

# SEW

# 165 CB

## All in One Multi-purpose Cable Tester and Cable Tracer

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## INSTRUCTION MANUAL

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# Multi-purpose Cable Tester

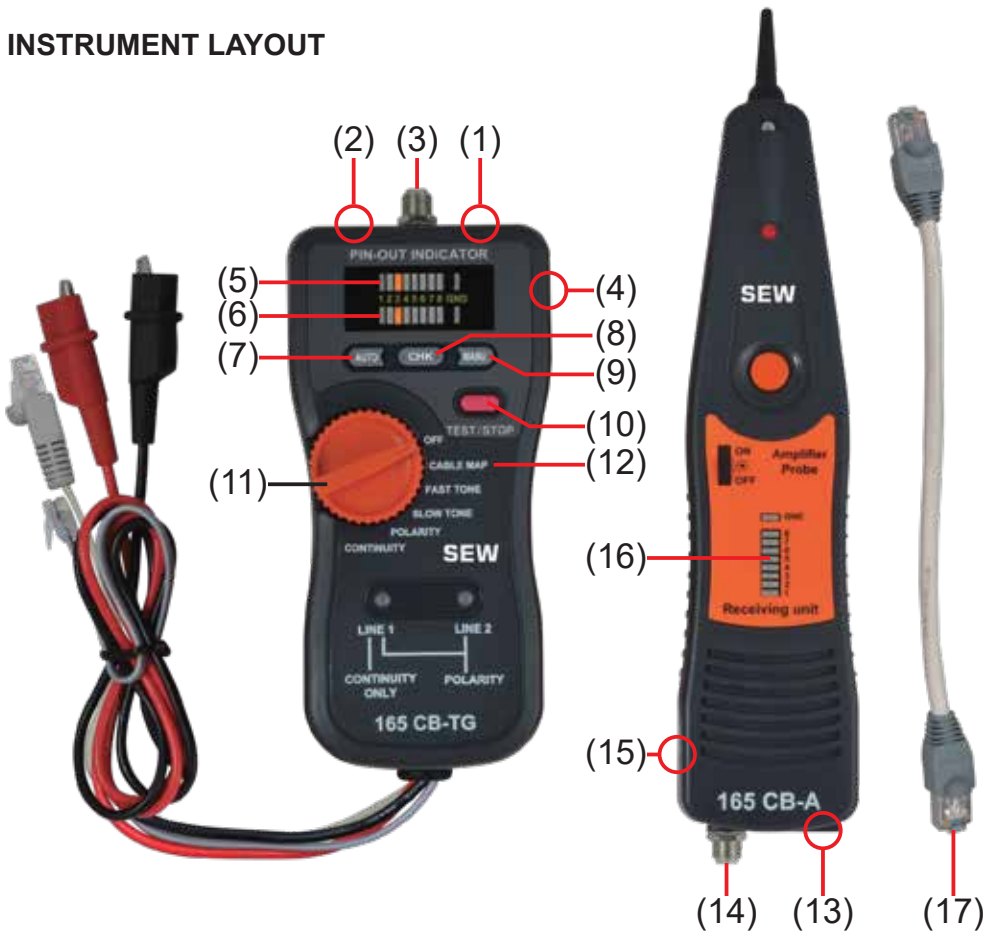
## INTRODUCTION

- The 165 CB is a newly designed tool that can easily test the correct pin configuration of the RJ45/RJ11 modular cables, USB, COAX, BNC cable & Multi-wire cable.
- By comparing one transmitting end and the corresponding receiving end, the 165CB also can test installed cable far away by using the receiving unit.
- The tester provides the variety for wiring check, such as cable continuity, open status, short status and miss-wired.

