

WSDU-1X8ER

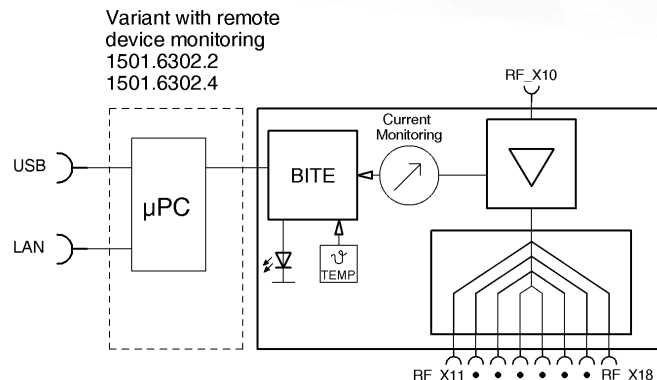
Extremely Wideband 1 to 8 Signal Distribution Unit 20 ... 8000 MHz

Features

- extremely wideband
- high dynamic
- lossless signal distribution
- variant with device monitoring/
SNMP function
- variants with AC or DC supply

Applications

- antenna signal distributions
- radio monitoring
- direction finding
- R&D



Scope

WSDU-1X8ER is an extremely wideband multicoupler that distributes signals from one common input to 8 outputs. The frequency range extends from 20 MHz to more than 8000 MHz. The device is available in variants with AC or DC power supply.

Lossless 1 to 8 Signal Distribution

The RF input the signal is amplified by using innovative broadband low-noise amplifiers with a wide dynamic range -weak signals are linearly amplified even if they occur next to signals with very strong levels. 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.

Variants for AC and DC Supply

WSDU-1X8ER is available in two variants for supply the unit with AC or DC power. Both variants cover a wide voltage supply range.

Device Monitoring

WSDU-1X8ER 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-1X8ER 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} | | 15 | 20 | MHz | |
| high frequency | f_{max} | 8000 | 8500 | | MHz | |
| gain | S_{21} | 3 | 5 | 7 | dB | $f \leq 1 \text{ GHz}$ |
| | S_{21} | 0 | 3 | 7 | dB | $1 \text{ GHz} < f \leq 7.5 \text{ GHz}$ |
| | S_{21} | -1 | 2 | 5 | dB | $f > 7.5 \text{ GHz}$ |
| gain flatness | ΔS_{21} | | ± 2 | | dB | |
| input return loss | S_{11} | | -16 | -9 | dB | |
| output return loss | S_{22} | | -17 | -11 | dB | $f \leq 6.5 \text{ GHz}$ |
| | S_{22} | | -13 | -9 | dB | $f > 6.5 \text{ GHz}$ |
| reverse isolation | S_{12} | | -90 | -65 | dB | |
| output isolation | S_{23} | | -30 | -20 | dB | distance = 1 |
| | S_{23} | | -50 | | dB | distance > 1 |
| amplitude balance | dS_{23} | | ± 0.4 | | dB | |
| phase balance | φ_{23} | | ± 2 | | deg | |
| 1 dB compression | P_{1dB} | +3 | +6 | | dBm | $f \leq 3 \text{ GHz}$ |
| | P_{1dB} | +2 | +5 | | dBm | $f > 3 \text{ GHz}$ |
| 3 rd order intercept | $OIP3^1$ | +15 | +19 | | dBm | $f \leq 1.5 \text{ GHz}$ |
| | $OIP3^1$ | +12 | +16 | | dBm | $1.5 \text{ GHz} < f \leq 4 \text{ GHz}$ |
| | $OIP3^1$ | +10 | +14 | | dBm | $f > 4 \text{ GHz}$ |
| 2 nd order intercept | $OIP2^2$ | +33 | +38 | | dBm | 40/60 MHz |
| | $OIP2^2$ | +28 | +33 | | dBm | 1000/1100 MHz |
| | $OIP2^2$ | +21 | +26 | | dBm | 3000/3100 MHz, 3900/4000 MHz |
| noise figure | NF | | 11 | 13 | dB | $f < 100 \text{ MHz}$ |
| | NF | | 9.5 | 11 | dB | $f \geq 100 \text{ MHz}$ |
| input power | P_{in} | | | +10 | dBm | CW, no damage |
| maximum DC voltage | U_{DC} | | | 20 | V | all RF ports |
| ESD discharge resistor | R_{ESD} | | 4.7 | | k Ω | all RF ports |
| RF connectors | NF | N female | | | | |

