



SML-DS Series Multifunction Cable Tracer User Manual

Models: SML-DS Series



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Company Information

Company: 东莞市杉木电子有限公司

Brand: Shomlin

Support Phone: 0769-85011391

Website: shom.cn

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Chapter 1 Product Overview

1.1 How to Use This Manual

- Before first use, read this chapter and Chapter 4, “Preparation Before Use,” and confirm that your model supports the required function.
- For a specific test procedure, refer to Chapter 5, “Operation,” and first read the model applicability and warnings at the start of that function.
- If the instrument does not operate as expected, refer to Chapter 8, “Troubleshooting.” For energized circuits, PoE, or an abnormal instrument condition, also read Chapter 7, “Safety and Maintenance.”
- When checking a new shipment, refer to Chapter 9, “Packing List,” for the model purchased.

1.2 Introduction

The Shomlin SML-DS Series comprises multifunction cable tracers for field engineering, structured cabling, communications maintenance, security-cable inspection, power systems, transportation, network operations, and security-network deployment. All models combine network-cable tracing and remote wire mapping with PoE testing and tracing for two-core and coaxial cables. Depending on the model, additional functions include TDR length testing, tracing in-wall and underground circuits at 220 V or below, and IP/network testing.

This manual covers thirteen models. Standard models are SML-DS, SML-DSL, SML-DSA, SML-DSLA, and SML-DSLA-N. Entry IP models are SML-DS-IP, SML-DSL-IP, SML-DSA-IP, and SML-DSLA-IP. Professional IP+ models are SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSLA-IP+. Official model names with the SML- prefix are used throughout. The -IP suffix identifies the four entry network functions; -IP+ adds five professional network-diagnostic functions. The enhanced-tracing model is identified as SML-DSLA-N.

1.3 Product Appearance



Figure 1-1 SML-DS Series product appearance (model shown: SML-DSLA)

NOTE

The button marked OK on the instrument is called the OK button throughout this manual. On-screen menu names are shown in monospaced type.

1.4 Functions Common to All Models

All thirteen models provide:

- integrated cable tracing and remote wire mapping;
- PoE voltage and PoE standard testing;
- tracing for telephone, network, two-core, and BNC coaxial cables;
- Chinese/English language selection;
- auto power-off and backlight settings.

1.5 Model and Function Comparison

Table 1-1 compares the functions that vary by model.

Table 1-1 Functions that vary by model

Model	TDR Length Test	In-wall/Underground Tracing, ≤ 220 V	Network Edition
SML-DS	No	No	None
SML-DS-IP	No	No	Entry IP
SML-DS-IP+	No	No	Professional IP+
SML-DSL	Yes, 0.1 m resolution	No	None
SML-DSL-IP	Yes, 0.1 m resolution	No	Entry IP
SML-DSL-IP+	Yes, 0.1 m resolution	No	Professional IP+
SML-DSA	No	Yes; 50 cm in-wall, 150 cm underground	None
SML-DSA-IP	No	Yes; 50 cm in-wall, 150 cm underground	Entry IP
SML-DSA-IP+	No	Yes; 50 cm in-wall, 150 cm underground	Professional IP+
SML-DSL-A	Yes, 0.01 m resolution	Yes; 50 cm in-wall, 150 cm underground	None
SML-DSL-A-IP	Yes, 0.01 m resolution	Yes; 50 cm in-wall, 150 cm underground	Entry IP
SML-DSL-A-IP+	Yes, 0.01 m resolution	Yes; 50 cm in-wall, 150 cm underground	Professional IP+
SML-DSL-A-N	Yes, 0.01 m resolution	Yes; 200~300 cm in-wall and underground	None

Entry IP models provide IP Scan, PING Test, Port Blink, and Link Speed. Professional IP+ models add IP Monitoring, HTTP Test, LLDP, Network Sniffing, and Broadcast Monitoring. IP Settings is a shared configuration entry for both editions and is not counted as a separate function.

1.6 Terminology

Table 1-2 Common terms

Term	Description
Cable tracing	Locating a target cable, following its route, or identifying its connected port.
Wire mapping	Checking conductor order and continuity and identifying opens, shorts, or crossed wiring.
PoE	Power over Ethernet.
TDR	Time Domain Reflectometry; used in this manual to measure twisted-pair network-cable length.
DHCP	Dynamic Host Configuration Protocol; automatically obtains an IP address, subnet mask, and gateway.
LLDP	Link Layer Discovery Protocol; obtains neighbor information from directly connected network devices.
PPS	Packets Per Second.

Chapter 2 Structure and Components

2.1 Product Components

The SML-DS Series consists of a transmitter and receiver. The transmitter connects to the cable under test. The receiver works with the transmitter for tracing, wire mapping, and signal-strength indication and includes a status indicator and Type-C charging port. Depending on the model, the instrument provides ports for network-cable tracing and mapping, PoE, length, two-core cable, energized-cable tracing, or IP/network testing.



(a) Transmitter, front



(b) Receiver, front

Figure 2-1 Front views of the transmitter and receiver

2.2 Display and Controls

2.3 Test and Charging Ports

Table 2-1 Display and controls

Component	Description
Receiver color LCD	2.4-inch color display for tracing functions, signal strength, wire-map results, battery level, and settings.
Transmitter indicator	LED indicating transmitter operating status.
Arrow, OK, and Back buttons	Select menus, confirm tests, return to the previous screen, adjust sensitivity, or edit IP parameters. The OK button is marked OK on the instrument.



(a) Transmitter RJ11 and RJ45 ports



(b) Receiver shared RJ45 test port and length-test port

Figure 2-2 RJ45 tracing/mapping, PoE/IP/network, and length-test ports



(a) Transmitter, rear



(b) Transmitter BNC coaxial tracing port

Figure 2-3 Transmitter rear and BNC coaxial tracing port

Table 2-2 Port descriptions

Port	Description
RJ45 network-cable tracing/mapping port	Connects a network cable for tracing, wire mapping, and testing.
Shared PoE/IP/network test port	Marked "POE Test" on the instrument. All models use it for PoE voltage and standard detection. Models ending in -IP or -IP+ also use this RJ45 port for their corresponding IP and network tests. Never connect a PoE cable to the length-test port.
Wire-map port	Connects the far end of a cable to the receiver and displays conductor order and continuity.
Length-test port	Performs TDR length testing on twisted-pair network cable. The far end must remain open during testing.
Two-core tracing port	Traces telephone and two-core cables and can be used with the alligator-clip adapter.
BNC coaxial tracing port	Traces coaxial cable only; it does not test coaxial length or continuity.
In-wall/underground tracing port, $\leq 220\text{ V}$	Available on models that support energized-cable tracing. Use the specified energized-circuit adapter; never connect to a 380 V circuit.
Type-C charging port	Charges the instrument.

