

Quick User Guide

InstalTest XB



Supplier:  	Wabtec Netherlands B.V. Darwinstraat 10 6718 XR Ede
Specifications of the device: Specifications of the manual:	Moment. : 088 600 4500 (general) Moment. : 088 600 4555 (helpdesk) email : WNL_helpdesk@wabtec.com Instaltest XB Date : 01-09-2023 Number : 561144251 Version : 001

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Wabtec Netherlands BV has a policy of continuous development and therefore reserves the right to change the specification and description of the equipment set out in this publication without prior notice.

No part of this publication should be construed as forming part of a contract for the equipment unless it is specifically referenced and incorporated into such contract.

This user manual has been written with the greatest care. Wabtec Netherlands BV cannot be held responsible for errors in this publication and/or for the consequences thereof.

Foreword

This abbreviated user manual only describes the different measurement functions in a short and concise manner. By means of images of the selector switch, the display and connection diagrams, the basic possibilities are explained for each function. For the detailed data and instruction, please refer to the complete manual of the INSTALTEST XB on our website

In this user manual, the following markings are used to draw attention to certain topics or actions.

	<i>TIP:</i> <i>Gives you suggestions and advice to take certain actions easier or more convenient to perform.</i>
	<i>PLEASE NOTE:</i> <i>A comment with additional information; Alerts you to possible problems.</i>
	<i>CAUTIOUS:</i> <i>The measuring system can be damaged if you do not carry out the procedures carefully.</i>
	<i>WARNING OF DANGER:</i> <i>You can (seriously) injure yourself or seriously damage the measuring system if you do not carry out the procedures carefully.</i>

Terms, abbreviations and designations

The following abbreviations and terms have been used in this user manual:

- User manual or manual: terms for the designation of this document.
- Device, measuring device, measuring device are used for the INSTALTEST XB
- The manual talks about fuses. This refers to all components that are used as overcurrent protection. These include: Installation machines, melt cartridges, knife cartridges, etc.
- Texts on the display are enclosed in quotation marking;
- Buttons and buttons that need to be operated are between square brackets; e.g. [OK] or are displayed with the image of the key.
- Menu choices on the INSTALTEST XB are displayed as bold; e.g. **Settings**

Guarantee

Wabtec Netherlands BV provides a warranty on the measuring system for a period of 12 months. The warranty period starts on the day that the delivery by Wabtec Netherlands BV takes place. Liability is laid down in the FME's terms and conditions of delivery.

Device warnings

Several pictograms have been applied to the tester that aim to warn the user of the possible risks that may still be present despite the safe design.

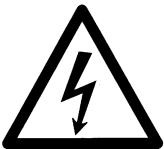
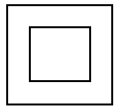
Icon	Definition	Position on the tester
	Warning: General danger sign. Read the accompanying instructions carefully.	On the back of the tester and on the label on the bottom.
	Warning: Danger of direct contact with live parts.	On the back of the tester and under the battery cover.
	Mark: Insulation class II (double insulation).	On the back of the tester.
	CE marking: Indicates conformity with European Directives.	The CE marking can be found on the front and back of the measuring system.

Table 1: Icons on the device

Guarantee

Wabtec Netherlands B.V. provides a warranty on the measuring system for a period of 12 months. The warranty period starts on the day that the delivery by Wabtec Netherlands B.V. takes place. Liability is laid down in the FME's terms and conditions of delivery.

Register your InstalTest XB

By registering your tester, the warranty period is extended to 24 months. (the terms and conditions are on our website)

Register via www.morssmitt.nl/kalibratieregistratie



Register

Support

Via www.morssmitt.nl/support you will find all information regarding helpdesk and calibration of your meter.



Support

Support

Via www.morssmitt.nl/support/productondersteuning you will find all support for this tester such as instructional videos and frequently asked questions.



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1. General safety instructions

	WARNING OF DANGER: <i>Before performing any operations related to the tester, please read the extensive user manual carefully. Use this manual as a reference or support for use.</i> <i>Wabtec Netherlands BV is not liable for injuries, (financial) damage and/or excessive wear and tear caused as a result of improperly performed maintenance, incorrect use of or modifications to the tester.</i>
	<i>It is not permitted to remove, circumvent and/or bypass the housing or the protection of the tester during use. The ranges are listed on the back.</i> <i>When measuring the insulation resistance, it is important that the installation is de-energized beforehand and that all consumer appliances are disconnected from the mains. The measuring voltage is of such a high level that these consumer appliances can be damaged.</i>
	<i>It is forbidden to place and/or use the INSTALTEST XB in a hazardous area.</i>
	<i>If the INSTALTEST XB is used by a third party, you, being the owner/user, are responsible for yourself, unless otherwise agreed.</i>
	PLEASE NOTE: <i>Wabtec Netherlands BV reserves the right to update the software in the INSTALTEST XB that is returned for repair or for other reasons without prior notice.</i>
	<i>Repairs may only be carried out by Wabtec Netherlands BV.</i>

