Cable Testers

Models 6681, CA7024, CA7027 and CA7028

Model 6681

Locates cables and detects faults in electrical cables, telecommunication cables, live or de-energized, in walls or buried

Model CA7024

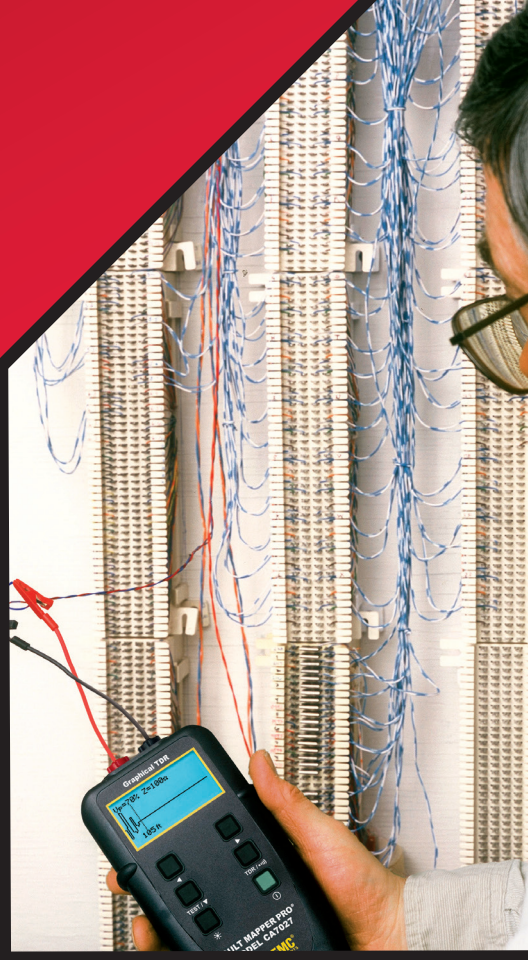
Hand-held Alphanumeric TDR (Time Domain Reflectometer) Cable Length Meter and Fault Locator, finds opens and shorts and their location

Model CA7027

Hand-held Graphical TDR Telecom Cable Tester, detects opens, shorts, taps, faulty taps, bridge taps, splitters, high resistance, wet cables, splices and more

Model CA7028

Hand-held LAN Cable Mapping and Troubleshooting Tester



(800) 343-1391
www.aemc.com

AEMC® INSTRUMENTS
CHAUVIN ARNOUX GROUP

Our products are backed by over 130 years of experience in test and measurement equipment, and encompass the latest international standards for quality and safety.

Model 6681

Cable Locator

Renovation. Improvement. Maintenance.

To assist your maintenance, renovation and improvement work, the AEMC® Model 6681 detects electrical power cables, telecommunication cables, metal pipes and even restrictions in non-metal conduit.

Comprising a transmitter and a receiver, the Model 6681 is simple to use on both current-carrying and non-current-carrying electrical wiring. Its digital technology overcomes interference and disturbance signals to provide precise location details. The receiver displays the value of the signal measured, which is also shown on a bar chart, and emits audible signals whose amplitudes vary in proportion to the signal distance.

This makes it very simple to follow electrical cables through walls or detect buried pipes. To guide you and simplify your work, the receiver can quickly identify the circuit-breaker or fuses corresponding to the power outlet which the transmitter is connected to. It can be used to detect short-circuits or breaks on existing installations. For example, it is possible to detect faults in under-floor radiant heating pipes. The Model 6681 is lightweight and includes a complete set of accessories for direct measurement.

Large LCD screen with optimized contrast, bargraph and backlighting for the receiver

The receiver displays its battery-charge status of itself and the transmitter

Flashlight activation

Selects cable detection or line-voltage detection mode

Automatic/manual sensitivity detection adjustment

FEATURES

- Operates in both single-pole and two-pole modes
- Locates and traces hidden cables
- Detects and locates line breaks
- Detects faults in floor radiant heating systems
- Detects constricted sections of non-metallic pipes
- Detects circuit breakers/fuses
- Detects short circuits
- Backlight and flashlight functions
- Compliant with standards electrical safety standard EN 61010-1 and electromagnetic compatibility standard EN 61326-1

The transmitter displays its battery-charge status

Large LCD screen with optimized contrast, bargraph and backlighting for the receiver

