

MicroMapper™ Pro

VDV Cable Tester

Instruction Sheet

The MicroMapper Pro VDV (Voice, Data, Video) Cable Tester is a hand-held test instrument that lets you verify and troubleshoot the wiring of twisted pair and coaxial cables. The tester detects opens, shorts, miswires, and split pairs. It also includes an analog toner function for locating cables with an optional tone probe.

The tester comes with the following:

MicroMapper Pro VDV Kit (MMP-KIT)

- MicroMapper Pro VDV tester with 6 AAA batteries
- Remote identifiers #1 through #8
- PRO3000™ Tone Probe with 9 V battery
- F-connector barrel adapter
- MicroMapper Pro Instruction Sheet

PN 2828192 (English) July 2007

©2007 Fluke Corporation. All rights reserved. Printed in Taiwan.
All product names are trademarks of their respective companies.

MicroMapper Pro VDV Cable Tester (MMP-50)

- MicroMapper Pro VDV tester with 6 AAA batteries
- Remote identifier #1
- F-connector barrel adapter
- MicroMapper Pro Instruction Sheet

Safety Information



Warning or Caution: risk of damage or destruction to equipment or software. See explanations in the manual.



Warning: Risk of electric shock.



This equipment not for connection to public communications networks, such as active telephone systems.



Do not put products containing circuit boards into the garbage. Dispose of circuits boards in accordance with local regulations.

Warning

To avoid possible fire, electric shock, or personal injury:

- **Do not open the case; no user-serviceable parts are inside.**
- **Do not modify the tester.**
- **Do not use the tester if it is damaged. Inspect the tester before use.**
- **Do not run a test with cables connected to both connectors on the tester. Doing so may affect length measurements.**
- **If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.**

- The tester is not intended to be connected to active telephone or network cables, systems, or equipment, including ISDN devices. Prolonged exposure to the voltages applied by these interfaces may damage the tester.
- Do not use the tester if it operates abnormally. Protection may be impaired.

Caution

To ensure maximum accuracy of test results replace the batteries as soon as the low battery () indicator appears.

Contacting Fluke Networks



www.flukenetworks.com



support@flukenetworks.com

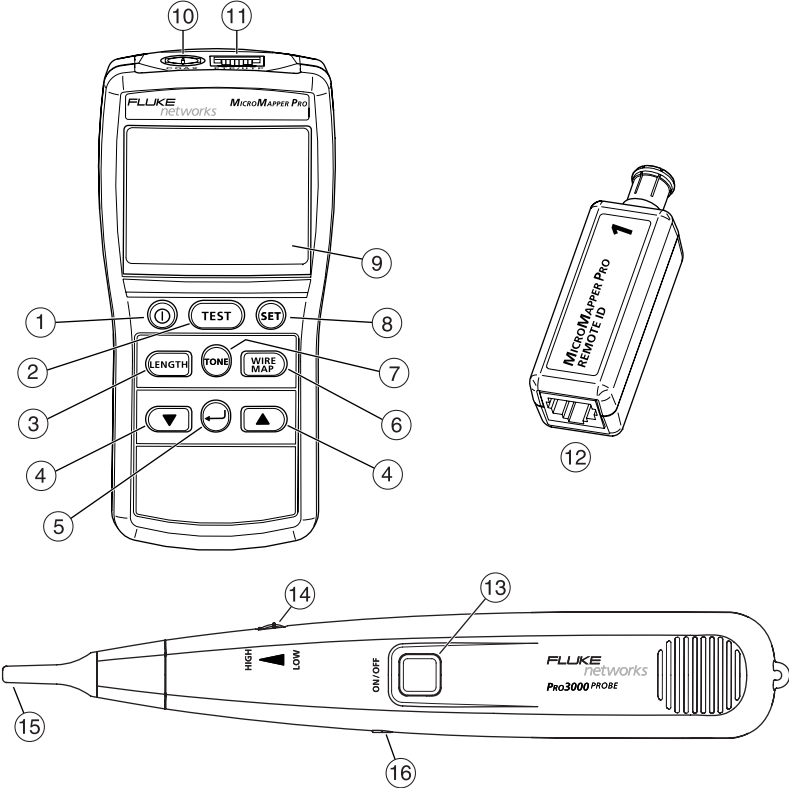


+1-425-446-4519

- Australia: 61 (2) 8850-3333 or 61 (3) 9329-0244
- Beijing: 86 (10) 6512-3435
- Brazil: 11 3044 1277
- Canada: 1-800-363-5853
- Europe: +44-(0)1923-281-300
- Hong Kong: 852 2721-3228
- Japan: 03-3434-0510
- Korea: 82 2 539-6311
- Singapore: 65 6799-5566
- Taiwan: (886) 2-227-83199
- USA: 1-800-283-5853
- Anywhere in the world: +1-425-446-4519

Visit our website for a complete list of phone numbers.

