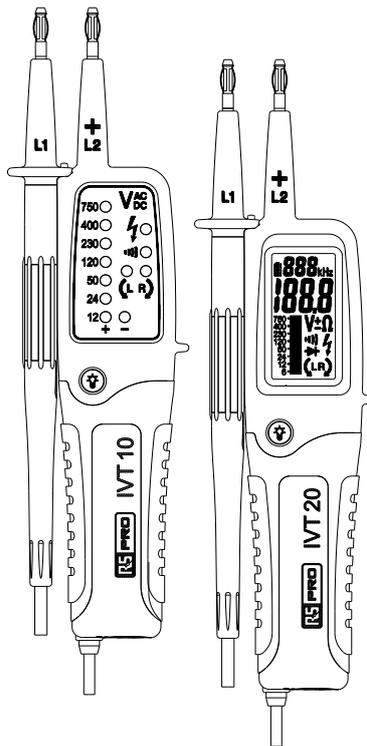




**Instruction Manual**  
**IVT-10 / IVT-20**  
**Voltage Tester**

EN



## 1. Safety

### ⚠ Safety Information

To ensure safe operation and service of the Tester, follow these instructions.

Failure to observe warnings can result in severe **injury** or **death**.

- Avoid working alone so assistance can be rendered. If the operators safety can not be guaranteed, the Tester must be removed from service and protected against use.
- Prior to usage ensure perfect instrument function (e.g. on known voltage source) before and after the test.
- Do not connect the instrument to voltages higher than 750V.
- Do not open the battery cover before take off from voltage source.
- **The safety can no longer be insured if the Tester :**
  - shows obvious damage
  - does not carry out the desired measurements
  - has been stored for too long under unfavorable conditions
  - has been subjected to mechanical stress (i.e. during transport).
- All relevant statutory safety regulations must be adhered to when using this instrument.
- The Tester may no longer be used if one or several functions fail or if no functionality is indicated or the Tester looks damaged.
- When using this Tester, only the handles of the probes may be touched do not touch the probe tips (metal part).
- Do not use the Tester if the Tester is not operating properly or if it is wet.
- Use the Tester only as specified in the Instruction card including environmental conditions and the usage in dry environments must be followed or the protection by the Tester might be impaired.
- Use extreme caution when working around bare conductors or bus bar. Contact with the conductor could result in an electric shock.
- Use caution with voltages above 50V AC rms or 110V DC. These voltages pose a shock hazard.

## 2. Symbols and Features

### Symbols as marked on the Tester and Instruction manual

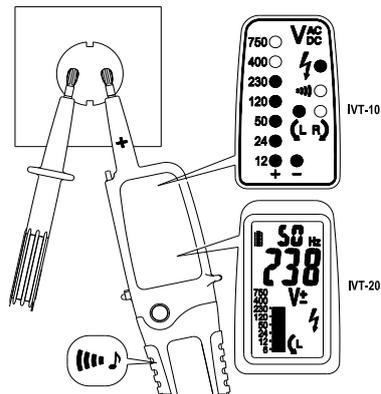
	Risk of electric shock
	See instruction manual
+ or -	+ DC or –DC measurement
	Equipment protected by double or reinforced insulation
	Battery
	Earth
±	AC measurement
	Conforms to EU directives
	High Voltage Detection

### List of features

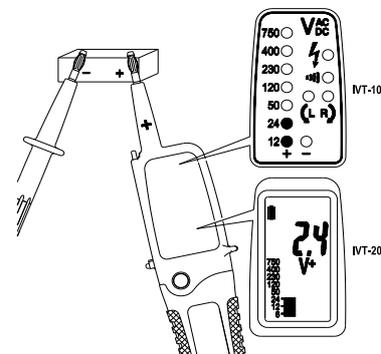
- AC Voltage
- DC Voltage
- Continuity
- Resistance (only on IVT-20)
- Single pole phase test
- Phase rotation of a three-phase mains
- Frequency test (only on IVT-20)
- Auto test
- Probe tip torch
- Drop proof 1 meter
- IP 65 Protection
- Auto Power On/Off
- Selectable probe tips 2/4 mm

### 3. AC/DC V Measurements

#### AC V



#### DC V



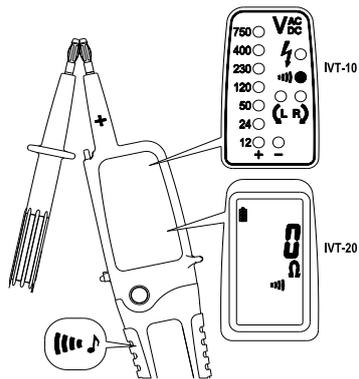
**IVT-10** : The safety LED can report a dangerous voltage > 50 V AC and 120 V DC

**IVT-20** : The safety indicator can report a dangerous voltage > 50 V AC and 120 V DC.

**⚠** If the tester is used in a noisy background, you need to ensure that the soundlevel of the tester is perceptible here.

