English

User Manual

PCE-CLT 10 Electrical Tester

User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our product search on: www.pce-instruments.com

Last change: 19 September 2019
v1.0

Contents

1 Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, …) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.

2 Characteristics

- Precise and quick cable length measurement
- Easy operation
- 2.4“ LCD
- Auto zero and auto range
- 20 pre-set cable types
- Auto power off
- Automatic setting of sensitivity for more accurate cable length measurement
- Up to 99 individual cable types can be set

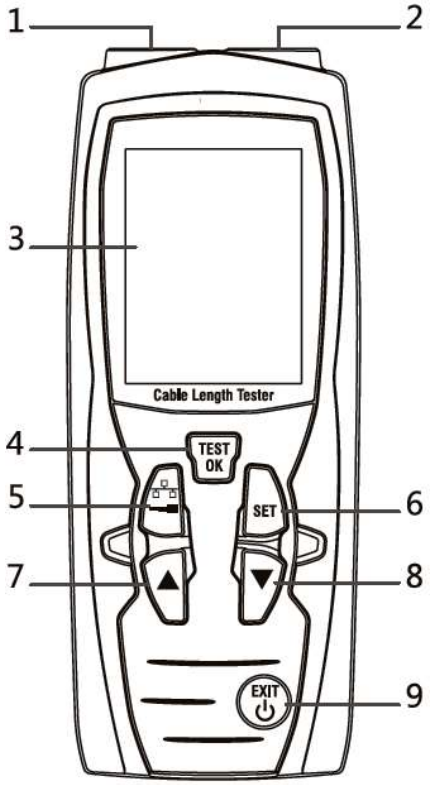
3 Technical specifications

Measuring range cable length	Depending on the propagation speed of the tested cables 5 ... 3000 m / 16.4 ... 9842.5 ft with shortening factor ≤99.9% 5 ... 2400 m / 16.4 ... 7874.0 ft with shortening factor ≤80.0% 5 ... 2000 m / 16.4 ... 6561.7 ft with shortening factor ≤66.0% 5 ... 1500 m / 16.4 ... 4921.3 ft with shortening factor ≤50.0%
Measurement units	m, ft
Resolution	0.1 m
Measuring principle	Time domain reflectometer
Selection area	Automatic control range
Measurement accuracy	± [2% of reading ± 0.2 m] <100 m ± [2% of reading ± 0.5 m] ≤100 m
Impedance selector	Automatic output of the impedance control
Shortening factor / propagation speed	Adjustable from 1.0 ... 99.9%
Cable types	20 standard cables
Memory	99 memory slots for individual cables
Connector type	BNC, RJ45
Power supply	2 x 1.5V AA battery
Battery status indicator	Yes
Automatic shutdown	Adjustable between 10 and 60 minutes
Menu languages	German, English
Operating temperatur	0 ... 40°C / 32 ... 104°F
Storage temperature	-10 ... 50°C / 14 ... 122°F
Relative humidity	0 ... 80 % RH

4 Delivery contents

1 x Cable fault meter PCE-CLT 10
2 x Test leads
2 x Crocodile clip
2 x AA battery 1.5V
1 x Transport bag
1 x User manual

5 Device description



1. BNC socket – to measure cable length via Coax option
2. RJ45 socket - to measure cable length via network option
3. LCD
4. OK / measuring key
5. Coax-netzwork switch key
6. Set key
7. ▲ key (up / increase value)
8. ▼ key (down / decrease value)
9. EXIT key (On/off / in menu: back)

6 Operation

6.1 Preparation / inserting the batteries

To run the cable length meter, the included batteries must be inserted first. To do so, turn around the meter and open the battery compartment cover at the rear side. Insert the batteries as marked in the battery compartment. Then close the battery compartment cover.

Note:
Replace the batteries as soon as the battery icon in the display glows in red. Only use 1.5 V AA Alkaline batteries. If you will not use the cable fault tester for a longer period of time, remove the batteries.

6.2 Turn on/off cable length tester

Press and hold the EXIT key for approx. 3 seconds to turn on the meter. To turn off the meter, press and hold the EXIT key for approx. 3 seconds again.

