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# Технические характеристики на ВЧ-измерители мощности RadiPower 2000 Pulse, RadiPower 2000, RadiPower 3000, RadiPower Pro КОМПАНИИ **DARE**

# RadiPower® Series

The RadiPower® Series consists of different USB Power meters. These power meters are capable of measuring at different speeds and frequency. The RadiPower® Power Meters are easily connected to your setup through the USB connection on the back. Designed to perform, Pulsed, AM, FM, tracing modes and peak power measurements the RadiPower® Power Meter can be used in different test environments.

## RadiPower® Models overview

Product Name	Applications	Frequency Range	Measurement Speed	Measurement Range	Get Quote
 RadiPower® RPR4006R	True RMS Measurements	4 kHz - 6 GHz	5 MS/s	Max. 10 Min. -70	
 RadiPower® RPR3008W	RMS power peak max hold Burst mode	10 MHz - 8 GHz	10, 50, 100 kS/s, 1, 5, 10, 20, 33 MS/s	-50 dBm to +10 dBm @ 10 MHz to 6 GHz -40 dBm to +10 dBm @ 6 GHz to 8 GHz	
 RadiPower® RPR3006W	RMS power peak max hold Burst mode	10 MHz - 6 GHz	10, 50, 100 kS/s, 1, 5, 10, 20, 33 MS/s	-50 dBm to +10 dBm @ 10 MHz to 6 GHz	
 RadiPower® RPR2018C	CW Measurements	80 MHz - 18 GHz	20 kS/s 100 kS/s 1 MS/s	-45 dBm to + 10 dBm (Usable to -50 dBm)	
 RadiPower® RPR2018P	CW power Peak power Envelop tracing	80 MHz - 18 GHz	20 kS/s 100 kS/s 1 MS/s	-45 dBm to + 10 dBm (Usable to -50 dBm)	

Product Name	Applications	Frequency Range	Measurement Speed	Measurement Range	Get Quote
 RadiPower® RPR2006C	CW Measurements	(4 kHz) 9 kHz to 6 GHz	20 kS/s 100 kS/s 1 MS/s	-55 dBm to +10 dBm (Usable to -60 dBm)	
 RadiPower® RPR2006P	CW power Peak power Envelop tracing	(4 kHz) 9 kHz to 6 GHz	20 kS/s 100 kS/s 1 MS/s	-55 dBm to +10 dBm (Usable to -60 dBm)	

### RADIPOWER® USB-RF POWER METER

## RADIPOWER® MEASURING MODES

Each RadiPower® in their respected series has certain measuring capabilities and modes. In the table below we show what measuring mode each RadiPower® type has.

MODE	2000C SERIES	2000P SERIES	3000W SERIES	4000X SERIES
CW MODE	✓	✓	✓	✓
PEAK MODE		✓	✓	
ENVELOP TRACING MODE		✓		
BURST MODE			✓	
TRUE RMS MEASUREMENT				

RadiPower® is an EMC/RF power head designed for CW power measurements during EMC testing. A range of power heads are available for measuring RF power from 4 kHz to 18 GHz. The RadiPower is a fast and

the RF power head with a USB interface for easy connection. The RPR2006C covers a frequency band from 9 kHz to 6 GHz and can perform measurements with an accuracy of 0.15 dB. The RPR2018C covers a frequency band from 80 MHz to 18 GHz and can perform measurements with an accuracy of 0.2 dB. This series is

### Plug in card

The RadiPower® RF power head can be connected to a USB1004A plug-in card using USB connectors. This plug-in card supports up to four RadiPower® heads, allowing forward and reflected power measurements from two amplifiers with just one instrument. The plug-in card fits into the RadiCentre® EMC measurement system, which is available in a version with 1 slot (CTR1001S), 2 slot (CTR1004B) or 7 slot (CTR1009B).