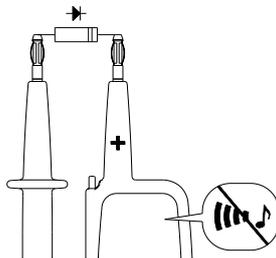
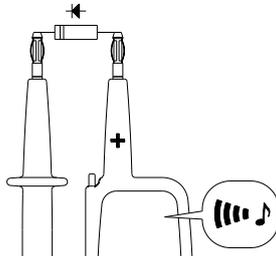
## 4. Continuity / Diode Test

### Continuity Tests

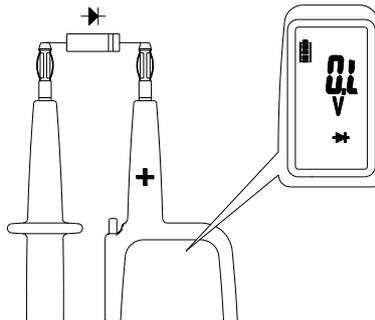
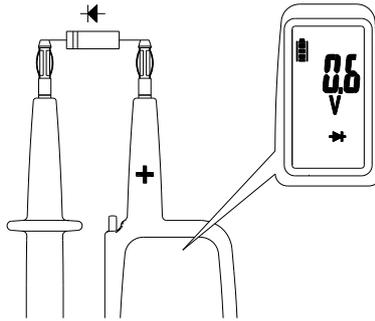


### Diode Tests

- IVT-10



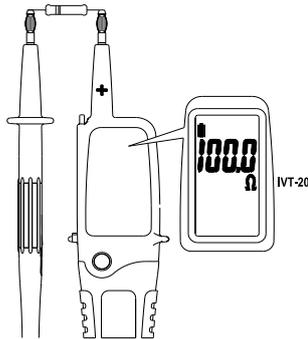
- IVT-20



**⚠** The Continuity /  $\rightarrow$  test is only possible when batteries are installed and in good condition.

## 5. Resistance Measurements

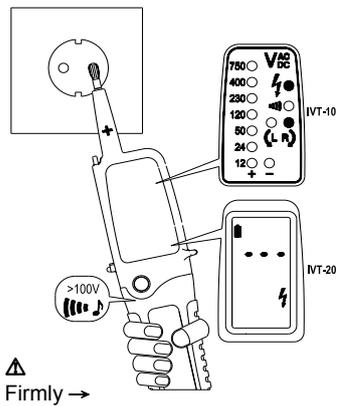
$\Omega$  Only on IVT-20



**⚠** The Resistance test is only possible when batteries are installed and in good condition.

## 6. Single-Pole Phase Test

*Single-Pole Phase*



⚠ The single-pole phase test is only possible when batteries are installed and in good condition.

⚠ The single-pole phase test is not always appropriate for testing whether a circuit is not live. For this purpose, the bipolar test is required.

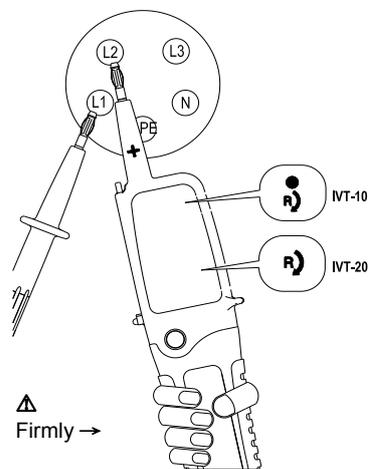
⚠ To determine external conductors during phase tests the display function may be impaired (e.g. for insulating body protection or insulating sites).

⚠ Firmly grasp the insulated grips of the Tester probe L2 it is better for increase the sensitivity of single-pole phase test.