General safety instructions

	WARNING OF DANGER: <i>Do not perform tests if there are strong electrostatic or electromagnetic fields.</i>
	PLEASE NOTE: <i>Provide a clean, tidy and well-lit workplace</i>
	TIP: <i>Please contact Wabtec Netherlands BV if you would like information about training for the portable test equipment.</i> Wabtec Netherlands BV Darwinstraat 10 6718 XR Ede Nederland Phone: 088 600 4500 (general) Phone: 088 600 4555 (helpdesk)
	<i>If a fuse in the instrument is engaged, it must be replaced according to the instructions in the detailed manual.</i>
	<i>Do not connect the INSTALTEST XB to voltages higher than 550V</i>
	<i>Use only original measuring accessories with the INSTALTEST XB. These can be obtained through Wabtec Netherlands or through your distributor.</i>
	<i>The INSTALTEST XB comes with rechargeable batteries. Replace it for the same type and capacity if necessary. Do not use ordinary batteries when the INSTALTEST XB is connected to the charging adapter.</i>
	<i>Remove all measuring connectors before opening the battery compartment. Risk of high voltage touch</i>



Normal precautions must be taken if you are going to measure on a live installation.



Registreer

Registering your tester

Registering your tester will increase the warranty period extended to 24 months.

(the terms and conditions are on our website)

Register via www.morssmitt.nl/kalibratieregistratie



Support

Support

You can find all the information www.morssmitt.nl/support
Regarding helpdesk and calibration of your tester.



Productondersteuning

Support

All support for this tester such as
Instructional videos and frequently asked questions can be found via
www.morssmitt.nl/support/productondersteuning.

2. Inserting the batteries

The batteries of the INSTALTEST XB must be installed in the battery holder on the back of the instrument

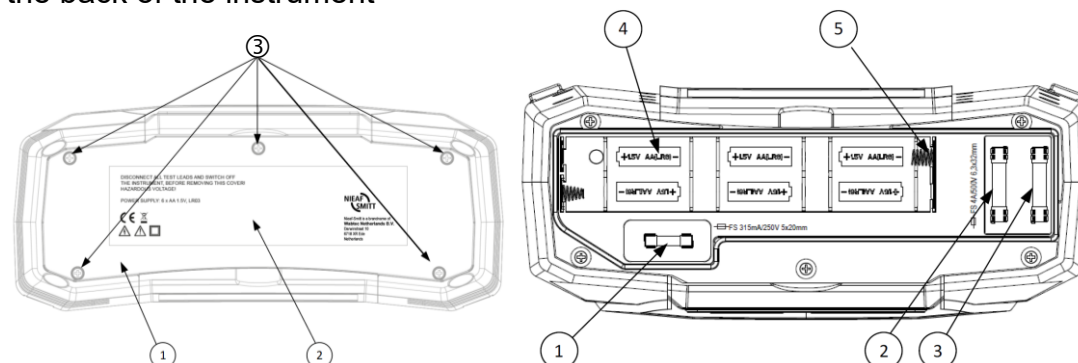


Figure 1 Installing batteries

Remove the screws 5 and remove the battery cover. Now place the rechargeable batteries in the holder and replace the battery cover.

2.1 Batteries

	WARNING OF DANGER: <i>If the batteries need to be replaced or before opening the battery/fuse compartment cover, disconnect all measurement accessories connected to the instrument and turn off the instrument.</i> <i>Dangerous voltage in the compartment!</i> <i>Insert all batteries correctly, otherwise the instrument will not work and the batteries may be discharged.</i> <i>Remove all batteries from the battery compartment if the instrument is not used for a long time</i> <i>Alkaline or rechargeable Ni-Cd or Ni-MH batteries (size AA) can be used.</i> <i>Do not recharge alkaline batteries!</i>
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	CAUTION: <i>This instrument contains NiMH batteries. Do not dispose of these batteries in general waste. Used batteries must be collected for recycling.</i>
	TIP: <i>If the rechargeable batteries are empty, you can also use normal AA batteries.</i>

The charger in the instrument is a battery pack charger. This means that the cells are connected in series during charging so that they must all be in a similar state (charged the same amount, the same type and age).