Flashlight activation

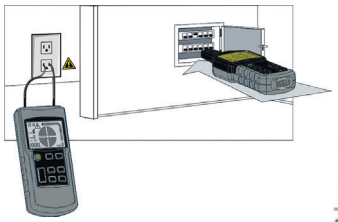
Output power adjustment or transmission code selection

For excellent visibility even in the darkest places, the transmitter and receiver include a powerful built-in flashlight

A Single Instrument for Locating all Your Metal Conductors

Location and tracking of branches and outlets

Identification of the network voltage and detection of breaks in the wiring

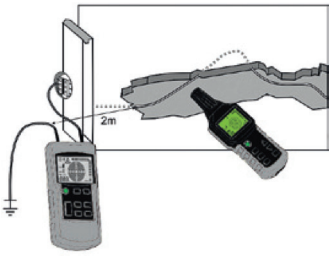


Circuit breaker identification

Locate line interruptions

Short circuit detection in walls, flooring or under ground

Detect crimped or obstructed sections of a non-metallic pipe

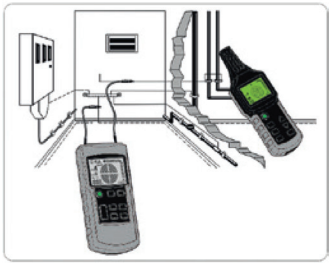


Trace buried cable runs

Fault detection in radiant heating systems

SPECIFICATIONS

MODEL	6681 (TRANSMITTER)
Display	LCD screen with display of functions and bargraph
Output Signal Frequency	125kHz
External Voltage Measurement Range	12 to 300VAC/DC
Functions	Digital coding of signals for easy signal identification, selection of transmission signal code, flashlight
Power Supply	9V battery
Dimension	7.48 x 3.5 x 1.67" (190 x 89 x 42.5mm)
Weight	14.81oz (420g) with battery
Electrical Safety	300V CAT III



Detection of metal heating ducts and water pipes

MODEL	6681 (RECEIVER)
Display	Backlit LCD with display of functions and bargraph, transmissioncode, receiver and transmitter battery-charge status
Detection Depth	
Single-Pole Application	0 to 6ft (0 to 2m)
Two-Pole Application	0 to 1.6ft (0 to 0.5m)
Single Loopback Line	Up to 8.2ft (2.5m)
Line Voltage	Approximately 0 to 1.3ft (0 to 0.4m)
Functions	Automatic shutdown, automatic or manual adjustment of reception sensitivity, flashlight
Power Supply	6 x 1.5V AAA batteries
Dimension	9.5 x 3.07 x 1.5" (241.5 x 78 x 38.5mm)
Weight	12oz (360g) with battery
Electrical Safety	300V CAT III

PRODUCT INCLUDES

MODEL 6681

Soft carrying case, set of 2 color-coded (red/black) leads w/4mm banana plugs, set of 2 color-coded alligator clips, adapter-110V outlet w/banana plugs, 1 mini ground rod, 9V battery, 6 AAA batteries and user manual.

Cable Length Meter and Fault Locator Alphanumeric TDR

FEATURES

- Hand-held Cable Length Meter and Fault Locator
- Detect opens and shorts and the distance to them from one end of the cable
- Measure cable length up to 6000ft or 2000m (feet or meter selectable)
- Automatic cable impedance compensation
- Built-in library of most common cables and their Velocity of Propagation (Vp)
- Manual selection of Vp for all cables not found in library
- User programmable cable library stores up to 15 settings
- Vp setting displayed along with length and cable type (if in library)
- Built-in tone generator for tracing and locating cables
- Large high visibility blue electroluminescent backlit display

APPLICATIONS

- Determine length of cables on reels, coils or in boxes
- Determine cable runs in wall, conduit and other surfaces
- Trace cables to identify runs and location

IP 54

Model CA7024 is used to check length of a power cable on a reel.

The Fault Mapper Model CA7024 is a hand-held, alphanumeric, TDR (Time Domain Reflectometer) Cable Length Meter and Fault Locator, designed to measure the length of electrical and communication cables. It can also indicate the distance to a fault in the cable (open or short), given access to only one end of a two or more conductor cable.

