

Operation Manual



C1200+ DVB-C Meter

Ver: 1.0



DEVISER

Warranty

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Use only the supplied power cords and connect only to a properly grounded wall outlet. Do not use extension cords that do not have a protective ground conductor.

Symbols

The following are general definitions of safety symbols used on equipment and in manuals.



Dangerous voltage.



Protective ground.



Frame or chassis ground.



Alternating current



Direct current



Alternating or direct current



Caution! Read the manual.

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Catalog

1	Maintenance and Safety Considerations	1
1.1	Calibrating the Meter	1
1.2	About Battery, Adapter and Firmware upgrade	3
2	General Introduction	6
3	Panel Introduction	7
3.1	Appearance	7
3.2	Keypad	9
3.3	Display Description	10
4	Power Supply	11
4.1	Battery	11
4.2	Charging	12
5	Using the Instrument	13
5.1	Level Test	14
5.2	Tilt	16
5.3	Channel Scanning	17
5.4	C/N Measurement	18

5.4.1	Trunk Voltage	20
5.5	Setup.....	21
5.5.1	System Information.....	21
5.5.2	General	22
5.5.3	Channel Plan Setup	25
5.5.4	LIMIT Setup.....	29
5.5.5	Battery State	30
5.5.6	Power Saving.....	31
6	USB Port.....	32
7	User Channel Plan.....	33
7.1	Upload and Download Channel Plan....	33
8	Specification	34

1 Maintenance and Safety

Considerations

1.1 Calibrating the Meter

All the instruments have analog circuitry: preamplifiers, filter, etc.-whose performance can change over time. A regular schedule of calibrations will keep your instrument in optimal condition to support you design, troubleshooting, and manufacturing work.

It is recommended to calibrate and verify the meter at least once a year to ensure that the meter meets the original designed performance and specifications.

To avoid damaging the default calibration data stored in a non-violated memory, a calibration to the meter can only be done by an authorized service center and qualified personnel with appropriate equipment.

For detailed information on the calibration procedures,

please contact factory or authorized distributor.

Environmental condition: Calibration or verification test should be performed under laboratory condition whereby the ambient temperature or relative humidity can be controlled.

Warm up: Allow up to at least 5 minutes warm-up before performing calibration to the meter. After exposure or storage in a high humidity (condensing) environment, relative recovery period is required essentially.

1.2 About Battery, Adapter and Firmware upgrade

Please charge-discharge the battery in every 3 months to extend battery life!

Warning: Danger of explosion if the battery is incorrectly replaced. Replace only with the same type battery recommended. Do NOT dispose of batteries in a fire. Do NOT place batteries in the trash. Batteries must be recycled or disposed of properly.

CAUTION: Recharge the battery only in the meter. If left unused, a fully charged battery will discharge itself over time.

Never use a damaged or worn-out adapter or battery. Charging the batteries internally, even while the analyzer is powered off, the analyzer may keep warm. To avoid overheating, always disconnect the analyzer from the AC adapter before storing the analyzer into the soft carrying case.

CAUTION: Connect the automotive adapter to the

power output connector for IT equipment, when charging the battery on your automotive.

CAUTION: Temperature extremes will affect the ability of the battery to charge. Allow the battery to cool down or warm up as necessary before use or charging. Storing a battery in extreme hot or cold temperatures will reduce the capacity and lifetime of a battery. Battery storage is recommended at a temperature of less than 25°C.

The analyzer cannot be used in the standard soft carrying case for more than 1 hours if the ambient temperature is higher than 35°C.

CAUTION: Use only the original AC-DC adapter or originally supplied battery for the power source.

Whether the meter work or power off, you can charge the battery.

- 1 Insert the battery in the analyzer.
- 2 Plug in the AC-DC adapter and switch on the external power.

3 The charge indicator lights, indicating that the battery is charging. When the battery is fully charged, the green charging indicator turns off.

The charging time for a fully depleted battery, is approximately four hours.

If the meter is power on, the charging time is longer.

CAUTION: In updating process, there must be a constant power supply to for at least 10 minutes. If power fails during the updating process it can cause damage to the instrument.

2 General Introduction

C1200+ DVB-C Meter is specially designed for installation and field technicians seeking to quickly ensure the quality of digital and analog cable services.

With Streamlined appearance design and simple user interface, C1200+ offers the most cost effective choice for a variety of applications. The digital measurements include, modulation error ratio (MER), and pre- and post-FEC bit error rate (BER).It also possesses the features expected in a good SLM including analog channel video level, video-to-audio level, full scan, and tilt etc.

This palm sized meter with only 350g weight allows the filed technicians to work for 4 hours continuously.