Chapter 3 Specifications

3.1 General Specifications

Table 3-1 General specifications

Item	Specification
Product series	SML-DS Series
Product type	Multifunction cable tracer
Applicable models (standard)	SML-DS / SML-DSL / SML-DSA / SML-DSLA / SML-DSLA-N
Applicable models (entry IP)	SML-DS-IP / SML-DSL-IP / SML-DSA-IP / SML-DSLA-IP
Applicable models (professional IP+)	SML-DS-IP+ / SML-DSL-IP+ / SML-DSA-IP+ / SML-DSLA-IP+
Receiver display	2.4-inch color LCD
Transmitter indicator	LED
Packaging	Work bag and color box
Material	ABS
Overall package dimensions	270 mm × 180 mm × 70 mm
Supported cable types	Twisted-pair network, telephone, two-core, electrical, and coaxial cables; availability depends on the model
Network-cable tracing/mapping port	RJ45
Shared PoE/IP/network test port	RJ45, marked "POE TEST" on the instrument. All models support PoE testing. Models ending in -IP or -IP+ also use this port for their corresponding IP and network tests.

3.2 Power, Environment, and Settings

Table 3-2 Power, environment, and settings

Item	Specification
Transmitter power	3.7 V, 1200 mAh
Receiver power	7.4 V, 1000 mAh

Item	Specification
Charging port	Type-C
Operating temperature	–10 °C~+60 °C
Operating humidity	10%~70%
Receiver auto power-off	30 minutes / 60 minutes / Never
Receiver backlight	5 minutes / 10 minutes / Never
Languages	Chinese / English

3.3 Cable, Energized-Circuit, and PoE Test Specifications

Table 3-3 Cable, energized-circuit, and PoE test specifications

Item	Specification
Cable type for length testing	Twisted-pair network cable
Length-test resolution	0.1 m for SML-DSL / SML-DSL-IP / SML-DSL-IP+; 0.01 m for SML-DSLA / SML-DSLA-IP / SML-DSLA-IP+ / SML-DSLA-N
Maximum length-test range	500 m
Cable-tracing range	≤500 m
Coaxial tracing range	300 m
In-wall tracing depth	50 cm for SML-DSA / SML-DSA-IP / SML-DSA-IP+ / SML-DSLA / SML-DSLA-IP / SML-DSLA-IP+; 200~300 cm for SML-DSLA-N
Underground tracing depth	150 cm for SML-DSA / SML-DSA-IP / SML-DSA-IP+ / SML-DSLA / SML-DSLA-IP / SML-DSLA-IP+; 200~300 cm for SML-DSLA-N
Permitted voltage for energized-cable tracing	220 V or below; never connect to 380 V
PoE voltage range	≤60 V
PoE standard test	Display identifies the PoE output as standard or non-standard

3.4 IP and Network Test Specifications for IP/IP+ Models

Shared specifications in this section apply to all eight IP/IP+ models. Items marked “IP+ only” apply only to SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSLA-IP+.

Table 3-4 IP and network test specifications for IP/IP+ models

Item	Specification
Entry IP functions	IP Scan, PING Test, Port Blink, Link Speed
Professional IP+ functions	All entry IP functions plus IP Monitoring, HTTP Test, LLDP, Network Sniffing, and Broadcast Monitoring

Item	Specification
Shared configuration entry	IP Settings; configures DHCP, static IP, target IP, scan range, and related parameters and is not counted as a separate function
PING Test protocol	IPv4, ICMP Echo
PING round-trip-time display	1 ms resolution
PING packet count	Maximum 1000
PING error threshold	5 ms / 10 ms / 20 ms / 50 ms / 100 ms / 200 ms / 500 ms / Timeout
IP Scan	Scans one broadcast domain, up to 254 addresses per scan
IP Scan protocol	IPv4, ARP
HTTP Test (IP+ only)	Starts a temporary Web service; a computer or phone on the same subnet can access the instrument IP in a browser
Link Speed display	10 Mbps / 100 Mbps / 1000 Mbps; Full Duplex / Half Duplex
LLDP (IP+ only)	Peer device must support and enable LLDP
Broadcast Monitoring threshold (IP+ only)	500~2000 pps

Chapter 4 Preparation Before Use

4.1 Model, Accessories, and Battery Check

1. Confirm the product model and use Table 1-1 to verify support for the required function, such as length testing, energized-cable tracing, or IP/network testing.
2. Check the transmitter, receiver, and supplied accessories against Chapter 9, “Packing List,” for the model purchased.
3. Confirm that the instrument has sufficient charge before use. Charge it before first use after long-term storage.

4.2 Port Selection

Select the correct port for the cable and test function as shown in Table 4-1.

Table 4-1 Test function and port selection

Test Function	Port
Network-cable tracing and wire mapping	RJ45 network-cable tracing/mapping port
Telephone/two-core cable tracing	Two-core tracing port
PoE testing; IP and network testing (models ending in -IP or -IP+ only)	Shared PoE/IP/network test port
Twisted-pair network-cable length testing	Length-test port
Energized in-wall/underground cable tracing	Corresponding energized-cable tracing port on a supported model, with the specified accessory

4.3 Checks Before Cable Testing

WARNING

Before a length test, ensure that the far end is open and that the cable is not energized.

WARNING

Use only the shared PoE/IP/network test port for PoE testing. On models ending in -IP or -IP+, this physical port also supports the corresponding IP and network tests. Never connect a PoE-powered cable to the length-test port or any other port.

4.4 Checks Before Energized-Cable Tracing

WARNING

For energized in-wall or underground cable tracing, use only a supported model with the corresponding port and accessory. The permitted voltage is 220 V or below. Never connect to a 380 V circuit.

4.5 Preparation for IP and Network Tests

This section applies to SML-DS-IP, SML-DS-IP+, SML-DSL-IP, SML-DSL-IP+, SML-DSA-IP, SML-DSA-IP+, SML-DSL-IP, and SML-DSL-IP+. See Table 1-1 for the exact functions of each model.