Features



- ① Power key.
- ② Test key. Tests wire map, measures length, and gives a pass result or shows faults.
- ③ Length key. Measures the cable length.
- ④ Scrolls through a list or displays.
- ⑤ Enter key. Selects the setting shown on the display.
- ⑥ Wire map key. Tests the wire map.
- ⑦ Tone key. Activates the toner.
- ⑧ Set key. Accesses setup selections.
- ⑨ LCD display.
- ⑩ F-connector for connecting to coaxial cables.
- ⑪ 8-pin modular jack (RJ45) for connecting to UTP and FTP twisted pair cables.
- ⑫ Remote identifier with F-connector and 8-pin modular jack (RJ45).
- ⑬ Power key on the optional PRO3000 tone probe.
- ⑭ Volume control.
- ⑮ Probe tip (not installed). To install the tip, insert it into the hole and turn it clockwise a quarter turn until it stops.
- ⑯ Jack for optional earphone.

Battery Installation and Status



To avoid possible electric shock or personal injury:

- Turn off the tester and disconnect all cables before installing the batteries.
- Use only the correct type of batteries, properly installed in the case, to power the tester and probe.

Installing Batteries in the Tester

- 1 Remove the battery door screw under the bail on the back of the tester.
- 2 Install the 6 AAA alkaline batteries, noting the polarity shown in the battery compartment.
- 3 Replace the battery door and secure it with the screw.

The tester's batteries last for about 100 hours of typical use. Replace the batteries when the low battery indicator () appears.

Installing Batteries in the Optional Pro3000 Probe

- 1 Remove the middle screw on the back of the probe.
- 2 Remove the battery door.
- 3 Connect the 9 V alkaline battery and place it in the battery compartment, taking care not to pinch the battery wires.

Replace the probe's batteries when the probe's volume weakens or the probe stops working.

Changing the Length Units

- 1 Turn off the tester.
- 2 Hold down **LENGTH**; then hold down **Ⓢ** until the display shows **LEN Unit** (length unit).
- 3 Press **▼** or **▲** to select a length unit (m or ft).
- 4 Press **↵** to save the setting.

Setting Up the Tester

Note

You cannot turn off the tester in setup mode.

To change items in the setup menu (listed below), press **SET**; then do the following:

- To change an item, press **▼** or **▲**; then press **↵** to save your selection.
- To scroll past an item without changing it, press **↵**.
- To exit setup mode, press **SET**. The tester shows **SET PASS** (setup pass) to indicate the setup changes were made successfully. Press **TEST**, **LENGTH**, or **WIRE MAP** to run a test.

Cable Types

The selected cable type is displayed briefly when you run a test. For twisted pair cable, the wire size is also shown.

- **COAX CABLE**: coaxial cable
 - **RG-6**: RG-6 coaxial cable, 75 Ω
 - **RG-6USER**: RG-6 coaxial cable, 75 Ω , with a user-defined length calibration parameter
 - **RG-58**: RG-58 coaxial cable, 50 Ω

RG-58USER: RG-58 coaxial cable, 50 Ω , with a user-defined length calibration parameter

- **FTP CABLE**: shielded twisted pair cable
- **UTP CABLE**: unshielded twisted pair cable

CATS: Category 5 cable

CATS-USER: Category 5 cable, with a user-defined length calibration parameter. Shows as **CATS-~~UA~~**-<wire size> when you run a test.

Wire Sizes

A-28, A-26, A-24, A-22

Calibration Mode

- **CAL YES** (calibration: yes): Enter length calibration mode. See “Calibrating Length Measurements”.
- **CAL no** (calibration: no): Do not enter length calibration mode.

Beeper

- **BEEP YES**: (beeper: yes) Beeper is on.
- **BEEP no**: (beeper: no) Beeper is off.

Testing Cables

The cable test checks for wiring faults based on the wire map stored for the selected cable type and measures the cable length.

A remote identifier is not required for the cable test; however, opens at the far end and miswires are not detected without a remote identifier.