Note:
The meter has an automatic power off function to save battery power. The cable length meter will turn off automatically after 10 minutes of inactivity.

6.3 Main menu

After powering on, the cable fault meter will be in the mode to measure network cables. To enter the main menu, short-press the EXIT key. To return to measuring mode, short-press EXIT again.

When you are in the main menu, you can use the ▲ and ▼ keys to select one of the following functions which you can confirm with TEST OK.

Cable length measurement

Setting the velocity of propagation

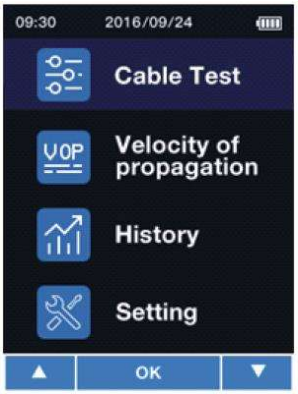
History of past measurements

System settings

Up in the menu

Down in the menu

Confirm selection with TEST OK key

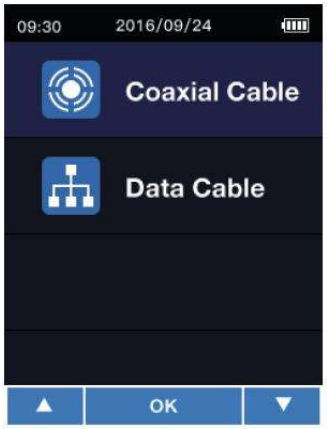


6.4 Cable length measurement

6.4.1 Preparing the measurement

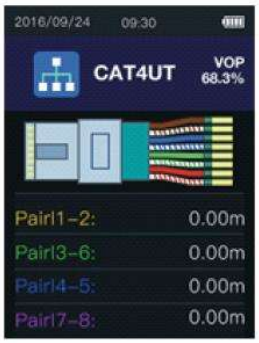
Connect the cable to be measured to the meter. If you wish to measure a network cable with RJ45, use the RJ45 socket. If you wish to measure a coaxial cable or measure a cable via the coaxial adaptors, use the BNC socket. Now use the key to enter the relevant mode, depending on the connected cable.

It is also possible to make a cable length measurement via the main menu. To do so, select the upper menu item and confirm your selection with the TEST OK key.
Now select in the following screen whether you wish to use the RJ45 or the BNC socket to measure a cable.



Confirm your selection with the TEST OK key. As soon as you have entered the mode for cable length measurements, the screen will look as follows after making a selection:

Measuring mode for coaxial cables and cables connected to the meter with a measuring adaptor



Measuring mode for the length measurement of cables connected to the RJ45 socket

Important:
Do not measure any current-carrying cables.

6.4.2 Selecting the cable type

To measure the cable length accurately, it is necessary to select the correct cable type and propagation velocity of the measuring signal (VOP) prior to the measurement.

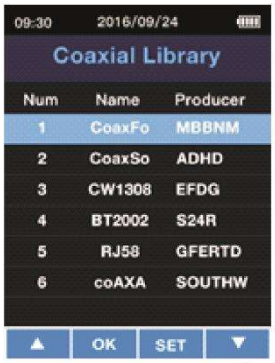
1. Press the SET key to be able to select the cable type from the database of the cable length tester with the TEST OK key.
2. The velocity of propagation of the selected cable can only be changed manually for this measurement. To do so, press and hold the SET key in measuring mode. In the upper right part of the display, the VOP value will now be displayed with a black background. This VOP value can now be changed via the ▲ and ▼ keys. To confirm the change, short-press the TEST OK key.

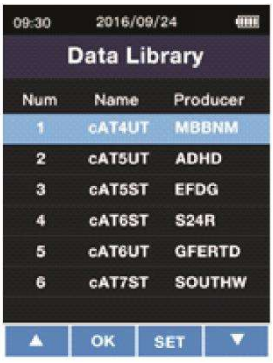
6.4.3 Cable length measurement

If you have selected the correct cable as described in 6.4.2, you can now make a measurement by pressing the TEST OK key. After the cable length measurement, the reading will be displayed. To leave measuring mode, short-press the EXIT key.

