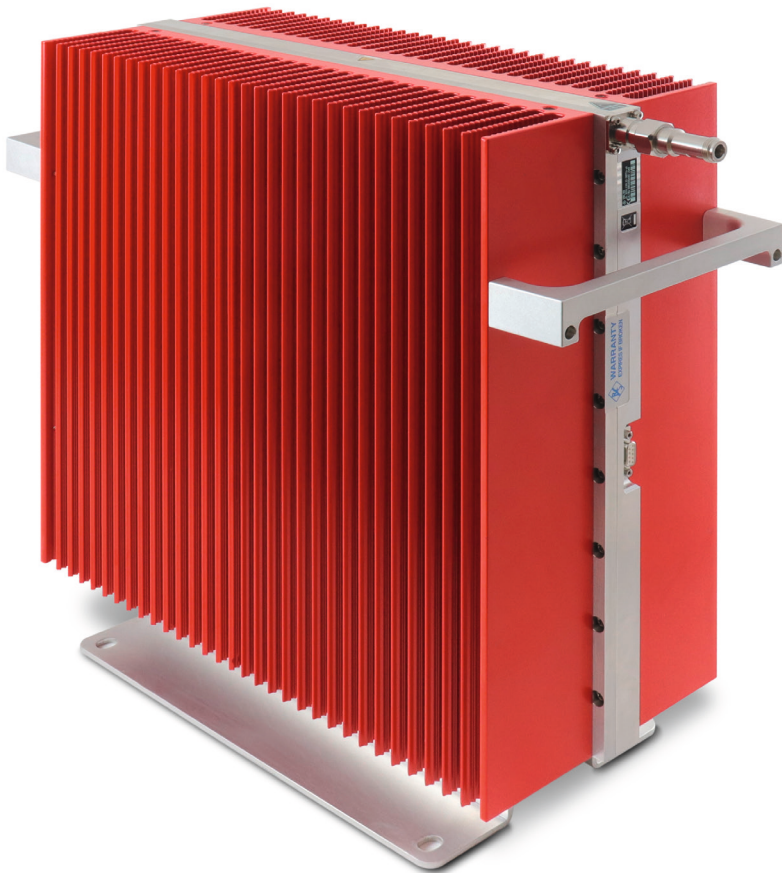


# R&S® UBL100

## Ultra Broadband Load



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### At a glance

The R&S®UBL100 is an ultra broadband load that can be used from DC to 18 GHz.

The dummy load absorbs RF power and converts it into heat, which is dissipated into the surrounding area through convection cooling. An optional fan unit improves heat dissipation. A built-in interlock loop can be used to switch off the device feeding of the load when the heatsink temperature rises above +70°C. Unlike cable loads, there is no lower frequency limit. Depending on the input frequency and heatsink temperature, the R&S®UBL100 can absorb up to 1800 W.

#### Key facts

- ▀ Very good return loss, especially up to 6 GHz
- ▀ High power capability
- ▀ Very rugged for short-term overload
- ▀ High crest factor capability
- ▀ Easy handling with optional caster wheels

#### Power handling capability

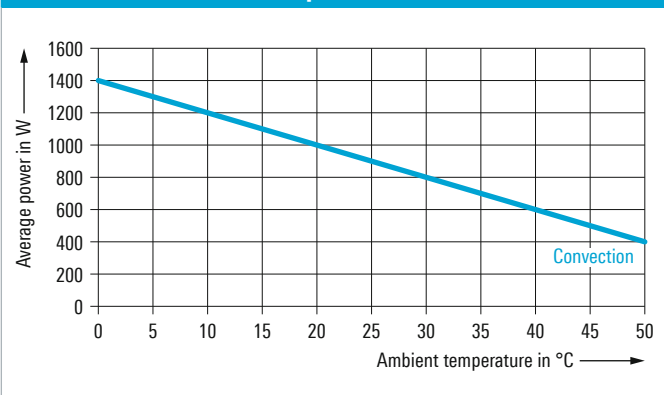
Two effects need to be considered when determining whether the load can handle a certain input power: the limits of the internal circuitry of the load and the ability of the heat sink to dissipate the absorbed energy for a given ambient temperature.

The second diagram describes the maximum permissible input power in Watt due to the limits of the internal circuitry of the load. The derating is a function of the heatsink temperature. Between 100 MHz and 1000 MHz, the value for the maximum input power is constant. To prevent damage, the specified maximum average input power for a heatsink temperature of +70°C must not be exceeded.