1. Before an IP or network test, read the usage restrictions and port warning for the function in Chapter 5, then connect the network as instructed.
2. With DHCP enabled, the instrument first uses network parameters assigned by a router or switch. For a static IP, make sure the local IP address, subnet mask, and gateway are valid for the target network.

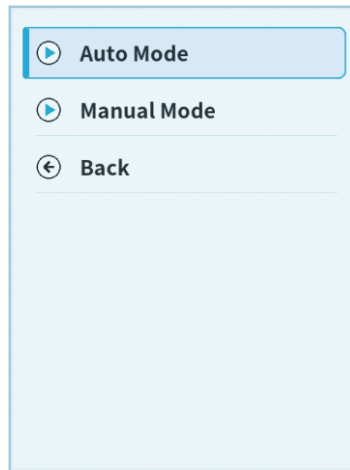
Chapter 5 Operation

5.1 Power-On and Navigation

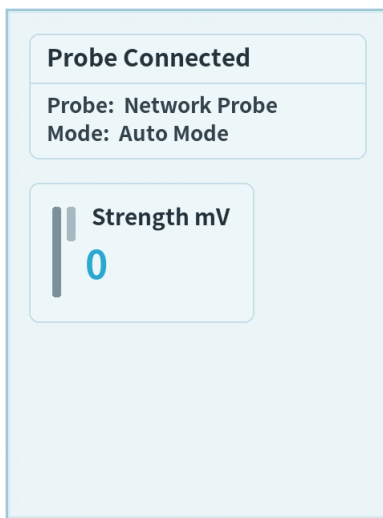
1. With the receiver powered off, briefly press the Power button.
2. The receiver beeps and displays the startup screen.
3. The main screen appears automatically after approximately 2 seconds.
4. Use the arrow buttons to select a function, press OK to enter, and press Back to return to the previous screen.

5.2 Cable Tracing and Wire Mapping

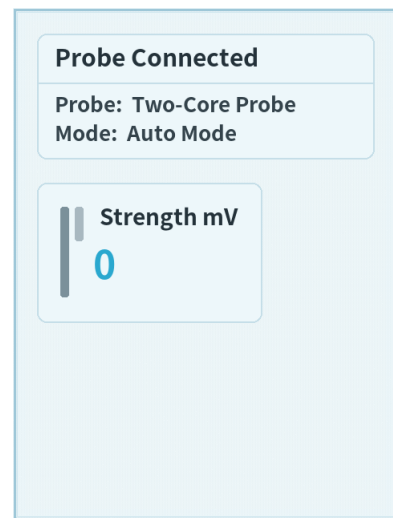
1. Select Trace/Map on the receiver main screen. Figure 5-1 shows the mode menu and test screens.
2. Auto mode is intended for fast tracing over a broad area and adjusts receiver sensitivity automatically.
3. Manual mode is intended for precise localization over a small area. Use the arrow buttons to select sensitivity level 0~10.
4. Set the transmitter to network-cable mode, connect the cable under test to the transmitter RJ45 port, and confirm that the green indicator remains on.
5. Move the receiver near the cable or port and use the displayed strength value to locate the target. A higher value generally indicates that the receiver is closer to the target cable.
6. After locating the far end, connect it directly to the receiver wire-map port to view continuity and conductor order. You do not need to return to the transmitter to change modes.



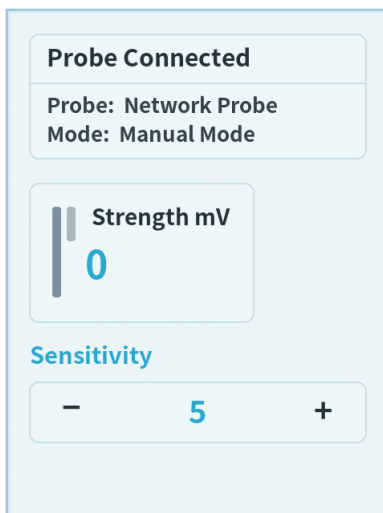
(a) Tracing-mode selection



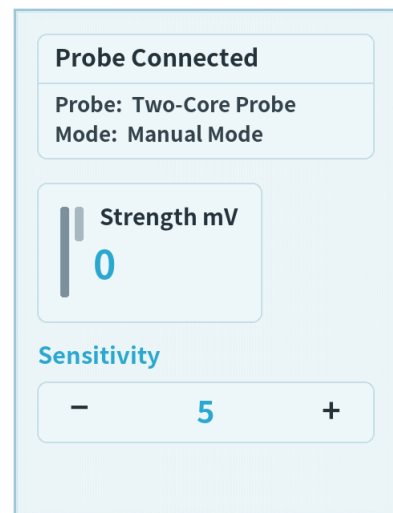
(b) Automatic network-cable tracing



(c) Automatic two-core cable tracing



(d) Manual network-cable tracing



(e) Manual two-core cable tracing

Figure 5-1 Tracing-mode menu and automatic/manual tracing screens

5.3 Wire Mapping

1. Connect one end of the cable to the transmitter network-cable port and the other end to the receiver wire-map port.
2. The instrument supports conductor-order testing for 2~8 conductors; it does not support single-conductor cable.
3. Continuity and conductor order are displayed when any two conductors are connected.
4. A normal network cable shows matching local and remote positions 1~8, as in Figure 5-2.
5. For an abnormal result, identify the fault from the screen. For an open, a number missing at the remote end or a gap in a connection line identifies the open conductor. For a short, the shorted conductors appear at the short indication. For crossed wiring, the corresponding local and remote numbers do not match.

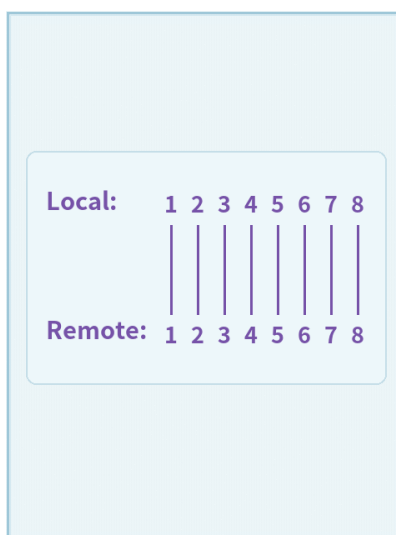


Figure 5-2 Wire-map result for normal conductor order

5.4 Length Test

NOTE

Applies to SML-DSL, SML-DSL-IP, SML-DSL-IP+, SML-DSLA, SML-DSLA-IP, SML-DSLA-IP+, and SML-DSLA-N.

