WB-SG1 Wide Band Signal Generator

USER MANUAL

Catalogue

1, Key Feature

1.1, Wide band output frequency,from 1Hz to 8GHz,option 15G

1.2, Sweep function，can do sweep signal generator

1.3, CH2 With on/off modulation function（OPT15G not include ）

1.4, OCXO inside，more accurate frequency

1.5, With usb ,can connect to PC

1.6, Small size and low power consumption

2, Overview

WB-SG1 is a newly developed wide band signal source, with frequency range from 1Hz-8gHz (ch1,1Hz-200m, ch2,35m-8g), OPT15G (CH1,1Hz-200M, CH2, 10M-15G), no interruption, channel 2 with on-off modulation, modulation frequency can be set through ch1, ch1 output square wave 3.3vpp, CH2 output power about 0dbm,

3, Specification

3.1 WB-SG1-8G,type:WB-SG1-8G

CH1 frequency range：1Hz-200MHz

CH1 step:1Hz-19.999999MHz/1Hz,
20MHz-200MHz/10Hz

CH2 output amplifiler:3.3Vpp

CH1 plug type:BNC

CH2 frequency range：35MHz8GHz

CH2 step:35MHz-4G/0.5KHz,
4G-8G/1KHz

CH2 output impedance:50 OHM

CH2 modulation:ON/OFF modulation

CH2 modulation frequency:1Hz-2MHz

CH2 plug type:SMA

inside frequency stadnard:10MHz

inside frequency stadnard type:OCXO

inside frequency stadnard ageing:0.5Hz/year

10M frequency output power:5dBm

extern frequency input range:0dBm to +20dBm

run mode:CH1 frequency mode
          CH2 frequency mode
          CH1 sweep mode
          CH2 sweep mode

front panel:MODE,change mode
            ENT:input data
            <>∧∨:left right key
            CH1:channel 1 output
            CH2:channel 2 output

rear panel:10M REF INPUT:extern 10M input
            10M REF OUTPU:10M output
            USB:USB port
            STD ADJ:inside OCXO frequency adjust
            power switch
            dc plug

power :DC11.7-12.5V,star:less than 0.5A,stabilize:less than 0.25A

size:L*H*D=106*55*105mm

weight:350g

accessory: DC12V adapter 1pcs

3.2, WB-SG1-15G,type:WB-SG1-15G

CH1 frequency range：1Hz-200MHz

CH1 step:1Hz-19.999999MHz/1Hz,
20MHz-200MHz/10Hz

CH2 output amplifiler:3.3Vpp

CH1 plug type:BNC

CH2 frequency range：10MHz-15GHz

CH2 step:10M-15G/10Hz

CH2 output level:31 steps,

CH2 power adjust range:-10dBm-+5dBm@1GHz

CH2 output impedance:50 OHM

CH2 plug type:SMA

inside frequency stadnard:10MHz

inside frequency stadnard type:OCXO

inside frequency stadnard ageing:0.5Hz/year

10M frequency output power:5dBm

extern frequency input range:0dBm to +20dBm

run mode:CH1 frequency mode
CH2 frequency mode
CH1 sweep mode
CH2 sweep mode

front panel:MODE,change mode

ENT:input data
<>∧∨:left right key
CH1:channel 1 output
CH2:channel 2 output

rear panel:10M REF INPUT:extern 10M input
10M REF OUTPU:10M output
USB:USB port
STD ADJ:inside OCXO frequency adjust
power switch
dc plug

