

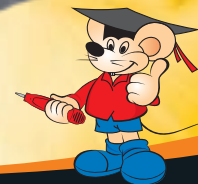
NF-8601

*Your excellent helper in cable test!*

# NF-8601/NF-8601A/NF-8601W Instruction Manual Cable Length Tester



*Your excellent helper in cable test!*



REV1.0



## Read the precautions before your operation.

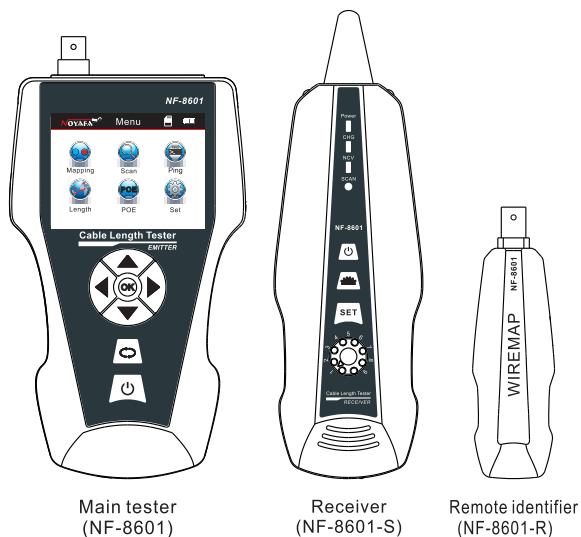
- Power supply for device is 3.7V rechargeable lithium battery.
- Disconnect the 5V 1A Charger when complete charging in fear of danger.
- Please use battery according to the specification; otherwise, it may result in damage to equipment.
- Never put the equipment in the place with much dust, humidity and high temperature (over 40°C) .
- Please never dismount the equipment arbitrarily. The maintenance and care shall be conducted by professional personnel.
- Users can set the auto-off time according to his own needs.
- Please take out the battery in launcher and receiver if the equipment is not used for a long time so as to prevent that the battery liquid is leaked in future.
- Never use the equipment to detect power cord with electricity (such as power supply circuit of 220V), otherwise, it may result in damage to equipment and personal injury.
- Never conduct related operation of communication line in thunderstorm weather so as to prevent lightning stroke and impact on personal safety.

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## Overview

NF-8601 Series are newly developed by our company which are capable of anti-current interference. The equipment is composed of three parts: main tester (NF-8601-M), receiver (NF-8601-S) and remote identifier (NF-8601-R). It is a multifunction device, capable of measuring cable length, cable tracing, cable continuity testing, PoE and PING functions, also it can detect voltage presence. Users can read the test results visually from the 3.7 inch color screen. All these make this item be as a practical tool for low voltage system installation and maintenance technicians of communication circuits and comprehensive wiring circuits. It is widely used in the fields like telephone system, computer networks and other metal lead circuits.



Main tester  
(NF-8601)

Receiver  
(NF-8601-S)

Remote identifier  
(NF-8601-R)

## Main functions

- Capable to test open, short, cross connection, reverse, and broken wire positioning with M-S, M-R method.
- To perform crosstalk test on network cable to solve the potential problem of slow speed.
- To quickly find the targeted cable without stripping isolation among unknown cables.
- Measure length of network cable, coaxial cable, telephone cable and USB cable up to 2000m, no connection of remote unit.
- To trace cable on exchanger or Router without current interference.
- Locate breakage and short position accurately.
- Detect PoE presence.
- PING Testing

## Benefits

- Low voltage alarm function.
- Remote unit with tone when checking cable continuity.
- Functions of storage and memory.
- TF function: import and export data.(160 sets)
- Currency detection function and Lighting lamp for working in dark.
- Automatic delay power on-off and language selection: Chinese & English.
- Single chip microprocessor software watchdog design is reliable in operation.