By incorporating fast-edge step TDR technology, the Model CA7024 measures cable length and indicates the distance to open or short circuit faults, to a range of 6000ft or 2000m (user selectable), on virtually any type of cable. The Model CA7024 indicates the cable length or fault distance and description, alphanumerically on a 128 x 64 pixels graphical LCD.

An internal library of standard cable types enables accurate measurement without the necessity of entering Velocity of Propagation (Vp) information, and the Model CA7024 automatically compensates for different cable impedances.

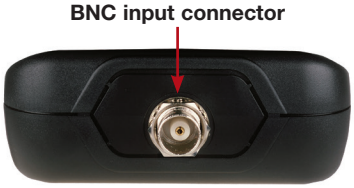
The Model CA7024 incorporates an oscillating tone generator that is detectable with a standard tone receiver for tracing and locating cables. The Model CA7024 also displays a “Voltage Detected” warning and sounds an alarm when connected to a cable energized by more than 10V, which prohibits testing.

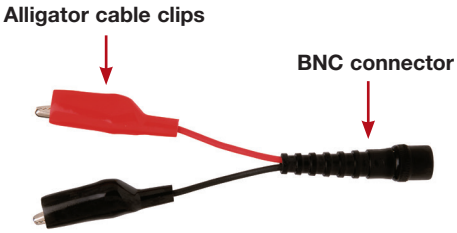
SPECIFICATIONS

MODEL	CA7024
MEASUREMENTS	
Range @ Vp = 70%	6000ft or 2000m (feet or meter selectable)
Resolution	0.1 to 100ft, then 1ft (0.1 to 100m, then 1m)
Accuracy*	±2% of Reading
Minimum Cable Length	12ft (4m)
Cable Library	Built-in, user selectable & user programmable
Velocity of Propagation (Vp)	Adjustable from 0 to 99%
Output Pulse	5V (peak to peak) into open circuit; ns rise step function
Output Impedance	Automatic compensation
Tone Generator	Oscillating tone 810 to 1110Hz
Voltage Warning	Triggers @ >10Vac/dc
Power Source	Four 1.5V AA Alkaline batteries
Battery Life	Standby mode >4000 hrs; continuous testing >7.5 hrs
Battery Life Indication	Bargraph
Power-Off	After three minutes
MECHANICAL	
Dimensions	6.5 x 3.5 x 1.5" (165 x 90 x 37mm)
Weight	12 oz (350g)
Index of Protection	IP54
DISPLAY	
Display Resolution	128 x 64 pixel graphical LCD
Display Backlight	Blue electroluminescent
Languages	English, French, German, Spanish, Portuguese and Italian
ENVIRONMENTAL	
Storage Temperature	-4° to 158°F (-20° to 70°C); 5 to 95% RH non-condensing
Operating Temperature	32° to 112°F (0° to 40°C); 5 to 95% RH non-condensing
SAFETY	
Safety Ratings	EN 61010-1, EN 60950, EN 61326-1
CE Mark	Yes

*Measurement accuracy of ±2% assumes the instrument setting for Velocity of Propagation (Vp) of the cable under test to be accurately set, and homogeneity of the Vp along the cable length.

CONSTRUCTION





PRODUCT INCLUDES

MODEL CA7024

Soft carrying case, BNC pigtail cable with alligator clips, four 1.5V AA batteries and user manual.