Even one damaged battery cell (or even just one of a different type) can cause improper charging of the entire battery pack (heating of the battery pack or severely reduced operating time).

If no improvement is achieved after several cycles of charging/discharging, the state of the individual battery cells must be determined (by comparing battery voltages, checking in a cell charger, etc.). It is very likely that some of the cells are outdated and of lower capacity.

The effects described above should not be confused with the normal reduction of battery capacity over time. All rechargeable batteries lose some capacity when they are repeatedly charged/discharged. The actual reduction in capacity versus the number of charge cycles depends on the battery type and is specified in the battery manufacturer's technical specification.

2.2 Charge

The battery is charged when the charging adapter is connected to the instrument. The Built-in charging system controls the charging procedure and ensures maximum battery life. The polarity of the power supply is shown in Figure 2.



Figure 2: Plug polarity of the power supply

	<i>To avoid the risk of fire or electric shock, use only the charging adapter provided by the manufacturer or distributor of the Installation Test!</i>
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2.3 Charging Precautions

During the charging of new battery cells or cells that have not been used for a long time (more than 3 months), unpredictable chemical processes can occur.

Ni-MH and Ni-Cd cells can be affected by different conditions (sometimes called memory effect). As a result, the operating time of the instrument can be greatly reduced during the first charge/discharge cycles.

It is therefore recommended:

- ❑ Charge the battery completely (at least 14 hours with built-in charger).
- ❑ Fully discharge the battery (can be done by operating the instrument normally).
- ❑ Repeating the charge/discharge cycle at least twice (four cycles are recommended).

When using external intelligent battery chargers, one full charge/discharge cycle is performed automatically.

After performing this procedure, a normal battery capacity is restored. The operating time of the instrument now corresponds to the data in the technical specification.

2.4 Description of the instrument

2.5 Front panel



Legend:

- 1 - Function selector
- 2 - Setup
- 3 - Exit/Back/Return key
- 4 - ON/OFF key, to turn the instrument on and off. The instrument automatically shuts off (APO) after the last keystroke and no voltage is measured.
- 5 - Backlight
- 6 - Compensation button, to compensate for the resistance of the test lead in low impedance resistance measurements
- 7 - Help button
- 8 - Cursor buttons
- 9 - TEST button for start/confirmation tests
- 10 - TFT color display

2.6 Connector panel

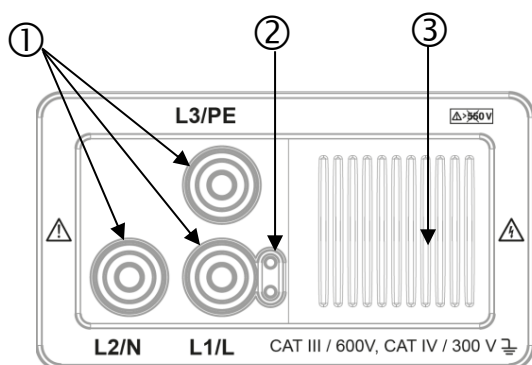


Figure 3.2: Connector Panel

Legend:

1 - Connection sockets for test probes or plug connection.

Warning! The maximum permissible voltage between test terminals and ground is 600V! Maximum permissible voltage between test terminals is 550 V!

2 - Connection for probe with start button

3 - Protective slide (Charging connection)

3. Function rule with function and parameters

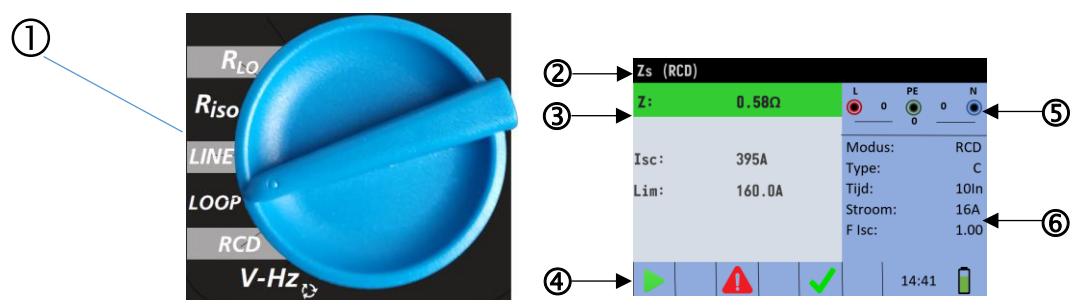


Figure 3 Rotary switch and corresponding function rule

Legend:

1. Selected test.
2. Selected test or subtest.
3. Result field, containing the main result and the sub result and the right or wrong indication
4. Status field, containing the start icon and notifications
5. Voltage and polarity monitor
6. Options field

3.1 Select Measurement Function/Subfunction

The following measurements can be selected with the rotary switch:

- ☐ Continuity (R_{LO})
- ☐ Insulation resistance (R_{ISO})
- ☐ Line impedance (LINE)
- ☐ Loop impedance (LOOP)
- ☐ RCD test (RCD),
- ☐ Voltage and frequency and Phase sequence (V-Hz)

By default, the name of the test/subtest is highlighted on the screen in the function line. The subtest (Mode) can be selected using the ◀ and ▶ buttons. This is displayed on the function line.