## Technical parameters

- (1). Overall dimensions  
Main tester: 173X92X34mm; Receiver: 183X58X35mm  
Remote identifier: 106X32X30mm.
- (2). Display  
2.8 inch LCD Color screen:320X240 (Effective visible area 60X45mm).
- (3). Power supply  
3.7V rechargeable lithium battery 1800mAh

- (4). Tracing cable types  
STP/UTP 5E, 6E network cable, telephone cable, coaxial cable, and common metal wires connected with alligator clip.
- (5). Testing cable types  
STP/UTP 5E, 6E network cable, telephone cable, coaxial cable, and common metal wires connected with alligator clip.
- (6). Operating environment temperature/humidity  
-10°C ~ +60°C /20% ~ 70%;
- (7). Testing device interface  
Main unit: RJ45 (M), RJ45 (S), PoE/PING, RJ11, BNC connector,  
Remote identifier: RJ45, RJ11, BNC connector interface.
- (8). Length measurement  
Range: 1-2000m;  
Calibration precision: 2% (+/-0.5m, or +/-1.5 feet); (calibration;  
cable>10m) measurement precision: 3% (+/-0.5m, or +/-1.5 feet);  
(AMP, CAT5E, 6E cable material)Display unit: meter, foot, yard.
- (9). Length calibration, storage and data load  
User can set a length value at a known length, store the value in the  
system, which can be used for future choice (9 sets of data can be  
stored). and the calibration length should be over 10m.
- (10). Cable wiremapping  
Open, short, reverse , cross, crosstalk, etc.
- (11). NF-8601W includes 8 remote units with ID1-ID8.
- (12). PoE/PING Testing
- (13). Tracing cable  
Locate targeted cable among lots of cables (only for NF-8601 &  
NF-8601W, NF-8601A Can't)
- (13). Language & Automatic power-off  
Users can choose English or Chinese for operation.  
Users can choose time to turn off the tester automatically.

## Product interface and key introduction



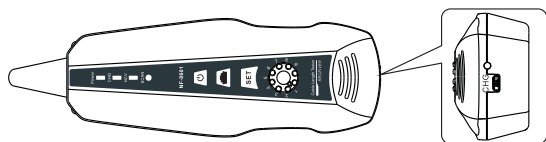
### Portson Main unit

- (1). Three RJ 45 ports on the main unit:  
One of them is "MAIN" port, used for cable length measuring and continuity testing. and another one is "SCAN" interface , used for cable tracing and continuity testing locally; The other one is "PoE/Ping" interface, used for PoE and PING Testing.
- (2) Port RJ11: used for tracing cable, cable length and continuity testing for telephone cable .
- (3) Port BNC: used for tracing cable, cable length and continuity testing for coaxiable cable.
- (4) MICRO: Charging for battery.
- (5) TF: Store and export datas (160sets can be stored).

### Function keys on Main tester

▲▼◀▶ means up/down/ left/right when moving moving cursor to select functions on Menu. Press "OK" to confirm or start testing. ◀ means return to last menu. Press ⏻ to turn on or turn off the device.





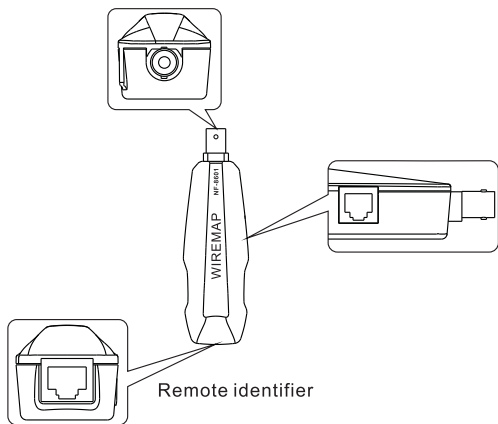
Receiver

## Portson Receiver

MICRO: Charging for battery.

## Function keys on Receiver

is to detect currency and also lighting lamp. "SET" is for voltage detector and cable tracing. Press to adjust the sensitivity. Press to turn on or turn off the device.

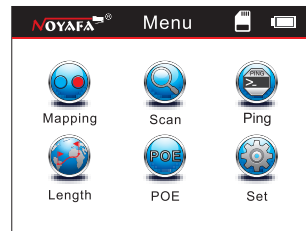


Remote identifier

## Portson Remote identifier

- (1)Port RJ45: remote testing cable continuity for Lan cable.
- (2)Port RJ11: remote testing cable continuity for telephone cable.
- (3)Port BNC: remote testing cable continuity for COAX cable.