Model CA7027

Telephone/Coaxial/Parallel Cable Tester Graphical TDR

SPECIFICATIONS

MODEL	CA7027
ELECTRICAL	
Ranges @ Vp = 70%	23, 49, 98, 197, 394, 820, 1640, 3280, 6560, 9850 and 19000 feet (7.01, 14.94, 29.87, 60.05, 120.09, 249.94, 499.87, 999.74, 1999.49, 3002.28 and 5791.20 meters)
Range Selection	Manual range control
Accuracy*	±1% of range
Resolution	Approximately 1% of selected range
Minimum Cable Length	1.5ft (0.5m)
Sensitivity	Minimum 3 pixel return on a fault at 4km on 0.6mm 0, PE, TP
Vp (Velocity of Propagation)	Adjustable from 1% to 99%
Output Pulse	+5V peak to peak into an open circuit
Output Impedance	Selectable between 25, 50, 75 & 100Ω
Output Pulse Width	3 ns to 3 ms, automatic with range
Scan Rate	2 scans / second or scan held
Tone Generator	Oscillating tone 810Hz to 1110Hz
Voltage Protection	250VAC
Power Supply	4 x 1.5V AA Alkaline batteries
Battery Life	60 hours continuous scanning
Auto-off	Selectable 1, 2, 3, 5 minutes or disabled
MECHANICAL	
Dimensions	6.5 x 3.5 x 1.5" (165 x 90 x 37mm)
Weight (with battery)	12oz (350g)
Display Resolution	128 x 64 pixel Graphical LCD
Display Backlight	Electroluminescent
ENVIRONMENTAL	
Operating Temperature	14 to 122°F (-10° to 50°C)
Storage Temperature	-4 to 158°F (-20 to 70°C)
Relative Humidity	5 to 95% RH non-condensing
Altitude	6000ft (2000m)
SAFETY	
Safety Rating	IEC61010-1; EN60950
Protection Degree	IP54
Electro-Magnetic Compatibility	EN61326-1
CE Approved	Compliant with current EU directives

**Measurement accuracy of ±1% assumes the instrument setting for Vp of the cable under test to be accurately set, and homogeneity of the Vp along the cable length. Accurate positioning of the cursor is also required.*

APPLICATIONS

- Determine length of cable runs
- Find cable faults and the distance to them
- Determine degradation of cables due to moisture and other contaminants
- Trace and identify cables
- Determine telephone cable connections and the length to them

FEATURES

- Hand-held Graphical TDR (Time Domain Reflectometer)
- Detects opens, shorts, taps, faulty taps, bridge taps, splitters, high resistance, wet cables, splices and more
- Identifies impedance mismatches
- Indicates cable faults and terminations up to 19,000ft or 6000m (user selectable)
- Works with twisted pair, parallel and coaxial cable
- Dead band less than 9 feet
- Selectable cable impedance (25Ω, 50Ω, 75Ω, 100Ω)
- Over-voltage protection up to 250V
- Adjustable cursor assists in locating faults and termination
- Built-in tone generator for tracing and locating cables
- Auto-ranging scale
- Large high-visibility blue electroluminescent backlit display

Model CA7027

The Fault Mapper Pro® Model CA7027 is a hand-held graphical TDR (Time Domain Reflectometer) designed for identifying and locating faults on power and communication cables, given access to one end only. The Model CA7027 measures cable length, and indicates the distance to cable faults and terminations to a range of 19,000ft or 6000m (user selectable), on virtually any type of cable of two or more conductors. The Model CA7027 shows a reflection profile of the cable under test as an oscilloscope-like trace on a 128 x 64 pixel graphical LCD. A movable cursor can be aligned with points on the trace; the distances displayed will automatically update to the cursor position.

The Model CA7027 has a selectable impedance facility allowing it to be matched to the cable under test. This automatically eliminates the transmission pulse from the display, enabling easier identification of short range faults and terminations.

The Velocity of Propagation (Vp) is adjustable between 0 and 99% enabling accurate calibration to the cable under test.

The Model CA7027 incorporates an oscillating tone generator that is detectable with a standard tone receiver, for use in the tracing and identification of cables.

CONSTRUCTION

Banana input connectors

Graphical backlit LCD

Cable select/Vp decrement button

Cable select/Vp increment button

Test/Function select button

Mode select button (TDR/Tone Tracer)

Backlight On/Off button

Power On/Off button

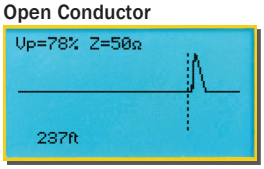
Banana Jack input connectors

FUNCTIONAL DISPLAYS

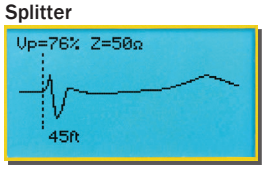
TYPICAL TRACES - displays the waveforms associated with the conditions found in communication and other cables. Cursor may be moved to the left or right to indicate the distance to condition. Additionally, the Velocity of Propagation (Vp) and the impedance are also displayed.