3 Panel Introduction

3.1 Appearance



Figure 3-1 Front Side Introduction



Figure 3-2 Right Side Introduction

3.2 Keypad

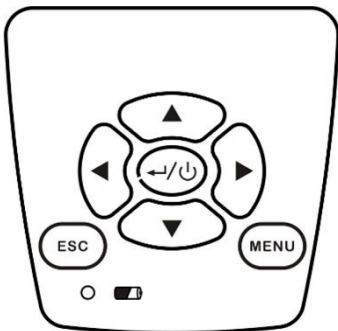


Figure 3-3 Keyboard



: Increase and decrease.



: Left and right circularly selection.



: Power on/off (hold it over 3 seconds to power off) or Confirmation.



: Main Menu.



: Return to previous menu or cancel.



: Charger Indicator

3.3 Display Description

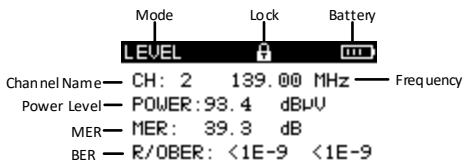


Figure 3-4

- Mode
- Lock
- Channel Name: The Frequency, Power Level, MER and BER are displayed on the same screen.
- Battery: Capacity of battery.

4 Power Supply

4.1 Battery

With a built-in 7.4V /1.6AH Lithium battery, the meter can continuously work for above 4 hours. When the battery voltage drops below 6.0V, C1200+ Plus will automatically power off and then users must charge it with the attached charger for about 3 hours.

NOTE:

- 1. Only use the charger provided with the meter.***
- 2. Power off the meter when charging.***
- 3. Lower temperature may cause the battery capacity reduction, but does not damage the battery.***
- 4. Replace a new battery when the battery working time reduce.***

4.2 Charging

Charge the meter before the first time use. Please charge the meter as follows:

1. Insert the charger output plug into C1200+ DC charge socket.
2. Connect the charger to AC 100V-240V Power and the charger indicator of meter is with red light.
3. When indicator switch to green, the instrument has been fully charged(It is suggested to charge extra one hour after indicator switched to green, which will be helpful to extend the battery life). Then you can disconnect the power and pull out the charger output plug.

NOTE: Only charge in the temperature 10°C~35°C.

5 Using the Instrument

Power on C1200 +, as Figure 5-1.



Figure 5-1



Figure 5-2

These icons are listed in C1200+ Main Interface: LEVEL, TILT, SCAN, C/N, TRUNK, and SETUP option. Press “Left and Right” to select the functions, press “ENTER” to enter the function

5.1 Level Test

C1200+ can measure both analog and digital signal, as Figure 5-3 Analog Signal Measurement Interface and Figure 5-4 Digital Signal Measurement Interface.

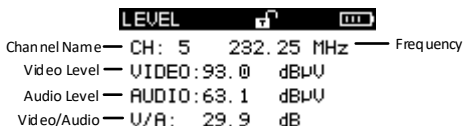


Figure 5-3 Analog Signal Measurement

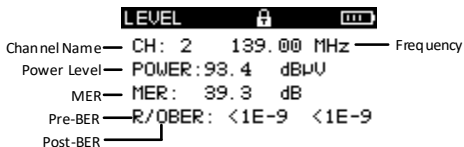



Figure 5-4 Digital Signal Measurement Interface

Press “Up and Down” to select CH, press “Left and Right” to edit the Channel parameters.

Enter edit channel parameters interface, press “Up and Down” to select parameter item, press “Left and Right” to choose edit position, press “Up and Down” to select

parameter value. Press  to confirm the operation. If you complete all parameters edit, you must choose the last item “SAVE AND EXIT”, otherwise the meter can't save any changed content.

```
CHA INF ( )  
▶ EIA: 1  
  STD: 1  
  STATUS: ENABLE  
  TYPE: DIGITAL 1/3
```

Figure 5-5

```
CHA INF ( )  
▶ STANDARD: J. 83A  
  FREQ: 131.00 MHz  
  BW: 8.00 MHz  
  TYPE: 64QAM 2/3
```

Figure 5-6

```
CHA INF ( )  
▶ SR: 6.875 MS/s  
  SAVE AND EXIT  
  
3/3
```

Figure 5-7

5.2 Tilt

Tilt/Level list test is the effective solution to check the flatness and splitter's gain of cable system, C1200+ can get levels of 8 channels and observe the measurement result and graph easily. User must choose at least two channel to do tilt measurement.