## Instruction on Main interface



## Here are six main functions on Main interface.

- (1).Wire mapping --- Test cable continuity, such as the cable is good, open, short, cross, reverse connection, ect.
- (2).Scan cable---to find targeted cable among lots of network cables, telephone cables, USB cables and coaxial cables, also tracing short position of cable.
- (3).PING---to test network signals and the network cable is connected or not.
- (4).Cable Length---Pairing and length measurement: verify cable length, open circuit distance and pairing, crosstalk.
- (5).PoE Test---to test if a network cable is connected with PoE switcher or PoE Router, and then detect the power of every cable.
- (6).Set---to set up language/ Lighting/ lighting time/ auto-off time/ theme/ system information (version No.),ect.

## Charging function

The power supply for main tester and receiver are both 3.7V Rechargeable battery, its capacity is 1800mAh. When finish charging, the main tester can work continuously for over 20hs, receiver can work for over 50hs. The rechargeable battery avoids the trouble of replacing 9V battery again and again. The whole standard charging devices are included. After charging, please disconnect the charging device, otherwise it would shorten the battery life.

When the emitter low battery(<3V), it will show "Low battery, auto-off soon!"; when the receiver low battery(<3V), "power" will flash.

## Operation steps

Boot screen

Turn on the tester to come to home page.



3 seconds later, the following main interface will be displayed:



Users can set up the systems according to his own needs and to have next operations.

## Testing methods

(1) M-S Method--- Checking cable continuity with main tester for Lan cable Connect one end of lan cable into "Main" port, the other end to "Scan" port. ( Graph No.1)



Graph No.1

Note: M-S Method is only for Lan cable continuity testing, not for other kinds of cables.

(2) M-R Methods---Checking cable continuity with main tester and remote unit, for Lan cable, telephone cable, coax cable. ( Graph No.2)



Graph No.2

Note: M-R Methods is for cable continuity testing, not for cable length measuring.

(3) Scan method---" RJ45 Scan""RJ11"" BNC" ports are used to trace corresponding cables. ( Graph No.3)



Graph No.3

(4) Open Method--- Only connect one end of cable into main tester when measuring cable length, don't connect with remote or terminator. ( Graph No.4)



Graph No.4

(5) PoE/ PING Methods--- Connect one end of lan cable with "POE/Ping" Port, the other end to PoE switcher or router. ( Graph No.5)



Graph No.5

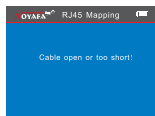
### a. Cable line-to-line test ( eg: Network cable):

After entering main menu, move the cursor button to cable on-off test. ▲▼◀▶ Then press OK; at this time, choose network cable, press OK, it will enter into test the network cable menu. And after that, choose START and connect the RJ45, the result will show you directly; but you also can export the data and the tested result will into the TF card, the following interface is shown indicating test is in process:



#### Test result 1: Unload or the cable not connected well

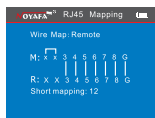
If the cable doesn't connect to the main tester interface, it will show as below:



At this time, press ⏪ to return to the main menu, and then press "ENTER" key for re-test.

#### Test result 2: Short circuit

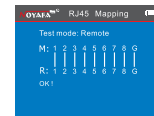
If there is short circuit with the cable and terminal, it will show as below: (Short circuit with 1 and 2)



At this time, press ⏪ to return to the main menu, and then press "ENTER" key for re-test.

#### Test result 3: correct connection

If the device connects correctly, the tester can check remote identifier (R), or local port (S) cables. If verify the tested cable with remote (R) or local port (S), it can test STP network cable, and the picture will show you as below:



R = Remote identifier's foot for RJ 45

S = Local foot of RJ45 port for scan

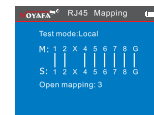
M = Local foot for RJ45 main interface

G = STP network cable

If you press ⏪ it means back to the last menu and press OK means test again or back to the main menu for re-test.