### Standalone

The RadiPower control head can also be used in a stand-alone configuration. In that case, the power head is connected directly to a PC by means of a USB cable, the measured power levels are displayed on the PC using the RadiMation® Free monitoring program (download free of charge).

### High dynamic range

The RadiPower® RPR 2006 offers a dynamic range of > 65 dB and the RadiPower® RPR 2018 offers a dynamic range of > 55 dB, making them ideally suited for all typical immunity applications and standards.

### Wide band

Two models cover a frequency band from 4 kHz to 18 GHz, the RadiPower® is a perfect product for all EMC measurements, including military, automotive and EMC immunity tests for CE marking. The RadiPower 6 (model RPR2006C) has a standard frequency range from 9 kHz to 6 GHz and covers most conducted and radiated sensitivity tests. The 4 kHz low frequency extension (option # 010) allows the RPR2006C to be used from 4 kHz, as required in MIL-STD-461 CS-114, BCI common mode test on power cables. The RadiPower 18 (model RPR2018C) covers power measurements from 80 MHz to 18 GHz.

### High precision

The RadiPower® measures with an accuracy of 0.15 dB (RPR2006C) or 0.2 dB (RPR2018C) over the full band and therefore offers the perfect solution for testing according to EN61000-4-3 / -6 or ISO / IEC 11452-2 / -3 / -4 / -5 / -7.

### Immunity applications

Immunity applications require the field or power to be measured accurately. Actual fields can be measured with the RadiSense® LASER powered E-field sensor. Likewise, the RadiPower® is able to measure power levels. Often, both forward and reflected power must be measured. Since the



RadiPower® USB1004A plug-in card can control up to four heads, the RadiPower® solution is ideal for EMC power measurements.

## **Fast**

The RadiPower® RF power meter is extremely fast, especially at low or varying power levels. This is often the case when immunity tests are performed at low immunity levels. The fast measurement capability can result in an overall measurement speed improvement of more than 50%.

## **Measurement uncertainty**

The RadiPower® RF power meter is extremely fast, especially at low or varying power levels. This is often the case when immunity tests are performed at low immunity levels. The fast measurement capability can result in an overall measurement speed improvement of more than 50%.



# RadiPower® 4000 Series

## Fast RMS Power Measurements

True RMS

Wide Dynamic Range

High accuracy

**The RPR4006R is the first member of the new 4000 series power meters. This new model combines excellent RMS measurement accuracy over a large dynamic range with high measurement speed, even at low power levels.**

**True RMS** | For non CW measurement a RMS response is required. This can be done in multiple ways, the best way is to incorporate an RMS detector. This leads to a DC voltage that is proportional to the RF RMS value of the input signal. Performing this step in hardware and not relying on software computation results in higher accuracy and faster measurements. The RadiPower 4006R uses a true RMS detector, which ensures accurate power measurement of non-sinusoidal RF signals over the entire measuring range.

**High dynamic range & speed** | The RadiPower® RPR4006R offers a very high dynamic range (up to 80 dB) over the frequency range from 4 kHz to 6 GHz. Where most RF power meters will become (extremely) slow at low input amplitudes, the RadiPower® 40006R maintains its high measuring speed over the entire input power range. With measurement rates of up to 5 MS/s, fast true RMS power measurements become reality!

**Accuracy and input matching** | High measuring speed becomes useless if the measuring accuracy is poor. The RPR4006R power meter offers an improved accuracy of  $\pm 0.2$  dB over the complete frequency range. By using a "true RMS" detector with active input ranging, the error contribution for non-sinusoidal signals with a high crest factor is less than 0.2 dB. To further improve the measurement accuracy, it is crucial that the input VSWR of the power meter is very low. Any deviation from 50 Ohms will result in measurement uncertainty that cannot be corrected. Therefore, the input VSWR of the RadiPower pro-series has been optimized to ensure that these uncertainties are minimized. This feature makes the RadiPower® 4000 series even better for accurate RF power measurements.