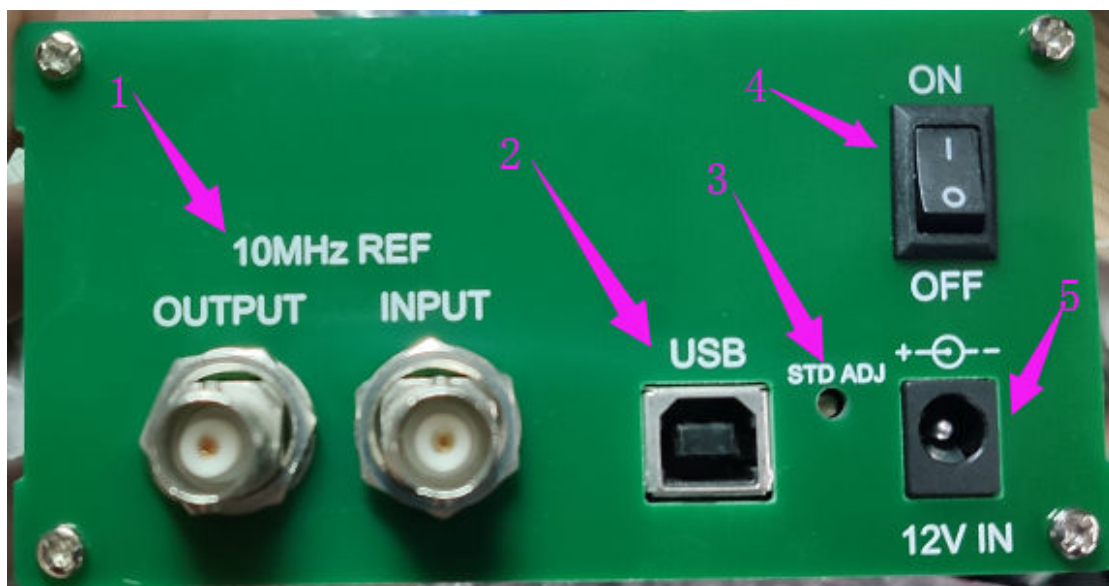power :DC11.7-12.5V,star:less than 0.5A,stabilize:less than 0.25A

size:L*H*D=106*55*105mm

weight:350g

accessory: DC12V adapter 1pcs

4, Installation and usage

4.1 Rear panel
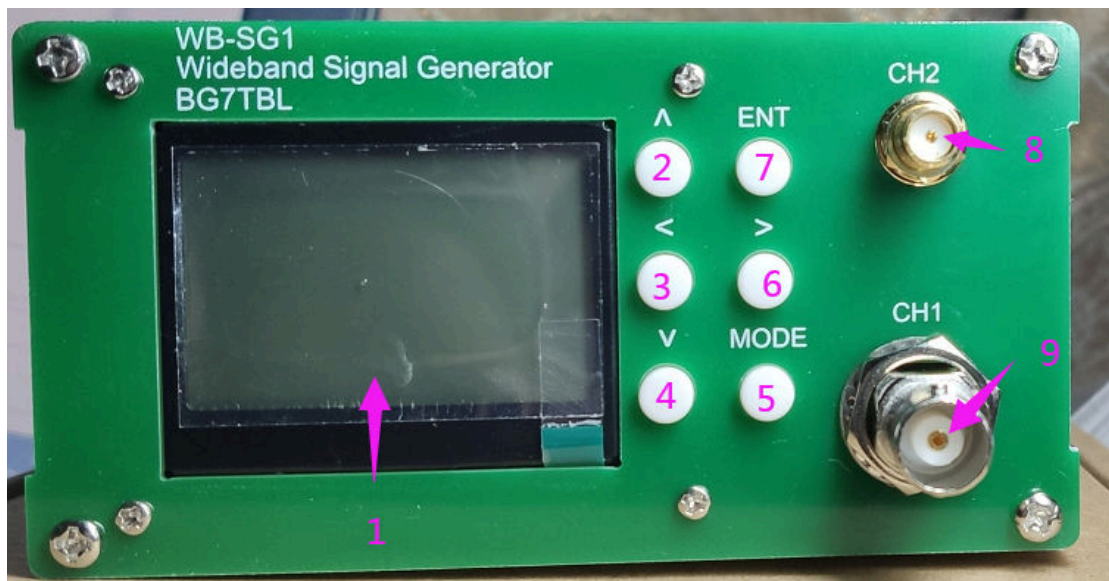

Rear panel

1,10MHz frequency standard input and output

2,USB port,inside is ft232rl chip,usb driver can downlaod from ftdi web site

3,Inside OCXO frequency adjust

4,Power on/off ,

5,DC12V input，DC11.7-12.5V,star:less than 0.5A,stabilize:less than 0.25A

4.2 Front panel

前面板，front panel

1,12864 LCD

2,UP key，number inc 1 or function change

3,Left key,cursor left move

4,Down ley，number dec 1 or function change

5,Mode key，change mode

6,Right key,cursor right move

7,ENT key，enter data,If the cursor exists and the key is not pressed for a long time, the data will be input automatically