#### Test result 4: open circuit (Local test)

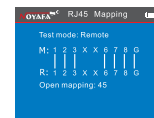
When local test and meet open circuit, it will show as below:



In the figure, "X" shown in "3" position, indicates there is open circuit.

Note: Because network cable is made of pair cores, if there is open circuit, it will show faults in pairs, just as above "4" & "5". It means either "4" pin or "5" pin exists an open circuit, or both "4" and "5" exist an open circuit.

#### Test result 5: open circuit (Remote test)

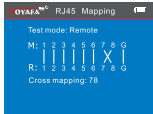


In the figure, "X" shown in "4" and "5" pin position, indicates there is open circuit in "4" and "5" pin of the remote pin.

Note: NF-8601W Because network cable is made of pair cores, if there is open circuit, it will show faults in pairs, just as above "4" & "5". it means either "4" pin or "5" pin exists an open circuit, or both "4" and "5" exist an open circuit.

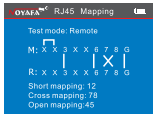
### Test result 6: Crossing (out of order)

When the cables have cross situation , it will show you as below :



### Test result 7: Short , Open , Cross

If the cables and remote meet short , open and cross together , will show you this result : ( 2 is short , 4 and 5 open , 7 and 8 was cross ):



### Test result 8: Continuity test for CAT6

It's the same result with Network cable test ,it will show as below:



### Test result 9: Continuity test for 6 pin RJ11

The 6-core RJ11 should insert into the telephone interface and the test method and show result is the same with RJ45.



### Test result 10: Continuity test for BNC cable

When you test the BNC cable , you should insert into the BNC interface and the test method is the same with RJ45.



### Remote unit with tone when checking wiremap

When use remote unit to check wiremap, users can distinguish the test result firstly via tones. When the cable is normal, the remote unit will generate " beep " long and slowly.

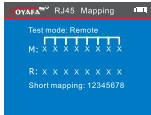
When the cable is abnormal, the the remote unit will generate " beep " short and quickly.

**Attention 1:** The line sequence test just for more than 2 pairs of cables , it's useless for single cable.

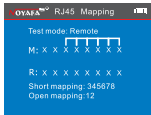
**Attention 2 :** When line sequence test with 1 to 8 , any pin among them of #7 or #8 for the network cable , any pin among them of #1 or #6 for the telephone cable or P/4C , 6P/2C , And for BNC cable testing , there is no any prompt of the remote.

## Special Use: network detection

The device can test line sequence under the switches work on. Network cable as the example---One side connect the main tester's RJ45 interface and the other side connect the switch , then you can press the test button directly , if the connect is right , will show you as below ( when the switch is 8 cores ).



But if the tested switch was open of 1 and 2 , the show result picture show you (when the switch is 8 cores).

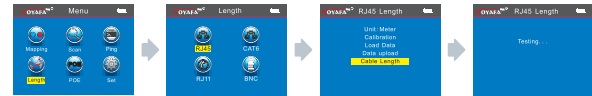


### Attention:

This method just test lan cable which is open or good connection , can't test cross and short.

## b.Cable length test:( eg: Network cable)

After entering main menu, move the cursor button ▲▼◀▶ to Cable length test. Then press OK; at this time, choose network cable, press OK, it will enter into test the network cable menu. After that, choose START and connect the RJ45 port "M", the other side connect nothing , the result will show you directly; but you also can export the data and the tested result will into the TF card, the following interface is shown indicating test is in process:



### They are 5 items for your choose:

- 1.Unit---can set up Meter , inch , yard.
- 2.Calibration---Can calibrate any brands of cables.
- 3.Load data---Can export the data saved.
- 4.Data upload---Can derive out the calibrated data of cable length.
- 5.cable length---Testing cable length.

**Attention 1 :** You can not connect the local port ( S ), and also can't connect the remote ( R ), when you test the cable length . you just connect nothing with the other side.

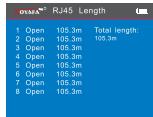
**Attention 2 :** Due to different technical parameters with different branded cables, users are recommended to use dynamic calibration function of the equipment before measuring length (Refer to the related chapter for more details.).

