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RA3211 PON optical power meter

1. Overview

RA3211 PON optical power meter is a tester designed for design, operation and maintenance of FTTX network. It is able to concurrently measure the optical power values of voice, data and video signals. It is an ideal choice for the construction and maintenance of FTTX network works.

2 Packaging list

User Guide	1 copy
Meter bag	1 pc
Power adapter	1 pc
Warranty Card	1 pc
Pass Certificate	1 pc

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3. Specifications

Calibrating wave length	1310 upstream measurement	1490 downstream measurement	1550 downstream measurement
Spectral passband (nm)	1260～1360	1470～1505	1535～1570
Measurement range (dBm)	-40～+10	-40～+10	-40～+20
Isolation 1310nm (dB)	-	>40	>40
Isolation 1490nm (dB)	>40	-	>30
Isolation 1550nm (dB)	>40	>40	-
Measurement accuracy			
Connatural uncertainty (dB)	±0.5		
PDL (dB)	<±0.25		
Linearity (dB)	±0.1		
Pass through insertion loss (dB)	<1.5		
General Indicators			
Display	LCD:320×240		
Unit	dB dBm xW		
Resolution	0.01dB		
Input voltage	DC 6.5V～8.5V		
Rechargeable battery	7.4V		
AC adapter	8.4V		
Type of optical fibre	Single mode optical fibre		
Working temperature	-10～60℃		
Storage temperature	-25～70℃		
Dimensions (mm)	210 x 115 x 55		

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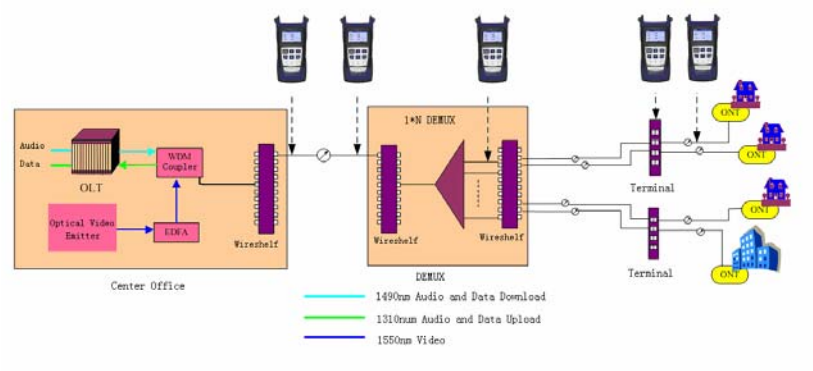
4. Operating Instructions



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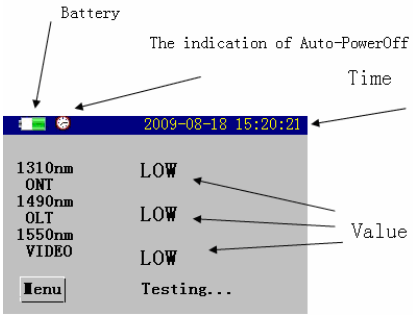
4.1Function description

Icons	Functions
	POWER ON/OFF or set AUTO POWER OFF
MENU	Access menu and select function
ENTER	Enter menu or select current operation
CANCEL	Exit current operation without saving
▲	Select functions, +
▼	Select functions, -

5. Operation procedures



5.1 Power on

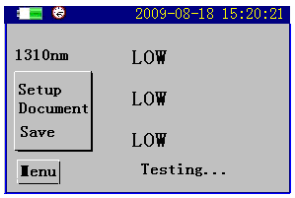
Press  to power on the device, the following screen will appear:

There are the measurement results of three wavelength appearing on the screen, i.e.: 1310nm upstream test and 1490nm/1550nm downstream test. The measurement value will appear when there is light passing through the optical channel, otherwise “LOW” will appear.

5.2 Power Off

While the power meter is on, press  and hold it for about 2 seconds to power off the device.

5.3 Set threshold value



The setting of threshold value will influence the status of the three indicators and the status of measurement results. For example, if the option “1310nm” is set as: -15, -30, -40, it means that: when the optical power measurement value of 1310nm is greater than -15dbm, the optical circuit will be normal, the moment the 1310nm indicator turns in green; when the optical power measurement value of 1310nm is within -15dBm～-30dBm, it means that problems may exist in optical channel but it is still usable, the moment the 1310nm indicator turns in yellow; when the optical power measurement value of 1310nm is within -30dBm~-40dBm, it means that there exists abnormal in optical channel, the moment the 1310nm indicator turns in red; if the optical power measurement value s less than -40dBm, the moment the 1310nm indicator turns in dark, “LOW” appears in the LCD area where the results are displayed. To conclude, “green” represents “Pass”, “yellow” represents “warning”, “red” and “dark” represent "Error". So does 1490nm or 1550nm test.

