NETmapper Pro
network cable mapper
user manual
Model No. 256850Pro

Power

Up

Down

Enter

NETmapper Pro™
Network Cable Mapper

Hobbes®
INNOVATION

NETmapper Pro is a hand-held multifunctional network-testing device that integrates On-Line/Off-Line and telephone line test functions in one tester. For On-Line testing, it operates as a workstation; ping network devices and illustrates the machine name/IP address/MAC address and identifies all the network devices including Router, Printer and PC Host...etc. For Off-Line testing, it operates as a professional cable checker.

Furthermore, the NETmapper Pro has an integrated Digital Tone Generator and Port Finder functions to trace and identify cables with precision. The NETmapper Pro works as an all in one full functional tester and a very useful tool for all professional network administrators to quickly verify network connectivity and obtain essential information from the entire networks for troubleshooting and maintenance.

Features

- Displays the Ethernet port status: Identifies speed up to Giga(10/100/1000).

- Ping default router, DNS Server and user defined IP Address.

- Scans and lists all the PC Host with IP address, computer host name or MAC address.

- PC Host service detects: HTTP/Telnet/DHCP/FTP and SNMP services.

- Incorporates Port Finder function: locate corresponding socket on Hub/Switch.

- Wiremap test, twisted pairs test, cable length test, tone generator and Port finder (all in one integrated functions).

- Tests cables for opened, shorted, miswired, crossed, split pairs and shield continuity.

- Wiremap results are displayed in a pin-to-pin format.

- Remote ID number indication for recognition on workstations.

- Two RJ45 ports on main unit for either on-line or off-line test .

Specifications

Accuracy	+2m less than 10m (+6.56ft in less than 32.81ft), +5% over 10m (32.81ft)
Test range for cable length	1 - 300m (3 - 984ft)
Split pairs detection	minimum 1.5m (4.5ft)
Tone generator	Single/dual digital tone
Operating temperature	0ºC - 50ºC (32ºF-122ºF)
Storage temperature	-30ºC - 50ºC (-22ºF -122ºF)
Humidity	10% - 90%
Dimensions	Main unit 120*80*33mm/ Remote unit 44*32*28.5mm
Power source	AAA battery x 4 (1.5V)

Key define and LCD display

Enter, Up, Down, and Power.

Power	To Turn Power On or Off.
Up	To select the previous step.
Down	To select next step.
Enter	To execute the selection step.

Default configuration

In order to make the tester work properly, user should set up the configuration menu ("configure host" and "configure length") before start testing. In length test, users have to calibrate the parameters for non-standard cables. (Besides Cat5, Cat5e and Cat6)

Following are the steps to configure the device:
1. Press the power button to turn on NETmapper Pro. The LCD will show the main menu as below:

```
On line
Off line
Telephone line
Configure
```

2. Press "up" or "down" button to select desired testing. For system configuration, choose the "Configure" on the menu, then press "Enter" button to access configuration screen.

```
Configure Host
Configure Length
Power Auto off ☑

                    ⌐
```
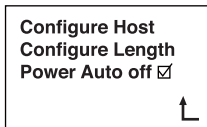
3. Under "Configure Host" menu, there are five configuration host items: Host IP, Subnet Mask, Default Router, DNS IP, and User Defined (for ping function) Note: User can define parameter under this submenu.

```
Host IP
Subnet Mask
Default Router
DNS IP              ↓
```
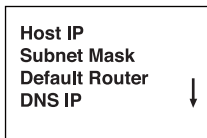
 * Press down key to next page.

```
┌─────────────────────┐   ┌─────────────────────┐
│ User Defined        │   │ Host IP:            │
│                     │   │ 192 168 000 150     │
│                     │   │                     │
│                 ⌐    │   │ ←            ⌐       │
│                 └    │   │              └      │
└─────────────────────┘   └─────────────────────┘
```

Manually setup the NETmapper Pro's IP address
or go to page 11, 12 to check DHCP in order to
get IP address automatically.