**Ruggedized housing** | The RadiPower® RPR4006R uses a robust, specially treated, aluminium housing. As a result, good RF shielding is combined with a sleek industrial appearance and a virtually scratch-free housing.

**Easy to use** | The RadiPower® RPR4006R is equipped with a USB interface that allows the power meter to be connected directly to the USB port of a Windows PC. RadiMation® (freeware) can be used to allow direct control over the power meter settings and display the measurement results on the PC screen.

**Software support** | The RadiPower® RPR4006R can be controlled by RadiMation® software (licensed) when being used for EMC immunity testing. Using the instrument command codes as defined in the manual, the RadiPower® RPR4006R can be used with any other software control package. Driver availability on request.

# RadiPower® Technical Specifications

Model	RPR4006R		
Measuring function	RMS power		
Measurement speed	1 MS/s   5 MS/s		
Resolution	0.01 dB		
Measuring units	dBm or Watt		
Zero adjustment	Not required		
Input damage level	> +20 dBm		
Measurement range & accuracy			
Frequency range	4 kHz to 6 GHz		
Power measuring range	Frequency	MAX	MIN
	4 kHz - 100 MHz	10	-70
	100 MHz - 15 GHz	10	-65
	15 GHz - 35 GHz	10	-60
	35 GHz - 45 GHz	10	-55
	45 GHz - 6 GHz	10	-50
Frequency response accuracy (at 23° C ± 2° C)	+/- 0,2 dB		
Linearity error	0.05 dB + 0.005 dB/dB		
Temperature effect	0,15 dB max over full temperature range		
Deviation from CW for signals with high crest factor	< 0,2 dB		
VSWR			
Max SWR: < 100 MHz	1.05		
100 MHz to 6 GHz	1.10		
Connections & Dimensions			
Dimensions of measuring device (LxWxH)	125.2 * 44.5 * 32 mm		
RF input connector	N type precision		
Data connector (power head side)	USB mini type B		
Power Consumption			
Supply voltage	+5Vdc from USB port (4,75 V to 5,25 V)		
Current consumption (USB)	Max. 500 mA		
Environmental conditions			
Temperature range (operating)	0° to 40° Celsius		
Temperature range (storage)	-20 to 85° C		
Relative humidity	10 – 90% (non-condensing)		
Compliance			
EMC	EN 61326		
Low Voltage	N/A		
Warranty	3 year <sup>(1)</sup>		

(1) Three years warranty will be granted only after you register the product. Without registration, a 1 year warranty period applies.

- All specifications are measured after 30 minutes warm-up time and 0dBm unless specified otherwise.
- Typical specifications indicate that the measured values are met on at least 80% of the points.



# RadiPower® 3000 Series

## Fast Synchronous Power Measurements · Flexible

Fast

Accurate

Easy to use

Radiateq offers the RadiPower model RPR3006W to comply with the measurement requirements of the ETSI 300 328 and 301 893 standards for wideband data transmission systems, like IEEE 802.11TM, Bluetooth and ZigbeeTM. The RPR3006W covers a measurements range from 10 MHz to 6 GHz. The RPR3008W now covers a measurement range of 10 MHz to 8 GHz to include the new WI-FI 6E (IEEE 802.11ax) standard.

### Extremely Fast

In order to achieve this measurement requirements of the ETSI standards the sampling speed of the RadiPower® power sensor has been increased to maximum 5 MS/s. The RPR3006W and RPR3008W is also equipped with a hardware trigger input/output that allows synchronous power measurements of wideband data transmission devices with multiple inputs/outputs (MIMO).

### Accurate

Next to speed, accuracy is another main requirement when performing RF power measurements of wireless devices. The RPR3006W and RPR3008W allows high precision RF power measurements with a high dynamic range of 60 dB. The power meter provides a accuracy of  $\pm 0,2$  dB and is well within the requirements for measurements in accordance to ETSI standards.