8,CH1 output，if OFF,connect to GND

9,CH2 output，if output off,suspended

4.3, LCD display data

CH1 signal frequency mode.
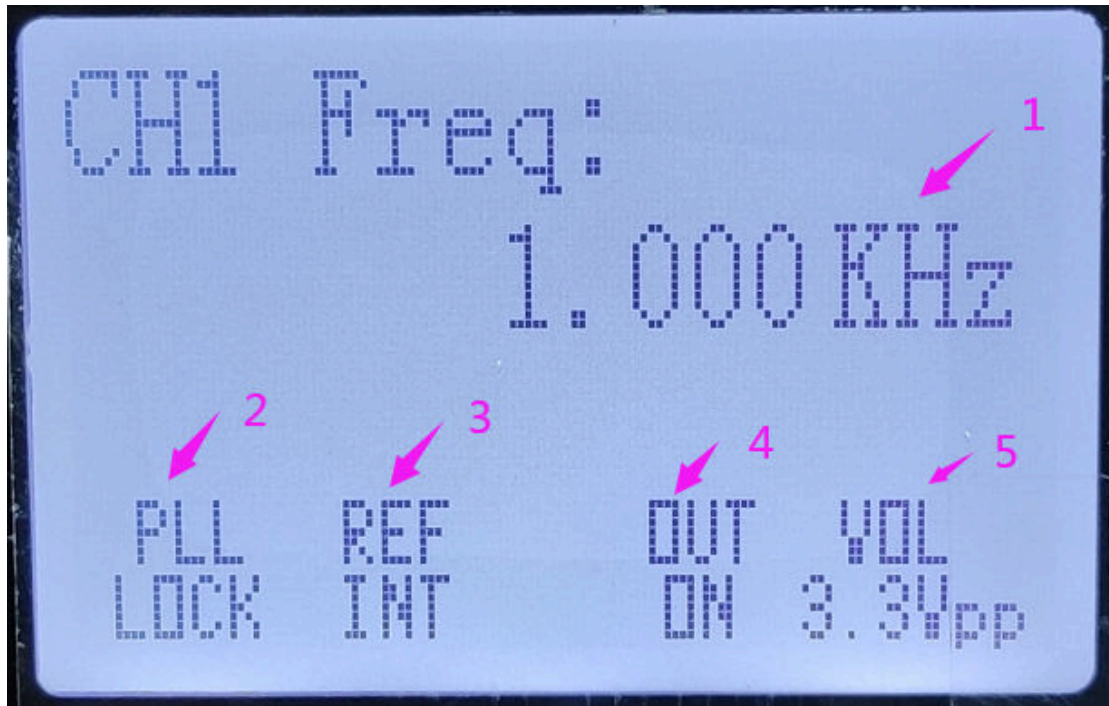
1,CH1 output frequency,if frequency unlock will flash

2,PLL lock indication, lock display lock，else display unlock and flash

3,Reference frequency select,inside or outside,select extern first,

4,Output frequency on/off，select by key.