3.2 Setting the measuring range and limits

Use the keys ▼ and ▲ to select the parameters / limit value you want to edit. With ◀ and ▶ the selected parameter / limit value can be set.

Once the measuring range is set, the settings are retained until new changes are made or the original settings are restored.

4. Measurements

In this chapter the different measurement functions are described. The description consists of 5 parts:

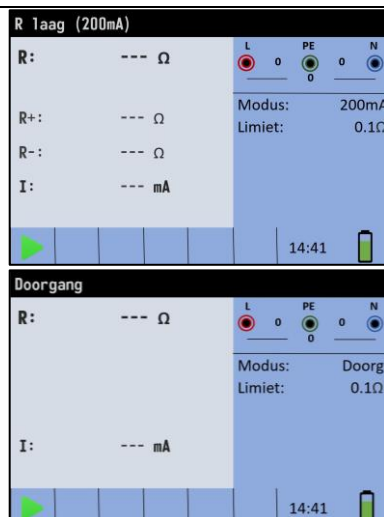
1. Setting the rotary switch.
2. Setting the measurement parameters.
3. Connection diagrams and/or placement of the measuring accessories.
4. Start the measurement.
5. If desired, save the measurement result.

4.1 Compensating test leads

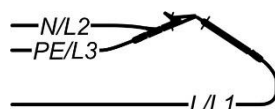
① Set function.



Choose R Low or Continuity



② Connection diagram for compensating test leads



Shorted test leads

③ Press the **ZERO** button..

④

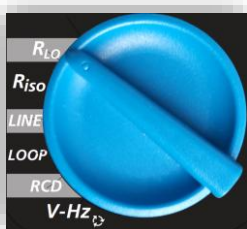
While performing the test lead compensation, the message "compensating" is displayed.

If the calibration is done correctly, the indicator **COMP** will be displayed at LOW and PASS.

Measurements

4.2 Resistance

① Set function



② Set mode

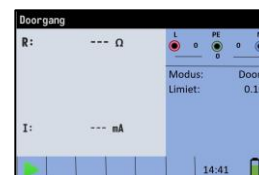
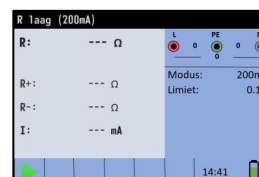


- ☐ R Low (200mA)
- ☐ Continuity

③ Set the parameters and limits



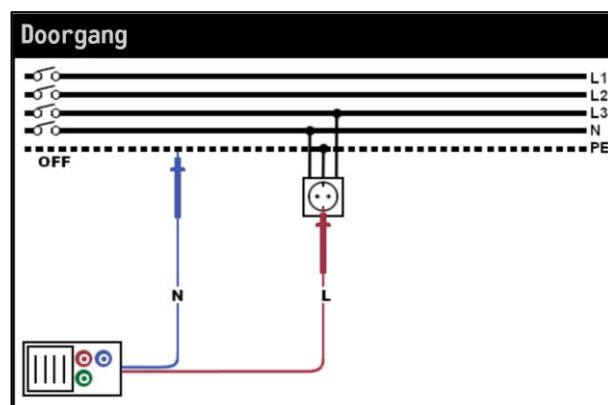
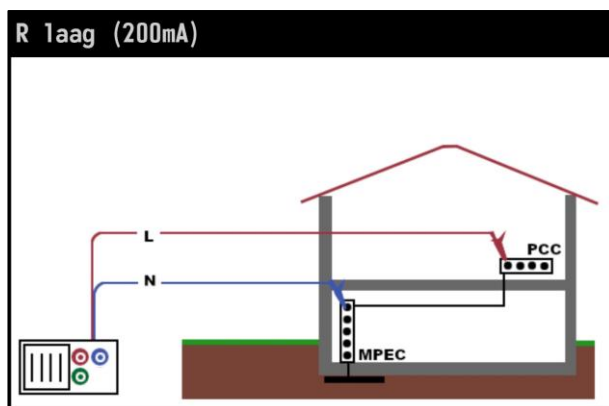
- ☐ Upper limit resistance [off, $0.1 \Omega \div 20.0 \Omega$]



④ Connection diagram

RLOW Ω

Continuity

⑤ Press the button.Press the  button to start the measurement.