WARNING

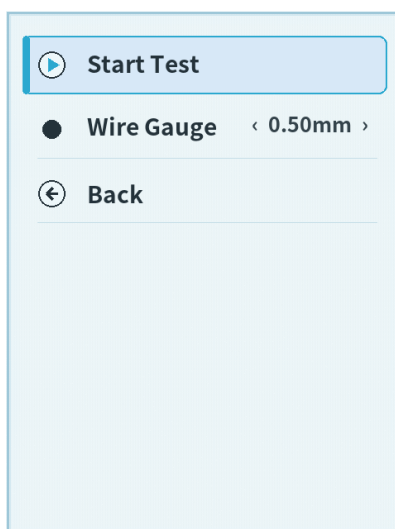
During a length test, the far end of the cable must remain open. Never connect an energized twisted-pair cable; doing so will damage the instrument.

1. Select Length Test on the receiver main screen. The menu is shown in Figure 5-4(a).
2. Select the conductor-size setting. Refer to the receiver screen for the current default.
3. Connect the network cable to the length-test port shown in Figure 5-3, leaving the far end open.

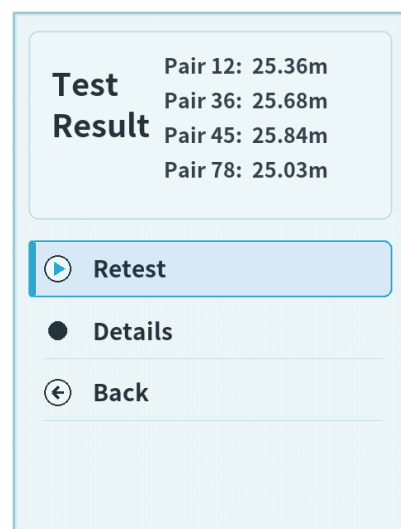


Figure 5-3 Receiver shared PoE/IP/network test port and length-test port

4. Press OK to start the test.
5. The result screen shows cable length and pair status. Length results are available for pairs 12, 36, 45, and 78, as shown in Figure 5-4(b).
6. Length-test resolution is 0.1 m for SML-DSL / SML-DSL-IP / SML-DSL-IP+ and 0.01 m for SML-DSL-IP+ / SML-DSL-IP+ / SML-DSL-IP+ / SML-DSL-IP+.
7. The maximum test length is 500 m.



(a) Length-test menu



(b) Length-test result

Figure 5-4 Length-test menu and result screens

5.5 Telephone and Two-Core Cable Tracing

1. Set the transmitter switch to Two-Core Trace; the status indicator turns red.
2. Connect a telephone cable to the transmitter two-core tracing port.
3. For a two-core twisted-pair cable, connect the two-core alligator-clip adapter to the transmitter two-core tracing port.
4. Power on the receiver and open the tracing screen.
5. Move the receiver along the cable route and use the strength value to locate the cable.

5.6 Coaxial Cable Tracing



Figure 5-5 Transmitter BNC coaxial tracing port

1. Connect the coaxial cable to the transmitter BNC coaxial tracing port shown in Figure 5-5. This function is for coaxial tracing only.
2. Power on the receiver and open the tracing screen.
3. Move the receiver along the cable route and use the strength value to locate the cable.

5.7 Energized In-Wall/Underground Cable Tracing

NOTE

Applies to SML-D5A, SML-D5A-IP, SML-D5A-IP+, SML-D5LA, SML-D5LA-IP, SML-D5LA-IP+, and SML-D5LA-N.

WARNING

Energized in-wall/underground cable tracing is limited to supported models and the corresponding port. Operation requires electrical-safety knowledge and the specified energized-circuit accessories. The permitted voltage is 220 V or below. Never connect to a 380 V circuit.

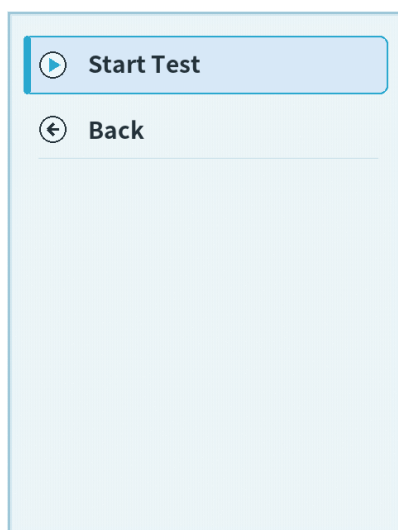
1. Connect the in-wall or underground circuit at 220 V or below to the corresponding energized-cable tracing port on the transmitter.
2. Power on the receiver and open the tracing screen.
3. Move the receiver along the cable route and use the strength value to locate the cable.

5.8 PoE Test

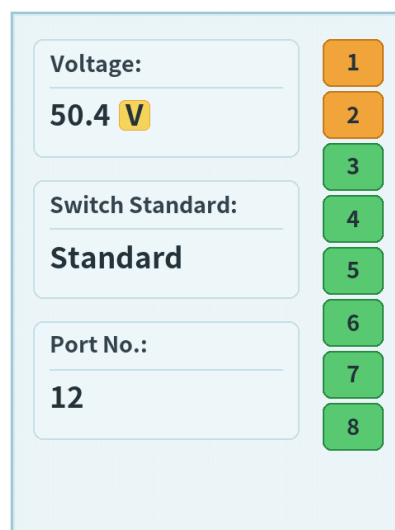
WARNING

Use only the shared PoE/IP/network test port for PoE testing. On models ending in -IP or -IP+, this physical port also supports the corresponding IP and network tests. Never connect a PoE-powered cable to the length-test port or any other port; doing so may cause a malfunction or damage the instrument.

1. Use the arrow buttons to select PoE Test on the receiver main screen.
2. Press OK to open the PoE test menu, then press OK again to open the test screen. The menu is shown in Figure 5-6(a).
3. Connect the network cable under test to the receiver shared PoE/IP/network test port shown in Figure 5-3.
4. Press OK to start detection.
5. The receiver displays the port output voltage, standard or non-standard PoE output, and powered pair information, as shown in Figure 5-6(b).
6. The PoE voltage under test must not exceed 60 V.