FAULT MAPPER PRO®

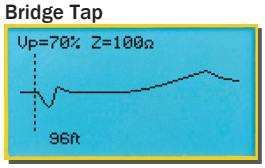
Open Conductor



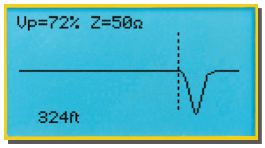
Splitter



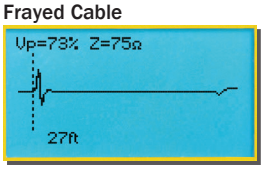
Bridge Tap



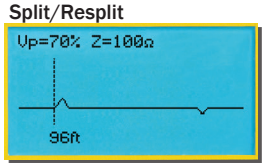
Shorted Conductor



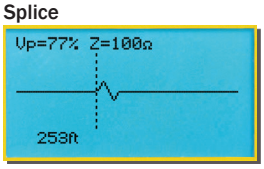
Frayed Cable



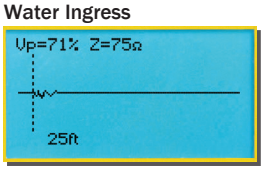
Split/Resplit



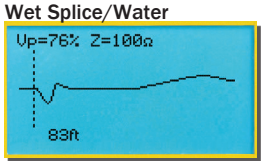
Splice



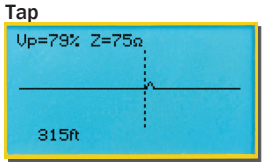
Water Ingress

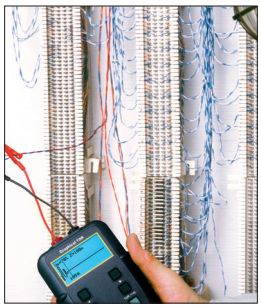


Wet Splice/Water



Tap





PRODUCT INCLUDES

MODEL CA7027
Soft carrying case, set of two color-coded 4ft (red/black) leads, test probes, alligator clips, four 1.5V AA batteries and user manual.

Model CA7028

LAN Cable Tester

Direct and simple push button operation! Wire map, with graphical and digital display of fault type and fault location.

The Wire Mapper Pro Model CA7028 is a hand-held structured cable mapping and troubleshooting tester designed for use on UTP, STP, FTP and SSTP cabling equipped with RJ-45 connectors and wired to either TIA 568A/B (ISO 11801 and EN 50137), USOC or ISDN specifications. It detects open circuit pairs, shorts, crossed wires, crossed pairs, reversed pairs, split pairs and shield faults.

In the event of opens and shorts, the Model CA7028 uses Time Domain Reflectometer technology to indicate if the fault is at the near end or the remote end of the cable, or if it is somewhere in between. It will then indicate the distance to the fault. This feature is a real time saver.

The Model CA7028 has the ability to measure and indicate the length of the cable under test, using a Velocity of Propagation (Vp) set by the user, from a built-in library or manually. It will measure and report the length of all four pairs of wires in the cable under test. It also generates an audible tone that is transmitted into all four pairs on the cable under test. This can be used for cable tracing and identification in conjunction with a tone receiver.

Model CA7028 used to locate and test a cable from the patch panel to an office a few hundred feet away.

Model CA7028 includes the remote ID #1

The Model CA7028 also has the ability to identify telephone and data lines. If the main unit is plugged into an operational RJ-45 socket, it will give a continuous warning tone and display if a telephone voltage is present on any of the pins. If the service detect key is pressed, it will check and display telephone, 10BaseT, 100Mbit+ and token ring active service if present.

WIRE MAPPER PRO®

IP 54

APPLICATIONS

- Hand-held LAN
- Identify LAN wiring faults
- Find distances (feet or meters) to opens and shorts
- Test patch cords
- Test for active service
- Trace cable locations
- Measure cable length
- Map network layout
- Verify proper installation of RJ-45 connectors on cables