## FEATURES

- Designed for testing : -RJ45/RJ11 -USB -COAX -BNC cable -Multi-wire cable
- The tester can verify cable continuity, open, short circuit and miss-wired.
- The receiving unit is available for installed cables far away either on the wall plates or on the patch panels.
- Auto-scan and manual-check function.
- Buzzer sound warning for wire status.
- 2 LED module indicators on the master unit which can do both of transmitter and receiver functions for RJ45/RJ11 cable testing. Users don't need to use the receiving unit.
- Ground ( shielded ) wire test.
- Display: indication by LED modules for wire status.
- Power source : 9V battery
- Safety standard:       EN 61326-1  
                              EN 55011  
                              EN 61000-4-2  
                              EN 61000-4-3

# INSTRUMENT LAYOUT



- 1. RJ45 jack of sourcing end
- 2. RJ45 jack of receiving end
- 3. Coax connector of sourcing end
- 4. USB jack of sourcing end
- 5. LED indicator of sourcing end
- 6. LED indicator of receiving end
- 7. Auto scan control button
- 8. "CHK" Check button for manual test

- 9. Manual test control button
- 10. "TEST/STOP" button
- 11. Function rotary switch
- 12. Cable Map function
- 13. RJ45 jack of the receiving unit
- 14. Coax connector of the receiving unit
- 15. USB jack of the receiving unit
- 16. LED indicator of the receiving unit
- 17. Self-test cable

## OPERATION

### Loopback test

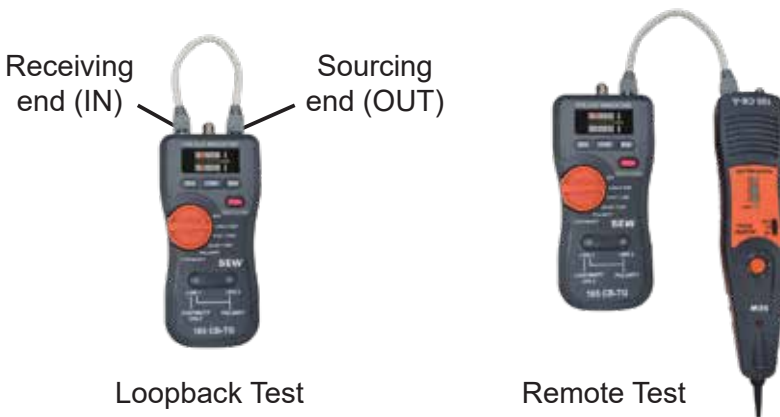
- Plug one end of the RJ45/RJ11 cable into the RJ45 jack of sourcing end (OUT) on the master unit and another end of the RJ45/RJ11 cable into the RJ45 jack of receiving end (IN) on the master unit.
- Select the "CABLE MAP" function with the function rotary switch. Press the "TEST/STOP" button to start a sequential scanning process if the master unit is in "auto-scanning" mode.
- Press the "TEST/STOP" button, the pin1 LED lamps of the LED indicators will be alight if the master unit is in "manual scanning" mode.  
Note: When the battery power is low, the testing results may not be correct.  
Please replace with a new battery.
- You can choose a auto-scanning mode or a manual scanning mode by pressing the "AUTO" button or the "MANU" button.
- When the loop is "OPEN", you will hear the sound of the buzzer.

### Remote test

- Remote test is designed for RJ45/RJ11, Coax and USB cables. Users also can check BNC cables and multi-wire cables by using our optional accessories. (BNC testing cables, Multi-wire testing cables)
- Plug one end of your cable into the RJ45/RJ11 jack, Coax connector or USB jack of sourcing end on the master unit and plug another end of your cable into the RJ45/RJ11 jack, Coax connector or USB jack of the receiving unit, then make tests.
- Read the testing results from the LED indicator on the receiving unit.

