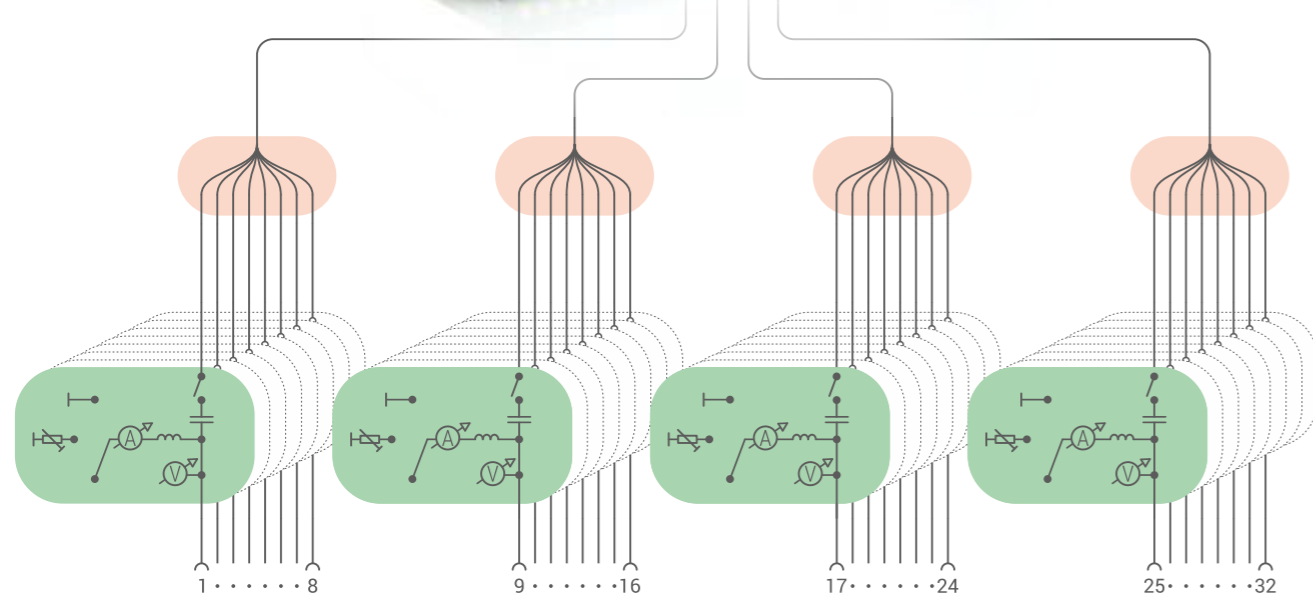


RF Modular Systems



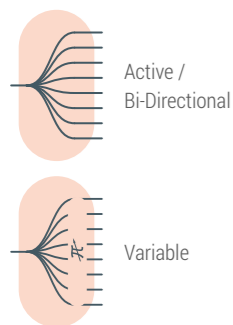
Customized RF Signal Networks

Modular Plug and Play
Fast Time to Market
No Hardware R&D

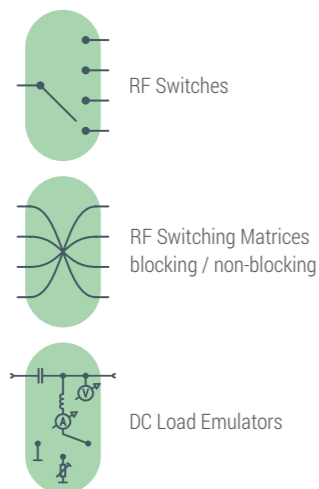


Module Types

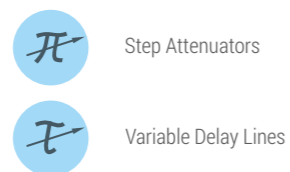
Distributing



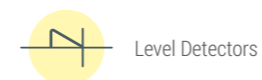
Switching



Variing



Detecting



Scope

- High integration level per slot-in (e.g. 8 channel parallel...)
- Minimizing SW integration complexity
- Central LAN/USB control for programmable functions
- Industrial-grade design
- Low number of coaxial, no DC and control interconnect
- High isolation to interference environment
- Thermally robust design
- Solid architecture, easy to assemble
- Simple maintenance (swap-in replacement)