(a) PoE test menu



(b) PoE test result

Figure 5-6 PoE test menu and result screens

5.9 IP Tests

This section applies to all eight IP/IP+ models. IP Settings is the shared configuration entry. Both editions support IP Scan and PING Test; only professional IP+ models support IP Monitoring and HTTP Test.

NOTE

Usage restriction: Use IP Scan, IP Monitoring, and HTTP Test only on networks that you own or are explicitly authorized to administer and test. Follow your organization's network-security and privacy requirements.

WARNING

On models ending in -IP or -IP+, IP, network, and PoE tests share one RJ45 port. This port is for wired Ethernet cable only. Do not connect an energized mains circuit, telephone line, or line of unknown voltage. Never connect a PoE-powered cable to the length-test port or any other port.

5.9.1 IP Settings

1. Use the arrow buttons to select IP Test on the receiver main menu, then press OK.
2. Select IP Settings and press OK to open the settings screen.
3. To edit an IP address, select it and press OK. When a green underline appears below the active character or digit, press OK to advance to the next position and use Left/Right to change its value. Press Back to save, then press Back again to exit.
4. Target IP sets the destination for PING Test and, on professional IP+ models, IP Monitoring. Presets include sina, google, baidu, local, dns, and user1. Because of the display-width limit, google may appear as googl.
5. Scan sets the address range for IP Scan.
6. Static IP manually sets the local IP address, subnet mask, and gateway.
7. MYIP is the local IP address, MASK the subnet mask, GATE the gateway, and MAC the physical address. The MAC address is normally factory-unique and cannot be edited.
8. Scan Timeout sets the IP Scan wait time. A longer timeout reduces the chance of missing a result.
9. Count sets the number of PING packets, up to 1000.
10. PING Error sets the round-trip-time threshold: 5 ms, 10 ms, 20 ms, 50 ms, 100 ms, 200 ms, 500 ms, or Timeout. A typical setting is 20 ms for a LAN and 100~200 ms for a public network.
11. Broadcast Storm sets the Broadcast Monitoring threshold for professional IP+ models, from 500~2000 pps. The receiver warns of a broadcast-storm risk or marks the result abnormal when the rate exceeds the threshold.
12. DHCP dynamically obtains an IP address, subnet mask, and gateway. When DHCP is enabled, DHCP-assigned parameters take priority.

Target IP

Scan

Static IP

Scan Timeout < 20s >

Count < 30 >

PING Error < Timeout >

Broadcast Storm < 500 >

DHCP < On >

Back

IP Scan Range

192.168.110.1-255

116293851

52607073111

117120134136146

176185251253

1/1

Completed

Local IP: 192.168.110.137

< Prev Page

> Next Page

✕ Back

Figure 5-7 Target IP settings and IP Scan range (example range; use the actual receiver setting)

5.9.2 PING Test

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to the LAN or public-network device.
2. From the main menu, select IP Test → PING Test.
3. The receiver starts the test automatically. Press Left/Right to switch among target IP addresses.
4. With a working connection, the screen shows Running or Completed and reports the local IP, packets sent, received, and lost, and minimum, maximum, and average round-trip time.
5. If the network is unavailable, the target firewall blocks ICMP, or the target does not respond, the screen may show Disconnected, Timeout, Lost, or No Response. Such a result does not necessarily indicate a receiver fault.
6. Change the target IP, packet count, and PING error threshold under IP Settings in Section 5.9.1.

sina

183.232.23.228

Packet Count

10

PING Error

Timeout

Sent:10

Received:10

Lost:0

Min: 10ms

Max: 11ms

Average: 10ms

Completed

Local IP: 192.168.110.137

< Previous

▶ Clear

> Next

✕ Back

Figure 5-8 PING Test details (example results depend on the network)

5.9.3 IP Scan

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to the target LAN.
2. From the main menu, select IP Test → IP Scan.
3. The receiver starts automatically and uses the scan range and scan timeout configured under IP Settings.
4. With a working connection, the screen shows Running and the local IP during the test. When complete, it shows Completed and lists the online IP addresses found.
5. If the network is unavailable, the screen shows Disconnected.
6. A phone or other endpoint may not appear because of its operating-system settings, sleep state, or network configuration. This is normal.

Figure 5-7 shows an example IP Scan range.

Name	IP	Status
sina	183.232.23.228	Success
googl	31.13.68.169	Failed
baidu	183.240.99.224	Success
local	127.0.0.1	Failed
dns	114.114.114.114	Failed
user1	192.168.110.1	Success
Completed		
Local IP: 192.168.110.137		
X Back		

Figure 5-9 IP Scan results (example results depend on the network)

5.9.4 IP Monitoring

NOTE

This function applies only to SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSLA-IP+.

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to the target network.
2. From the main menu, select IP Test → IP Monitoring.
3. The receiver starts automatically and displays whether each target IP is online or offline.
4. With a working connection, the screen shows Running and the local IP during the test. When complete, it shows Completed and lists the monitoring results.
5. Change the monitored address under Target IP in IP Settings; see Section 5.9.1.

6. This function monitors an external target. Do not use the receiver's own address or 127.0.0.1 as a reachability target.

5.9.5 HTTP Test

NOTE

This function applies only to SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSLA-IP+.

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to a network on the same subnet as the computer or phone.
2. From the main menu, select IP Test → HTTP Test.
3. The receiver starts the test automatically.
4. Not Running means that the receiver Web service has not started or that the current test has not begun.
5. Running means that the receiver Web service has started. Use the connection status at the bottom of the screen to determine whether the network is connected.
6. When the receiver, switch, and computer are on the same subnet, enter the receiver IP address shown on the screen into a computer or phone browser. The receiver Web server page displays the local IP, subnet mask, default gateway, and Web-service status.

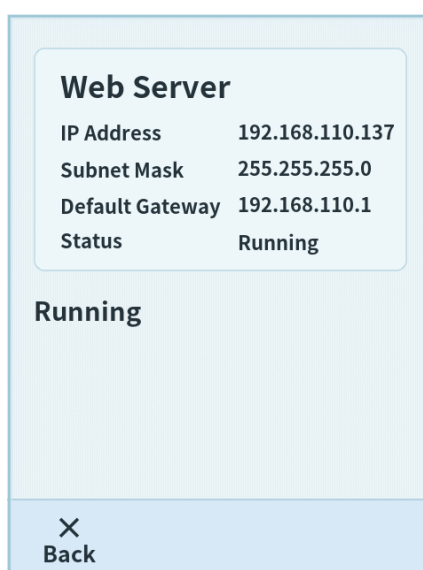


Figure 5-10 Web server page for HTTP Test

5.10 Network Tests

This section applies to all eight IP/IP+ models. Both editions support Port Blink and Link Speed; only professional IP+ models support LLDP, Network Sniffing, and Broadcast Monitoring.