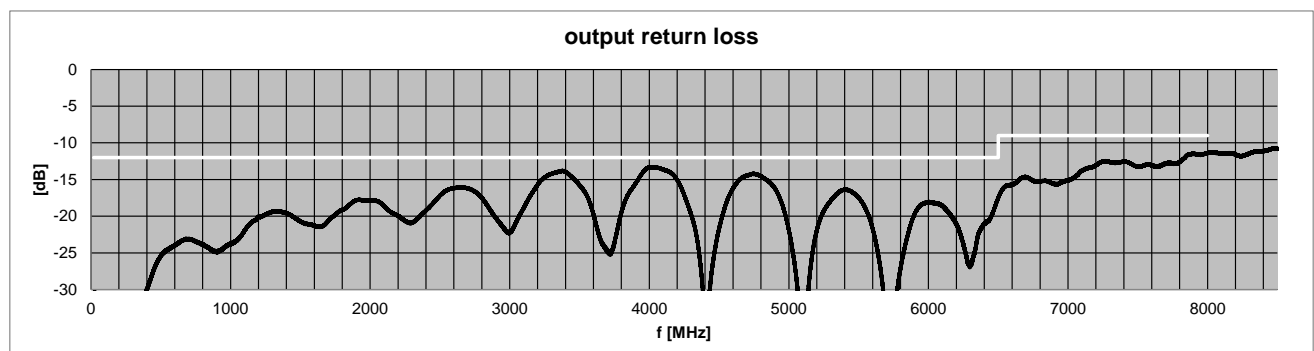
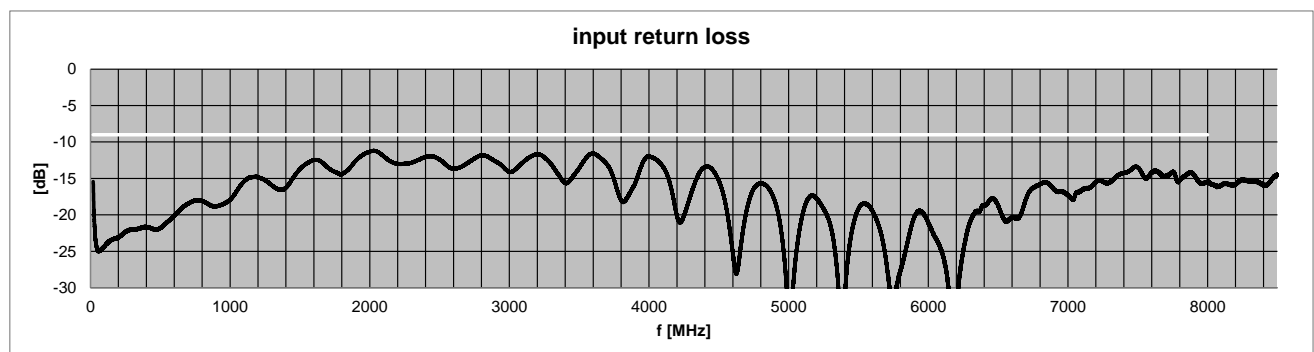
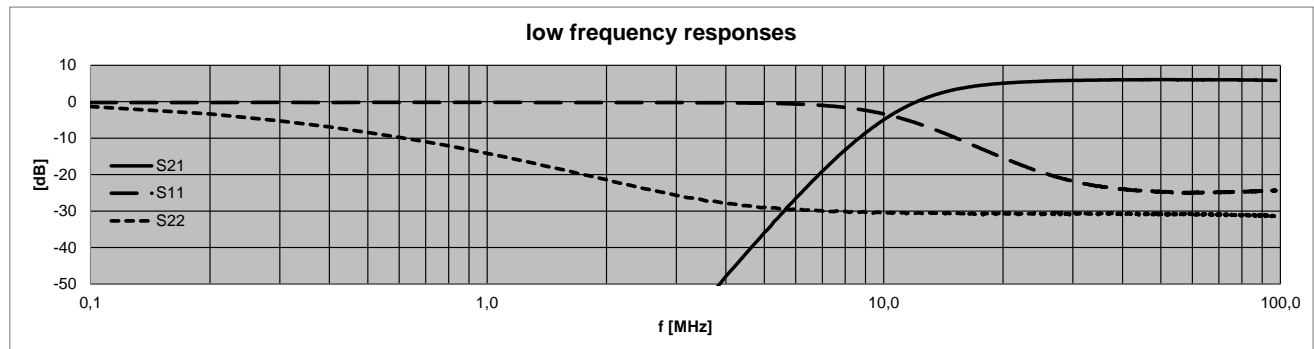
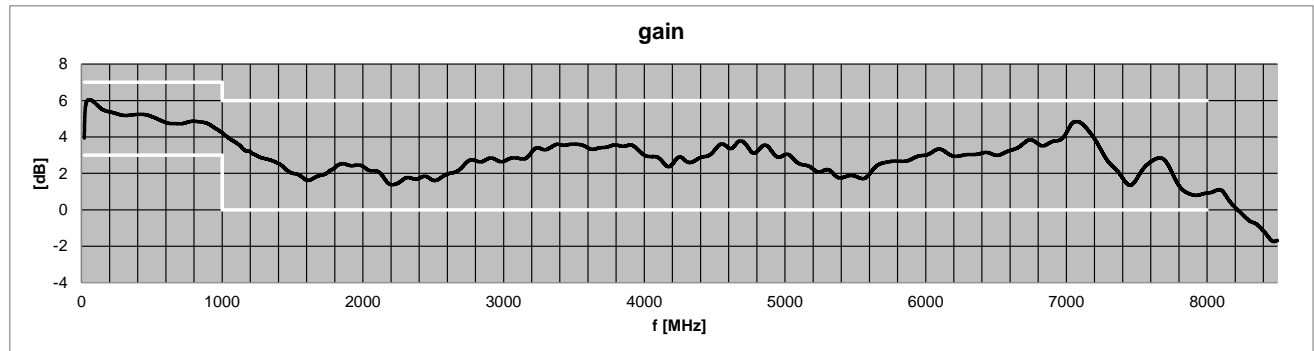
Note 1: $P_{in} = 2 \times -10 \text{ dBm}$, specified and tested for $\Delta f = 50 \text{ MHz}$