**Attention 3 :** If there is much difference in length for every pin, pls take the pin 3 as a standard reference for the network cable.pin 4 for the telephone cable ; pin 2 for the BNC cable.

**Attention 4:**the device is only used to test more than 2-core cables' length (2-core included), not available for single-core cable , when test 2-core cables,if the cable is broken , the length shows on the screen is the break location.

## Test result 1: The commonly used Network cable

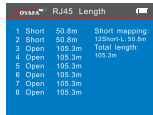
The normal network cable length test result show you as below:



From the image you can see the total length is 105.3 M, press back to the main menu and then enter the next testing.

## Test result 2 : Short circuit

If there is short circuit with the cable and terminal, the following interface is shown (Short circuit with 1 and 2 )



The total length is 105.3M, but it also means that here is a short location at 50.8 M in pin 1 & 2.

At this time, press to return to the main menu, and then press “ENTER” key to other functions.

## Test result 3 : Normal CAT6

The normal cat 6 cable length test result show you as below:



At this time, press to return to the main menu, and then press “ENTER” key to other functions.

## Test result 4 : Short circuit of cat 6

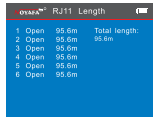
The cable length of cat 6 when it short circuit, image show you as below:



The total length is 105.3M, but the cable test result is 50.8 M on the screen , that means it has a short circuit at the length 50.8M.

### Test result 5 : Normal 6 cores telephone cable

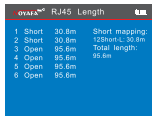
When test Telephone cable length ,connect one end of cable to port"RJ11"  
NO connection to the other end, choose menu of "cable length" for "RJ11"  
the result will show as below.



From the image , you can see the cable length is 95.6M , press return the main menu and start other testing.

### Test result 6: 6-core telephone cable with short circuit

When test Telephone cable length ,connect one end of cable to port"RJ11"  
NO connection to the other end, choose menu of "cable length" for "RJ11"  
the result will show as below.



The cable length is 95.6M, #1 & #2 has a short circuit in the location of 30.8M.

### Test result 7: BNC cable length test

When test BNC cable length ,connect one end of cable to port"BNC"  
NO connection to the other end, choose menu of "cable length" for  
"BNC" the result will show as below.



This result show you the cable length is 60.2M , press back to main menu and enter other testing.

### Test result 8 : BNC cable length test with short circuit

When test BNC cable length ,connect one end of cable to port"BNC"  
NO connection to the other end, choose menu of "cable length" for "BNC"  
the result will show as below.



This result show you the cable length is 20.7M , press back to main menu and conduct other testing.

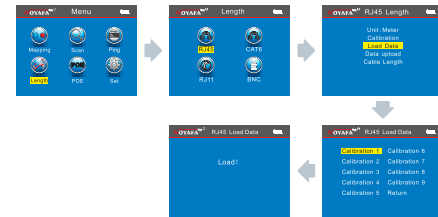
## Calibration: eg: Network cable

Due to different technical parameters with different branded cables, users are recommended to use dynamic calibration function of the equipment before measuring length (Refer to the related chapter for more details). After entering main menu, move the cursor button ▲▼◀▶ to Cable length test. Then press OK; at this time, choose network cable, press OK, it will enter into test the network cable menu. And after that, choose CALIBRATION (this cable need more than 10 M to calibrate, press ▲ to add and ▼ to reduce the length) then press OK to save the data, the details show you as below:



The method of cable length test for parameter callout: eg: Network cable as Due to different technical parameters with different branded cables, Users are recommended to use dynamic calibration function of the equipment. Before measuring length (Refer to the related chapter for more details.).

After entering main menu, move the cursor button ▲▼◀▶ to Cable length test. Then press OK; at this time, choose network cable, press OK, and choose "Load Data" , press OK to choose the data saved.



## Data export: eg: Network cable

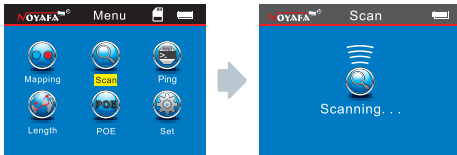
After entering main menu, move the cursor button ▲▼◀▶ to Cable length test. Then press OK; at this time, choose network cable, press OK, and choose data export menu, press OK and show you " data saved into LONGRJ45.TXT " that means the network cable length export to TF card .