NOTE

Usage restriction: Use Port Blink, Network Sniffing, Broadcast Monitoring, and other network-test functions only on networks that you own or are explicitly authorized to administer and test. Follow your organization's network-security and privacy requirements.

WARNING

On models ending in -IP or -IP+, IP, network, and PoE tests share one RJ45 port. This port is for wired Ethernet cable only. Do not connect an energized mains circuit, telephone line, or line of unknown voltage. Never connect a PoE-powered cable to the length-test port or any other port.

5.10.1 Port Blink

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to a switch.
2. From the main menu, select Network Test → Port Blink.
3. The receiver starts the test automatically.
4. During the test, the green dot on the receiver screen flashes and the LED for the corresponding switch port flashes at the same or another recognizable rate.
5. The result depends on the switch LED policy. A switch with no port indicator or a different indicator policy may behave differently.

5.10.2 Link Speed

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to a router or switch.
2. From the main menu, select Network Test → Link Speed.
3. The receiver starts automatically and displays the negotiated link speed and duplex mode.
4. 10 Mbps, 100 Mbps, and 1000 Mbps identify the corresponding link rate.
5. Full Duplex indicates full-duplex mode; Half Duplex indicates half-duplex mode.

5.10.3 LLDP

NOTE

This function applies only to SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSLA-IP+.

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to a switch or router that supports and has enabled LLDP.
2. From the main menu, select Network Test → LLDP.

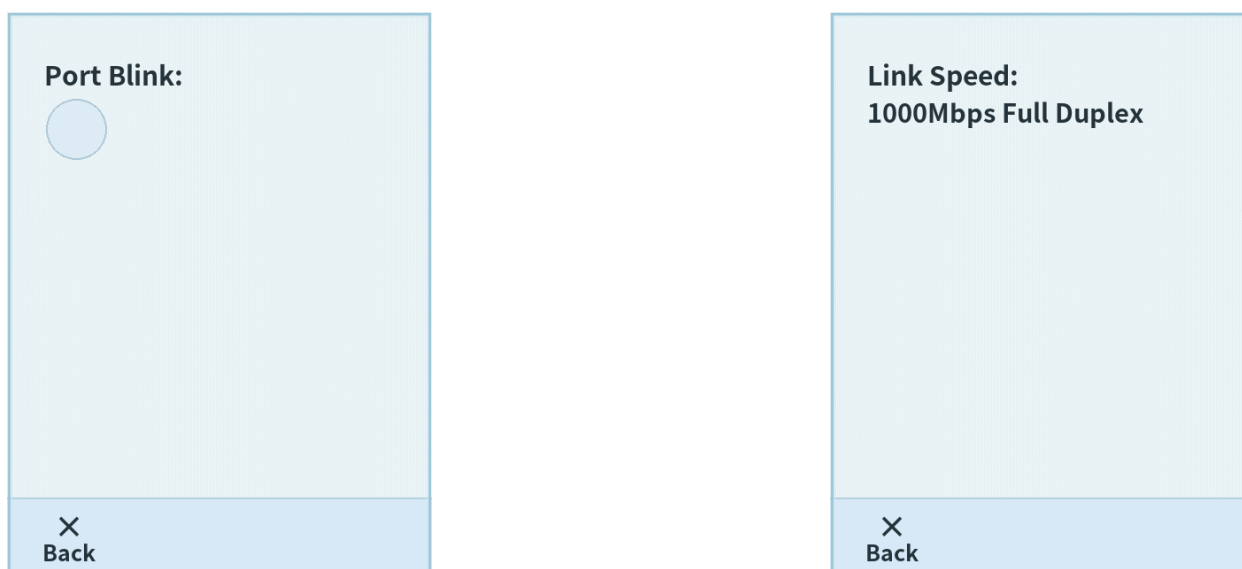


Figure 5-11 Port Blink and Link Speed screens (a static image cannot show the flashing indicator)

3. After receiving LLDP information, the receiver displays the neighbor count, current index, MAC address, device name, port name or port ID, management IP, VLAN ID, and VLAN name when available.
4. LLDP Neighbors:2/3 means that three LLDP neighbors were found and the second is displayed.
5. Connected means that the physical link is up and LLDP data is being exchanged.
6. If LLDP is not enabled on the peer, the receiver may not display neighbor information.

5.10.4 Network Sniffing

NOTE

This function applies only to SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSLA-IP+.

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to the target network.
2. From the main menu, select Network Test → Network Sniffing.
3. Network Sniffing passively monitors packets visible to the current port and attempts to identify the MAC, IP, gateway, and other information for active devices.
4. Devices:1/6 means that six network devices were identified and the first is displayed.
5. Mode:Static IP means that the receiver is using a static IP address.
6. Results depend on live traffic and switch forwarding. If no packet is visible to the current port, no result may appear.