5,Output level 3.3Vpp,can not change

CH2 signal frequency mode.
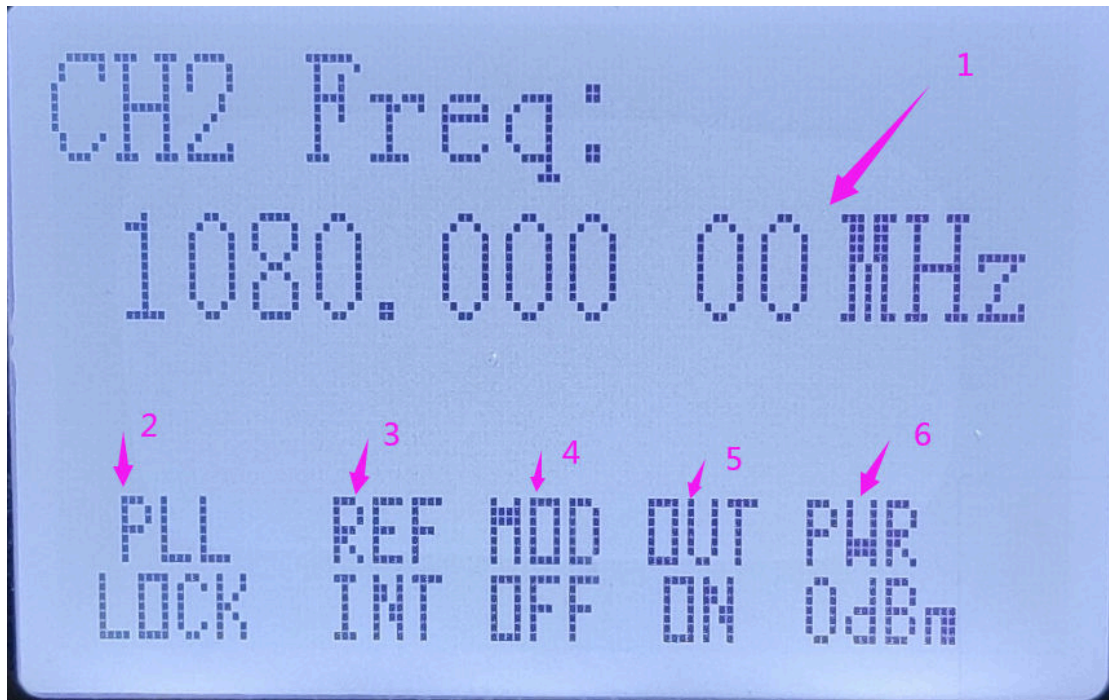
1,CH2 output frequency,if frequency unlock will flash

2,PLL lock indication,lock display lock，else display unlock and flash

3,Reference frequency select,inside or outside,select extern first,

4,Modulation ON/OFF,select by key,

5,Output frequency on/off，select by key.