To test a cable:

- 1 Select the cable type in setup.
- 2 Connect the cable to the tester. The tester shows **no CABLE** (no cable) when a cable is not connected.
- 3 Connect a remote identifier to the far end of the cable (optional).
- 4 Press **TEST**.
- 5 Wire numbers with a fault flash on the display. The ▲▼ icons appear if information is available for additional faults. Use ▼ or ▲ to see the other faults.

Tables 1, 2, and 3 show examples of cable test results.

Table 1. Test Results for Good Cable

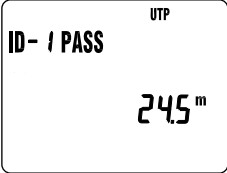
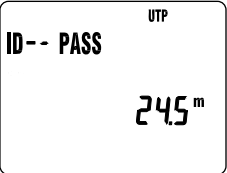
	Pass (PASS) results for unshielded, twisted pair cable. Remote ID #1 detected.
	Pass results for unshielded, twisted pair cable. No remote ID detected.

Table 1. Test Results for Good Cable (continued)

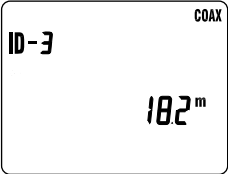
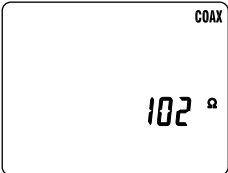
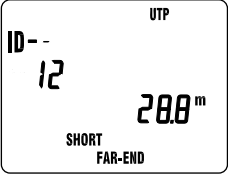
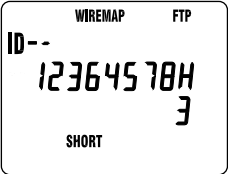
 COAX ID-3 182^m	Results for coaxial cable. Remote ID #3 detected.
 COAX 102^Ω	Results for terminated coaxial cable. The tester shows the total resistance of the cable and terminator. Length cannot be measured on terminated cable.

Table 2. Fault Results: Remote Identifier Optional

 UTP ID-- 12 28.8^m SHORT FAR-END	Short between wires 1 and 2. The display shows the shorted wires and whether the short is at the near end (NEAR-END) or far end (FAR-END) of the cable. For a short greater than 0 Ω, the displayed length is greater than the actual distance to the short.
 WIREMAP FTP ID-- 12364578H 3 SHORT	Short to the shield. For shielded cable (FTP) the shield is shown as H. The display shows the wire shorted to the shield (wire 3 in this example).

-continued-

Table 2. Fault Results: Remote Identifier Optional (continued)

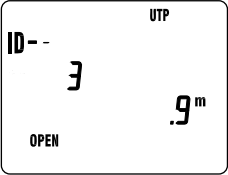
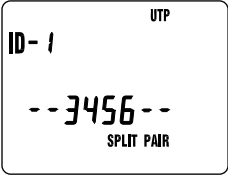
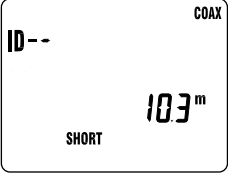
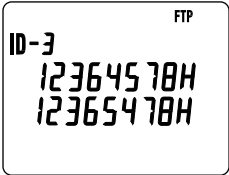
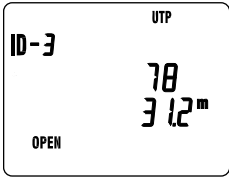
 The display shows 'ID--' in the top left, 'UTP' in the top right, '3' in the center, and '.9m' in the bottom right. The word 'OPEN' is at the bottom left.	Open at the near end on wire 3 The display shows the open wires and the most likely distance to the open.
 The display shows 'ID-1' in the top left, 'UTP' in the top right, '--3456--' in the center, and 'SPLIT PAIR' at the bottom center.	Split pair on pairs 36 and 45. The wire map may show some or all of the pairs affected.
 The display shows 'ID--' in the top left, 'COAX' in the top right, '103m' in the bottom right, and 'SHORT' at the bottom left.	Short on coaxial cable. The display shows the distance to the short.

Table 3. Fault Results: Remote Identifier Required

	Miswire. Wires 4 and 5 are swapped. For shielded cable (FTP) the shield is shown as H.
	Open at the far end on pair 78. The display shows the open wires and the most likely distance to the open.

Measuring Length

Length measurements are based on nominal parameters for each cable type. For more accurate measurements, calibrate the tester to the cable under test. See “Calibrating Length Measurements”.

To measure length:

- 1 Select the cable type in setup.
- 2 Connect the cable to the tester.
- 3 For twisted pair cable, connect a remote identifier to the far end of the cable (optional).

For coaxial cable, a remote identifier is optional, but the cable must not be terminated or connected to a device.