⑥ Check result

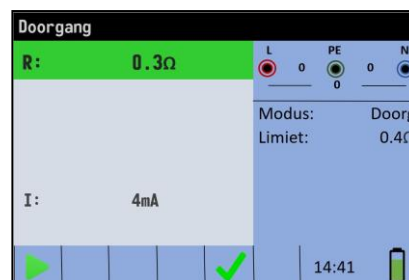


Displayed results:

R: LOW Ω result

R+/-: Sub result +/- voltage

I: Test current



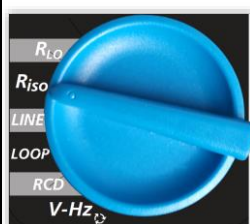
Displayed results:

R: Continuity result

I: Test current

4.3 Insulation resistance

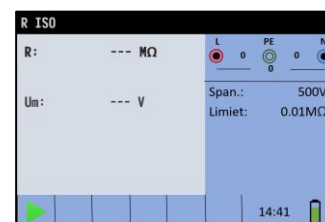
① Set function



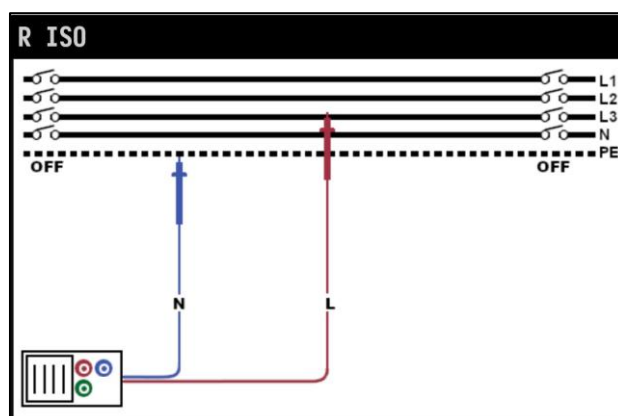
② Set parameters and limits



- ☐ Nominal test voltage [50 VDC ÷ 1000 VDC]
- ☐ Insulation Resistance Limit [Off, 0.01 MΩ ÷ 200 MΩ]



③ Connection diagram



④ Press the **TEST** button until the measured value has become stable.

If the **TEST** button is pressed for more than 2 seconds, the endurance test will start. This only stops when the **TEST** button is pressed again.

⑤ Check result



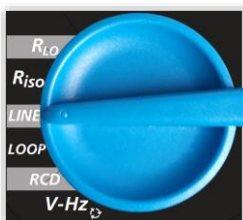
Displayed results:

R: Insulation resistance

To: Measured test voltage

4.4 ZLINE Line impedance (L-N, L-L)

① Set function



② Set mode

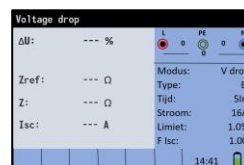
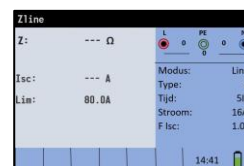


- ☐ Zline
- ☐ V Drop

③ Set the parameters and limits

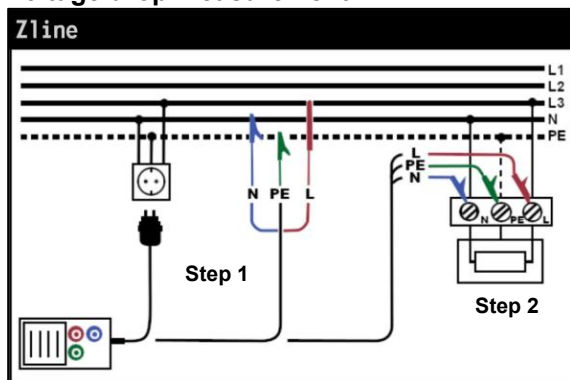


- ☐ Fuse type [gL, NV, gG, B, C, K, D]
- ☐ Rated Fuse current
- ☐ Fuse response time [35 ms ÷ 5 s]