Applications

- Antenna matrices, blocking & non-blocking
- Automated connection/selection of RF measurement equipment and devices-under-test (e.g. production end-test, validation automation after repair)
- Multi-channel RF generation (coherent) and multi-channel power measurement (e.g. reliability testing of RF components)
- Repeatable handover testing (bringing wireless scenarios to the laboratory)
- Laboratory automation

Technical Scope

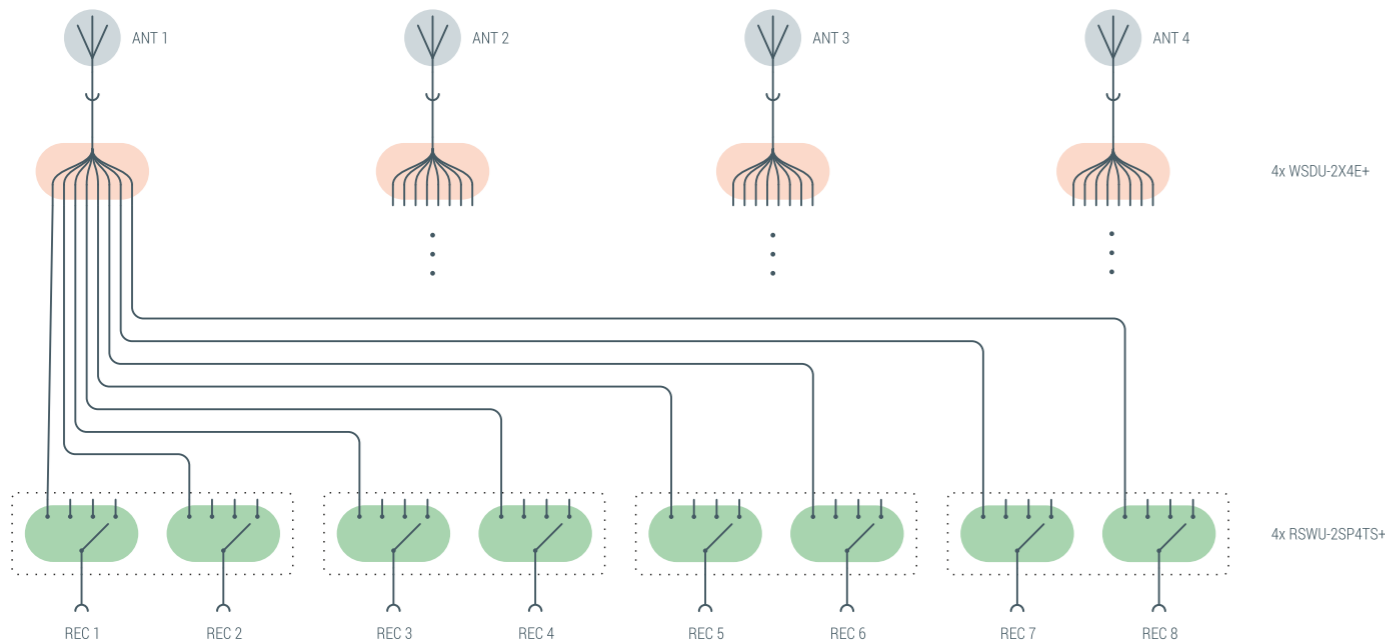
- RF signals from 100 kHz to 8 GHz, broadband architecture
- Power signals up to 5W (CW) per Output
- High RF sensitivity and low-noise for antenna inputs
- RF signal multiplication
- RF signal selection
- RF/DC separation or fusion
- RF amplification
- RF programmable, attenuation, programmable delay
- Passive filtering, power splitting and combining
- large mains voltage supply range
- rugged and compact 19" 6 U design

To realize your system solution, we appreciate to support you regarding the module configuration prospects. The development of web based user interfaces is offered by request.