Manually setup the subnet mask.

```
┌─────────────────────┐
│ Subnet Mask:        │
│ 255 255 255 000     │
│                     │
│ ←            ⌐       │
│              └      │
└─────────────────────┘
```

Manually setup the default router's IP address.

```
┌─────────────────────┐
│ Default Router:     │
│ 192 168 000 001     │
│                     │
│ ←            ⌐       │
│              └      │
└─────────────────────┘
```

Manually setup the DNS IP address.

```
DNS IP:
192 168 000 001


←                    ⌐|
```

Configure User Defined

Manually pre-setup the user assigned IP address

```
User defined 1
User defined 2
User defined 3
User defined 4        ⌐|
```

```
User defined 1
192 168 000 001


←                    ⌐|
```

In these configuration menu

A. Press the Enter key for editing the corresponding address when accessing Host IP (same procedure applies to each function: Subnet Mask/ Default Router/DNS IP/User Defined).

B. Press the Enter key to increase the number. The "Up" or "Down" key is used to shift the cursor to edit the desired address.

C. Press the Enter key to return to previous menu when selection is at the " ⌐ " icon.

4. "Configure Length" menu has four options.

```
Feet/Meter: m
Cat5/5e/6:Cat5e
Calibrate    ☑
Zero         ☑        ⌐
```

A. On "Feet/Meter" option, press the Enter key to select the preferred unit.

B. The "Cat5/Cat5e/Cat6" option denotes the device is using corresponding default calibrating parameter for testing standard Cat5/Cat5e or Cat6 cable length.

C. The "Calibrate" menu

In order to increase measuring accuracy in cable length test, the setup is used to adjust calibrating parameters for non-standard cables.

```
Cal:          XXXm
   +           —
   Yes

                      ⌐_
```

- "Cal: XXXm" is the cable length supplied by NETmapper Pro when using default parameter.

- "+" and "-" are used to increase or decrease the Cal value Note: The Cal value must be above 10 meter (if you are using a calibrator cable under 10 meter).

- "Yes" is used to save the setting.

- "Enter" key is used to return to the previous menu.

D. The "Zero" option is used to reset the cable length test to zero.

Note: There should not be any cable plug to the unit. Press "Enter"; wait about 3 seconds until the box is checked.

5. "Power Auto off" menu allows users to activate the "power auto off" function. Press the Enter button to check the box and the device will automatically shut off in 10 minutes if there are no keys pressed.

```
Configure Host
Configure Length
Power Auto off ☑
                      ⌐
```
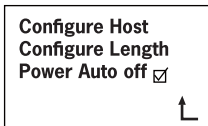
On-Line Test Operations

In "On Line" test menu, plug a cable into on-line test port and the other end into an active network port, the NETmapper Pro will display the Ethernet port information including: Link speed, full/half duplex, and whether it can support Auto Negotiation or not. If the POE exists, it shows the pairs number that power supplied and the voltage value.

```
Link Speed: 1000
Full/Half: Full
Auto Negotiate: Y
PoE: 45/78 48V          ↳
```

* If there are no PoE detected, then PoE function will be empty.

Press the Enter button to the Next menu, there are four options: DHCP, Ping, Scan LAN, Port Finder and Configure Host.

Note: The " ↓ " icon indicates that there are additional options on next page, press "down" button to access it.

A. DHCP On/Off

```
DHCP      ☑
Ping
Scan LAN
Port Finder
                    ↓
```
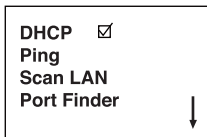
B. Press "Down" key to show the Configure
   Host menu to setup the parameters.

```
Configure Host


                    ↳
```

If DHCP is checked, the device can get the IP
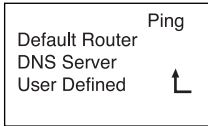address from DHCP server automatically.

Note: Manual IP address configuration will be
ignored until you unchecked the DHCP.

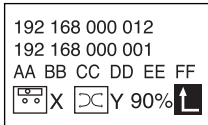If DHCP is unchecked, user must assign an
IP address manually.