## TEST PIN CONFIGURATION

### RJ45/RJ11



Wall Plate



Patch Panel



Coax cable



Remote Test

## USB cable



Remote Test

## BNC cable (with optional accessories)



Remote Test

Loopback test

## Multi-wire cable (with optional accessories)



Loopback test

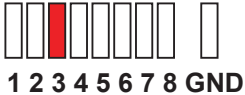


Remote Test

## TEST RESULTS

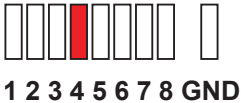
a. Continuity

Pin 3 is continued



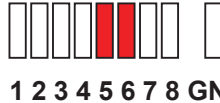
b. Open

Pin 4 is opened



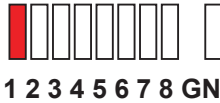
c. Short-circuit

Pin 5 and 6 are miss-shorted



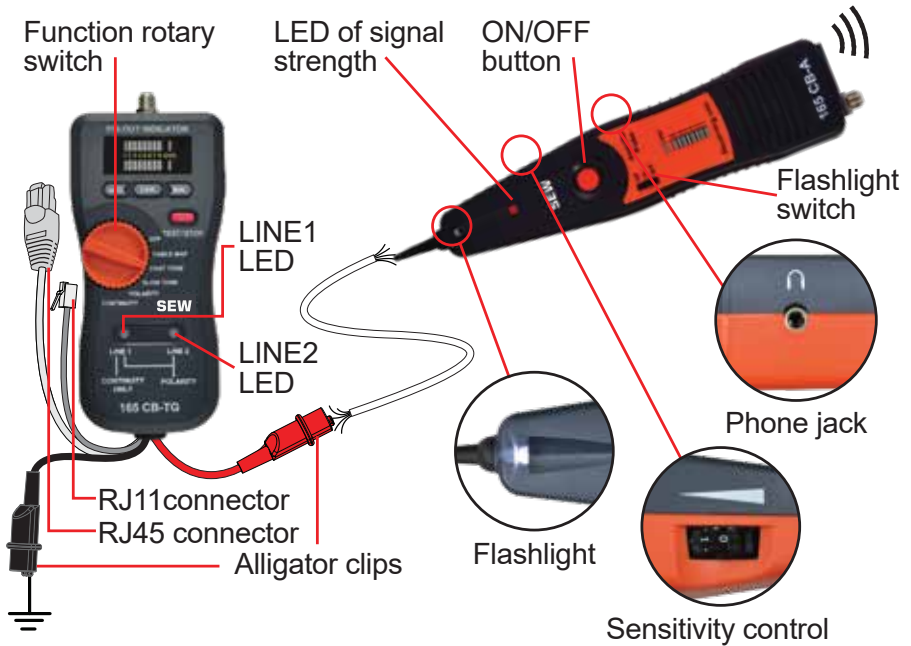
d. Miss-wired

Pin 1 and 7 are miss-wired





# Cable Tracer



**Figure1. Cable tracing**

## AMPLIFIER PROBE FEATURES

- The Amplifier Probe is designed to identify and trace wires or cables within a group without damaging the insulation.
- The flashlight function for easier cable tracing in the dark.
- An LED indication for the signal strength
- Works with any Tone Generator to identify wires.
- Volume control for increased sensitivity and adjustable to suit work environment.
- Recessed ON/OFF button prevents battery drain.
- Power supply is from any 9V battery with a life of approximately 100 hours.
- An audio jack is provided for headset.

# Tone Generator

## INSTRUCTIONS

- Connecting the tone generator.

In terminated working cables: Connect one test lead to a terminated wire and the other test lead to earth or equipment ground.(See Figure 1)

In unterminated or non-working cables: Connect one test lead to an unterminated wire and the other test lead to another unterminated wire.

## MAINTENANCE

The amplifier probe is maintenance free except for battery replacement.

Remove the screw from the battery compartment, replace the 9V battery and reassemble. Warranty limited solely to repair or replacement; no warranty of merchantability, fitness for a particular purpose or consequential damages.

## FEATURES

- Tone Generator is a great tool for locating and identifying cable pairs or individual conductors.
  - Two bi-colored LEDs for Line1 and Line 2 indication of the polarities of the telephone lines.
  - Identifying Tip and Ring of telephone lines.
  - Identifying telephone line condition : Clear line, Busy line and Ringing line.
  - 165 CB does not only serves as a tone generator, but it also serves as a continuity and polarity tester.
  - Users can select a fast dual tone or a slow dual tone by the function rotary switch.
- (See Figure 2)
- The unit has red and black alligator type terminals, a modular cable of 4 conductors with a strong connector.
  - The continuity function only applies to Line1.

**Figure2**



## INSTRUCTIONS

All of the following tests can be performed by using the red and black test leads or the modular plug.

NOTE: When using the modular test plug, the polarity test function applies to Lines 1 and 2. The continuity function ONLY applies to Line 1.

Figure 3



### ● POLARITY TEST: IDENTIFYING TIP & RING (SWITCH TO "POLARITY")

1. Connect the RED test lead to the side of one line and the BLACK lead to the side of another line. (See Figure 3)
2. The LED will glow "GREEN" when you connect the RED test lead to the RING SIDE of the line.
3. The LED will glow "RED" when you connect the RED test lead to the TIP SIDE of the line.