Note 2: $P_{in} = 2 \times -10 \text{ dBm}$, specified and tested for mentioned frequency pairs

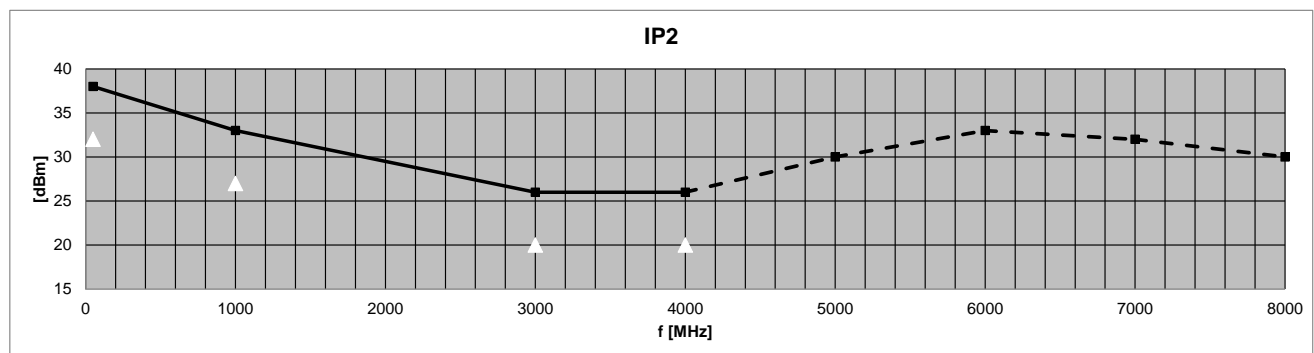
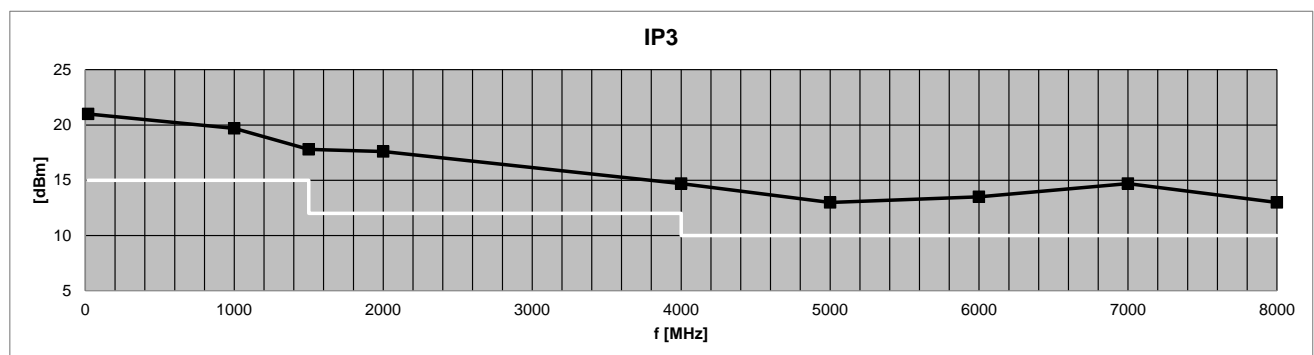