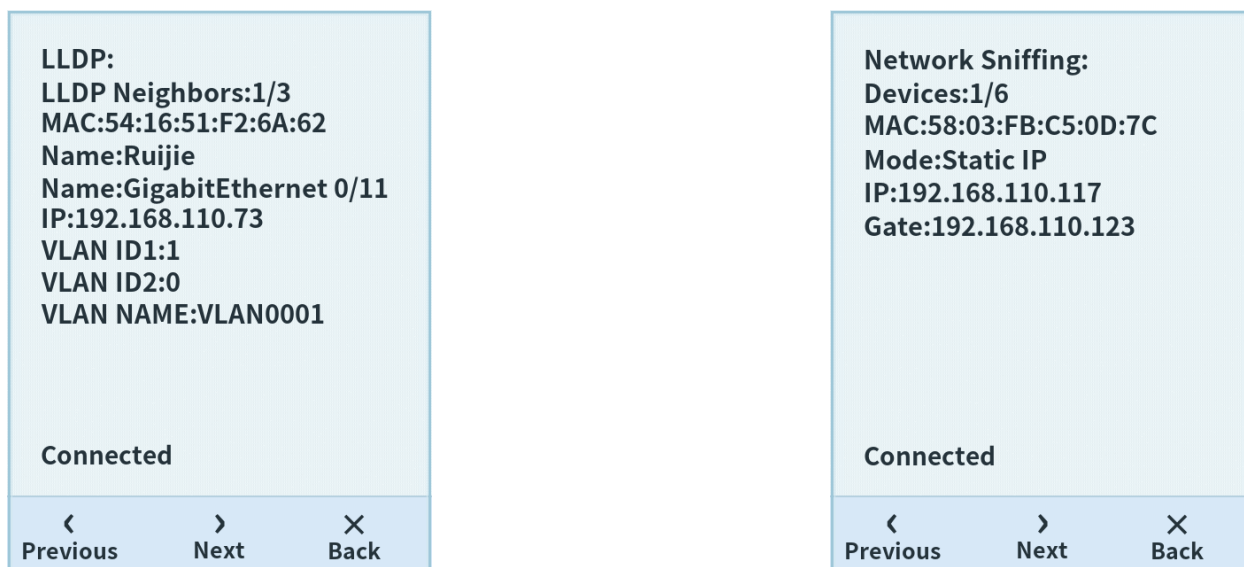


Figure 5-12 LLDP and Network Sniffing screens (examples)

5.10.5 Broadcast Monitoring

NOTE

This function applies only to SML-DS-IP+, SML-DSL-IP+, SML-DSA-IP+, and SML-DSL-IP+.

1. Connect a network cable to the receiver shared PoE/IP/network test port and connect the other end to the target network.
2. From the main menu, select Network Test → Broadcast Monitoring.
3. The receiver counts network broadcast packets in real time to identify a broadcast-storm risk.
4. PPS is the number of broadcast packets per second; BPS is the broadcast traffic per second.
5. When the broadcast packet rate exceeds the Broadcast Storm threshold under IP Settings in Section 5.9.1, the receiver warns of a broadcast-storm risk or marks the result abnormal.

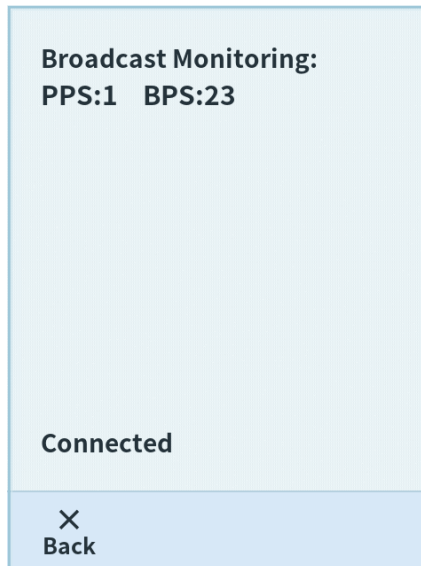


Figure 5-13 Broadcast Monitoring screen

5.11 Settings and Charging

WARNING

If the receiver becomes unusually hot, emits an odor, shows a blank screen, or charges abnormally, stop using it immediately and disconnect all cables.

1. Select Settings on the receiver main screen. The screen is shown in Figure 5-14.
2. Adjust the auto power-off time, backlight duration, and language as needed.
3. Auto power-off options are 30 minutes, 60 minutes, or Never. Backlight options are 5 minutes, 10 minutes, or Never.
4. Charge the receiver through its Type-C port. A charging icon appears on the main screen when a charger is connected.

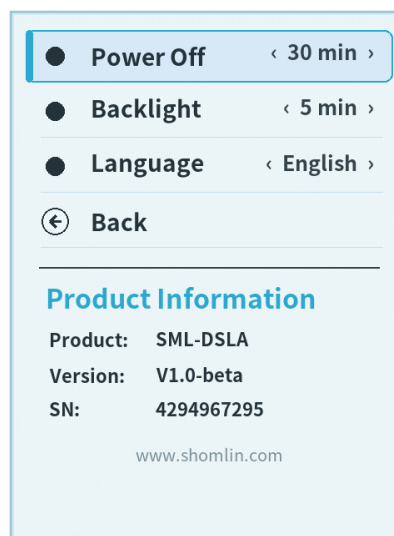


Figure 5-14 Receiver settings screen

Chapter 6 Typical Applications

This chapter summarizes typical applications for the SML-DS Series. See Chapter 5 for test procedures, Chapter 7 for safety requirements, and Chapter 8 for troubleshooting.

6.1 Structured Cabling and Cable Location

The SML-DS Series can be used for:

- network-cable tracing, wire-map testing, and fault location in structured cabling;
- locating a target cable in equipment rooms, low-voltage shafts, patch panels, and switch ports;
- following the route of telephone, two-core, electrical, and coaxial cables.

6.2 PoE and Network-Cable Length Testing

The SML-DS Series can detect PoE switch-port output voltage and identify standard or non-standard PoE. Models with length testing can measure network-cable and individual-pair length.

6.3 In-Wall and Underground Cable Tracing

Models that support this function can be used for:

- tracing in-wall and underground circuits at 220 V or below; 380 V circuits are not supported;
- preliminary route detection through walls, floor tiles, or underground areas, subject to the model and site conditions.

6.4 IP and Network Operations

Entry IP and professional IP+ models can check connectivity, target-IP response, and round-trip time; scan IP addresses on a LAN; locate a switch port; and verify link speed.

Professional models ending in -IP+ can additionally perform IP Monitoring for critical devices, display the HTTP configuration page, identify LLDP neighbors, sniff visible network packets, and investigate broadcast-storm risk.

Chapter 7 Safety and Maintenance

This chapter summarizes the safety requirements for testing and cable connections and explains routine maintenance for the instrument and accessories.

7.1 Test Ports and Cable Connections

WARNING

Use only the shared PoE/IP/network test port for PoE testing. On models ending in -IP or -IP+, this physical port also supports the corresponding IP and network tests. Never connect a PoE-powered cable to the length-test port or any other port; doing so may cause a malfunction or damage the instrument.

WARNING

During a length test, the far end of the cable must remain open. Never connect an energized twisted-pair cable.

WARNING

The shared PoE/IP/network test port is only for wired Ethernet cable and PoE detection up to 60 V. Do not connect an energized mains circuit, telephone line, or line of unknown voltage.

CAUTION

Before inserting an alligator clip or adapter, verify that it matches the port. Do not force a connector into a port.

7.2 Energized-Cable Tracing Safety

DANGER

Energized in-wall/underground cable tracing is limited to supported models and the corresponding port. The permitted voltage is 220 V or below. Never connect to a 380 V circuit.

