Contents

1. Brief introduction

Model NF-902 is used as an optical fiber light source, along with a suitable meter such as the NF-906 is used to determine the loss of an optical fiber cable.

1.1 Summarize

Optical light source NF-902 providing 1310/1550 nm wavelength for single made fiber,together with optical power meter it acts as a perfect solution in fiber optical field meter .

1.2 Product features:

- Providing 2 wavelengths output and wavelengths can be selected according to customers needs.
- CW,0HZ modulation output at 650nm , and CW,270Hz,1KHz, 2KHz modulation output at other wavelengths.

- High stability of the output power
- FC/SC/ST or other type connectors can be required.
- Compact size and decent appearance
- Large LCD, easy operation with LCD backlight.

1.3 Technical parameters

Model	NF-902
Wavelength(nm)	1310,1550
Emitter Type	FP-LD
Modulation Frequencies	CW / 2Hz(650)/ 270Hz,1KHz,2KHz
Fiber Type	SM、MM
Output Stability(dBm)	±0.04@20℃@15min
Optical connector	FC(SC/ST can be interchangeable)
Operating Temperature(℃)	-10~+60
Storage Temperature(℃)	-25~+70
Automatic Shutdown Time(min)	15
Battery Serving Time(h)	60
Overall Dimension(mm)	185×105×50
Power supply	9V Battery, AC Adapter
Weight(g)	350

1.4 Applications

1.Provide light source for optical power meter.
2.2 wavelenghts output:1310,1550.
3.A fast,stable and cost effective test solution.

2. Functional description

2.1 Press ⏻ button to startup and shutdown

2.2 Auto-off function

The unit will turn off after 15mins if non-operation.

2.3 Backlight

The backlight is on when the tester is turned on and when any key is pressed.The backlight times out after approximately 30 seconds of inactivity to conserve battery cover.

2.4 Description for front panel

(1)Power Key ⏻

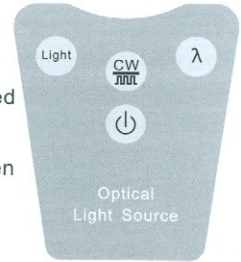
- Used to turn on the tester, if press it by 2s continuously, the meter will be turned off.
- Auto-off function selection: this key can be used to activate or shut down the Auto-off function, in addition, if there is no operation over 15mins, the power meter will be off automatically.

(2)wave key λ

For wavelength selection.

(3)Mode key CW

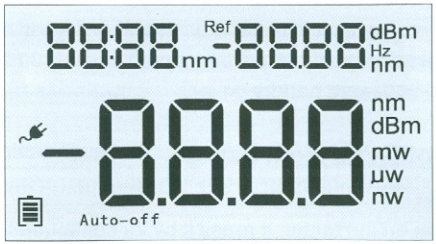
Modulation control output and modulated light output can be selected by pushing Mode key CW . When modulated light output is selected, a dot appears in LCD.



3. Handling instruction for NF-902 optical light source

3.1 Description for the information on LCD

After press power ⏻ key to start the meter, the following information will be shown on LCD:



(1)if the meter is supplied by battery, the icon 🔋 at the left bottom will be ON. With the reduce of electric amount of battery, the display segment of battery becomes less and less till empty.

(2)When connect with AC adapter, a icon will be lightened at the middle of screen, at the same time, the electric amount icon 🔋 is ON as well.

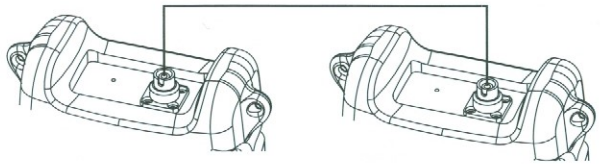
(3)At the left lower position, it is a "Auto-off" icon. After start, the Auto-off function is activated simultaneously and the icon is lightened as well, but if there is no operation, the meter will be shut down 15mins later.

(4)At the middle display-area of screen, the value of wavelength will be displayed, the unit is nm.

(5)At right upper display-area of screen, shows reference frequency value, the unit is Hz.

3.2 Operation

1. Connect the tested bridle wire to light source and power meter as shown in the following fig:



Light Source **Power Meter**

2. Turn on the light source to enter working mode and press the wave key (λ) select wavelength to be tested.
3. Press the mode key (CW/FIMT), choose the 0Hz,270Hz,1KHz or 2KHz light output.
4. Turn on the fiber power meter and select specified wavelength.
5. Press the power key ⏻ to turn the tester off.