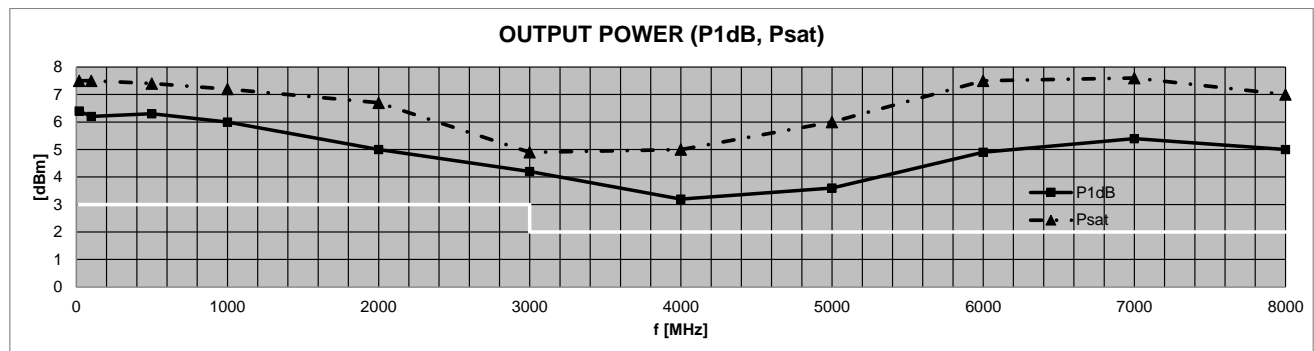
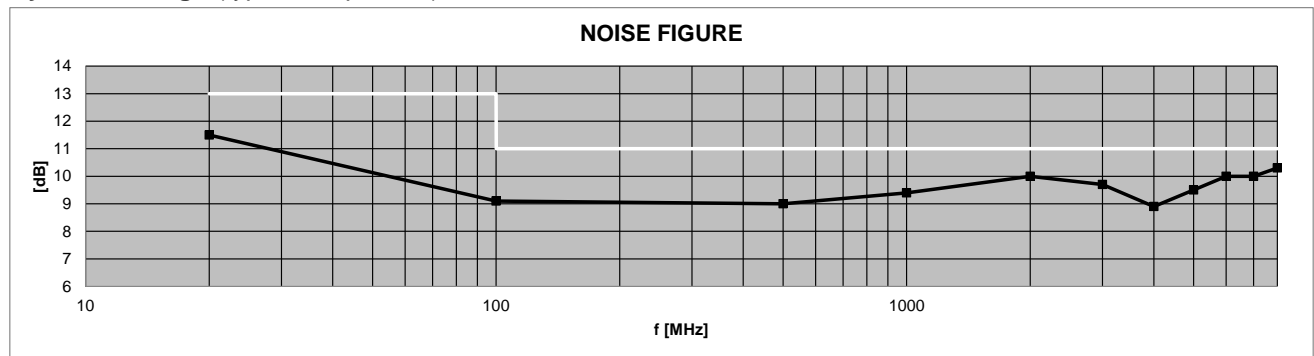
OIP2 & OIP3 values are the average value of the upper and lower intermodulation distortion.