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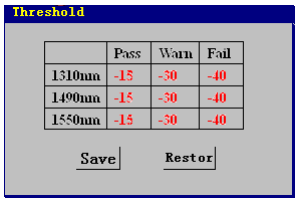
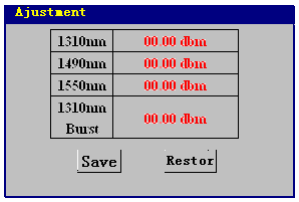
(1) While in main interface, press MENU, a menu as below will pop up:
(2) Select the setting you desire by pressing ▲ and ▼, press ENTER, to enter the setting interface as shown below:
(3) Here user can set language, time, auto power off, incidental mode, threshold value, calibration. For example, if you select “threshold value”, the setting interface will appear as below.
(4) Press MENU to select option. Press ▲ or ▼ to increase or decrease the threshold by 1 respectively. If the option is Save, press ENTER, the change will take effect.
(5) If the operation is Default, press ENTER, the threshold value will be rest to be default value.



5.4 Calibration

This ability is designed to set tolerance, it will increase the power reading by 1.
(1) Enter setting interface, select Calibration, press ENTER, the calibration screen will appear as below:
(2) Press MENU to select the option you desire. Press ▲ or ▼ to increase or decrease the calibration value by 0.01 respectively. If the option is Save, press ENTER, the change will take effect.
(3) If the operation is Default, press ENTER, the threshold value will be rest to be default value.



5.5 Data upload

The measurement results can be saved in the device, or be uploaded to PC using upper computer software. Connect one end of data cable to the port of PC Link in the device, the other end USB port of PC, run the upper computer software, and set the software as per default configuration, and then you can directly click “Upload” on upper computer to transfer the data to PC.

5.6 Measurement procedures

(1) Press ⏻ to power on the meter, enter threshold value setting interface to set threshold value.
(2) Connect in the optical fibre to be tested.
It supports measurement of three wavelength i.e.: 1310nm upstream, 1490nm and 1550nm downstream at the same time.
For example: threshold value is (+3dBm, -10dBm, -30dBm), the measurement readings of the meter are: the value for 1310nm upstream test is +1dBm, which is within +3～-10dBm, it means that the optical circuit is normal, so in the testing screen, the power value for 1310nm is displayed in green; if the power value falls within -10dBm～-30dBm, it means that the optical circuit may be wrong but is still usable, so in the testing screen, the power value for 1310nm is displayed in yellow; if the power value falls outside of threshold value, it means that there exists abnormal in optical circuit, the power value of the optical circuit is too strong or too weak, so in the testing screen, the power value for 1310nm is displayed in red. So does 1490nm and 1550nm test.

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6. Applications

FTTx/PON opening: it is used to measure all PON signals during opening stage, in order to verify and ensure network standards are satisfied;

FTTx/PON maintenance: it is used to solve various transfer problems, e.g.: dirty connector ends, bending, broken optical fibre, any of such problems may produce signal loss or decrease transfer performance.

7. Maintenance

1. Regularly clean the end of sensor, keep it free of grease, dirt. Don't use dirty, non-standard connector, don't insert in the end in poor polishing conditions, otherwise the sensor's end may be damaged, otherwise the performance of entire system may degrade.
2. Use only one adapter if possible.
3. If you are not going to use the tester for the time, cover the dust-proof cap immediately to keep the end clean. Long-time exposure in air may gather dust therefore influencing measurement accuracy.
4. Plug and unplug the adapter with care, don't leave any scratches on the ports.
5. Regularly clean the surface of sensor, when cleaning the sensor, please gently wipe the surface using cotton swab by circling the perimeter.
6. Handle the tester with care, protect it against fall or collision.

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8. Warranty

No parts of the product can be repaired by user himself.

1. Warranty period: 18 months since the date of shipment. If any product defects within the above said period, we will repair or replace the defective product, however, in no events we will bear responsibilities in excess of the product's sales price.
2. If any fault occurs during usage, user can first solve them according to above trouble-shooting instructions, however, if such efforts fail, the user shall not open the cabinet of the product by himself, he should contact our market department or local dealers.
3. For any quality problem arising of production defect, the manufacturer will repair or replace the defective product free of charge, however, any damage caused by improper-operation or good product will not be covered by the above warranty.

Notwithstanding the foregoing terms, any problem/fault caused for the following reasons are not included warranty.

1. The product has been repaired or modified without the authorization of the manufacturer
2. The problem or fault arising of improper use, negligence or incidence.

Warranty Registration

The product is accompanied by a Warranty Registration Card, please complete it and send it back to us together with a photocopy of the invoice, they will be used as the voucher for any maintenance, technical update or calibration that we may make in the future.