4X8 Switching Matrix -non blocking- 20 MHz ... 8000 MHz

Radio communications must be monitored to secure radio transmission for government and public radio services and to prevent organized crime. For the optimization of the reception properties are different antennas used, which are selected free by the operators. For radio and spectrum monitoring applications a 4X8 non-blocking matrix suitable for the frequency range 20 MHz...8000 MHz is realized with 8 slot-in modules plus controller slot in module. The 4 antenna inputs are distributed to 8 outputs without loss in level with WSDU-2X4E+ multicoupler modules. Each receiver output can dial one of the 4 antenna signals via SP8T RF switch modules RSWU-2SP4TS+. The control of the matrix occurs with the module command sets with help of ASCII strings. On demand we offer customer specific graphic user interfaces (GUI) for control the matrix system.

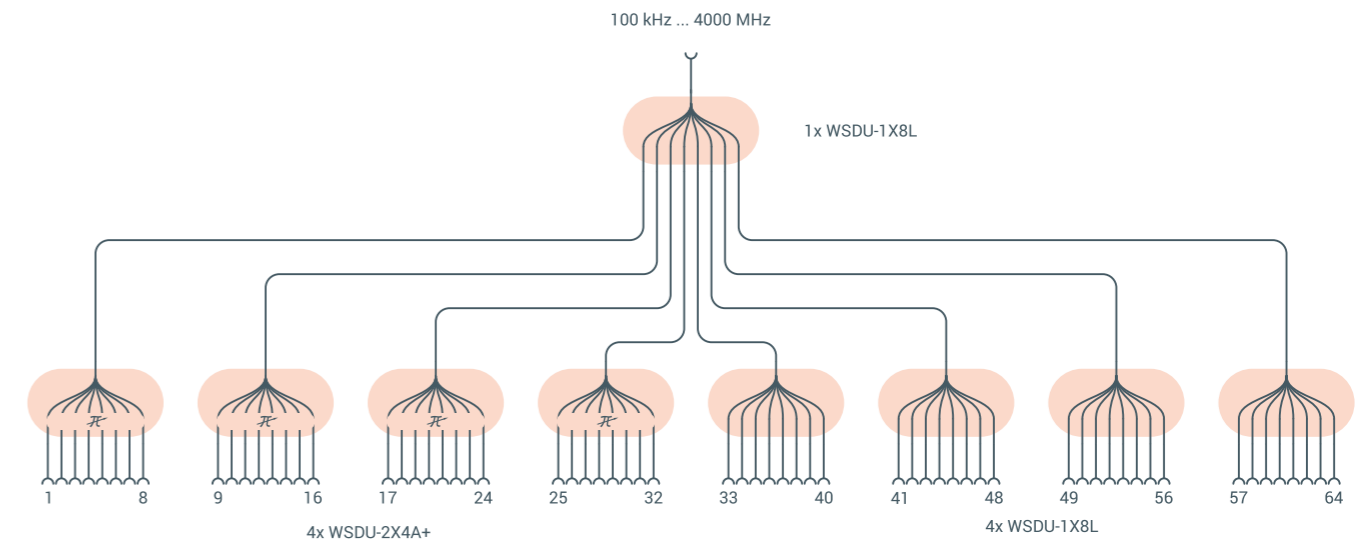


Short Specification (typical values):

Number of Inputs	Number of Outputs	Impedance	Frequency Range	Gain	Switch Isolation	1 dB Compression	3rd Order Intercept	Remote Control
4	8	50 ohms	20 MHz... 8000 MHz	1 dB	50 dB	+ 3 dBm	+ 13 dBm	LAN/USB

1X64 Broadcast Signal Distribution

When the various SW and HW components are integrated, many tests engineers run tests in parallel with various SW versions using HW platform that needs to run the software like the final product. To give each integration engineer a suitable test and simulation platform, real or simulated RF signals must be present, which are independent of external influences (interferences). The arrangement shows a compact and wideband RF signal distribution for broadcast and GNSS signals for 64 working places. For sensitivity tests 32 seats are equipped with integrated, programmable attenuators. The direct connection to the Devices Under Test (DUT) occurs with the frequency de-multiplexers of the FDMX series. They have integrated DC loads for the simulation of active antennas.