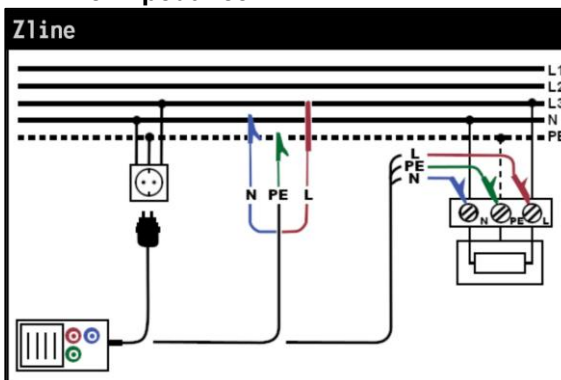


③ Connection diagram Line impedance

Voltage drop measurement

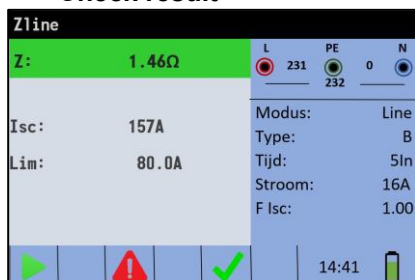


Line Impedance



④ Press the **TEST** button.

⑤ Check result

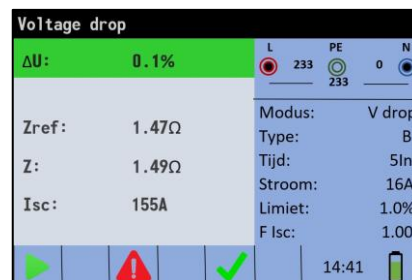


Displayed results:

Z: Net impedance

Isc: Possible short-circuit current

Lim: Lower short-circuit current



ΔU Voltage drop

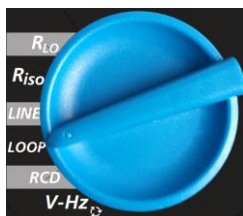
Isc Possible short-circuit current

Z Line impedance at measuring point

Zref Reference impedance

4.5 Circuit impedance LOOP (L-PE)

① Set function



② Set sub-function

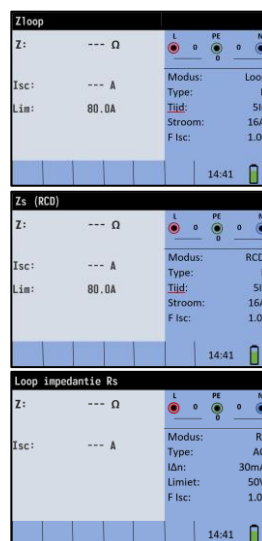


- ☐ Z LOOP
- ☐ Zs (rcd)
- ☐ Loop impedance Rs

③ Set the parameters and limits

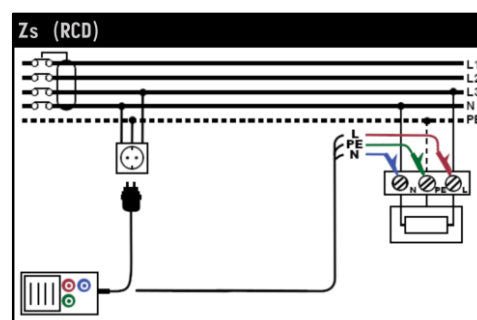
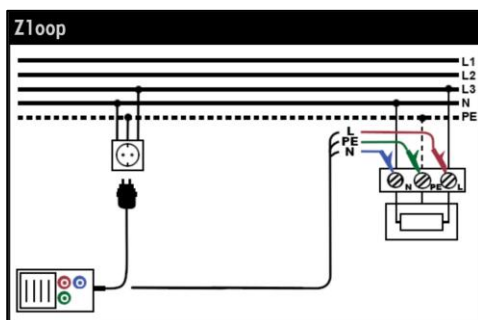


- ☐ Fuse type [gL, NV, gG, B, C, K, D]
- ☐ Rated Fuse current
- ☐ Fuse response time
- ☐ Short-circuit current factor (F_{Isc})



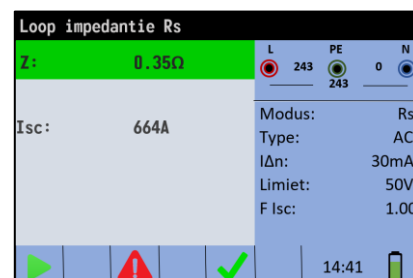
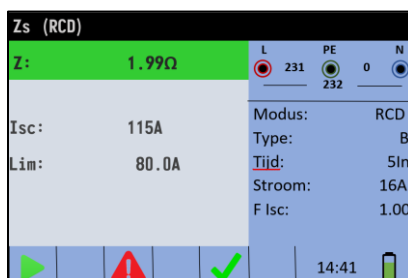
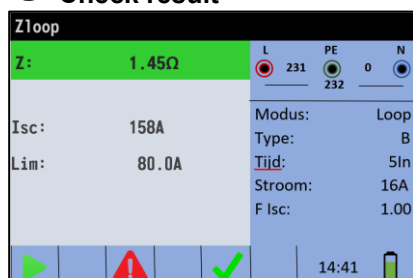
④ Connection diagram

Z LOOP / RCD



⑤ Press the **TEST** button.