Attention:

1) once not using for a long time,please take out the battery.
2) If the Handheld Light Source is not used for a long time, the light output port must be protected with the dustproof hat.
3) Do not look into Handheld Light Source adapters directly when light source is on, laser output does harm to your eyes.

4. Maintenance

As a high sensitive electric & optical instrument, this optical power meter must be maintained carefully so as to acquire high precision and flexibility, thus, please pay close attention to the following items :

◆Before use, clean the optical fiber connector all the time

◆Away from dust

◆Only a dry and clean place is allowable to store this instrument and keep away from direct sunshine.

◆Over temperature or large temperature variation shall be avoided.

◆Away from unnecessary impact or vibration.

◆If any liquid splashed onto the surface or the inner of instrument, cut off the power supply and restart it till dried completely.

4.1 Probe cleanness

Clean the probe of optical power meter regularly.

1.Open the dustproof cap

2.Screw off the adapter of power meter

3.Use 2.5mm special cotton swab with some anhydrous alcohol to clean the surface of probe slightly.

WARNING: when clean the probe of optical power meter, it is forbidden to use any hard thing to touch the surface of probe in case cause damage to probe; in addition, keep away from a strong force to aviod crack of probe. Otherwise, the accuracy of measurement value will be reduced, even failed to carry out any measurement.

ATTENTION: when the optical power meter is not operated, cover the dust-cap to keep the optical power meter clean.

4.2 9V battery replacement

For NF-902 Optical light source, available to be supplied by single 9V battery. Open the back cover to install or take out the battery. When install or take out the battery, the following information may be helpful for your operation:

◆When the battery energy is lower or no 9V battery installed, a icon [ ] will be on screen.

◆Only an eligible 9V battery can be engaged

◆If no use for a long time, take out the 9V battery in case of corrosion and damage to internal components.

4.3 Calibration and measurement

Under proper conditions, if this meter can be used in a right way, a better performance can be guaranteed.

In order to guarantee the performance, it is strongly suggested that a calibration per year should be implemented.

If there is deviation, please calibrate it again.

4.4 Transportation

When under transportation, keep the meter at the specified temperature range. And it is suggested the operation should be done as the follows:

◆Only the original packing material can be used

◆Away from high humidity or obvious temperature variation

◆Away from direct sunlight

◆Away from unnecessary impact and vibration.

5. Common faults and solutions

Common faults	Possible reason	Solution
Inaccurate measure result	Mismatch wavelength of light source	Check the correct wavelength is selected
Unable to start or no screen display	Inadequate 9V battery	replace new battery
Dim LCD display	Inadequate battery	Use power adapter or change the battery
Some variation of optical power when initial start	No preheating for optical maser	Turn on the light source and activate the operating wave -length, then carry out measure -ment after 30min preheating
Lower output power of light source	Unclean connectivity port of light source	Clean the connectivity port completely

6. Warranty

NF-902 is warranted against defects in materials and workmanship for a period of one year from the date of purchase.

NOTE: if the damage caused by improper operation or wrong cleanness of optical connector, our company will charge for the maintenance or replacement.

7. Standard configuration

(1). NF-902 Handheld light source ---------- 1 piece
(2). Operation Manual---------- 1 piece
(3). AC Adapter---------- 1 piece
(4). 9V battery----------1 piece
(5). Cotton swab---------- 1 piece
(6). Toolkit---------- 1 piece

Diagram of series products


NF-306


NF-868


NF-8208


NF-268


NF-806R


NF-816


NF-468L


NF-3468


NF8108-M

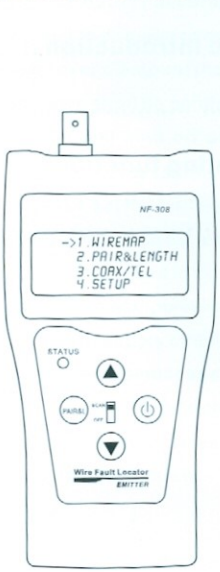

NF-388


NF-903


NF-906A

Overview

NF-308 is a practical cable test & inspection instrument with lots of new functions researched and developed by our company, which is composed of tester (NF-308), receiver (NF-308-S) and remote identifier. It owns three great functions of wire hunting,wire sorting and circuit status testing quickly and accurately. thus, it becomes available tool for technicians in installation and maintenance of weak current system, such as, communication line, comprehensive wiring circuit, etc. It is widely applicable to telephone system, computer network and other fields.