WARNING

Energized-circuit testing must be performed by a person with electrical-safety knowledge using the specified energized-circuit accessories. See Chapter 9 for accessory differences.

7.3 Abnormal Conditions

WARNING

If the instrument becomes unusually hot, emits an odor, shows a blank screen, or charges abnormally, stop using it immediately and disconnect all cables.

7.4 Port Cleaning

Clean the instrument ports regularly to prevent dust from affecting contact.

7.5 Charging and Storage

1. Before long-term storage, ensure that the battery level is at least 50%.
2. Charge the instrument through the Type-C port.

7.6 Accessory Inspection

CAUTION

Stop using and replace a damaged alligator clip, energized-circuit adapter lead, or USB charging cable.

Chapter 8 Troubleshooting

8.1 Symptoms and Corrective Actions

Table 8-1 lists possible causes and corrective actions. For a problem involving PoE, length testing, or energized-cable tracing, also follow the safety requirements in Chapter 7.

Table 8-1 Symptoms, possible causes, and corrective actions

Symptom	Possible Cause	Corrective Action
Power and Charging		
Instrument does not power on	Battery is discharged or Power button was not activated correctly	Charge through Type-C, then try again
Cable Tracing and Wire Mapping		
Tracing strength is unstable	Sensitivity is unsuitable or site interference is strong	Switch between Auto and Manual mode and adjust sensitivity
Target cable cannot be found	Wrong transmitter mode or port, or distance/site conditions exceed capability	Verify transmitter mode and port, move closer to the cable, and test again
No wire-map result	Far end is not connected to the receiver wire-map port, or cable is open	Check both connections and retest. A number missing at the remote end or a gap in a connection line identifies an open conductor.
Wire map shows a short or crossed wiring	Conductors are shorted, terminated incorrectly, or in the wrong order	The short indication identifies shorted conductors. Mismatched corresponding local/remote numbers identify crossed wiring.
Length Test		
No length result	Far end is not open, cable is in the wrong port, or cable is energized	Disconnect the far end, confirm the length-test port, and retest
PoE Test		
No PoE result	Cable is not in the shared test port or is in the wrong port	Use the shared PoE/IP/network test port and confirm that the switch port supplies power
Instrument abnormal after PoE test	PoE cable was connected to the length-test port	Disconnect the cable immediately and stop using the instrument

Symptom	Possible Cause	Corrective Action
Energized-Cable Tracing		
Energized-cable tracing is inaccurate	Model does not support the function, accessory is incorrect, or burial/wall conditions interfere	Confirm voltage is no more than 220 V and retest within the model's in-wall/underground depth. Never connect to 380 V.
IP and Network Tests		
IP conflict message	Local IP may already be in use	Enable DHCP or select an unused local IP address
"Set Local IP" remains displayed	DHCP did not obtain an IP address	Set a local IP, or exit, re-enter, and wait for DHCP
PING has no response or packet loss	Network unavailable, target IP incorrect, target offline, or firewall blocks ICMP	Check the cable, target IP, and gateway; select another target IP and retest
PING reports a timeout	Round-trip time exceeds the PING error threshold	Try 20 ms for a LAN or 100~200 ms for a public network, then retest
IP Scan misses a result	Scan timeout too short, target does not answer ARP, endpoint asleep, or network policy restricts discovery	Increase the scan timeout, confirm that the target is online, and retest
Browser cannot connect during HTTP Test (IP+ only)	Computer/phone is on another subnet, Web service is not running, or an earlier connection remains open	Confirm that the receiver shows Running, close the earlier browser connection, and access the receiver IP again
IP Monitoring result is abnormal (IP+ only)	Target IP is incorrect or uses the local address / 127.0.0.1	Change Target IP under IP Settings and use an external target
Port Blink is not visible	Switch LED policy differs, port has no LED, or cable is not connected to target port	Verify the physical connection and observe the corresponding switch-port indicator
No Link Speed result	Peer port disconnected, negotiation failed, or cable quality is poor	Check the cable and switch port, reconnect, and retest
No LLDP information (IP+ only)	Peer does not support LLDP or LLDP is disabled	Enable LLDP on the switch or router, then retest
No Network Sniffing result (IP+ only)	No packet is visible to the current port, or switch forwarding limits visible traffic	Remain connected and wait for live traffic, or use another test port
Broadcast Monitoring is abnormal (IP+ only)	Broadcast packet rate exceeds the threshold, or threshold is unsuitable for the network	Check the Broadcast Storm threshold under IP Settings and investigate abnormal broadcast sources

Chapter 9 Packing List

This chapter is the authoritative packing list for thirteen models: SML-DS, SML-DSL, SML-DSA, SML-DSLA, SML-DSLA-N, SML-DS-IP, SML-DS-IP+, SML-DSL-IP, SML-DSL-IP+, SML-DSA-IP, SML-DSA-IP+, SML-DSLA-IP, and SML-DSLA-IP+. See Table 9-1 for common accessories and Table 9-2 for differences on energized-cable tracing models. The eight models ending in -IP or -IP+ require no dedicated accessory for IP or network testing.

9.1 Common Accessories

All thirteen models include one of each item listed in Table 9-1.

Table 9-1 Accessories common to all thirteen models

Accessory	Qty.	Accessory	Qty.
Transmitter	1	Receiver	1
Two-core receiver adapter	1	Network-cable receiver adapter	1
Two-core/RJ11 alligator-clip adapter	1	USB charging cable	1
Inspection certificate	1	Warranty card	1
User manual	1	Work bag	1
Color box	1		

9.2 Accessories for Energized-Cable Tracing Models

SML-DSA, SML-DSA-IP, SML-DSA-IP+, SML-DSLA, SML-DSLA-IP, SML-DSLA-IP+, and SML-DSLA-N include an energized-circuit lead consisting of a 220 V adapter and 220 V alligator clip; this lead is not listed as a separate accessory. Other models do not include these accessories.

Table 9-2 Accessory differences for energized-cable tracing models

Model	220 V Adapter	220 V Alligator Clip
SML-DSA, SML-DSA-IP, SML-DSA-IP+, SML-DSLA, SML-DSLA-IP, SML-DSLA-IP+, SML-DSLA-N	1	1
SML-DS, SML-DS-IP, SML-DS-IP+, SML-DSL, SML-DSL-IP, SML-DSL-IP+	None	None