6,Reference output power,8GHz version can not change

channel 1 sweep mode
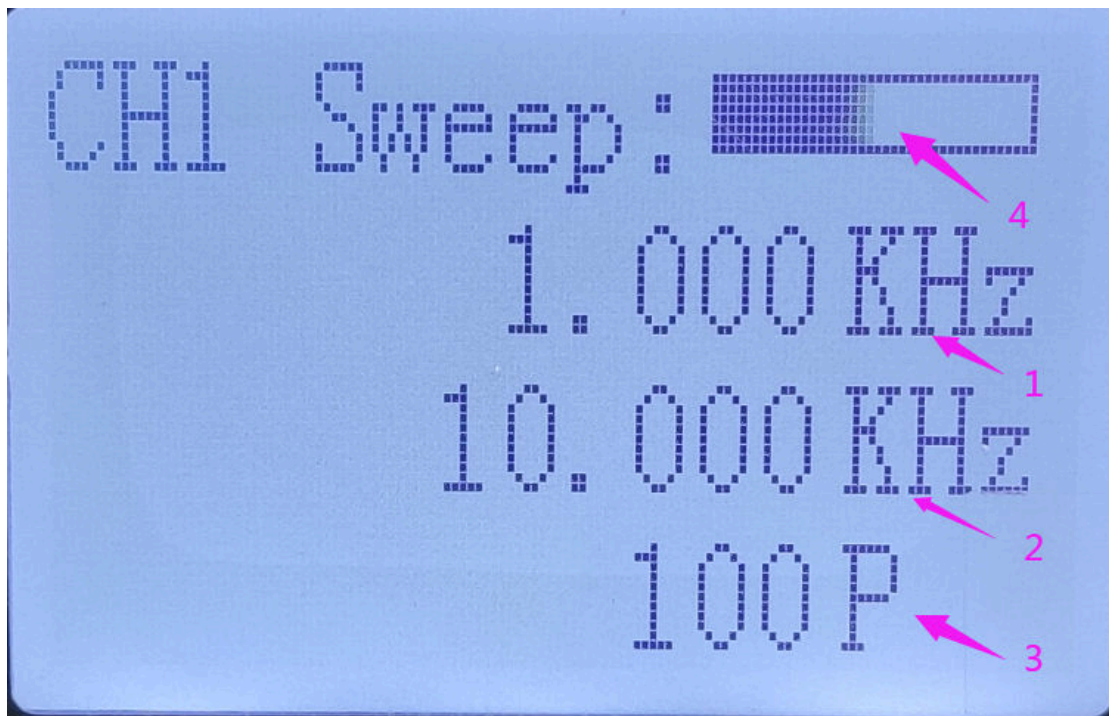
1，star frequency

2，end freuqncy

3，sweep points

4， sweep progress

ch2 sweep mode

1.star frequency

2.end freuqncy
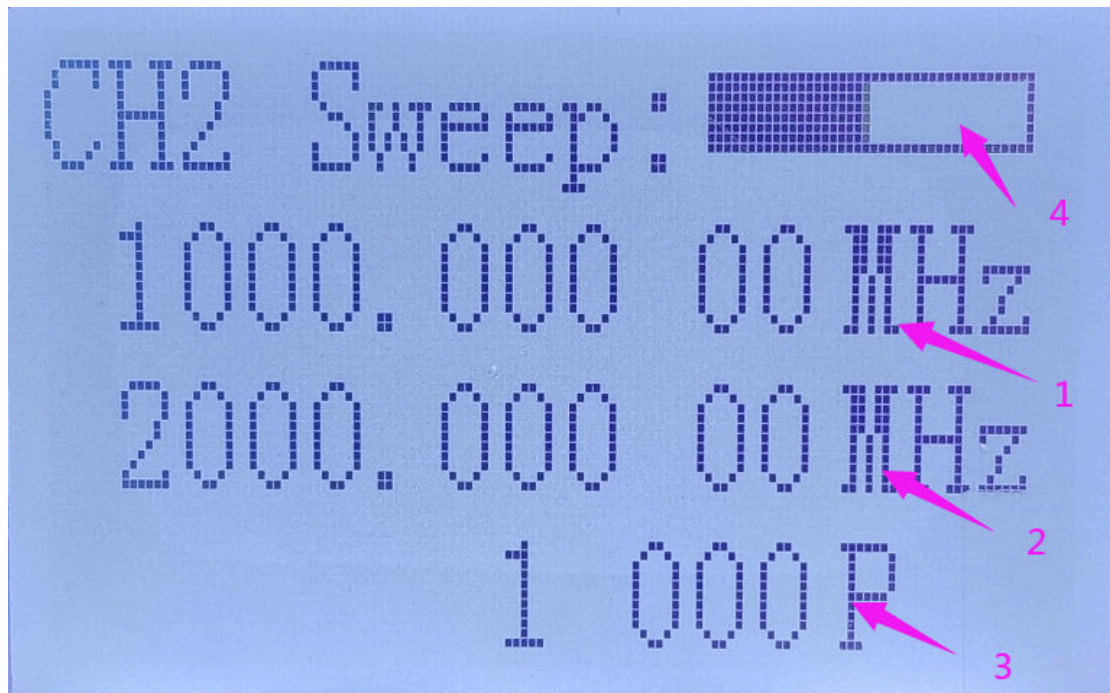
3.sweep points

4,sweep progress

4.4 Connection with PC

Usb print port connect to PC，usb chip is ft232rl,can search in web.

