RF MICROTECH ELECTRONICS

USER MANUAL

For the

RFPD

RF Power Detector

Model No.: RFPDV016-608

Frequency Range: 1 MHz – 6 GHz

Model No.: RFPDV500-507

Frequency Range: 50 Hz - 500 MHz

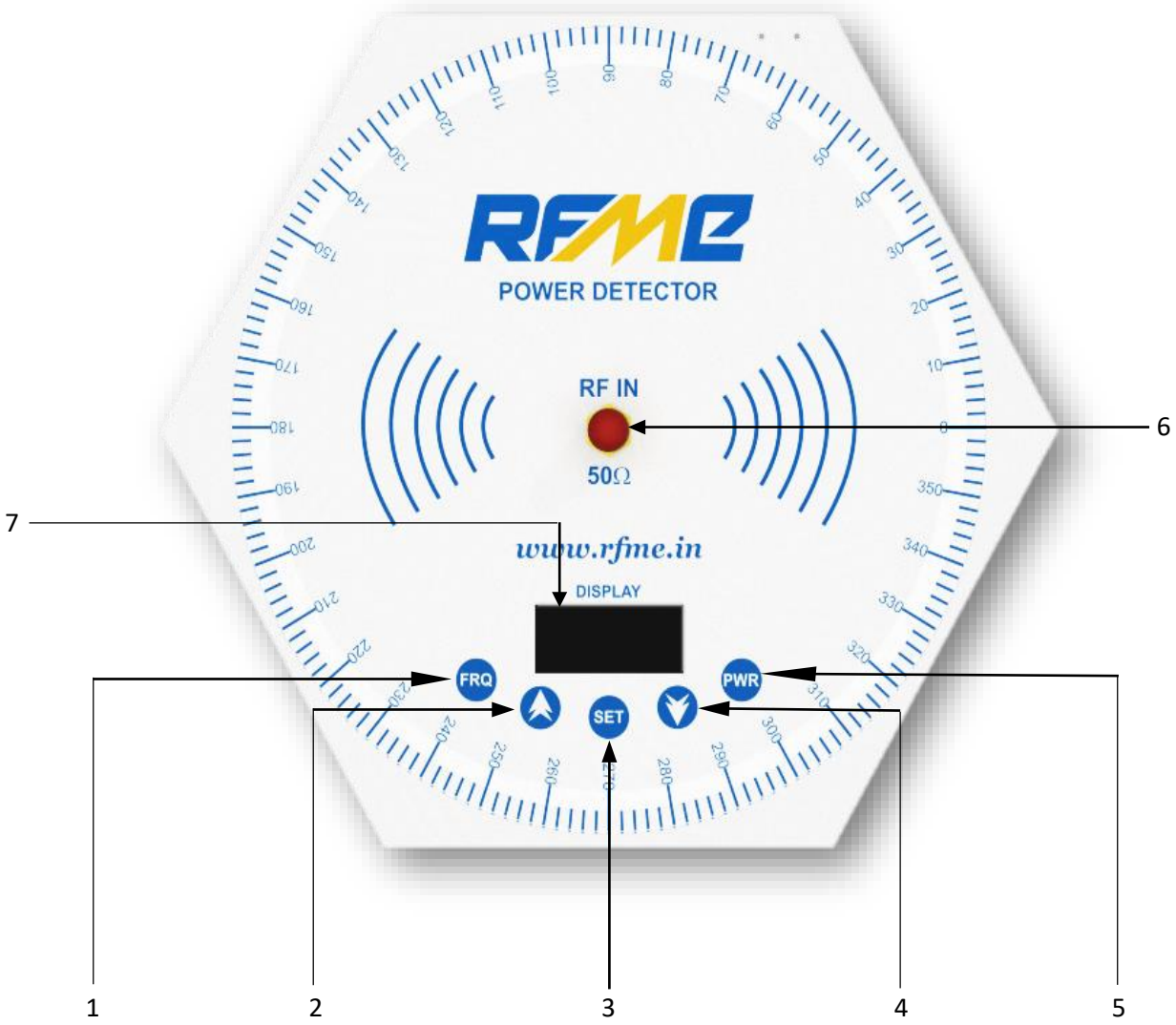


Figure 1

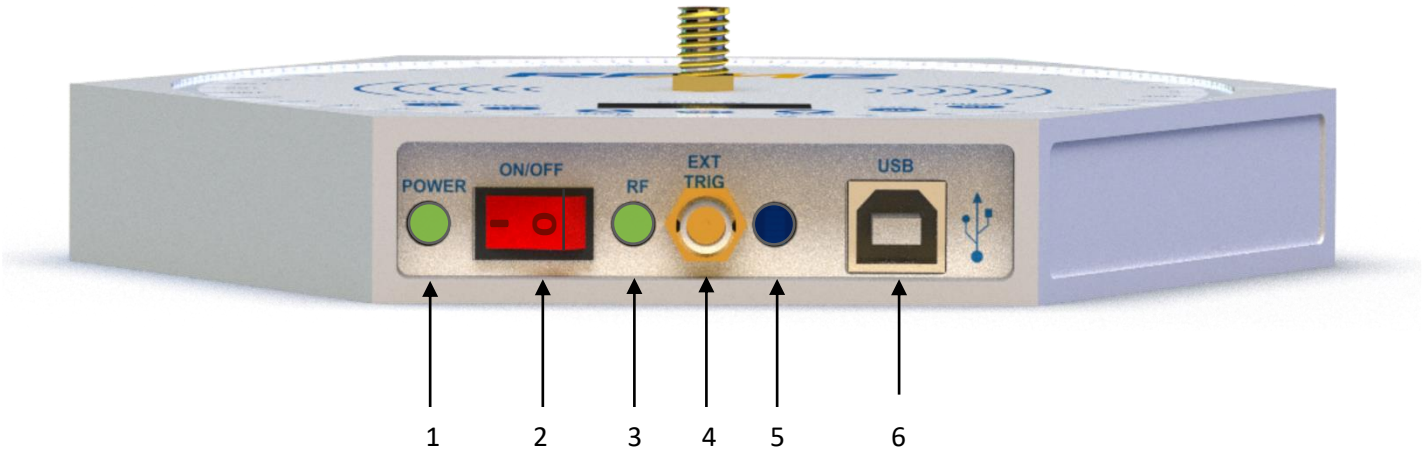


Figure 2

RFPD Components

Top Panel (Figure - 1):

RFPD Top panel consists of:

1. FRQ – Change measuring frequency range
2. INCR – Maximum Hold
3. SET – Set display value
4. DECR – Minimum Hold
5. PWR – Change Amplitude's Unit
6. SMA – 50Ω Input
7. OLED Display

Front Panel (Figure - 2):

RFPD Front panel consists of:

1. Power LED – LED indicates power status.

   Red LED indicates Low Battery

   Green LED indicates Power On

2. ON/OFF Switch – Switch to on/off unit.
3. RF On/Off LED – LED indicates RF output status.

   Red LED indicates Power more than -6 dBm.

   Green LED indicates Power less than -6 dBm.

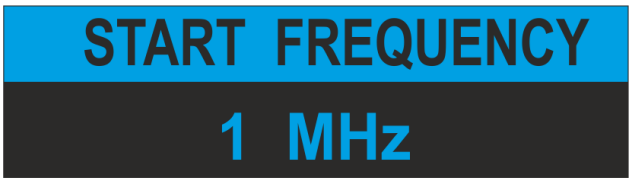
4. External Trigger(SMB) – Connector for external trigger (TTL Logic)
5. Charging LED – LED indicates charging status.
6. USB Port – Type-B USB port for charging and GUI operation(optional).

Top Panel Operating Procedures

1. Turn on the Power switch (**2** of **Figure 2**). POWER LED (**1** from **Figure 1**) will glow green.