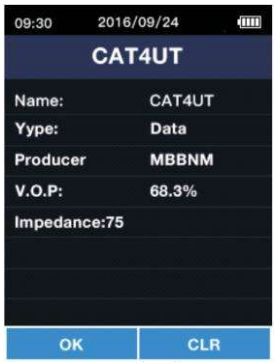
6.5 VOP library

To open the VOP library, first go to the menu. Select the menu item “Velocity of propagation“. Then select “VOP Library“. Then select the library you wish to open. You can select either the library “Coaxial Cable“ or “Data Cable“.





As a last step, select your cable with the  key.



You can go back to the library by pressing the  key. With the  key, you can delete the current cable. To confirm the deletion, press  . To cancel the deletion, press the  key.

6.5.1 Pre-set cable types

The cable types pre-set in the PCE-CLT 10 are:

Network cable			Coaxial cable		
No.	**Name**	**Producer**	**No.**	**Name**	**Producer**
1	CAT3UT	HANWEI	1	CW1308	PE
2	CAT4UT	HANWEI	2	CFPE50	FOAMED
3	CAT4ST	DINTEK	3	CFPE75	FOAMED
4	CAT5UT	DINTEK	4	CSPE50	SOLLD
5	CAT5ST	SHIP	5	CSPE75	SOLLD
6	CAT6UT	SHIP	6	ET9901	PVC
7	CAT6ST	DINTEK	7	ET9903	PVC
8	CAT6ES	DINTEK	8	IBME3	TELLON
9	CAT6EU	DINTEK	9	IBME9	FOAMED
10	CAT7ST	DINTEK	10	BT2002	FOAMED
11	CAT3UT	NEXAN	11	COR50	AIR
12	CAT4UT	NEXAN	12	COR75	AIR
13	CAT4ST	NEXAN	13	COR550	AIRPE
14	CAT5UT	IBDN	14	COR575	AIRPE
15	CAT5ST	IBDN	15	RG6U	FOAMED
16	CAT6UT	IBDN	16	RG59BU	VBFH
17	CAT6ST	SIEMON	17	RG62AU	PVC
18	CAT6ES	SIEMON	18	TPPVC	PVC
19	CAT6EU	SIEMON	19	EPPE	PE
20	CAT7ST	SIEMON	20	BS6500	PP

6.5.2 Adding cables of known lengths

Each cable has its own VOP. If the VOP of the cable is unknown, it can be determined by making a measurement. To do so, the cable length must be know.
To make a measurement, follow these steps:

First connect the cable to be measured. It is recommended to use a cable that is longer than 10 m. Now enter the menu. Select “Velocity of propagation“. Then select “VOP Test“.

Under “length“, enter the length of the connected cable. You can select a value between 5 … 999 m. To change the value, first press the SET key to select the box. The value can then be changed with the keys ▲ / ▼. Press TEST OK to confirm the entered value. The VOP value will be displayed directly.

In the “Name“ box, you can assign a name to the cable, for instance “NYM 1.5“. Up to six digits are possible. To select the input field, press the SET key. With the ▲ / ▼ keys you can select the number or letter. You can go to the next digit with the SET key. Confirm your entry with the TEST OK key.

In the “Type“ box, you can select the type of cable. You can choose “Coaxial cable“ or “Network cable“. To change the value, press the SET key to select the box. The value can then be changed with the keys ▲ / ▼. Press TEST OK to confirm the entered value.

In the “Producer“ box, you can enter the manufacturer of the cable. Up to six digits are possible. To select the input field, press the SET key. With the ▲ / ▼ keys you can select the number or letter. You can go to the next digit with the SET key. Confirm your entry with the TEST OK key.

In the “Impedance“ box, you can select the impedance of the cable. You can choose either 51 Ω, 75 Ω or 100 Ω. To change the value, press the SET key to select the box. The value can then be changed with the keys ▲ / ▼. Press TEST OK to confirm the entered value.