⑥ Check result



Displayed results:

Z: Loop impedance

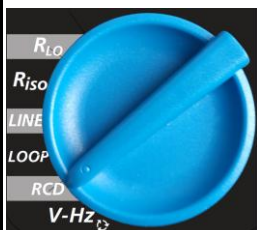
Isc: Short-circuit current

Lim: Lower limit short-circuit current

Measurements

4.6 Testing the RCD (RCD)

① Set function



② Set sub-function

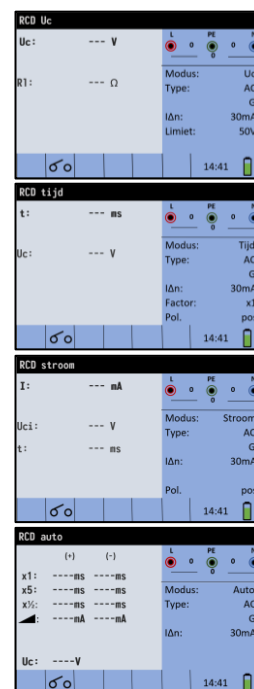


- ☐ Touch voltage (Uc)
- ☐ Trip time
- ☐ Trip current
- ☐ Autotest RCD

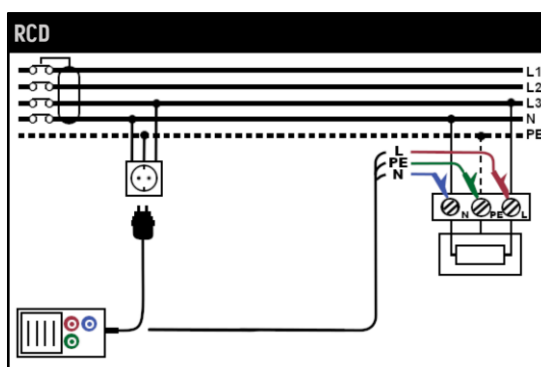
③ Set the parameters and limits



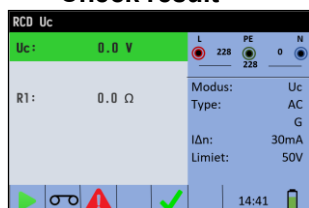
- ☐ Contact voltage [25V, 50V]
- ☐ Testcurrent RCD[6 mA ÷ 1000 mA]
- ☐ Current factor [×1/2, ×1, ×2, ×5]
- ☐ Type [AC,A,F, B,B+,EVSE]
- ☐ Characteristic [selective S, General G]
- ☐ Start Polarity: POS, NEG



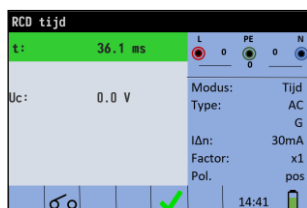
④ Connection diagram

⑤ Press the **TEST** button.

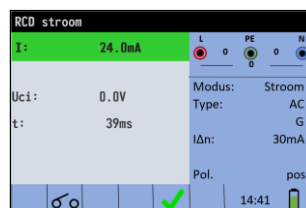
⑥ Check result



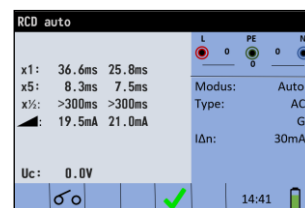
Displayed results:
UC: Contact Voltage
RL: Circuit Resistance



Displayed results:
t: Trip time
UC: Contact Voltage



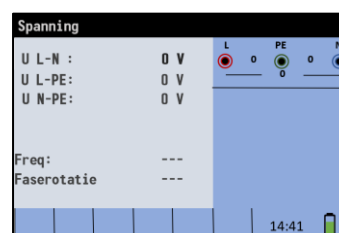
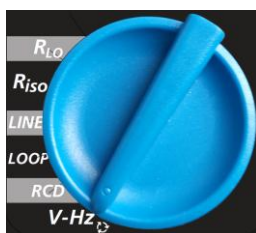
Displayed results:
I: Trip current
UCI: Contact Voltage
tl: Trip time