Main tester(NF-308)

Receiver(NF-308-S)

Remote identifier

Main Functions and features

- One person enough to complete cable continuity check.
- Directly hunt 5E, 6E, telephone wire, coaxial cable, USB cable and other cables.
- Check wiring error in 5E, 6E, coaxial cable, such as open circuit, short circuit, jumper wire, reverse connection .
- Locate the wiring or connection error.
- Measure cable length and determine the distance of open circuit and short circuit for Lan cable.
- Dynamically calibrate cable length and make length measurement as accurate as 98%.
- Simple and easy use. Big screen to display test result clear.
- Portable unit with long battery life (wait-case 50 hours).
- Automatically time-delay shut off and backlight display function.
- Measure length and pair with or without far-end recognizer.
- Far-end recognizer with prompt voice.
- Self-checking function and automatically compensate any change in battery capacity or ambient temperature.
- Single board computer software watchdog design and reliable operation.

Technical indexes

(1). Overall dimension

Main tester: 185×105×50mm; receiver: 218×46×29mm;
Remote identifier: 84×34×27mm.

(2). Power

Two laminated batteries of 9V.

(3). Display

Big LCD screen: Special 4 x 16 character
(valid visual field 61.6 x 25.2 mm).

(4). Type of cable tested

STP/UTP twin twisted cable, coaxial cable.

(5). Type of cable detected

5E, 6E, telephone wire, coaxial cable, USB cable and other metal wires.

(6). Ambient temperature in work

-10℃~+60℃

(7). Tester Port

Tester RJ45 master port (M), tester LOOPBACK RJ45 port (L), RJ45 Scan(RJ45 cable tracing);

Remote identifier RJ45 port (R)

The extra BNC and RJ11 converters are used to measure and check the continuity of coaxial cable and telephone line.

(8). Length Measurement of Twin Twisted Cable

Scope: 1~350 M (3 ~1000 ft)

Calibration accuracy: 3% (+/- 0.5M or +/- 1.5 ft)(calibrating cable > 10 M)

Shipment accuracy: 5% (+/- 0.5 M or +/- 1.5 ft).(AMP, AT&T Class 5 cable)

Display: M or ft.

(9). Length Calibration:

User can set calibration coefficients by himself with a given length cable.

The length of calibrating cable is more than 10 M.

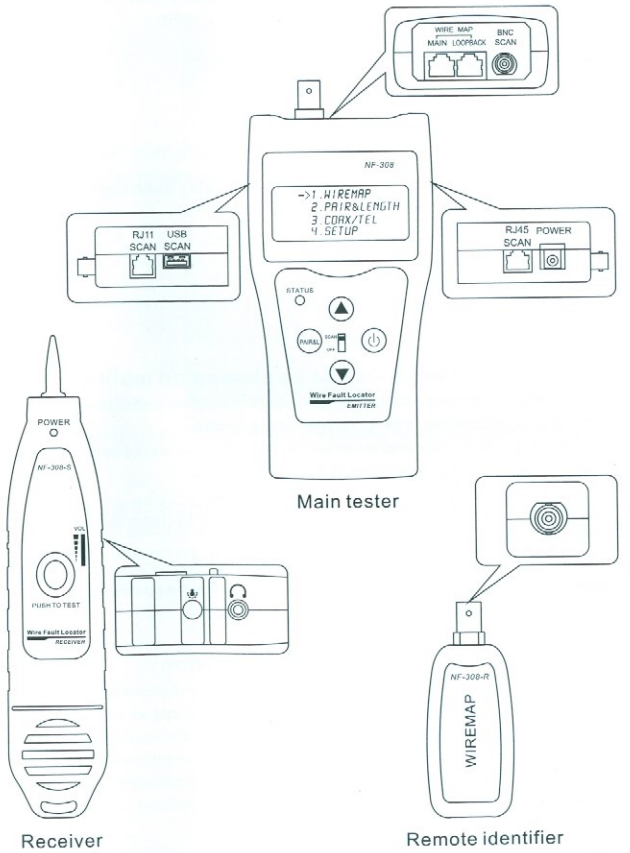
(10). Wire Sequence and Locating Cable Error:

Check errors such as open circuit, short circuit, reverse connection, cross-over.