2. The unit will run into self-test mode and the OLED display sequence are as follows:

Company Logo as RFME: RF Microtech Electronics

Model Number: **RFPDV016-608** indicates Power detector's model number.



Start Frequency (Minimum): Displays the start frequency of the unit.

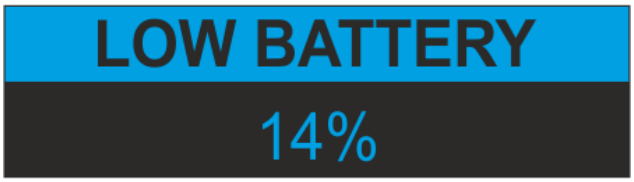
Stop Frequency (Maximum): Displays the stop frequency of the unit.

Note :- RFPDV500-507 Frequency Range is 50 Hz to 500 MHz .

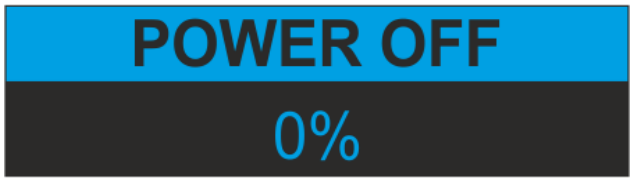
3. **Battery conditions:**

a) Battery voltage is above 25% then below window will be displayed

b) In case of low battery voltage (<25%) unit will display Low Battery with battery percentage on display. The red light will glow (**1** of **Figure 2**). During battery low RF will remain on for maximum half an hour. It provides warning sign to the user for finishing the ongoing experiment within half an hour.



c) In case of insufficient battery voltage unit will display "POWER OFF" with 0% battery level and it will shut down unit. RF is off at this time.



d) If the battery is completely dead than no indications will be seen on display.

After finishing self-test mode, unit will return to its last state as it operated. Default start condition is as per below display.