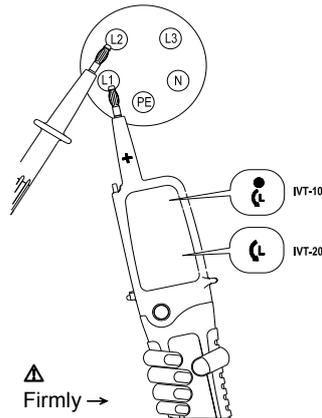
## 7. Phase Rotation Test

### Rotary phase of a three-phase mains

- Right rotary field



• Left rotary field



**⚠** Testing of phase-sequence direction is possible from 100V AC voltage (phase to phase) provided the neutral is earthed.

On making contact with both test electrodes (probe tips) to two phases of the three-phase power supply which are connected in clockwise rotation, a “**↻**” symbol appears in the LCD Display.

If the rotation is anticlockwise, then a “**↺**” symbol is displayed. In this case both phases of the unit should be switched around.

**⚠ Note :**

Testing the phase rotation always requires a negative phase rotation test!

To ensure a connect test, it is better to test on a known source.

**⚠ Attention :**

Please ensure that the test electrodes (probe tips) make good contact with two phases of a three-phase mains while testing the phase rotation. For absolute determination of a clockwise phase rotation it is necessary to make a negative phase rotation test after changing the phases. The indication “↻” or “↺” can be affected by unfavorable light conditions, by protective clothing or in insulated locations.

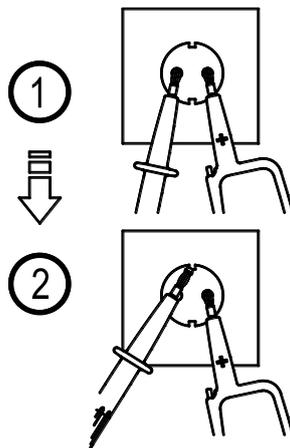
⚠ Firmly grasp the insulated grip of the Tester probe L2, it is better for the sensitivity of the phase rotation test.

## 8. RCD Voltage Test

### Voltage Test with RCD Trip Test

During voltage tests in systems equipped with RCD circuit breakers, a RCD switch can be tripped at a nominal residual current of 10mA or 30mA by measuring the voltage between L and PE.

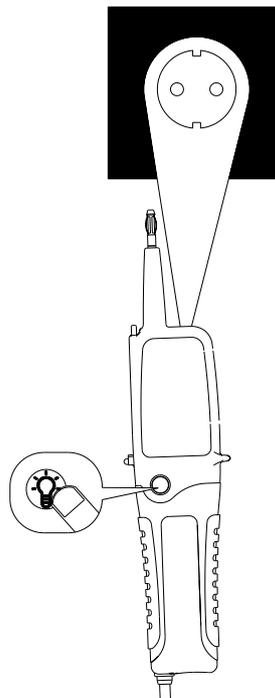
These Testers IVT-10 / IVT-20 are equipped with an internal load enabling the tripping of an RCD protection device of 10mA or 30mA.



To avoid RCD tripping, a test has to be carried out between L and N during approx. 5sec. Immediately afterwards, voltage testing between L and PE can be carried out without RCD tripping.

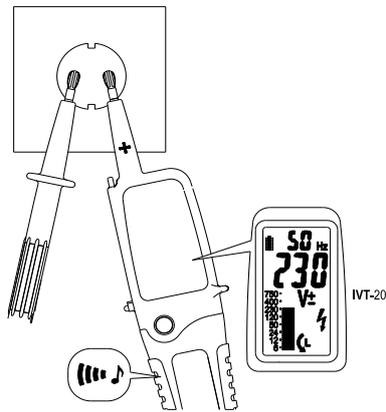
## **9. Illumination**

### **Probe tip torch**

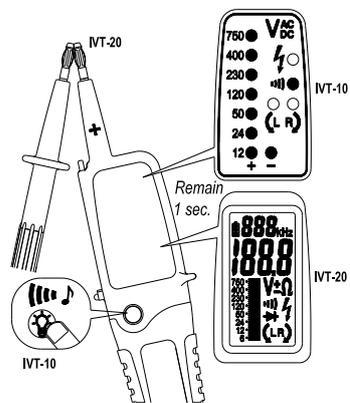


## 10. Frequency Tests

Only on IVT-20



## 11. Auto Tests

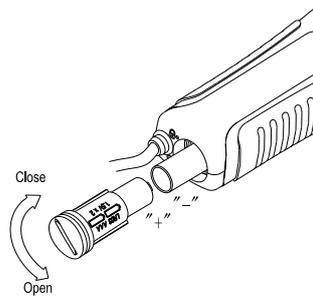


⚠ If the instrument shows failure, please don't use it and send it to our service department for repair.