(11). Automatic Time-delay Shut Off Time:

The tester will shut off automatically after 30-minute non-operation.

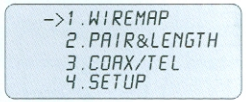
Product interface and keypad Introduction



Product operation methods

Boot Screen:
Carry out self-checking at the same time (The dotted line dynamically displays the course of self-checking from left to right):

Wait 5 seconds or push any arbitrary key to display main menu.
Main menu display:



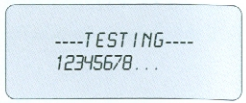
There are four functions to be chosen on main menu.

1. WireMap --- Wiring diagram measurement to check end-to-end continuity of cables in M, L, R and locate errors.
2. Pair & Length ---Pair and measure length to know open,short,points, verify cable length,open circuit distance.
3. Coax/Tel --- Coaxial cable and telephone line .
4. SETUP---Calibrate and set up the tester (Refer to description hereinafter).

Note:never put a telephone cable into RJ45 Port especially a charged one,for fear of burnout to the tester.

Wiring diagram (WIREMAP) test function:

After entering the wiring diagram (WIREMAP), the tester shall carry out wiring diagram (WIREMAP) test and displays as follows



Test Result 1: Short circuit (SHORT)

It displays as follows if there is any short circuit in cable or terminal: (e.g.12 short circuit in the sample)

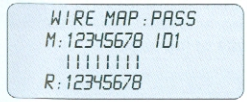
At the moment, push ▼▲ key to restart testing or push PAIR&L key to return main menu.Always eliminate "short"error firstly and then start further measurement.

Test Result 2: It will display as follows if the cable to be checked does not insert into the far-end matcher (ID) or the cable does no insert into the local port

At the moment, push ▼▲ key to restart testing or push PAIR&L key toreturn main menu.

Test Result 3: Normal wiring diagram (WIREMAP) display

The tester will automatically detect remote unit (ID) or local port (L)cable and it will display wiring diagram (WIREMAP) as follows if it finds the remote unit (ID) or cable to be checked in the local port(L):

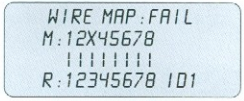


"R" means "Remote tester" , "ID1"is the number of Remote identifier .
"|" is the connecting line between "R" and "M".
"M:" means "Main tester".
At the moment, push ▼▲ key to restart testing or push PAIR&L key to return main menu.

Test Result 4: Wiring diagram (WIREMAP) display when there is an open circuit at the far-end of cable.

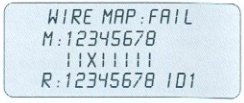
"R:" line "3" and "6" pins location display "x", it indicates an open circuit in far-end plug "3" and "6" pins and the open circuit is located nearby the far-end plug.(The open point should be at the 10% cable length)
Note: because the detected cable is made of paired cable cores, "open" error at the far-end always displays in pair as above.,which means there is one open circuit or both are open in the far-end"3"and "6"pins.

Test Result 5: Wiring diagram (WIREMAP) display when there is an open circuit at the near-end of cable.
It will display wiring diagram (WIREMAP) as follows if there is an open circuit at the near-end plug of the cable:



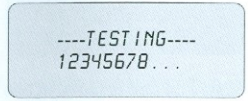
"M:" line "3" pin location displays "x", it indicates an open circuit at near-end plug "3" pin and the open circuit is located nearby the near-end plug.(The open circuit should be located within 10% cable length if it is measured from the near-end plug)

Test Result 6: Wiring diagram (WIREMAP) display when there is an open circuit in the middle of the cable.
It will display wiring diagram (WIREMAP) as follows if there is an open circuit in the middle of the cable:



"|" line "3" pin location displays "x", it indicates an open circuit in the middle of "3" pin cable. (The open circuit should be located within 10%-90%cable length if it is measured from the near-end plug.) as detailed hereinafter.

