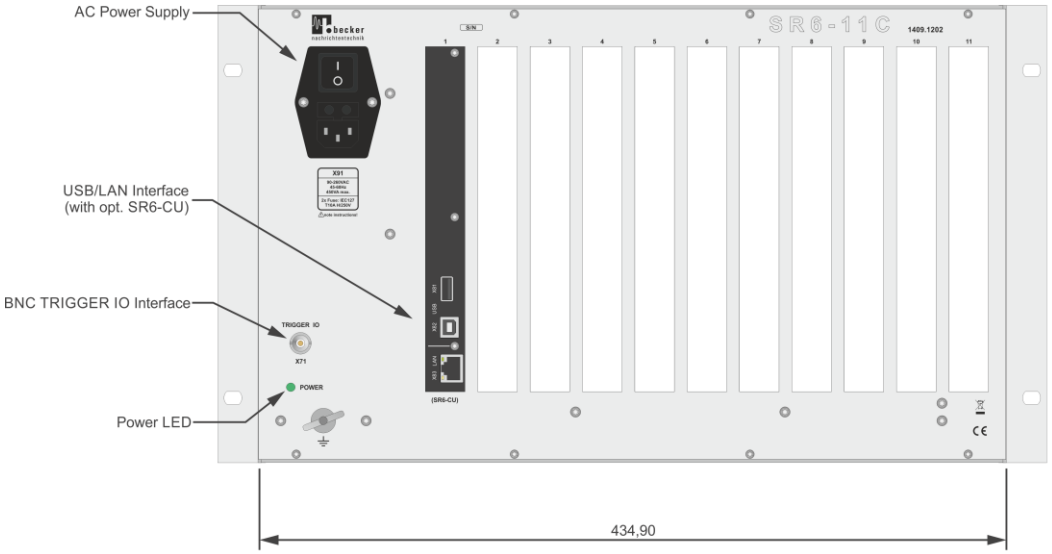
# Appearances

### SR6-11C System Platform

The BSDU-2X4A 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 SR6-CU controller unit is required.

### Dimensions of SR6-11C System Platform




Depth 180,00

all dimensions in mm

## Front View

*similar appearance*


## Rear View

*similar appearance*


## 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: Multicouplers, Matrices, Level Detectors**

| Product | Description | P/N |
|---|---|---|
| WSDU-1X8L | 8 Way Multicoupler Module,<br>100 kHz … 4000 MHz | 1807.6100.1 |
| WSDU-2X4L | 2 Section Hi Dynamic 4 Way Multicoupler Module,<br>100 kHz … 4000 MHz | 1807.6200.1 |
| WSDU-2X4E+ | 2 Section 1x4 plus 1x2 Multicoupler Module,<br>20 … 8000 MHz | 1501.6200.1 |
| WSDU-1X8U | Ultra-Wideband 8-Way Multicoupler Module,<br>100 kHz … 18000 MHz | 2109.6000.1 |
| WSDU-1X8S | High Dynamic 1x8 Shortwave Multicoupler Module,<br>300 kHz … 30 MHz | 1502.6100.1 |
| WSDU-1X8A | 8 Way High Dynamic Signal Conditioning Multicoupler,<br>100 kHz … 4000 MHz | 1807.6300.1 |
| WSDU-2X4A | 2 Section 4 Way High Dynamic Signal Conditioning Multicoupler,<br>100 kHz … 4000 MHz | 1807.6400.1 |
| WSDU-1X2PM | 2 Channel, 5 W Multicoupler with ALC Capability,<br>20 MHz…3000 MHz | 1606.6000.1 |
| RSWM-4X4 | 4x4 Switching Matrix -Non-blocking-,<br>100 kHz … 4000 MHz or 20 MHz … 4000 MHz | 1205.4100.1 |
| RSWM-4X4E | 4x4 Ultra-Wideband Switching Matrix -Non-blocking-,<br>20 MHz … 8000 MHz | 2001.4100.1 |
| RFLD-8RE | 8 Channel True Power RF Level Detector,<br>1 MHz … 8000 MHz | 1505.8000.1 |

**Bi-Directional Products: Switches, Matrices, Attenuators, Delay Lines, BIAS-Ts, Splitters/Combiners, Filters**

| Product | Description | P/N |
|---|---|---|
| BSDU-1X8 | 8 Way Bidirectional Splitter/Combiner<br>500…9000 MHz | 2109.6200.5 |
| BSDU-1X8A | 8 Way Bi-directional Signal Conditioning Splitter Module<br>500 … 9000 MHz | 2109.6200.1 |
| BSDU-2X4 | 2 Section 4 Way Bidirectional Signal Splitter/Combiner<br>500…9000 MHz | 2109.6250.5 |
| BSDU-2X4A | 2 Section 4 Way Bi-directional Signal Conditioning Splitter Module<br>500 … 9000 MHz | 2109.6250.1 |
| RSWU-2SP4TS+ | 2 Channel Non-reflective SP4T Switches plus 1 Channel SPDT Switch<br>100 kHz … 8500 MHz | 1408.4010.1 |
| RSWU-8SPSTS | 8 Channel Non-reflective SPST Switch<br>100 kHz … 8500 MHz | 1408.4000.1 |
| RSWU-4SPDTS | 4 Channel Non-reflective SPDT Switch<br>100 kHz … 8500 MHz | 1408.4020.1 |
| RSWU-8SPST-CS | 8 Channel High Isolation SPST with DC Load Simulation<br>100 kHz … 7500 MHz | 1811.4100.1 |
| BSWM-4X4E | 4x4 High Isolation Bi-Directional Switching Matrix –Blocking-<br>100 kHz … 7500 MHz | 1205.4600.1 |
| ATT-8E | 8 Channel Digital Step Attenuator 0 … 31.75 dB<br>100 kHz … 8000 MHz | 1503.4000.1 |
| DLL-4 | 4 Channel Programmable Delay Line 0 …1700 ps<br>250 MHz … 4000 MHz | 1303.4200.1 |
| PT-4CS | 4 Channel Programmable DC Sink 0 … 400 mA<br>100 kHz … 8500 MHz | 1605.2020.1 |
| PT-4CL | 4 Channel Wideband DC Load<br>100 kHz … 8500 MHz | 1605.2040.1 |
| FBS-1590 | L1 Band GNSS Notch Filter | 1511.5100.1 |