C. "Ping" menu

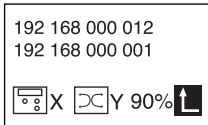The device can ping: Default Router, DNS Server and User-defined IP address.
(maximum of 4 preset address)

```
                          Ping
  Default Router
  DNS Server
  User Defined        ⌐L
```

"Ping default router"

```
  192 168 000 012
  192 168 000 001
  AA BB CC DD EE FF
  [≡]X [⊃⊂]Y 90% ⌐L
```

"Ping DNS Server"

```
  192 168 000 012
  192 168 000 001

  [≡]X [⊃⊂]Y 90% ⌐L
```

"Ping user defined device"

```
User Defined 1
User Defined 2
User Defined 3
User Defined 4
                        ↳
```

```
192 168 000 012
192 168 000 001
AA BB CC DD EE FF
▣ X ⊃⊂ Y 90% ↳
```

Ping results:
The first line shows the Host IP address.
(NETmapper Pro itself)
The second line is the IP address of pinging device.
(Default Router or DNS Server or
User-defined device)
X is the numbers of packets sent.
Y is the numbers of packets received.
?% is the ratio of packets sends to received.

D. Scan LAN

Scan LAN is a brand-new function of NETmapper Pro, it scans entire network to identify devices like: Routers, Printers, PC Hosts and other instruments. The unit will indicate the network devices' IP address, Host name, the service (FTP/HTTP/TELNET/DHCP/SNMP) the device supports. The unit can also ping these instrument for more info.
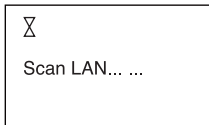
Enter the LAN Scan menu first.

```
Scan LAN
Show Host Name  ☑


                      ↵
```

Press Enter key to begin LAN scanning.

```
Scan LAN Start     ↑


                      ↵
```

If you press "up", it shows you the previous result.

```
┌──────────────────────────┐
│ ☒                        │
│                          │
│ Scan LAN... ...          │
│                          │
│                          │
└──────────────────────────┘
```

Scanning

```
┌──────────────────────────┐
│ Router      1            │
│ Printer     1            │
│ PC Host     20           │
│ Others      2       ↓    │
└──────────────────────────┘
```

The menu display the scanning result: 1 router, 1 printer, 20 PC Hosts, and 2 other devices are found. (Go to next page to scan LAN again)

Router item
When enter the Router item, it lists the Router's IP address.

```
┌──────────────────────────┐
│ 192 168 000 001          │
│                          │
│                          │
│ Exit                ↓    │
└──────────────────────────┘
```

Press the Enter key to show the router
services applied.

```
┌─────────────────────────────┐
│ 192 168 000 001             │
│ http telnet dhcp            │
│                             │
│                             │
│ Ping                    ┕┓  │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│           Speed Select      │
│                             │
│ Fast                        │
│ Slow                    ┕┓  │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ Ping                        │
│ ▢  100                      │
│ ▢  100              ┕┓      │
└─────────────────────────────┘
```

Fast ping menu

```
Ping
[icon]  20
[icon]  20
              ⌐
```
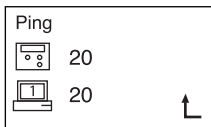
Slow ping menu

Printer item: When enter the printer item, it lists the Printer's IP address.

```
192 168 000 203



Exit           ↓
```

Press the Enter key to display the network service printer supports.

```
192 168 000 203
http

Ping           ↓
```
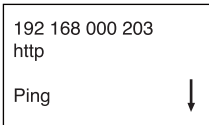
User can ping the printer, the operation is the same to the "ping router".

PC Host item

When enter the PC Host item, it lists all the PC hosts found in the network.

"Show Host Name ☐ " unchecked shows IP address only.

```
192 168 000 002
192 168 000 011
192 168 000 023
192 168 000 025      ↓
```

"Show Host Name ☑ "checked shows host name only.

```
PC001
David
Kevin
PC006                ↓
```

Press the Enter key to display the host's info,
including IP address, host name, and the
network service PC supports.

```
192 168 000 011
David
http ftp

Ping                    ⌐
```

User can ping host, the operation is
the same to "ping router".

Others item

When enter the others item, it lists other
network device's IP address.

```
192 168 000 033
192 168 000 036

Exit                    ↓
```

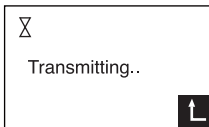Press the Enter key to display the
network service device supports.

```
192 168 000 033
http

Ping                    ⌐
```

Then user can ping the device, operation
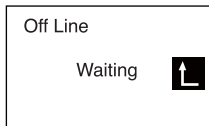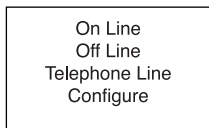is the same to the "ping router".