If the USB cable is connected with this device, the symbol of the USB will be changed and it will show up as per below display.

Note: In the broadband range, which is from 1MHz – 6GHz, the amplitude variation will be ± 3.0 dB. And in the range 1 to range 5, the amplitude variation will be ± 1.5 dB.

4. Change of measuring Frequency Range:

There are total Six different ranges of frequency which can be selected as per need.

And these ranges are selected by pressing "**FRQ" -** FRQ button (**1** of **Figure 1**).

- Selection of ranges can be done by pressing "**FRQ**" button correspondingly.

  The range will be changed every time when button is pressed and it will be seen on display as per below figures.

Press "SET"- SET **button to Continue**

Range-1 Operation

- After pressing "FRQ" button, **RANGE-1** will be displayed as per above.
- Then press "SET"- SET button to Continue with the Range-1, or press "FRQ" button again for next Frequency range and follow the same steps for selecting other frequency range in which operation is to be performed.

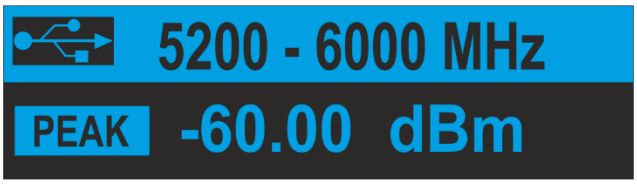
Press "SET"- SET **button to Continue**

Range-1 Operation

Press "SET"- SET **button to Continue**

Range-1 Operation

Press "SET"- SET button to Continue



Range-1 Operation

Press "SET"- SET button to Continue

Range-1 Operation

- These are the Five particular ranges in which operation can be performed accordingly.

  And the sixth range is **Range-F** which is a default start to end range of the device.

5. Characteristics of Power Analysis:

There are mainly three characteristics of detecting power which are **PEAK** power, **MAX** hold and **MIN** hold.

I. PEAK power:

In the PEAK power, amplitude is shown by the highest peak value of the signal which is given as an input.

Default start condition is in PEAK power mode itself as per shown in below display.

II. MAX hold:

In MAX hold, amplitude is shown by the maximum power of the sample which is given as an input.

MAX hold is selected by pressing "INCR" - button (**2** of **Figure 1**),

And it will be displayed as per below display.

For getting out of MAX hold characteristics, press "INCR" - button again so it will be in default condition which is PEAK power.

III. MIN hold:

In MIN hold, amplitude is shown by the minimum power of the sample which is given as an input.

MIN hold is selected by pressing "DECR" - button (**4** of **Figure 1**),

And it will be displayed as per below display.

For getting out of MIN hold characteristics, press "DECR" - button again so it will be in default condition which is PEAK power.

6. Power detection in different Units:

There are total five different Units available, in which the detected power can be measured, which are dBm, dBV, dBuV, mVpk-pk and mVrms.

- This unit selection is done by pressing "AMPL" - PWR button.
- Unit will be changed every time when the button is pressed and the detected power will be shown according to the selected Unit.

Press "SET"- SET button to Continue

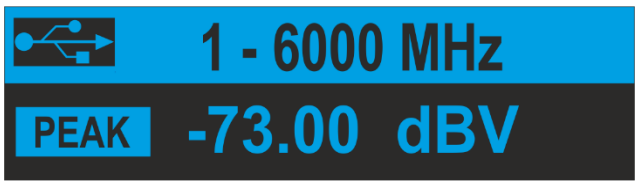
Unit: dBm

- After pressing **"AMPL"** button, **P : dBm** will be displayed as per above.
- Then press "SET"- SET button to Continue with the selection of unit **P : dBm**, or press "AMPL" button again for next Unit selection and follow the same steps for selecting other Unit in which operation is to be performed.

Press "SET"- SET button to Continue

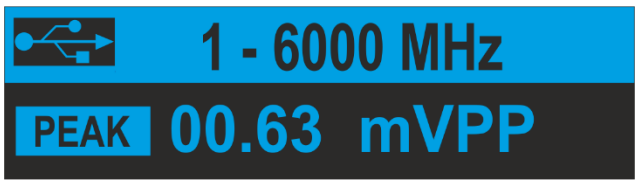
Unit: dBuV

Press "SET"- SET button to Continue



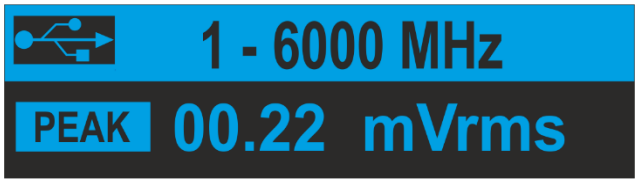
Unit: dBV

Press "SET"- SET button to Continue



Unit: VPP

Press "SET"- SET button to Continue



Unit: Vrms

Note: This Unit selection will work in all the characteristics like MAX hold and MIN hold as well as in all the frequency ranges.