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 | | 9 | 50 | W | |
| power socket | X _{AC} | IEC-60320 C14 | | | | country specific mains cable |
| DC supply variant | | | | | | |
| voltage supply range | U _{DC} | 18 | 24 | 28 | V | |
| current consumption | I _{DC} | | 190 | | 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 | | 3.4 | | kg | |
| Environment conditions | | | | | | |
| operating temp. range | T _o | +5 | | +45 | °C | |
| storage temp. range | T _s | -40 | | +70 | °C | |
| Remote interfaces (variant with remote device monitoring) | | | | | | |
| 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-1X8ER | | P/N: 1501.6302.1 | | variant with AC supply | |
| | WSDU-1X8ER | | P/N: 1501.6302.3 | | variant with DC supply | |
| | WSDU-1X8ER | | P/N: 1501.6302.2 | | AC supply with device monitoring | |
| | WSDU-1X8ER | | P/N: 1501.6302.4 | | DC supply with device monitoring | |

S-Parameters (typical responses)

Dynamic Range (typical responses)

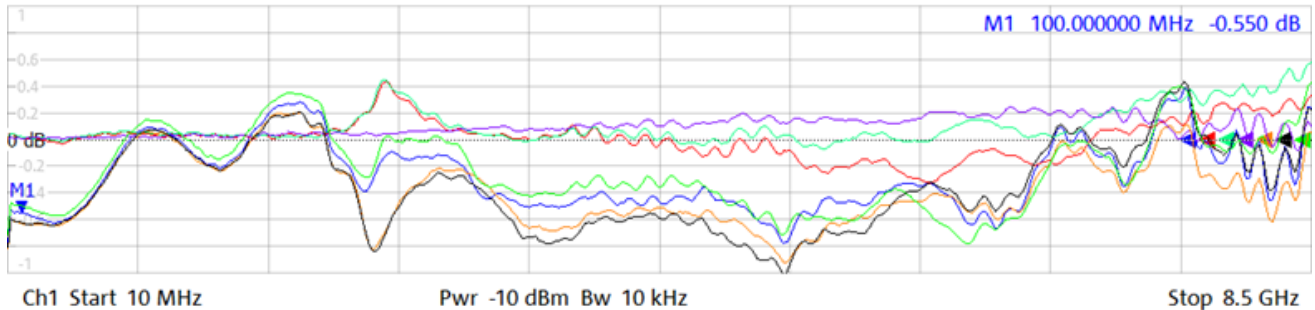


Output Balances (typical responses)