4.5,USB port configure command

Default baud rate is 9600bps，used ASCII code

$U*   up key

$D*   down key

$L*   left key

$R*   right key

$N*   mode key

$S*   enter key

$A*   read system state

$BXXXXX* Bauardrate setting 00480,00960,01920,03840,05760,11520.,now save

$CXX* XX 0-63, Const   adjust,save in eeprom

$F X XXXXXXXXX*   receive frequency and channel

    +   +------Measure Unit: 1Hz for CH1, Measure Unit: 10Hz for CH2,

    +------------1-CH1,2-CH2 channel select

$W X XXXXXXXX XXXXXXXX XXXXXXXX* sweep command

    +   +   +   +------ sweep points

    +   +   +---------------- end frequency

    +   +------------------------ start frequency

    +------------------------------ 3-CH1,4-CH2 channel select

$E3232* BEEP ON.

$E3333*BEEP OFF

$E3434* CH1 OUT ON

$E3535* CH1 OUT OFF

$E3636* CH2 OUT ON

$E3737* CH2 OUT OFF

$E3838* CH2 MOD ON

$E3939* CH2 MOD OFF
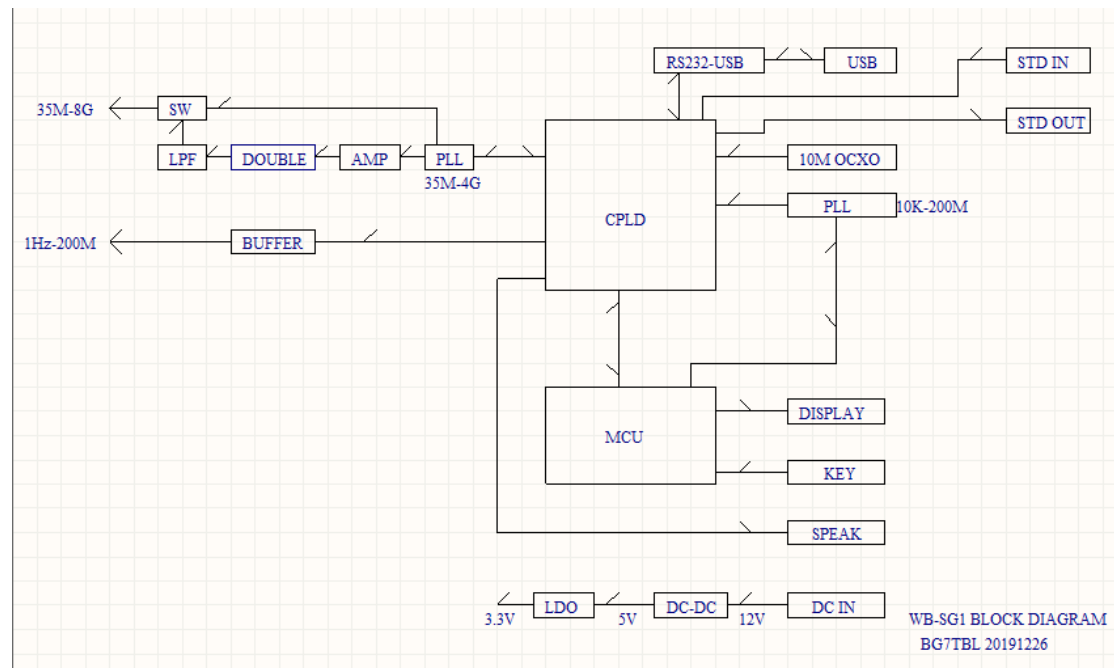

Example：set CH1=1K,command is $F1000001000*

Example :CH1 sweep,start 1K,end 10k,100 points,$W3000001000 000010000 000000100*

4.6 Usage notes

Away from high temperate,away from jam,power input must be less than DC12.5V

5, Block diagram

WB-SG1 BLOCK DIAGRAM
BG7TBL 20191226

6, FAQ

Q1 : how can I know the machine is good.

A 1: Test with frequency meter, oscilloscope, spectrum, radio, walkie talkie and other equipment

Q2:output freqnency is not accuary,how to do

A2: adjust behind pot or used extern frequency

Q3:output frequency amplifiler too small too big,how to do

A3:used extern amplifiler of attenuator