### c. Cable tracing test ( NF-8601A without this function)

After entering main menu, move the cursor button ▲▼◀▶ Then press OK to scan; Take network cable as an example: connect the network cable to be found with RJ45 port (RJ11, or BNC), the other side is empty, perform line finding test as shown in the figure below:



🔊 this button on the receiver , when you open the device , and 🔊 lighting , that means it works normal of the receiver , light-touch SET button , there can have a change between scanning , voltage and in-operation .when you find the target cable , you can take the receiver near to the tested cables , when it find the target cable , it will send out “Beep , beep ” , and at that time , the “scan” led will flash. When under the situation of Voltage test model, Hold the receiver to get closed to the place where exists voltage ,when it send out “ Beep , Beep ” that means voltage presence.

☀️ This button on the receiver used to control lighting and detect currency; 🌀 is sensitivity control when you find the cables.

The receiver charge : when connected the receiver charge , The light will shining near the MICRO , and the same time , the charge Indicator light will flashing , after full of power , this light will always lit.

1. Tracing cable (RJ45/RJ11 Cable) which is connected to switch or router. Insert the cable into port RJ11/ RJ45 (S), Press the testing key of receiver, “Power” will be lighted, then hold the receiver close to the cables, when the probe gets close to the targeted one, you can hear clear and loud “beep,beep, beep” . (Note: telephone cable into RJ11, Lan cable into port RJ45(S) )



*Note: in this case, users should alter the voice to degree 1~2 in order to find out targeted cable precisely.*

### 2. Tracing Coax cable

Insert the cable into port BNC, Press the testing key of receiver, “Power” will be lighted, then hold the receiver close to the cables, when the probe gets close to the targeted one, you can hear clear and loud “beep,beep, beep” .



*Note: in this case, users should alter the voice to degree 1~2 in order to find out targeted cable precisely.*

### 3. Locate the short or breakage point ( eg : Metal cable)

Connect the metal cable with the cable clips , press the testing key of receiver , hold the receiver close to the cables ,it will generate“ beep, beep” but when “beep” stops , which indicates that is where the breakage is.

Note :

1. The metal cable is de-energized.
2. User should turn to the voice button to degree 1~2 in order to find out targeted cable precisely.
3. Two cables must be connected together, if only one cable , the black clip has to be grounded.



### 4. Locate the open point ( eg : Metal cable without charged)

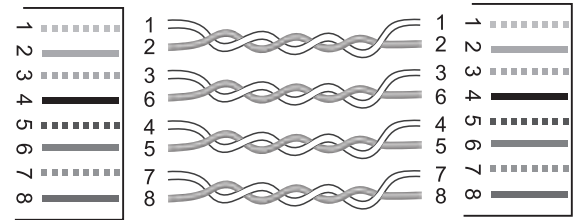
Connect the metal cable with the cable clips , press the testing key of receiver , hold the receiver close to the cables, “beep, beep, beep” stops , which indicates that is where the open is.

Note:

1. Take the red clip clamp the open cable , black clip must connect ground.
2. Should turn around the voice button loudly and turn to the voice button to degree 1~2 in order to find out targeted cable precisely.
3. Just trace a cable for every time.

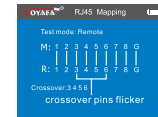
### d. Crosstalk test

As shown the figure below: it shows 3, 6 and 4, 5 with crosstalk. The line pair With crosstalk will flash to indicate failure. If the testing cable is crosstalk, Which will slow down the network speed:



Connection diagram of crosstalk line pair

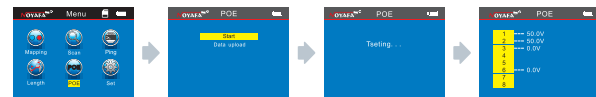
Crosstalk interface is shown as below:



Note: In case of the non-twisted-pair cable like telephone cable, Due to over large crosstalk, it generally shown as crosstalk.