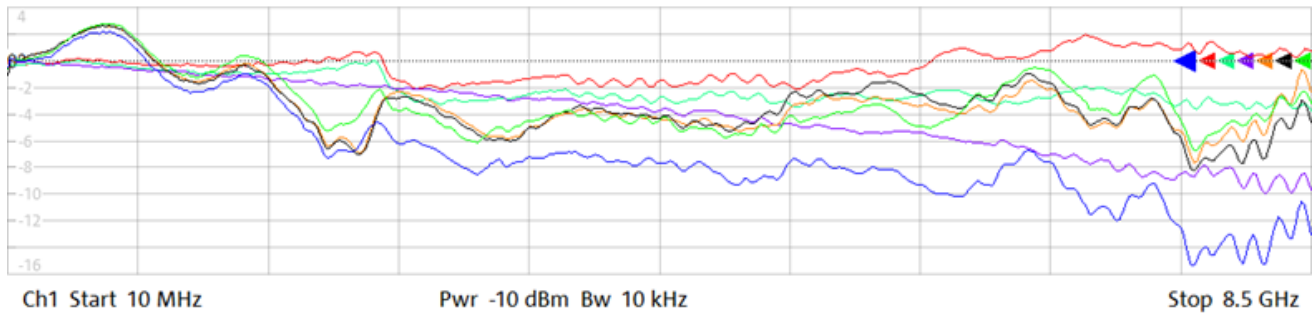


4/29/2019 6:03:52 PM
1311.6010K42-101511-rL

| | | | | |
|-------------|---------------------------------|-------------|-----------------------------|---|
| Trc2 | S21 dB Mag 0.2 dB/ Ref 0 dB Cal | Mem4[Trc2] | S21 dB Mag 0.2 dB/ Ref 0 dB | 1 |
| Mem6[Trc2] | S21 dB Mag 0.2 dB/ Ref 0 dB | Mem8[Trc2] | S21 dB Mag 0.2 dB/ Ref 0 dB | |
| Mem10[Trc2] | S21 dB Mag 0.2 dB/ Ref 0 dB | Mem12[Trc2] | S21 dB Mag 0.2 dB/ Ref 0 dB | |
| Mem14[Trc2] | S21 dB Mag 0.2 dB/ Ref 0 dB | | | |

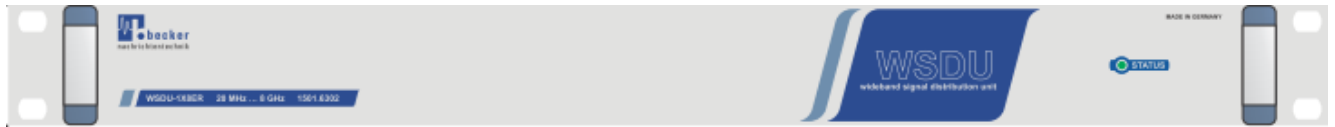


| | | | | |
|-------------|--------------------------|-------------|----------------------|---|
| Trc3 | S21 Phase 2°/ Ref 0° Cal | Mem5[Trc3] | S21 Phase 2°/ Ref 0° | 2 |
| Mem7[Trc3] | S21 Phase 2°/ Ref 0° | Mem9[Trc3] | S21 Phase 2°/ Ref 0° | |
| Mem11[Trc3] | S21 Phase 2°/ Ref 0° | Mem13[Trc3] | S21 Phase 2°/ Ref 0° | |
| Mem15[Trc3] | S21 Phase 2°/ Ref 0° | | | |



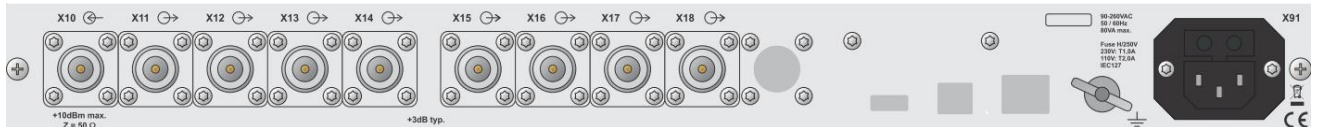
Appearances

Front View



Rear Views (4 variants available)

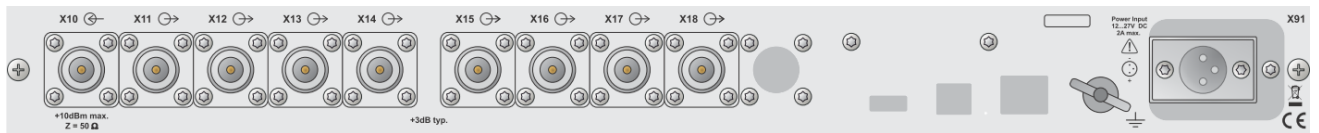
P/N: 1501.6302.1 WSDU-1X8ER, AC supply



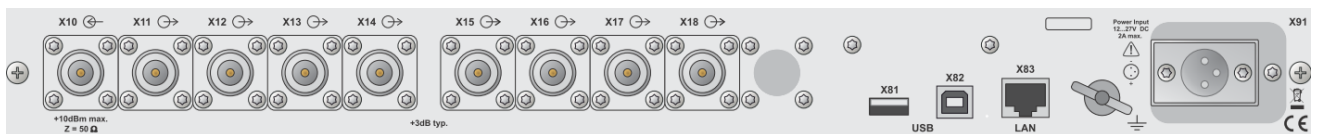
P/N: 1501.6302.2 WSDU-1X8ER with remote device monitoring, AC supply