Figure 5-8

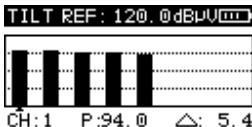


Figure 5-9 Tilt

SETUP-TILT 2/ 2			
4	336.25	DIG	✓
▶ 5	235.00	DIG	✓
1	2	3	4
5			

Figure 5-10 SETUP-TILT

5.3 Channel Scanning

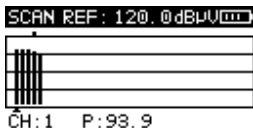
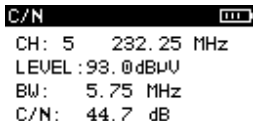


Figure 5-11 Channel Scanning

C1200+ support channel scanning function in order to test the flatness and amplitude of cable TV system quickly.

5.4 C/N Measurement

Press “Up and Down” to select CH, press “Left and Right” to edit the Channel parameters.



```
C/N ■■■  
CH: 5 232.25 MHz  
LEVEL: 93.0 dBµV  
BW: 5.75 MHz  
C/N: 44.7 dB
```

Figure 5-12 C/N

Parameter BW is Noise measurement bandwidth. For different TV standard, use different noise bandwidth. the meter use offset (Vison-sound carrier spacing) to modify noise bandwidth. The bellow table describe the different standard required noise bandwidth setting and related offset (Vison-sound carrier spacing) value setting.

Standard	B, G	D, K	M, N
Video bandwidth	5.75	6.75	4.95
Vison-sound carrier spacing (Offset)	5.5	6.5	4.5
Noise bandwidth	4.75	5.75	4.00

```
CHA INF 111
▶ FREQ: 232.25 MHz
  OFFSET: 6.50 MHz
  SAVE AND EXIT
2/2
```

Figure 5-13

After setup parameters, must choose “SAVE AND EXIT” option to save your modify.

5.4.1 Trunk Voltage

As Figure 5-14 and Figure 5-15, you can get the Trunk Voltage in this interface. The meter automatic judge the trunk voltage is AC or DC.

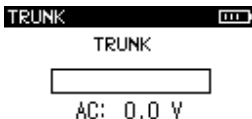


Figure 5-14

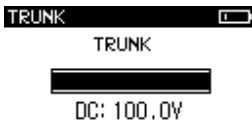


Figure 5-15

5.5 Setup

Press to select “SETUP” in the main menu. Press to setup interface as Figure 5-16, choose “INFORMATION”.



6-1 INFORMATION

Figure 5-16

5.5.1 System Information

The information of the instrument, Refer to Figure 5-17 and Figure 5-18. It includes serial number, software version, hardware version, calibration date and so on.

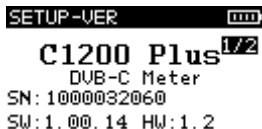


Figure 5-17

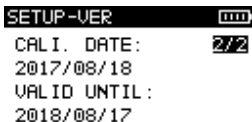


Figure 5-18

5.5.2 General

Press to select “Configure” in Figure 5-16, then select “CONFIGURATION” icon, as Figure 5-19.



Figure 5-19

1. Backlight





Set the backlight ON and OFF by pressing  or , refer to Figure 5-20.



Figure 5-20

2. Shutdown Time



Set shutdown time for inactive keypad after 5 minutes, 15 minutes, 30minutes and on by pressing  or  . Refer to Figure 5-21.



6-2-2 5 MIN OFF

Figure 5-21

3. Level Units

Set level unit dBuV, dBmV or dBm by pressing  or  buttons. Refer to Figure 5-22.



6-2-3 dBuV

Figure 5-22

4. LCD Contrast

As Figure 5-24. Press  or  to adjust the contrast.



6-2-4 CONTRAST

Figure 5-23

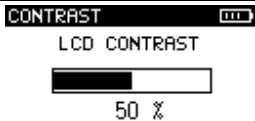


Figure 5-24

5.5.3 Channel Plan Setup

In setup interface, select “CH SETTING” icon.



6-3 CH SETTING

Figure 5-25

The ANA is analog TV channel, the DIG is digital channel. A default Channel Plan is programmed in C1200+ when delivery. You can modify the Channel Plan parameters in this interface. As Figure 5-26:

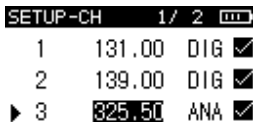





Figure 5-26

In the same time, you can also modify and edit the Channel Plan through Toolbox software on PC, and upload the Channel Plan to C1200+, or press “ENTER” to edit the selected plan by hand.