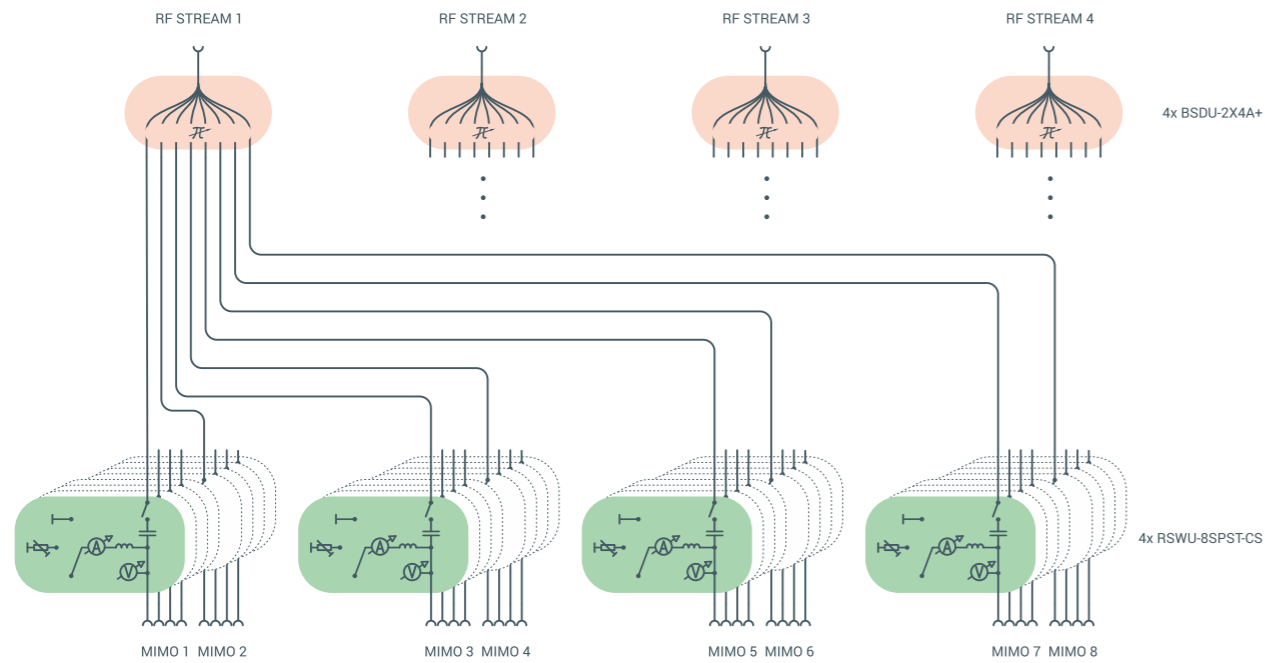
Short Specification (typical values):

Number of Inputs	Number of Outputs	Impedance	Frequency Range	Gain (fixed)	Gain (programmable)	1 dB Compression	Remote Control
1	32 (fixed gain) 32 (programmable gain)	50 ohms	100 kHz ... 4000 MHz	5 dB	- 83.25 dB ... + 12 dB	+ 8 dBm	LAN/USB



4X8 MIMO RF Port End Of Line Testing

Modern telematics components have a high number of antenna ports. End-of-Line (EOL) test equipment needs to supply many MIMO antenna connector groups for different bands with RF data streams. The data streams coming from the Device Under Test (DUT) needs to be analyzed. Additional antenna diagnostic function in the DUT have to be tested. The following arrangement shows a compact test solution for RF signal routing of 4X8 MIMO antenna ports with different RF data streams to a central base station (communication tester). The arrangement has also integrated, switchable loads and also integrated volt- and ampere meters for the test of antenna diagnostic functions.