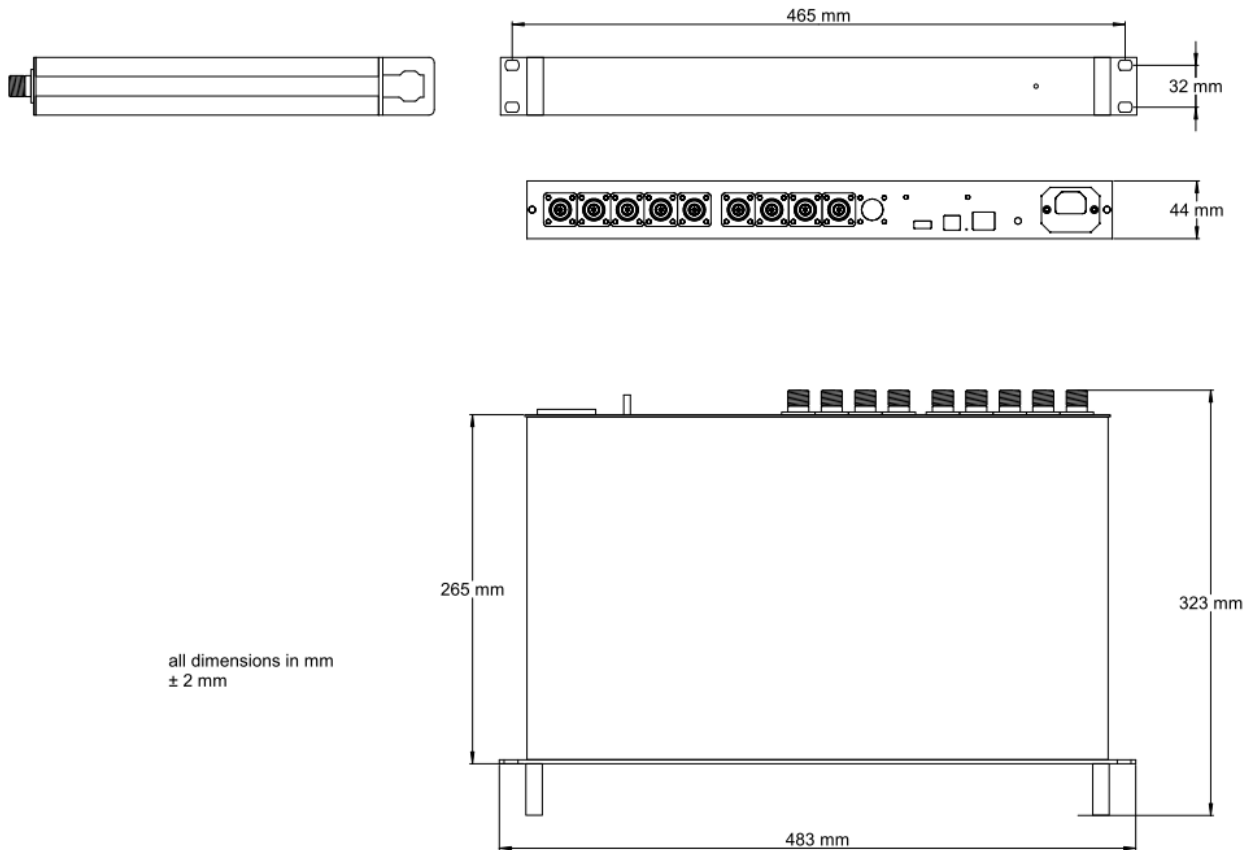
P/N: 1501.6302.3 WSDU-1X8ER, DC supply



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



Dimensions



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. |