- 4 Press **LENGTH**.

The tester shows a wire map display if a wiring fault prevents the length measurement.

- 5 For twisted pair cable, use  or  to scroll through the length measurements for each pair. Lengths among pairs may vary up to 5% because each pair has a different number of twists.

Checking the Wire Map

A remote identifier is required for a complete wire map test. Without a remote identifier, opens at the far-end connector and miswires are not detected.

To check the wire map:

- 1 Select the cable type in setup.
- 2 Connect the cable to the tester.
- 3 For twisted pair cable, connect a remote identifier to the far end of the cable.

For coaxial cable, a remote identifier is optional, but the cable must not be terminated or connected to a device.

- 4 Press . The wire map flashes if a fault is detected.

Table 4 shows examples of wire map displays.

Table 4. Wire Map Displays with Remote Identifier

WIREMAP UTP ID-1 12364578 12364578	1 ————— 1 2 ————— 2 3 ————— 3 4 ————— 4 5 ————— 5 6 ————— 6 7 ————— 7 8 ————— 8	Good cable. Remote ID #1 detected. Display shows the WIREMAP indicator.
WIREMAP UTP ID-1 12364578 10364508 OPEN	1 ————— 1 2 - - - - - 2 3 ————— 3 4 ————— 4 5 ————— 5 6 ————— 6 7 ————— 7 8 ————— 8	Opens on pins 2 and 7. Opens are indicated by a . Use the length test to measure the distance to opens.
WIREMAP UTP ID-3 12364578 36124578 MISWIRE	1 ———— 1 2 ———— 2 3 ———— 3 6 ———— 6 	Miswire on pairs 12 and 36.
WIREMAP UTP ID-- 45 44 SHORT NEAR-END	1 ————— 1 2 ————— 2 3 ————— 3 4 ————— 4 5 ————— 5 6 ————— 6 7 ————— 7 8 ————— 8 	Short between wires 4 and 5 at the near end.

Calibrating Length Measurements

Length measurements are based on nominal parameters for each cable type. Variances in cables from different batches or different manufacturers can cause length measurements to vary up to 20% for the same cable type.

For more accurate measurements, calibrate the tester to the cable under test:

- 1 In the setup menu, select the type of cable to be tested.
- 2 Connect a good cable of a known length between 15 m and 100 m to the appropriate connector on the tester. Do not use a patch cord to connect the cable to the tester.
- 3 Press **SET**; then press **→** until the display shows **CAL NO**.
- 4 Press **▼** so the display shows **CAL YES**; then press **→**.
- 5 Press **SET** to exit setup mode and enter length calibration mode.

If the attached cable is too short or has some other problem, the display shows **too Short** (too short) or **bad CABLE** (bad cable). Check the connections and the cable; then start again at step 3.

- 6 Press **▼** or **▲** to adjust the displayed length to match the known length of the cable; then press **→**.

The tester shows **CAL PASS** (calibration pass) to indicate the calibration was successful.

If the tester shows **CAL FAIL** (calibration fail), check the connections and the cable; then repeat the calibration procedure.

After calibration, the cable type in setup changes to user-defined (**USER**).

Hiding the Length Calibration Function

You can hide the length calibration function to prevent changes to the calibration parameters:

- 1 Turn off the tester.
- 2 Hold down  and ; then press  and wait until the display shows **H I dE** (hide) before releasing the  and  keys.
- 3 Press  to select **YES** (yes).
- 4 Press  to save the setting. The calibration function no longer appears in the setup menu.

Using the Toner

Use the toner function with an optional tone probe to locate cables in bundles, at patch panels, or behind walls.

Note

In toner mode, the tester turns off after 1 hour if no keys are pressed.

- 1 Connect the tester to twisted pair or coaxial cable.
- 2 On the tester, press  to turn on the toner. The display shows **SIGNAL TONE**, the tone number (1 through 4), and a moving pattern of ones while the toner is active.
- 3 To change the tone, press  or .
- 4 Use a probe to locate the toner's signal behind a wall, in a cable bundle, or at a patch panel. To adjust the PRO3000 probe's volume, turn the volume dial on the side of the probe.
- 5 To turn off the toner press , , , or .

Maintenance



To avoid possible fire, electric shock, personal injury, or damage to the tester do not open the case. No user-serviceable parts are inside.

Cleaning

Clean the display with glass cleaner and a soft, lint-free cloth. Clean the case with a soft cloth dampened with water or water and a mild soap.