### Easy to use

The RadiPower® Wireless is equipped with an USB interface which enables direct connection of the Power sensors to a PC USB port. Together with the RadiPower USB power sensor a RadiMation® FREE freeware package is delivered to enable direct control of the power meter settings and display the measurement results on the PC screen. The RadiMation® Freeware also enables synchronous triggering of multiple RadiPower® Wireless power sensors.

### 'Burst' mode

The RadiMation® Freeware includes a 'Burst' mode with user selectable measurement speed/time to capture the wideband Burst/Pulse signals and calculate the measurement parameters, maximum RMS power, duty cycle, medium utilization and maximum sequence time. This mode is fully compliant with the measurement methods as defined in the ETSI standards for wideband data transmission systems EN 300 328 (2,4 GHz) and EN 301 893 (5 GHz). In burst mode, the RadiPower can store the information of 100.000 bursts and observation time up to 60 seconds. For each burst the average power and timing data is stored in the buffer. The RadiPower® uses a sample speed of 1 or 5 MSps in combination with a RMS detector to ensure correct measurements on wideband modulating transceivers.

### Synchronized measurements

For MIMO devices with for example six antenna ports, an equal amount of RPR3006W power heads can be daisy-chained using the MMCX connectors enabling synchronised triggering of all six RadiPower meters. RadiMation Freeware captures the samples of each power meter simultaneously and calculates the total combined power according to the ETSI 300 328 standard.

### Software support

The standard delivered RadiMation® Freeware supports all RadiPower® measurement modes. Using the instrument command codes the RadiPower® Wireless can be used with any other software control package.

# RadiPower® Technical Specifications

Model	RPR3006W	RPR3008W
Measuring function	RMS power, peak max hold and Burst mode	
Measurement speed (1)	10, 50, 100 kS/s, 1, 5, 10, 20, 33 MS/s	
Storage capacity	100.000 samples 100.000 bursts	
Resolution	0,01 dB	
Measuring units	dBm or Watt	
Zero adjustment	Not required	
Input damage level	> +20 dBm	
Measurement range & accuracy		
Frequency range	10 MHz tot 6 GHz	10 MHz tot 8 GHz
Power measuring range	-50 dBm to +10 dBm @ 10 MHz to 6 GHz	-50 dBm to +10 dBm @ 10 MHz to 6 GHz -40 dBm to +10 dBm @ 6 GHz to 8 GHz
Frequency response accuracy (at 23° C ± 2° C)	+/- 0,2 dB	
Linearity error	0,05 dB + 0,005 dB/dB	
Temperature effect	0,15 dB max over full temperature range	
Deviation from CW for signals with high Crest factor	< 0,2 dB	
VSWR		
Max SWR: < 100 MHz	1,10	
100 MHz to 1 GHz	1,10	
1 GHz to 8 GHz	1,15 typical (max 1,22)	
Connections & Dimensions		
Dimensions of measuring device	124 * 32 * 32 mm	
RF input connector	N type precision	
Data connector (power head side)	USB mini type B	
Power Consumption		
Supply voltage	+5Vdc from USB port (4,75 V to 5,25 V)	
Current consumption (USB)	Max. 250 mA	
Environmental conditions		
Temperature range (operating)	0° to 40° Celsius	
Temperature range (storage)	-20 to 85° C	
Relative humidity	10 – 90% (non-condensing)	
Compliance		
EMC	EN 61326	
Low Voltage	N/A	
Warranty (2)	3 year	

- 1) In burst mode only 1 and 5 MS/s can be set and used.
- 2) Standard one year of warranty is given on Raditeq equipment. After you register your new Raditeq product two (2) years of warranty will be added for free resulting in three (3) years of warranty.
- All specifications are measured after 10 minutes warm-up time and 0dBm unless specified otherwise.
- Typical specifications indicate that the measured values are met on at least 80% of the points.