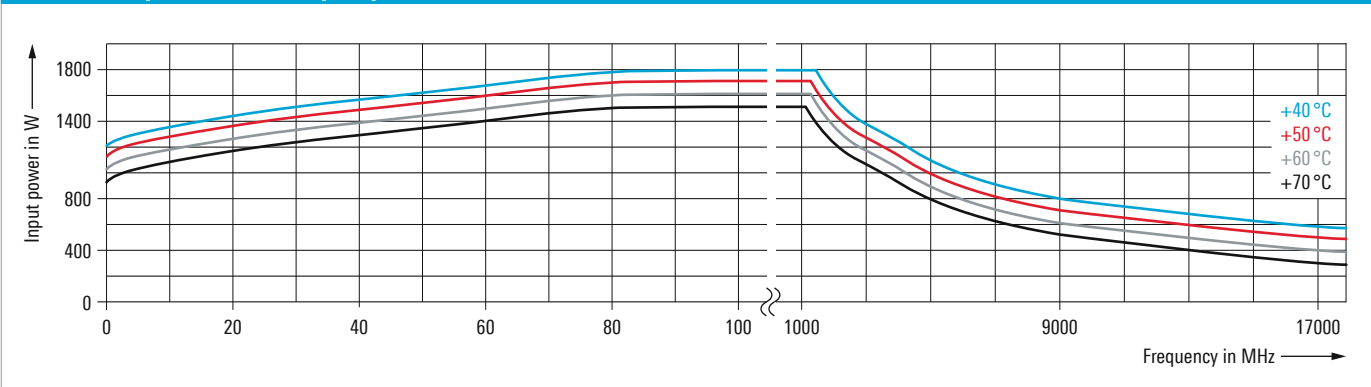
The first diagram shows the derating of the load for convection cooling due to the limited ability of the heat-sink to dissipate the absorbed energy for a given ambient temperature and maximum heatsink temperature of +70°C. The heatsink temperature reaches a stable value after more than one hour of continuous operation of the load.

When the optional fan unit is used, only the second diagram is relevant. In the case of convection cooling, both diagrams need to be taken into account, and the diagram giving the lower limit defines the maximum permissible input CW power for a certain frequency and ambient temperature. Effective convection cooling requires sufficient space around the load.

**Maximum average power with convection cooling for +70°C heatsink temperature**



**Maximum permissible input power**



Specifications		
Frequency range		DC to 18 GHz
Input impedance		50 Ω
Input connector		4.3-10 female, adapter to N included
Input VSWR (including N adapter)	f ≤ 2 GHz	≤ 1.15
	2 GHz < f ≤ 6 GHz	≤ 1.25
	6 GHz < f ≤ 18 GHz	typ. ≤ 1.50, max. 2.25 possible at a few discrete frequencies
Average input power P <sub>avg</sub> <sup>1)</sup>	f ≤ 80 MHz	derating, see diagrams
	80 MHz < f ≤ 1.0 GHz	up to 1800 W with fan unit, see diagrams
	f > 1.0 GHz	derating, see diagrams
Crest factor for OFDM	bandwidth > 1 MHz	≤ 12 dB
Peak power (duty cycle < 1%)	f ≤ 650 MHz, < 100 μs pulse width	≤ 15 kW
	f > 650 MHz, < 1 ms pulse width	≤ 15 kW
Maximum heatsink temperature	surface, near the interlock connector	≤ +70°C
Typical heatsink temperature T <sub>hs</sub>	at +20°C ambient temperature and 1000 W average power	■ +70°C for convection cooling, see user manual ■ +33°C with optional fan unit, see user manual
Temperature protection		thermoswitch for external interlock loop, normally closed, opens at > +70°C
Interlock loop connector (thermoswitch)		D-Sub, 9-pin female, pin 1 and pin 5
Thermoswitch rating	voltage to ground, pin to pin	≤ 50 V
	current	≤ 1 A
Cooling		convection cooling, optional fan unit
<b>General data</b>		
Dimensions (W × H × D)	including handles and feet	492 mm × 480 mm × 198 mm (19.4 in × 18.9 in × 7.8 in)
Weight		45 kg (99.2 lb)
<b>Fan unit</b>		
Operating voltage range		85 V to 264 V AC, 47 Hz to 63 Hz
Rated current		≤ 0.9 A
Noise emission	in typical lab environment	approx. 77.5 dB(A)
<b>Environmental conditions</b>		
Temperature ranges		
Minimum operating temperature (ambient)	ultra broadband load and fan unit	+5°C
Maximum operating temperature (ambient)	ultra broadband load	see derating curve for average power versus ambient temperature on page 2
	fan unit	+45°C
Maximum operating temperature (air inlet)	fan unit	+60°C
Storage temperature range	ultra broadband load and fan unit	-40°C to +80°C
Damp heat	ultra broadband load	≤ 95% noncondensing
	fan unit	≤ 90% noncondensing
Operation above sea level	ultra broadband load and fan unit	2000 m
Transportation above sea level	ultra broadband load and fan unit	4600 m

<sup>1)</sup> Depends on input power and exposure time; +70°C surface temperature must not be exceeded.

Ordering information		
Designation	Type	Order No.
Ultra broadband load	R&S®UBL100	5355.6105.02
Ultra broadband load, with fan unit, on caster wheels	R&S®UBL100	5355.6105.22
Ultra broadband load, with fan unit	R&S®UBL100	5355.6105.32
Ultra broadband load, on caster wheels	R&S®UBL100	5355.6105.42

Your local Rohde & Schwarz expert will help you determine the optimum solution for your requirements. To find your nearest Rohde & Schwarz representative, visit [www.sales.rohde-schwarz.com](http://www.sales.rohde-schwarz.com)

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