FEATURES

- Hand-held LAN Cable Mapping and Troubleshooting Tester
- Indicates all common wiring faults including split pairs, shorts, opens, reversed pairs and crossed wires
- Unique graphical and digital display of fault information and length
- Active remote unit indicates pass/fail by green/red LED during the test
- Indicates distances to opens and shorts and identifies location
- Display fault location up to 500ft or 150m (user selectable)
- Built-in tone generator for tracing and locating cables
- Built-in service check function to detect telephone, 10BaseT, 100Mbit+ and token ring
- Visual and audible warning of live telephone network voltages
- Works with all category cables
- Rugged design weighs 12oz (350g)
- Large high visibility blue electroluminescent backlit display
- Complete with remote unit and mini patch leads
- Active remote identifiers indicate pass/fail at remote end using green/red LED
- Up to 16 unique remote identifiers available
- Works with TIA 568A/B, USOC and ISDN wiring schemes

CONSTRUCTION

RJ-45 input connector

Graphical LCD

Service test/Vp decrement button

Wire map test/ function select button

Backlight On/Off button

Cable length test /Vp increment button

Tone generator select button

Power On/Off button

Two Patch Cords

Remote

SPECIFICATIONS

MODEL	CA7028
MEASUREMENTS	
Range	500ft or 150m (selectable)
Accuracy	±5%
Cable Types	UTP, STP, FTP and SSTP
Faults Indicated	Short Circuit Pair, Open Circuit Wire, Short Between Pairs, Split/Cross Pairs, Pair Reversals, Shield Continuity
Fault Location	Near end, remote end or distance to fault
Wiring Schemes	TIA 568A/B, USOC and ISDN
Service Indication	Telephone, 10BaseT, 100Mbit+, Token Ring
Voltage Warning	Audible and visual warning of TNV (Telecom Network Voltage) presence
Test Inhibit	Inhibits testing in the presence of live voltages
Tone Generator	Oscillating 810 to 1110Hz
Power Source	Four 1.5V AA Alkaline batteries
Battery Life	Standy mode >4000 hrs; Continous testing >7.5 hrs
Battery Life Indication	Bargraph
Power-Off	After three minutes
MECHANICAL	
Dimensions	Main unit: 6.5 x 3.5 x 1.5" (165 x 90 x 37mm); Remote unit: 2.5 x 2.0 x 1.0" (65 x 52 x 25mm)
Weight	Main unit: 12oz (350g); Remote unit: 1.5oz (40g)
Index of Protection	IP54

MODEL	CA7028
DISPLAY	
Display Resolution	128 x 64 pixel graphical LCD
Display Backlight	Blue electroluminescent
Fault Display	All fault and setting info displayed textually and graphically
Remote Display	Green (pass) / red (fail) LED
Languages	English, French, German, Spanish and Italian
ENVIRONMENTAL	
Storage Temperature	-4° to 158°F (-20° to 70°C); 5 to 95% RH non-condensing
Operating Temperature	32° to 112°F (0° to 40°C); 5 to 95% RH non-condensing
SAFETY	
Safety Ratings	EN 61010-1, EN 61326-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-6
CE Mark	Yes

Model CA7028

FUNCTIONAL DISPLAYS

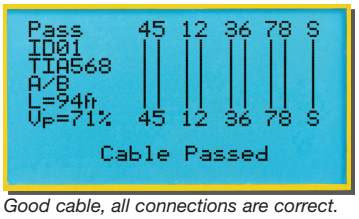
In addition to displaying the cable wire map, the Model CA7028 also displays a pass/fail indication, the ID number of the remote unit, the cable type (if from the built-in library), cable length and the Velocity of Propagation (Vp) all on one screen.

The mapping of each pair is graphically displayed providing a quick indication of the termination at both ends of the cable. Opens or shorts along the cable are identified by wire and distance to the fault. The Model CA7028 also detects and displays opens or shorts at each end of the cable, thus notifying the operator which end needs to be corrected.

The Model CA7028 can also detect the service capability of the cable under test. It can identify 10BaseT, 100BaseT, token ring or telephone connections.

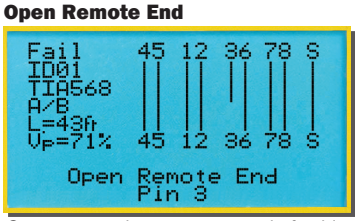
The built-in tone generator function is activated at the push of a button. When active, a signal between 810 and 1110Hz is injected into the cable. When used in conjunction with the Tone Receiver/Cable Tracer Model TR03, cable tracing and locating is easily accomplished.