8port MIMO Testing

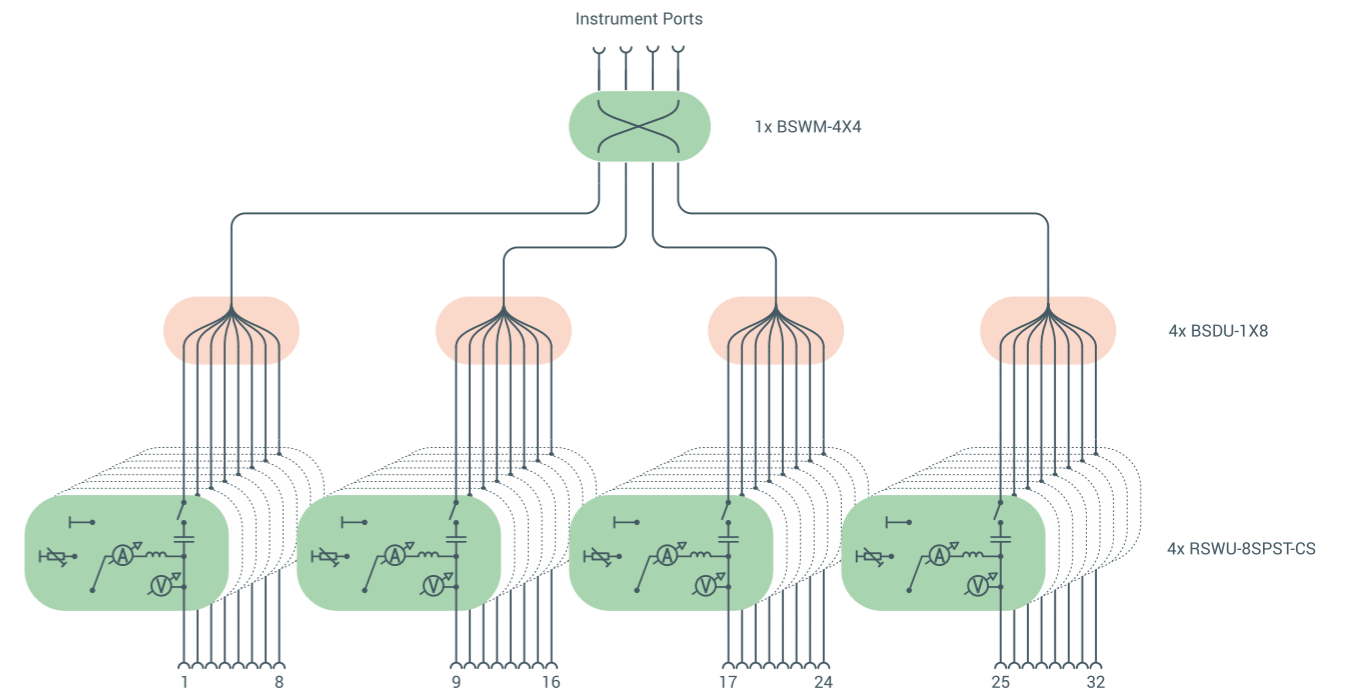
Short Specification (typical values):

Number of Inputs	Number of Outputs	Impedance	Frequency Range	Insertion Loss	OFF Isolation	RF Power	Antenna Diagnostic	Remote Control
4	32	50 ohms	500 MHz ... 7500 MHz	17 dB	95 dB	+ 33 dBm max., CW	OPEN LOAD SHORT	LAN/USB



4X32 Switching Matrix for End-of-Line with high Throughput

Modern telematics and multimedia components have a large number of antenna ports. In End-of-Line (EOL) test equipment antenna ports of Devices Under Test (DUT) have to route to analyzers and signal generators. An important item are costs for measurement equipment and low testing times. Signal generators and analyzers vary its functionality with the software. Different wave forms are generated or analyzed with the single instruments. With help of the shown wideband, bi-directional matrix RF path signal routing form the measurement instrument to the DUT is done flexible and quick. Thus the use density of cost intensive measuring instruments increases. Due the high test density at the DUTs total test time reduces significant. The arrangement has also integrated, switchable loads and also integrated volt- and ampere meters for the test of antenna diagnostic functions.





Short Specification (typical values):

Number of Inputs	Number of Outputs	Impedance	Frequency Range	Insertion Loss	OFF Isolation	RF Power	Antenna Diagnostic	Remote Control
4	32	50 ohms	500 MHz ... 7500 MHz	20 dB	80 dB	+ 33 dBm max., CW	OPEN LOAD SHORT	LAN/USB

 Becker Nachrichtentechnik GmbH

 Kapellenweg 3
53567 Asbach, Germany

 +49 2683 / 94 352 - 81

 info@becker-rf.com

 www.becker-rf.com