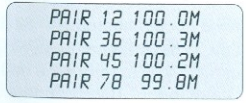
Pair and length measurement (PAIR & LENGTH) function: When testing cable length, just connect one end of cable with Main tester, no need of remote unit.
After entering into "PAIR & LENGTH" function, it will display as follows to indicate the measurement is being undertaken:



Note:In view of different technical parameters in various brand cables, the user should calibrate the cable length before length measurement (Refer to the details herein).

Test Result 1: Short circuit (SHORT)
It will display as follows if there is any short circuit in cable or terminal: (12 short circuit in the sample)

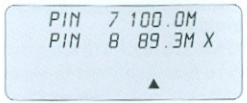
Test Result 2:
Normal pair and length (PAIR &LENGTH) display
It will display as follows if pair and length(PAIR & LENGTH) measurement is in normal condition:



At the moment, push▼▲key to restart test or push PAIR&L key to return the main menu.

Test Result 3: Abnormal pair and length (PAIR &LENGTH) display
It will display the paired lines and its length firstly,then unpaired lines display, as shown below.

The last line (78▼) indicates no pair is found in line 7and 8, at the moment,push the▼key, it will display the length of unpaired line number(as shown below)



It will display " X " to indicate an open circuit if the length is less than 90% of other lines' length. That is to say, the open circuit is located at around 89.3M in line 8

Coaxial cable and telephone line measurement function:
After entering into coaxial cable and telephone line measurement (Coax/Tel)function, the tester shall start to test and show the test result as follows:

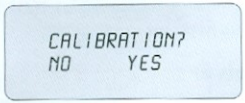
It shall display"OPEN"if there is any open circuit or the coaxial cable and telephone line is not connected.It shall display "SHORT" if there is any short circuit.At the moment,push PAIR&L key to repeat the measurement or push▼▲key to return the main menu . The far-end recognizer will have "beep" if the connection is in normal condition.

Note: For coaxial cable measurement, it needs BNC adapter cable.
For telephone line measurement,it needs RJ11 adapter.

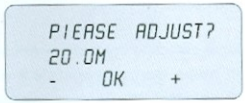
Calibration and setup (SETUP) function:
After entering into calibration and setup (SETUP) function, the tester shall display as follows:

UNIT: It is used to set up length unit and shifts between meter (Meter) and feet (FT).
CALIBRATION is calibration function.(Detailed as related chapters hereinafter)
QUIT is used to return the main menu.

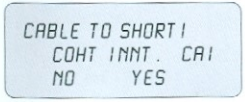
Dynamic calibration (CALIBRATION) function:
For an accurate measurement of cable length,the calibration operation should be done as follows.
After entering into dynamic calibration function, the tester shall display as follows:



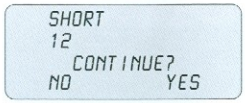
Insert same type cable of given length into "M" port, do not need insert far-end recognizer, push▲key (Yes) to undertake measurement and display the measured length (as shown below):



At the moment, hold▼and▲key (-/+) to adjust the length to actual given length and then push PAIR&L key to reserve calibration factor and exit calibration function.It will display as follows if the cable length being measured is too short(<10M) to remind the user to change a longer cable for calibration:



If there is short circuit in cable, It will display as follows.



At the moment, push ▼ key (No) to exit calibration function. Push ▲ key (Yes) to repeat the measurement.

Note: The calibration will recover the standard value of Class UTP5 cable at factory.

Start up or shut down AF hunting function

(1). Press PUSH key,the hunting indicator light (SCAN) flashes,which indicates that audio frequency transmission of main tester is norma l , insert the cable to be tested into RJ45 SCAN Port . then hold the receiver to trace cable needed (the usage of receiver is shown in the following). RJ11/BNC/ USB cable is located when inserted into its corresponding port.

Usage of the receiver

Install 9V battery ,press "PUSH" key, then approach the cable with probe and find targeted one among lots of cables. When the probe is near target wire, the "beep, beep and beep" sound will come out and the signal indicator light "POWER" will be on. When loudest "beep" and brightest indicator means that is the required cable.

(2).The user can turn volume switch to control the volume.
(3).The floodlight function helps the users operate in dark environment.
(4).Earphone helps avoid external interference in noisy environment.
(5).The test can not measure cable length and wire faults when it is operated to trace cable.

Diagram of series products


NF-306


NF-868


NF-8208


NF-801B


NF-806R


NF-816


NF-468L


NF-3468


NF8108-M


NF-388


NF-903


NF-906A