# RadiPower® 2000 Series

## The accurate EMC Power Meter

**Flexible** **Versatile** **Extensible**

An accurate and fast power meter is indispensable to perform reliable EMC measurements. The RadiPower offers a range of RF power meters for CW or Burst/Pulse power measurements during EMC tests. The RadiPower offers an affordable, accurate and extremely fast CW power meter. It provides measurements within 0.25 dB over a frequency range from 4 kHz up to 6 GHz and 80 MHz up to 18 GHz, which enables effective measurements in accordance with the latest international EMC standards.

### Fast

EMC immunity measurements are time consuming, where the total test time is depending on the number of frequency points, the dwell time and the speed of the power meter. As the EMC standards prescribe the first two parameters, the speed of the power meter is the only one that can be optimised. Most RF power meters tend to get relatively slow at low power (test) levels. The RadiPower uses a detector with 1 Msps sampling speed which provides fast power measurement over its complete power range, even at low power levels.

### Accurate

Next to speed, accuracy is the second important parameter when performing EMC measurements. The RadiPower has an accuracy of 0.25 dB which is extremely suitable for immunity testing in accordance to Automotive, CE-marking and Military standards. The RadiPower has a very low Standing Wave Ratio (SWR) and this will result in a low impedance mismatch, which is one of the contributions to the measurement uncertainty in RF power measurements.

### Ruggedized

The RadiPower USB power meters are mounted in a very ruggedized metal housing to ensure long life and excellent shielding. The power meter is equipped with an N-type precision input connector.

### Wide band

The RadiPower 6 GHz (model RPR2006C) has a standard frequency range from 9 kHz to 6 GHz which is covering most conducted- and radiated susceptibility tests. The 4 kHz low frequency extension (option #010) enables the RPR2006C to be used from 4 kHz, like required in MilStd. 461 CS-114, BCI common mode test on power cables. The RadiPower 18 GHz (model RPR2018C) covers power measurements from 80 MHz to 18 GHz.

### Flexible

The RadiPower USB power meter can be connected to the USB1004A plug-in card which contains 4 USB inputs. The USB1004A plug-in card is designed to fit in the RadiCentre 19-inch rack-mountable modular system and together with the other available plug-in cards an affordable and comprehensive EMC test system can be configured. Alternatively, the RadiPower USB power head can be connected directly to a PC using the a standard USB port.

### Software support

For stand-alone applications, the RadiPower USB power meter can be controlled by RadiMation Free which is standard delivered with each RadiPower. In case the RadiPower is used in a RadiCentre, it is software controllable through one of the available interfaces (USB, LAN, IEEE-488). Furthermore, the RadiPower can be controlled by RadiMation integral EMC measurement software and/or any other measurement packages as all software command codes to control the unit are available.

- 1) Standard one year of warranty is given on Raditeq equipment. After you register your new Raditeq product two (2) years of warranty will be added for free resulting in three (3) years of warranty.
- All specifications are measured after 10 minutes warm-up time and 0dBm unless specified otherwise.
- Typical specifications indicate that the measured values are met on at least 80% of the points.