### ● IDENTIFYING LINE CONDITION (SWITCH TO "POLARITY")

1. Connect the RED test lead to the RING SIDE of the line and the BLACK to the TIP. (See Figure 3)
2. Watch the LED:
  - 2.1 A BRIGHT "GREEN" LED indicates a CLEAR line.
  - 2.2 A DIM "GREEN" LED indicates a BUSY line.
  - 2.3 A BRIGHTLY FLICKERING "GREEN and RED" LED indicates a RINGING line.

### ● VERIFYING LINES (SWITCH TO "POLARITY" THEN "CONTINUITY")

1. Dial the line to be verified.
2. While the line is ringing, connect the RED lead to the RING SIDE of the line and the BLACK to the TIP.
3. In the "POLARITY" position, the indicator lamp will flicker "RED and GREEN" when the test leads are connected to the subject pair.
4. If you switch the test set to "CONTINUITY", it will terminate the call on the subject line.

### ● **SENDING TONE (SWITCH TO "FAST TONE" or "SLOW TONE")**

CAUTION: DO NOT CONNECT TO ANY ACTIVE AC CIRCUIT EXCEEDING 24V IN THIS MODE.

1. Connect the test leads to the pair, or attach one lead to ground and one lead to either side of the line.(See Figure 1)
2. A fast dual alternating tone, or a slow dual alternating tone can be selected from the function rotary switch.
3. Probe the suspected wires with the amplifier probe.  
Reception of tone will be strongest on the subject wire. In case of ready access to bare conductors, a handset or headphone may be used to receive the tone

### ● **TESTING CONTINUITY (SWITCH TO "CONTINUITY")**

CAUTION: DO NOT CONNECT TO ANY ACTIVE AC OR DC CIRCUIT IN THIS MODE.

1. Connect the test leads to the subject pair.
2. Switch to "CONTINUITY".
3. A bright "GREEN" light indicates continuity. The LED will not glow if the line resistance exceeds 12k $\Omega$

### ● **TESTING CONTINUITY BY USING TONE (SWITCH TO "FAST TONE" or "SLOW TONE")**

CAUTION:DO NOT CONNECT TO ANY ACTIVE AC OR DC CIRCUIT IN THIS MODE.

1. Connect the test leads to the subject pair.
2. Use a handset or headset at the remote end and touch the wire end(s) with the clip lead(  
Reception of tone is an indication of continuity.

### ● **MODULAR TESTING**

1. All above tests are available through the modular plug for line 1 only - red and green wire

### ● **COAX TESTING**

1. To test unterminated coax, connect red to outer shield and black to center conductor or red to outer shield and black to ground.
2. To test terminated coax, connect red to connector housing and black to center pin or red to connector housing and black to ground.

## SPECIFICATIONS

### Master unit & Tone Generator

165CB-TG

Display	LED Modules Bi-colored LEDs
Waveform	Square wave
Frequency	1kHz±15%
Over Voltage Protection	80V DC
Single Tone	——
Alternating Tone	Fast and slow
Connection	RJ11 connector and RJ45 connector

### Amplifier Probe & Receiving unit

165CB-A

Frequency Detection	1Hz~12kHz
Receiver Distance	<50cm
Sensitivity Control	V
Flash light	V
LED for signal strength	V
LED module	V

### General

Operating Temperature & Humidity	0°C~40°C, 80% Max
Storage Temperature & Humidity	-10°C~50°C, 80% Max
Power Source	165 CB-A : 9V battery 165 CB-TG : 9V battery
Dimensions	165 CB-A : 263(L) x 55(W) x 37.3(H)mm 165 CB-TG : 180(L) x 82(W) x 43.8(H)mm
Weight	165 CB-A : 210g 165 CB-TG : 280g
Safety Standard	EN 61326-1      EN 55011 EN 61000-4-2    EN 61000-4-3
Accessories	Instruction manual Batteries Carrying case Self-test cable
Optional Accessories	<b>BNC testing cables</b> <b>Multi-wire testing cables</b>



Carrying case



BNC testing cables  
(optional accessories)



Multi-wire testing cables  
(optional accessories)