### e. POE test

After enter the main menu , press this cursor to move ▲▼◀▶, and point to POE test menu , and press OK to test POE; Take one side insert the “POE/Ping “ PORT , the other side insert into POE Router or Ethernet , then start testing , and press OK , the screen will show you the voltage of each pin.



If you want to save the tested result, you can choose data export into the TF card, the picture show you as below:



## f. PING test:

After enter the main menu , press this cursor to move ▲▼◀▶ to "Ping" test , and press OK to test Ping; Take one side insert the "PING " PORT , the other side insert into POE Router or Ethernet , then start testing, the screen will show you the test result as below.



If you want to save the tested result, you can choose data export into the TF card and choose "PING.TXT", the picture show you as below:



## Parameter specification of PING functions

Destination IP address: It can be every one of Internet devices which has connected in the global.

Local IP address:It can be set up,but it must be different with other LAN devices.

Default gateway / Router: In the local LAN Router or gateway IP address.

Subnet mask: In the local LAN Subnet mask

Remark :

Default gateway or Router or Subnet mask can be found by the same LAN internet; Start – operate – impute CMD, Start the command line program , after that type " ipconfig " can query it.



## Usage :

1.LAN communication device

Destination IP address was set to any one of computer in the same LAN , it can test the LAN whether is normal between mainframes.

2.Network communication test

Destination IP address was set to any one of external network , such as 180.97.33.108, it can test the LAN whether is normal between mainframes.

Instructions of the test result:

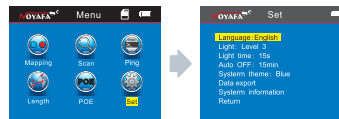
The host tester will send four 32 bytes data packages to the garget device ; The time means the host tester Communication back and forth between the target device, that can judge the Communication if Stable and reliable.

When it shows 1ms, it means the Communication quality is great.

TTL : the quantity between the host tester and the target device passed router or default gateway , TTL will reduce 1 when pass one router or default gateway , it can reflect network' s topology . When TTL=4, it means the host tester connected the target device directly.

## System set:

When moving cursor "▲▼◀▶" to "Setup" item, press "OK" key . Move the cursor "▲▼" to the relative test . The following interface will be shown:



1. Language setup: After entering main menu, move the cursor button ▲▼◀▶ to Language . Then press OK; at this time, have Chinese and English for you choose, press OK, press ⏪ back to the main menu again to begin other test.

2. Backlight brightness: After entering main menu, move the cursor button ▲▼◀▶ to backlight brightness. Then press OK; at this time, 3 kinds them for you choose, press OK, press ⏪ back to the main menu again to begin other test.

3. Backlight time : After entering main menu, move the cursor button ▲▼◀▶ to backlight time . Then press OK; at this time, 15s,30s,1min for you choose, press OK, press ⏪ back to the main menu again to begin other test.

4. Auto power-off : After entering main menu, move the cursor button ▲▼◀▶ to Auto power-off . Then press OK; at this time, 5 kinds of them for you choose, press OK, press ⏪ back to the main menu again to begin other test.

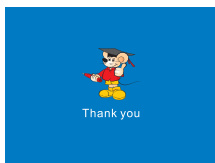
5. System theme: After entering main menu, move the cursor button ▲▼◀▶ to System theme . Then press OK; at this time, 2 kinds of them for you choose, press OK, press ⏪ back to the main menu again to begin other test.

6.Data export: After entering main menu, move the cursor button ▲▼◀▶ to Export data . Then press OK; at this time, you can export all of the data which you saved into the TF card that makes you can check them more convenient on computer.

(When you export the data , you just insert the TF card , when you do this step ok , it will show you a battery symbol on the left 🖱.)

### Power off

When you finished all the operation, please remember shut down the device to keep it.



### Accessories

Transmitter	1pc	Alligator cilip	1pc
Receiver	1pc	User manual	1pc
Remote	1pc	Carry case	1pc
RJ11 Cable adaptor	1pc	Gift box	1pc
RJ45 Cable adaptor	1pc	Charger and parts	1pc

### Diagram of series products



NF-868



NF-268



NF-8200



NF-806B



NF-838



NF-816



NF-468L



NF-300



NF-HDMI



NF-701



NF-905



NF-911