After making all desired settings, press EXIT to save the entered cable to the library.

6.5.3 Adding cables with known VOP values

If the VOP value of the cable is known, you can add it without making a reference measurement. First enter the menu. Then select “Velocity of Propagation“ and “VOP Set“.

In the “Name“ box, you can assign a name to the cable, for instance “NYM 1.5“. Up to six digits are possible. To select the input field, press the SET key. With the ▲ / ▼ keys you can select the number or letter. You can go to the next digit with the SET key. Confirm your entry with the TEST OK key.

In the “Type“ box, you can select the type of cable. You can choose “Coaxial cable“ or “Network cable“. To change the value, press the SET key to select the box. The value can then be changed with the keys ▲ / ▼. Press TEST OK to confirm the entered value.

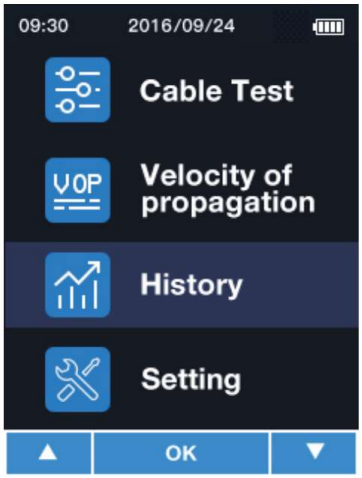
In the “Producer“ box, you can enter the manufacturer of the cable. Up to six digits are possible. To select the input field, press the SET key. With the ▲ / ▼ keys you can select the number or letter. You can go to the next digit with the SET key. Confirm your entry with the TEST OK key.

In the “VOP“ box, you can enter the known VOP value. To select the input field, press the SET key. With the ▲ / ▼ keys you can select the number or letter. You can go to the next digit with the SET key. Confirm your entry with the TEST OK key.

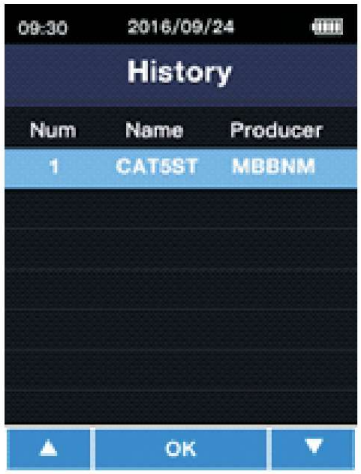
After making all desired settings, press EXIT to save the entered cable to the library.

6.6 Showing the history

To view the history of the cables last used, first enter the menu. Then select “History“. The cables last used will be displayed directly for your selection. You can select the desired cable with the ▲ / ▼ keys. To confirm your selection, press TEST OK.



Function menus

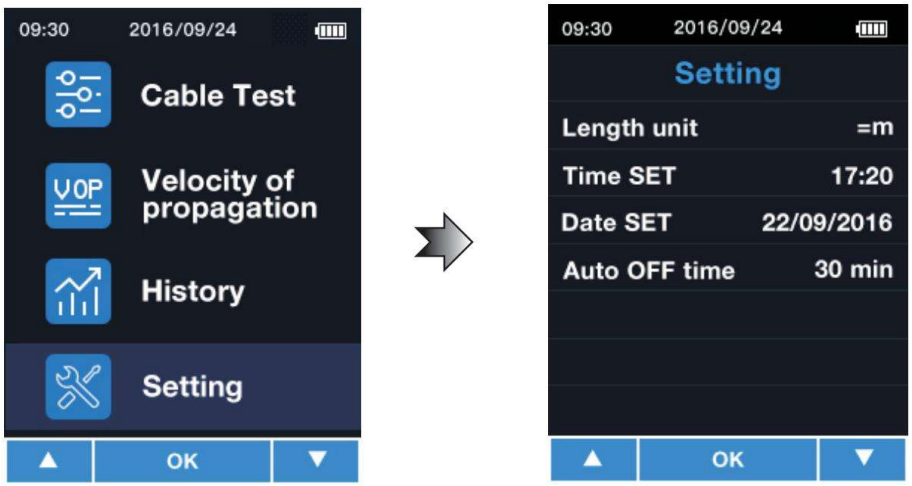


History

Note: Measured values will not be saved.