Cable Passed



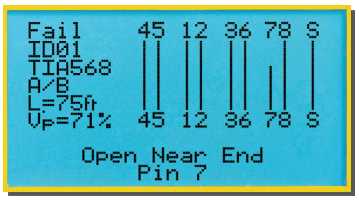
Good cable, all connections are correct.

Open Remote End



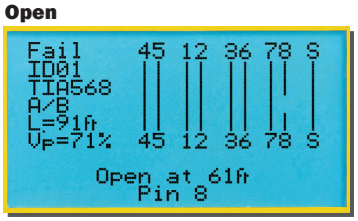
Open connection at remote end of cable on pin 3.

Open Near End



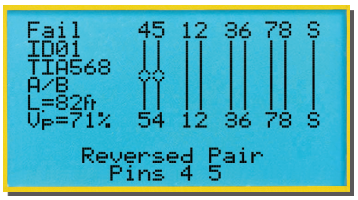
Open connection at near end of the cable on cable to pin 7.

Open



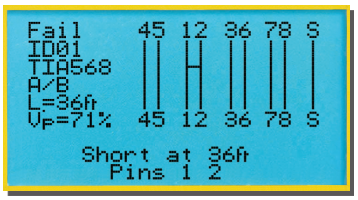
Open wire at 61ft with pin 8 identified.

Reversed Pair



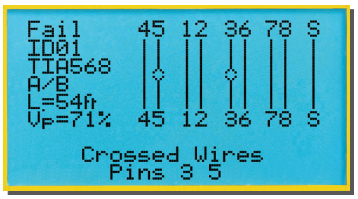
Wires at pins 4 and 5 reversed.

Short



Short at 36ft with pins 1 and 2 identified.

Crossed Wires

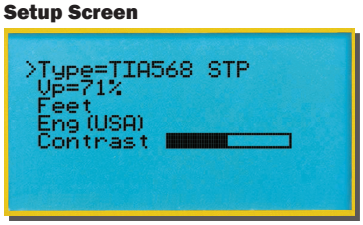


Crossed wires with pins 3 and 5 identified.

Service Test Screen

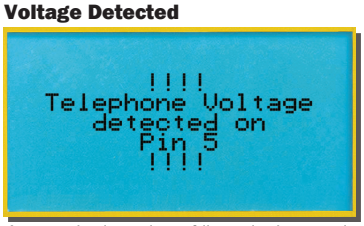
Service test function determines speed and type of transmission.

Setup Screen



Quick and easy setup of cable type, Vp, feet/meter display, language and display contrast.

Voltage Detected

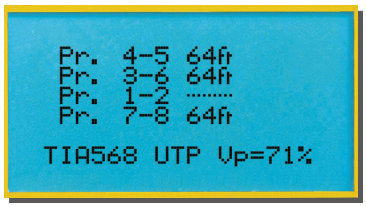


Automatic detection of live telephone voltage.

Tone Generator Enabled

Built-in tone generator for cable tracing.

Cable Length Test Screen



Built-in cable length meter verifies the length of the cable.

PRODUCT INCLUDES

MODEL CA7028

Soft carrying case, remote ID (#1), two patch cords, four 1.5V AA batteries, remote unit and user manual.

Model 6681

Includes meter, soft carrying case, set of 2 color-coded (red/black) leads w/4mm banana plugs, set of 2 color-coded alligator clips, adapter-110V outlet w/banana plugs, 1 mini ground rod, 9V battery, 6 AAA batteries and user manual.

Model CA7027

Includes meter, soft carrying case, lead - set of 2, color-coded 4ft (red/black) leads, test probes & alligator clips, four 1.5V AA batteries and user manual.

Model CA7024

Includes meter, soft carrying case, BNC pigtail cable with alligator clips, four 1.5V AA batteries and user manual.

Model CA7028

Includes meter, soft carrying case, two patch cords, remote ID #1, four 1.5V AA batteries and user manual.

ORDERING INFORMATION

CATALOG NO.	DESCRIPTION
2127.85	Cable Locator Model 6681
2127.80	Fault Mapper Model CA7024 (Cable Fault / Length Tester – Alphanumeric TDR)
2127.84	Fault Mapper Pro® Model CA7027 (Telephone Cable Tester / Graphical TDR)
2127.82	Wire Mapper Pro Model CA7028 (LAN Cable Tester)

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