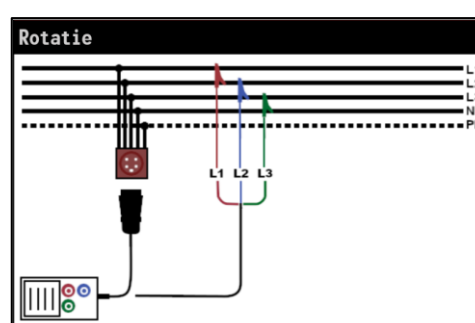
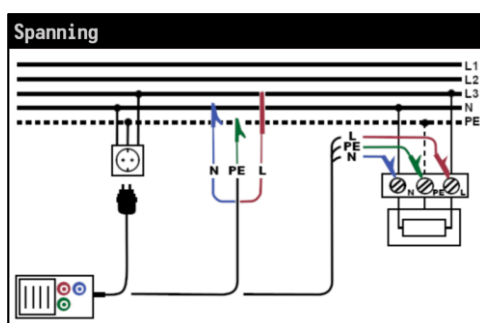
Displayed results:
 Depending on the step

4.7 Voltage, frequency and Phase sequence

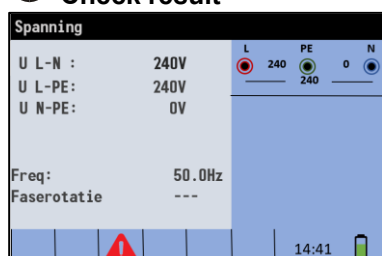
① Set function



② Connection diagram

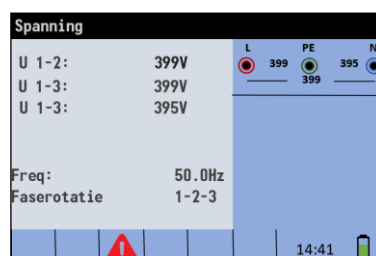


③ Check result



Displayed results:

U L-N: Voltage between phase and Nul
U L-PE: Voltage between phase and earth
U N-PE: Voltage between Nul and earth
f: Frequency



U1-2 Voltage between L1 and L2
U1-3 Voltage between L1 and L3
U2-3 Voltage between L2 and L3
1.2.3. Right-handed field
3.2.1. Left-handed field
f: Frequency

5. Fuse replacement

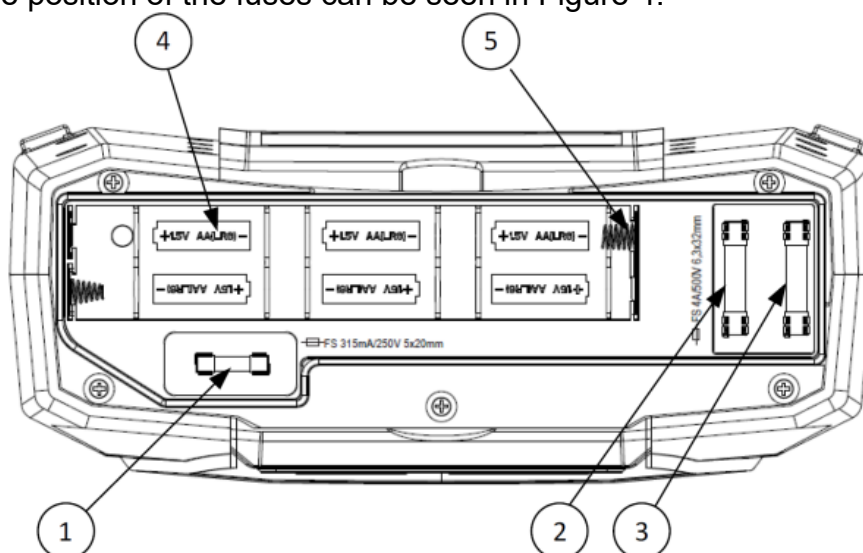
There are three fuses under the cover of the InstalTest XB.

- ❑ F3M 0.315 A / 250 V, 20×5 mm This fuse protects the internal circuits of the continuity measurement if the test leads are accidentally connected to the mains voltage.
- ❑ F1, F2 F 4 A / 500 V, 32×6.3 mm General fuses for the test terminals L/L1 and N/L2.

	WARNING OF DANGER: <i>Disconnect all measuring accessories and turn off the instrument before removing the battery/fuse compartment cover, there is dangerous voltage on it!</i>
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	WARNING OF DANGER: <i>Replace the fuse only for the same type with the same rating. If this is not done, the INSTALTEST XB can be seriously damaged, or you can injure yourself.</i>
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The position of the fuses can be seen in Figure 4.



Legend:

1. Fuse F3.
2. Fuse F2.
3. Fuse F1
4. Battery cells (size AA).
5. Battery contacts

Figure 4 Battery and fuse compartment