# RadiPower® 2000 Series

Model	RPR2006C		RPR2018C
Detector type	Log envelop detector		
Measuring function	CW power		
Measurement speed	20 kSps, 100 kSps, 1 MSps		
Resolution	0,01 dB		
Measuring units	dBm or Watt		
RF input impedance	50 Ohm		
Input damage level	> +20 dBm		
Measurement range & accuracy			
Frequency range	9 kHz to 6 GHz (4 kHz with RPR2006X#010)	80 MHz to 18 GHz	
Power measuring range	-55 dBm to + 10 dBm (Usable to -60 dBm)	-45 dBm to + 10 dBm (Usable to -50 dBm)	
Frequency response accuracy (at 23°C±2°C)	+/- 0,25 dB (≤ 6 GHz)	+/- 0,25 dB (≤ 10 GHz) +/- 0,50 dB (> 10 GHz)	
Linearity error	0,05 dB + 0,005 dB/dB (-50 dBm to +10 dBm)	0,025 dB / dB (-40 dBm to +10 dBm)	
Temperature effect	0,15 dB max over full temperature range		
VSWR			
< 100 MHz	1,05	1,20	
100 MHz to 2 GHz	1,15	1,20	
2 GHz to 6 GHz	1,35	1,20	
6 GHz to 18 GHz	n/a	1,35	
Power Consumption			
Supply voltage	+5Vdc from USB port (4,75 V to 5,25 V)		
Current consumption (USB)	120 mA	160 mA	
Connections & Demensions			
Dimensions of the power sensor ( h * b * d )	124 * 32 * 32 mm	152 * 32 * 32 mm	
RF input connector	N type precision		
USB connector	USB type B (1.1)		
Enviromental conditions			
Temperature range (operating)	0° to 40° Celsius		
Temperature range (storage)	-20 to 85° C		
Relative humidity	10 – 90% (non-condensing)		
Warranty (1)			
Warranty	3 years		
Model	USB1004A		
Supply voltage	12 V		
Current consumption (USB)	100 mA max.		
Dimensions of the power sensor ( h * b * d )	2U * 84TE * 250,4mm		
Data connector	USB type A (1.1)		
Number of power sensors per card	4 max.		
Temperature range (operating)	0° to 40° Celsius		
Temperature range (storage)	-20 to 85° C		
Relative humidity	10 – 90% (non-condensing)		



# RadiPower® Pulse Series

## The accurate EMC Power Meter

**Flexible** **Versatile** **Extensible**

An adequate power meter is indispensable to perform reproducible and reliable RF power measurements. The RadiPower® Pulse offers a range of RF power meters dedicated for RF/Burst power measurements. The RadiPower® Pulse USB power heads are affordable, accurate and extremely fast. The RPR2006P provides measurements over a frequency range from 9 kHz up to 6 GHz. The RPR2018P measures over a frequency range of 80 MHz up to 18 GHz.

### Extremely Fast

The RadiPower® Pulse USB power heads perform power measurements with a maximum sampling speed of 1 million samples per second! By using such a high sampling mode it is capable to measure RF Burst/Pulse signals with pulse durations down to 2 µsec and it can measure CW and RMS power as well.

### Accurate

Next to speed, accuracy is another main requirement when performing RF Burst/Pulse power measurements. The RPR2006P allows high precision RF power measurements with a high dynamic range of over 65 dB. Both power meters provide a basic accuracy of 0.25 dB and are way within requirements for measurements in accordance to international EMC immunity standards.

### Flexible

The RadiPower® plug-in card (USB1004A) contains 4 USB slots to connect a maximum of four RadiPower® power heads of any combination and is designed to fit into the RadiCentre® EMC test systems. Alternatively the RadiPower® heads can be connected directly to a PC USB port.

### 'RMS' and 'Peak' mode

Using the 'RMS' mode an unmodulated RF power signal can be measured with a maximum speed of 10 MSps. But, the RadiPower® Pulse is not only able to measure extremely fast. In 'Peak' mode the RadiPower® Pulse keeps track of the highest level detected. This can be done for an infinite time.

### 'Envelop trace' mode

The 'envelop trace' mode can be used to visualize an RF/Burst signal using an internal buffer that can store 4.000 samples, using 2.000 pre-trigger measurements and 2.000 post-trigger measurements. The RadiPower® supports 'edge' or 'level' triggering modes and using this mode RF Burst signals can be visualized in a very easy way. This unique function can be used to perform different kind of RF Burst/Pulse measurements including the RI-114 Radar Pulse power measurements in accordance to the Automotive Ford standard FMC1278.