E. "Port Finder"

Port finder is a distinctive feature that Professionals
recommend. It's used to identify the correct port
which cable is using. The correspondent port's LINK
LED will blink once the device sends Ethernet fast
link signals through the cable. With this feature,
cable labeling has just become much easier.

NETmapper Pro is sending fast link signals to the
Hub/Switch port.

```
⧗

  Transmitting..

                        ⌐
```
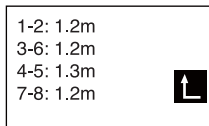
Off-Line Test Operations

Power On and enter "Off Line" menu.

```
        On Line
        Off Line
     Telephone Line
       Configure
```

```
Off Line

      Waiting      ⌐
```

Connect a testing cable to "Off line" Port and the other end floating. **(Without ID remote)**
The LCD displays the test results: pairs length, shorted pair, and wire shorted.

"Off line test". Cable length about 1.2m.

```
1-2: 1.2m
3-6: 1.2m
4-5: 1.3m
7-8: 1.2m        ⌐
```

Cable length about 1.2m.
Pair 3-6 and 7-8 shorted.

```
1-2: 1.2m
3-6: Short
4-5: 1.3m
7-8: Short
```

"?"m indicates the length of pairs.
"Short" indicates a short pair.
"!" indicates a wire shorted.

Before testing a cable length, users should select
the cable type to be tested in "Configuration
Length" menu.

There are 3 types "Cat5/Cat5e/Cat6" for
standard cables. For non-standard network
cables, users could calibrate parameter
by using at least above 10 meter non-standard
cable to do the calibration. It is operated by
"Configuration Length" $\rightarrow$ "Calibrate" menu.

Enter the "Next" menu; there are four options.

```
Configure Length
Wiremap
Twisted Pair
Tone Generator      ⌐
```
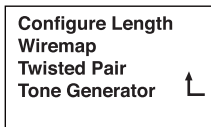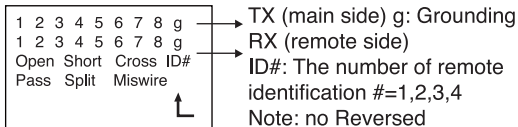
Wiremap

Connect one end of tested cable to "off line" test port and the other end to the remote.

Note: A reminder message will be displayed to attach the remote. Any remote from the package can be used and will yield the same result.

```
Please attach
remote

Yes                 ⌐
```

After the "Enter" button is pressed, LCD displays cable map in pin-to-pin format. If there are wires shorted with shielding, the shorted faults will be displayed first.
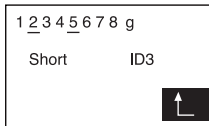
```
1 2 3 4 5 6 7 8 g
1 2 3 4 5 6 7 8 g
Open Short Cross ID#
Pass Split Miswire
```
→ TX (main side) g: Grounding
→ RX (remote side)
ID#: The number of remote
identification #=1,2,3,4
Note: no Reversed

The following explains the Wiremap results in details:

Pin 7 and Pin 8 are opened with ID 3.

```
1 2 3 4 5 6 7 8 g
1 2 3 4 5 6         g
Open                ID3
```
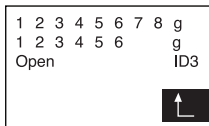
Pin 2 and Pin 5 are shorted with ID 3.

```
1 2 3 4 5 6 7 8 g

  Short      ID3
```

Pair 1-2 and Pair 3-6 were crossed with ID 3.

```
1 2 3 4 5 6 7 8 g
3 6 1 4 5 2 7 8 g
      Cross          ID3
                     ↑
```
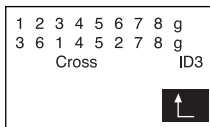
When Pin 1, 2, 3, 6 are flashed,
pair 1, 2 and pair 3, 6 are split with ID 3.

```
1 2 3 4 5 6 7 8 g
1 2 3 4 5 6 7 8 g
                     ID3

  Split              ↑
```