In DIG channel press  to STATUS 、 TYPE 、

STANDARD、FREQ、SR、BW、TYPE, press  to enter into parameters edition and press  or  to input parameters. As Figure 5-27, Figure 5-28, Figure 5-29:

```

CHA INF [ ]>
▶ EIA: 1
  STD: 1
  STATUS: ENABLE
  TYPE: DIGITAL 1/3

```

Figure 5-27

```

CHA INF [ ]>
▶ STANDARD: J. 83A
  FREQ: 131.00 MHz
  BW: 8.00 MHz
  TYPE: 64QAM 2/3

```

Figure 5-28

```





CHA INF [ ]>
▶ SR: 6.875 MS/s
  SAVE AND EXIT
3/3

```

Figure 5-29

After you complete modify parameters, you must move

the cursor on the “SAVE AND EXIT” item and confirm. If you not save modify, any change can’t be saved.

In ANA channel press  to STATUS、TYPE、FREQ、OFFSET, press  to enter into parameters edition and press  or  to input parameters. As Figure 5-30, Figure 5-31:

```

CHA INF [ ]
▶ EIA: 5
  STD: 5
  STATUS: ENABLE
  TYPE: ANALOG 1/2
  
```

Figure 5-30

```

CHA INF [ ]
▶ FREQ: 232.25 MHz
  OFFSET: 6.50 MHz
  SAVE AND EXIT 2/2
  
```

Figure 5-31


The parameter “OFFSET” can change carrier to noise ratio measure noise bandwidth. The detailed information please reference part 5.4.

User also can use PC installed Toolbox software to generate new channel plan and download to meter or





upload the meter used channel plan on your PC and edit this channel plan.

If use the tool box download the channel plan on the meter, the meter used channel plan will be overwritten.

5.5.4 LIMIT Setup

Move the cursor on the LIMIT icon, press  enter the LIMIT setup interface.



As Figure 5-32, you can press  to VIDEO、VA、POWER、MER, press  to enter into parameters edition and press  or  to input parameters.

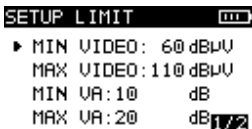


Figure 5-32

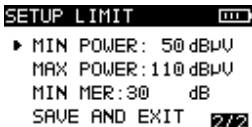


Figure 5-33

5.5.5 Battery State


Move the cursor on the BATTERY icon, press  enter the battery remaining capacity interface.



Figure 5-34

The battery remaining capacity is shown as a column graph as Figure 5-35. When the voltage is lower than 0%, the instrument will automatically power off.

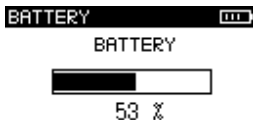



Figure 5-35

5.5.6 Power Saving

Move the cursor on the POWER SAVING icon, press  enter the power saving interface, as Figure 5-36 and Figure 5-37 shows.



6-6 POWER SAVING

Figure 5-36



Figure 5-37

If user off the power saving item, the meter will always work till the battery remaining capacity is 0% and automatic power off the meter.

6 USB Port

The instrument can communicate with a PC through the Mini USB communication port. Refer to Figure 6-1.

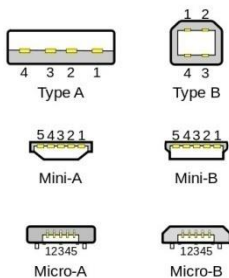


Figure 6-1 USB port type

Management PC software-Toolbox is provided as standard. You can remotely control the instrument to upload or download the channel plan.

7 User Channel Plan

7.1 Upload and Download Channel Plan

The instrument can be connected with PC by USB cable to upload and download channel plan.

8 Specification

Analog CATV	
Frequency Range	5~1010MHz
Level	30~120dBuV
Accuracy	±2.0dB
RBW	300K
C/N	>50dB
C/N Accuracy	±3.0dB
Others	Channel Scan, Tilt, Trunk Voltage
DVB-C	
Frequency Range	46~1010MHz
Power Level	40~110dBuV
Power Level Accuracy	±2.0dB
MER	>40
MER Accuracy	±2.0dB
BER	1E-3~1E-9
Modulation Type	16/32/64/128/256QAM(J.83A/C) 64/256QAM(J.83B)

C1200+ DVB-C Meter Operation Manual

SR	4~7Msps
Interface	
RF Input	75 Ω Type-F(f)
AC Adapter	12V/1.2A
USB	Mini-USB
Battery	
Capacity	7.4V/1.6AH
Working Time	>4 hours
Charging Time	3 hours
Other Specification	
Dimension	153 × 93 × 42mm
Weight	358g

Accessories

Charger (PW09021915W)	1
USB data cord (P.900000421)	1
CD(Manual and Toolbox software)	1
Soft Case (PK1S3000000)	1
F Connector (P.121068J8J)	1
Manual	1

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