### Software support

The standard RadiMation® FREE freeware control software fully supports the RadiPower® measurement modes where the measurement parameters can be configured and the results are graphically displayed or printed/exported. Beside this RadiMation® EMC test software can be used to perform fully automated immunity tests and control of the RadiPower power meter. Using the instrument command codes the RadiPower® can be used with any other software control package.



# RadiPower® Pulse Series

Model	RPR2006P		RPR2018P
Detector type	Log envelop detector		
Measuring function	CW power, Peak power, Envelop tracing		
Measurement speed	20 kSps, 100 kSps, 1 MSps		
Resolution	0,01 dB		
Measuring units	dBm or Watt		
RF input impedance	50 Ohm		
Input damage level	> +20 dBm		
Measurement range & accuracy			
Frequency range	9 kHz to 6 GHz <b>(4 kHz with RPR2006X#010)</b>	80 MHz to 18 GHz	
Power measuring range	-55 dBm to +10 dBm (Usable to -60 dBm)	-45 dBm to +10 dBm (Usable to -50 dBm)	
Frequency response accuracy (at 23°C ± 2°C)	+/- 0,25 dB (≤ 6 GHz)	+/- 0,25 dB (≤ 10 GHz) +/- 0,50 dB (> 10 GHz)	
Linearity error	0,05 dB + 0,005 dB/dB (-50 dBm to +10 dBm)	0,025 dB / dB (-40 dBm to +10 dBm)	
Temperature effect	0,15 dB max over full temperature range		
VSWR			
< 100 MHz	1,05	1,20	
100 MHz to 2 GHz	1,15	1,20	
2 GHz to 6 GHz	1,35	1,20	
6 GHz to 18 GHz	n/a	1,35	
Power Consumption			
Supply voltage	+5Vdc from USB port (4,75 V to 5,25 V)		
Current consumption (USB)	120 mA	160 mA	
Connections & Demensions			
Dimensions of the power sensor ( h * b * d )	124 * 32 * 32 mm	152 * 32 * 32 mm	
RF input connector	N type precision		
USB connector	USB type B (1.1)		
Enviromental conditions			
Temperature range (operating)	0° to 40° Celsius		
Temperature range (storage)	-20 to 85° C		
Relative humidity	10 – 90% (non-condensing)		
Model	USB1004A		
Supply voltage	12 V		
Current consumption (USB)	100 mA max.		
Dimensions of the power sensor ( h * b * d )	2U * 84TE * 250,4mm		
Data connector	USB type A (1.1)		
Number of power sensors per card	4 max.		
Temperature range (operating)	0° to 40° Celsius		
Temperature range (storage)	-20 to 85° C		
Relative humidity	10 – 90% (non-condensing)		

## Power Meter for Wireless measurements

*Fast Synchronous Power Measurements · Robust · Flexible*

DARE!! Instruments has extended the RadiPower model RPR3006W to comply with the measurement requirements of the ETSI 300 328 and 301 893 standards for wideband data transmission systems, like IEEE 802.11TM, Bluetooth and ZigbeeTM including the new Wifi 6E (6 GHz). The RPR3006W now covers a measurements range from 10 MHz to 6 (8) GHz.

### Extremely Fast

In order to achieve this measurement requirements of the ETSI standards the sampling speed of the RadiPower power sensor has been increased to maximum 5 MS/s. At the same time a hardware trigger input/output has been added to allow synchronous power measurements of wideband data transmission devices with multiple inputs/outputs (MIMO).

### Accurate

Next to speed, accuracy is another main requirement when performing RF power measurements of wireless devices. The RPR3006W allows high precision RF power measurements with a high dynamic range of 60 dB. The power meter provides a basic accuracy of  $\pm 0,2$  dB and is way within the requirements for measurements in accordance to ETSI standards.