All pins are ok with ID 3.

```
1 2 3 4 5 6 7 8 g
1 2 3 4 5 6 7 8 g
                     ID3

      Pass           ↑
```
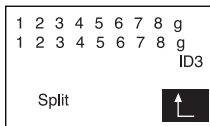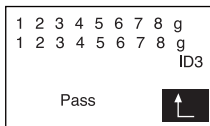
All pins are miswired with **ID 3**.

```
1  2  3  4  5  6  7  8  g
8  1  2  7  5  6  4  3  g
                          ID3

Miswire                  ⌐
```
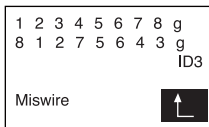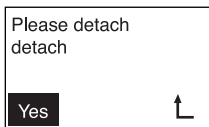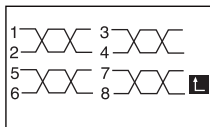
Twisted Pair

The cable's twisted status can be analyzed and shown graphically by the "Twisted Pair" option. In this mode, the remote unit must be removed or test result will be inaccurate.

```
Please detach
detach


Yes          ⌐
```

The Warning message

Split pairs on pair 2 & 3

If the length of testing cable less than 1.5 meter, it maynot identify correctly. The tester may show a warning message--"Can not detect cable less than 1m".

Tone generator

NETmapper Pro encode the tone signals to Digital or Analog to trace a cable without noise. This function requires the SmartProbe to operate in coordination.

You can choose the dual tone or single tone in the"Digital" function.

```
Dual Tone
Single Tone
                          ↵
```
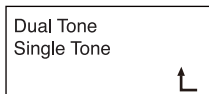
Press "enter" to select 4 different tonality in the Analog function (a tone will be generated on all pins).

```
Tone 4
    ➕      ➖
                          ↵
```
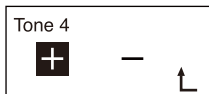
SmartProbe operations

Control the unit by press the four-position push button as following:

1. Cable tracing

A. Connect the testing cable to "off line" test port to start sending the digital tone signal (Dual tone or Single tone).

B. Place the Digital Probe's button in left position (Tr) and released; the Trace indicator (#3) will lights up. The unit is now locating the cable from distance.

C. Use the probe to trace the tone and locate cable quickly from a distance. The SYNC LED flashes green when the probe is receiving the digital tone signal.

D. The probe's LED Bar lights up from 1 to 9 indicating the signal strength received.

2. Identifying a cable

A. Connect the testing cable to "off line" test port and start sending the digital tone signal (Dual tone or Single tone).

B. Place the Digital Probe's button in right position (Id) and released; the Identify indicator #4 LED will lights up. The unit is now working as "Identifying cable" mode.

C. Use the probe to trace the tone and identify the tone in a bundle of cables or at the patch panels. The SYNC LED flashes green when the digital tone signal is received.

D. The probe's LED lights up from 1 to 9 indicating the signal strength received.

Note: The SYNC LED also functions as a battery indicator. It flashes red when battery is low.
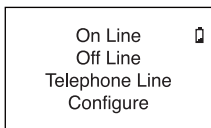
Telephone service

The telephone service test will display the voltage and the polarity when a telephone service exists. (only pair 4-5 will be checked)

```
Telephone Line
  20.40V
RJ45 pin 45 is
 - 4 + 5
```

Low battery

It is recommended to check the battery conditions before use.

Note: Low battery will lead to inaccurate test result.

```
            On Line        🔋
            Off Line
         Telephone Line
            Configure
```

Web access

When NETmapper Pro connect to the LAN (On-Line), please go to another PC and open the Browser, then type the Host IP (Configure Host - > Host IP) to get the latest Scan LAN Report.

Note: at the standard step that you will get the original Host IP from Configure Host Function. But if you choose to use the DHCP function to detect IP address in Scan LAN function, then you must insert the IP address from Default router or DNS server function due to both of these functions will offer the same IP address to you.

Warning

- When NETmapper Pro is working under On-Line test mode, the consumption current will be around up to 260mA, please switch to off line mode or turn off this device after finished the on line test in order keep your battery last longer.

- Please select alkaline battery or high capacity rechargeable battery.