6.7 Settings

Enter the menu to make settings. Select “Setting“.



In this menu, the following settings can be made:

Menu	Description
Length Unit	Here you can set the unit. You can select metres “m“ or feet „ft“.
Time SET	Here you can set the time. Format HH:MM
Date SET	Here you can set the date. Format JJJJ/MM/TT
Auto OFF time	Here you can set the time of inactivity after which the meter turns off automatically. Possible options: 10,20,30,40,50 or 60 minutes
Language	Here you can set the language. Possible options: English or German

With the ▲ / ▼ keys, you can select an item from the Setting menu. The input field can be selected with the SET key. The parameter can now be changed with the ▲ / ▼ keys. Press SET again to go to the next parameter or to confirm your setting. Press the TEST OK key to confirm the setting directly.

7 Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

8 Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

If you have any questions, please contact PCE Instruments.

PCE Instruments contact information

Germany
PCE Deutschland GmbH
Im Langel 4
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 0
Fax: +49 (0) 2903 976 99 29
info@pce-instruments.com
www.pce-instruments.com/deutsch

France
PCE Instruments France EURL
23, rue de Strasbourg
67250 Soultz-Sous-Forets
France
Téléphone: +33 (0) 972 3537 17
Numéro de fax: +33 (0) 972 3537 18
info@pce-france.fr
www.pce-instruments.com/french

Spain
PCE Ibérica S.L.
Calle Mayor, 53
02500 Tobarra (Albacete)
España
Tel. : +34 967 543 548
Fax: +34 967 543 542
info@pce-iberica.es
www.pce-instruments.com/espanol

Germany
PCE Produktions- und
Entwicklungsgesellschaft mbH
Im Langel 26
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 471
Fax: +49 (0) 2903 976 99 9971
info@pce-instruments.com
www.pce-instruments.com/deutsch

United Kingdom
PCE Instruments UK Ltd
Unit 11 Southpoint Business Park
Ensign Way, Southampton
Hampshire
United Kingdom, SO31 4RF
Tel: +44 (0) 2380 98703 0
Fax: +44 (0) 2380 98703 9
info@industrial-needs.com
www.pce-instruments.com/english

Italy
PCE Italia s.r.l.
Via Pesciatina 878 / B-Interno 6
55010 Loc. Gragnano
Capannori (Lucca)
Italia
Telefono: +39 0583 975 114
Fax: +39 0583 974 824
info@pce-italia.it
www.pce-instruments.com/italiano

The Netherlands
PCE Brookhuis B.V.
Institutenweg 15
7521 PH Enschede
Nederland
Telefoon: +31 (0)53 737 01 92
info@pcebenelux.nl
www.pce-instruments.com/dutch

China
PCE (Beijing) Technology Co., Limited
1519 Room, 6 Building
Zhong Ang Times Plaza
No. 9 Mentougou Road, Tou Gou District
102300 Beijing, China
Tel: +86 (10) 8893 9660
info@pce-instruments.cn
www.pce-instruments.cn

Hong Kong
PCE Instruments HK Ltd.
Unit J, 21/F., COS Centre
56 Tsun Yip Street
Kwun Tong
Kowloon, Hong Kong
Tel: +852-301-84912
jyi@pce-instruments.com
www.pce-instruments.cn

United States of America
PCE Americas Inc.
711 Commerce Way suite 8
Jupiter / Palm Beach
33458 FL
USA
Tel: +1 (561) 320-9162
Fax: +1 (561) 320-9176
info@pce-americas.com
www.pce-instruments.com/us

Turkey
PCE Teknik Cihazları Ltd.Şti.
Halkalı Merkez Mah.
Pehlivan Sok. No.6/C
34303 Küçükçekmece - İstanbul
Türkiye
Tel: 0212 471 11 47
Faks: 0212 705 53 93
info@pce-cihazlari.com.tr
www.pce-instruments.com/turkish