### Easy to use

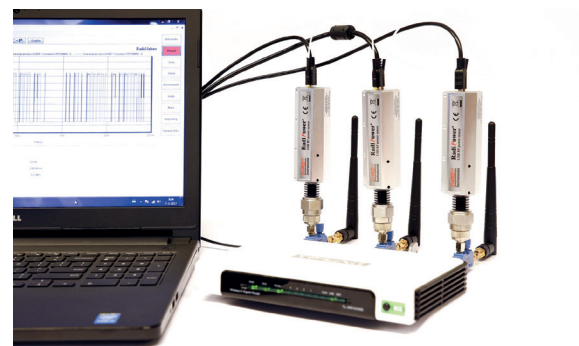
The RadiPower Wireless is equipped with an USB interface which enables direct connection of the Power sensors to a PC USB port. Together with the RadiPower USB power sensor a RadiMation FREE freeware package is delivered to enable direct control of the power meter settings and display the measurement results on the PC screen. The RadiMation Freeware also enables synchronous triggering of multiple RadiPower Wireless power sensors.

### 'Burst' mode

The RadiMation Freeware includes a 'Burst' mode with user selectable measurement speed/time to capture the wideband Burst/Pulse signals and calculate the measurement parameters, maximum RMS power, duty cycle, medium utilization and maximum sequence time. This mode is fully compliant with the

measurement methods as defined in the ETSI standards for wideband data transmission systems EN 300 328 (2,4 GHz) and EN 301 893 (5 GHz).

In burst mode, the RadiPower can store the information of 100.000 bursts and observation time up to 60 seconds. For each burst the average power and timing data is stored in the buffer. The RadiPower uses a sample speed of 1 or 5 MSps in combination with a RMS detector to ensure correct measurements on wideband modulating transceivers.



For MIMO devices with for example six antenna ports, an equal amount of RPR3006W power heads can be daisy-chained using the MMCX connectors enabling synchronised triggering of all six RadiPower meters. RadiMation Freeware captures the samples of each power meter simultaneously and calculates the total combined power according to the ETSI 300 328 standard.

### Software support

The standard delivered RadiMation Freeware supports all RadiPower measurement modes. Using the instrument command codes the RadiPower Wireless can be used with any other software control package.



RadiPower Head	
Detector type	RMS detector
Measurement function	RMS power, peak (max hold) and Burst mode
Calibrated frequency range	10 MHz to 6 GHz
Power measuring range	-50 dBm to +10 dBm @ 10 MHz to 6 GHz -40 dBm to +10 dBm Typical @ 6 GHz
Maximum SWR	1,10 @ up to 1 GHz 1,15 Typical (max 1.18) @ 1 GHz to 6 GHz
Frequency response accuracy (at 23°C ± 2°C)	± 0,2 dB
Deviation from CW for wideband modulated signals with crest factors up to 10	< 0,2 dB
Linearity error	0,05 dB + 0,005 dB/dB
Input damage level	+20 dBm
Resolution	0,01 dB
RF input impedance	50 Ohm
Measuring speed	1 MS/s and 5 MS/s
Temperature effect	0,15 dB over full temperature range
Zero adjustment	Not required
Frequency response correction	Stored frequency response data is taken into account by numerical entry of the measurement frequency
Measurement units	dBm / Watts

Mechanical	
Dimensions of measuring device	124 mm (L) x 32 mm (W) x 32 mm (H)
RF input connector	Precision N-type
Data connector (power head side)	USB mini type B
Trigger input and output	MMCX (standard one cable supplied with each RPR3006W)

Environmental Head	
Temperature range (use)	0 °C - +40 °C
Temperature range (storage)	-20 °C - +85 °C
Relative humidity	10% - 90% (non-condensing)

Interfaces and supply	Head
USB Communication	USB2, drivers supplied for latest Windows versions
Supply voltage	+ 5 VDC from USB port (4,75 VDC to 5,25 VDC)
Current consumption (USB)	Typical 180 mA (maximum 200 mA)
Warranty	3 years (molest excluded)

Models	
RPR3006W	RadiPower RF Wireless power head, 6 GHz

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