To avoid damaging the display or the case, do not use solvents or abrasive cleansers.

Replacing the Batteries

See "Battery Installation and Status".

Restoring Factory Defaults

To restore the user-defined length calibration parameters and other settings to the factory defaults, do the following:

- 1 Turn off the tester.
- 2 Hold down **TEST** and **▼**; then press **ⓘ** and wait until the display shows **rESEt** (reset) before releasing the **TEST** and **▼** keys.
- 3 Press **▲** to select **YES** (yes); then press **↵**.

Accessories

Accessory	Fluke Networks Model Number
Remote identifier #1	MMP-ID1
MicroMapper remote identifier kit (IDs #2 through #8)	MMP-IDK28
Replacement tip for PRO3000 probe	26100103
Earphone for PRO3000 probe	26300000

Specifications

Specifications apply at 23 °C (73 °F), unless otherwise noted.

Operating environment	32 °F to 104 °F (0 °C to 40 °C) < 80% RH
Storage environment	-4 °F to +140 °F (-20 °C to +60 °C) < 70% RH
Shock	1 m drop test
Connectors	Tester: 8-pin modular jack (RJ45), male F-connector Remote ID: 8-pin modular jack (RJ45), male F-connector
Length test	Range: 1 m to 350 m (2 ft to 999 ft) Resolution: <100 m: 0.5 m, > 100 m: 1 m <100 ft: 0.5 ft, >100 ft: 1 ft Typical accuracy: <150 m: 5% $\pm$ 1 m (5% $\pm$ 3 ft) >150 m: 10% $\pm$ 1 m (10% $\pm$ 3 ft) Typical accuracy of length to a 0 Ω short: UTP/FTP: 7% $\pm$ 3 m (7% $\pm$ 10 ft); Coaxial: 10% $\pm$ 10 m (10% $\pm$ 30 ft). Resistance is shown for a coaxial cable shorted beyond 350 m.

Split pairs	Section with split pair must be at least 3 m long and greater than 10% of the cable length.
Coaxial termination measurements	Loop resistance between 5 Ω and 350 Ω is considered a termination resistance. Loop resistance below 5 Ω is considered a short. Loop resistance greater than 350 Ω is not displayed. Typical accuracy: 5% $\pm$ 1 Ω
Toner	Generates four tones compatible with most analog probes. Tones are generated on all wire pairs and the coaxial connector.
Calibration cycle	Factory calibration not required
Display	LCD, fixed-segment, 2.19 in x 1.69 in (5.6 cm x 4.2 cm)
Input protection	50 V dc
Battery type and life	Tester: 6 AAA alkaline batteries, 100 hours continuous use (non-toner modes), low battery indicator () on display PRO3000 probe: 9 V alkaline
Auto shutoff	5 minutes with no key presses. In toner mode, turns off after 1 hour.
Dimensions and weight	Tester: 5.9 in x 2.8 in x 1.4 in (152 mm x 72 mm x 35 mm), 8.8 oz (250 g) Remote ID: 2.4 in x 0.9 in x 0.9 in (60 mm x 23 mm x 22 mm), 1.1 oz (30 g) PRO3000 probe: 9.8 in x 1.6 in x 1.3 in (24.9 cm x 4.1 cm x 3.3 cm)
Certifications and compliance	EN 61326-1, EN 61010  Conforms to relevant European Union directives.  Conforms to relevant Australian standards.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

Fluke Networks mainframe products will be free from defects in material and workmanship for 1 year from the date of purchase. Parts, accessories, product repairs and services are warranted for 90 days, unless otherwise stated. Ni-Cad, Ni-MH and Li-Ion batteries, cables or other peripherals are all considered parts or accessories. This warranty does not cover damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke Networks' behalf. To obtain service during the warranty period, contact your nearest Fluke Networks authorized service center to obtain return authorization information, then send your defective product to that Service Center with a description of the problem.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE NETWORKS IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

Fluke Networks
PO Box 777
Everett, WA 98206-0777
USA

4/04

The logo for Tequipment.NET features a large, stylized red 'T' on the left. To its right is a small graphic of the United States flag with the word 'USA' in blue text above it. Below the 'T' and the flag graphic, the word 'Tequipment' is written in a blue, sans-serif font, and '.NET' is written in a red, sans-serif font. A thin blue line extends from the bottom of the 'T' and curves around the bottom of the word 'Tequipment'.

205 Westwood Ave
Long Branch, NJ 07740
1-877-742-TEST (8378)
Fax: (732) 222-7088
salesteam@Tequipment.NET