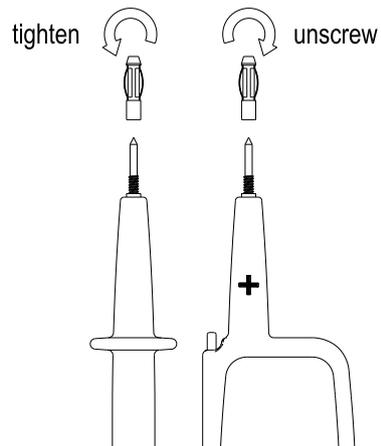
## 12. Battery Replacement

If no signal sound is audible (IVT-10) when short circuiting the test probes, if the symbol "⚡" is displayed (IVT-20)

- Completely disconnect IVT-10 /IVT-20 from the measurement circuit.
- Unscrew the screw by a cross screw driver, then open the battery cover.
- Remove discharged batteries.
- Replace by new batteries, type 1.5V IEC LR03 by respecting correct polarity.
- Close the battery cover and re-screw the screw.



## 13. 4mm Tips Replacement



## **14. Cleaning**

Prior to cleaning, remove the instruments from all measurement circuits.

If the instruments are dirty after daily usage, it is advisable to clean them by using a damp cloth and a mild household detergent. Never use acid detergents or dissolvent for cleaning. After cleaning, do not use the voltage tester till it is dried completely.

## **15. Transport and Storage**

⚠ In order to avoid instrument damage, it is advised to remove batteries when not using the instrument over a longer period.

The tester must be stored in dry and closed areas. In the case of an instrument being transported in extreme temperatures, a recovery time of minimum 2 hours is required prior to instrument operation.

## **16. Maintenance**

Unauthorized persons shall not disassemble the tester and the supplementary equipment.

When using tester IVT-10 /IVT-20 testers in compliance with the instruction manual, no particular maintenance is required.

If functional errors occur during normal operating, our service department will check your instrument without delay.

## 17. Specification

The Instruments	IVT-10	IVT-20
Voltage range	12...750V AC/DC	
LED/Bargraph resolution	± 12,24,50,120,230,400,750V	
LCD voltage range	12V...750V AC/DC	
LCD resolution	1V	
Accuracy	AC ±(1.3%+5d) DC ±(1.0%+2d)	
Voltage detection	Automatic	
Acoustic signal sound	AC 50V DC 120V	
Polarity detection	Full range	
Range detection	Automatic	
Response time	<0.1s	<0.1s/BAR <2s/RDG
Frequency range	DC, 45...65Hz	
Automatic load (RCD)	Yes	
Peak current	Is <0.2A / Is(5s) <3.5mA	
Operation time	ED (DT)=30s.	
Recovery Time	10 min.	
Auto Power On	>12 VAC / DC	
<b>Single-pole Phase Test</b>		
Voltage range	100...750V AC	
Frequency range	45...65Hz	
<b>Resistance Test</b>		
Resistance Range	0...2KΩ	
Accuracy	±(2%+10d)	
Resolution	1Ω	
<b>Frequency Test</b>		
Frequency range	30Hz-999Hz	
Accuracy	±(0.3%+5d)	
Resolution	1Hz	
Vmin (61Hz-999Hz)	20VAC	

The Instruments	IVT-10	IVT-20
<b>Continuity Test</b>		
Threshold	< 200K $\Omega$	< 200 $\Omega$
Diode Test		0.1~1.0V
Resolution		0.1V
Overvoltage protection	1000V AC/DC	
<b>Rotary Field Indication</b>		
Voltage range (LEDs)	100...750V	
Frequency range	50...60Hz	
Measurement principle	Double-pole and firmly hold the grip (L2)	
Power supply	2 x 1.5V IEC LR03 AAA size	
Power consumption	Max. 32mA / approx. 94m $\Omega$	
Operating Temperature	-15°C ~ 45°C	
Storage Temperature	-20°C ~ 60°C	
Temperature Coefficient	0.2x(Spec.Accuracy/°C <18°C >28°C	
Humidity	Max. 85% relative humidity	
Height above sea level	Up to 2000m	
Pollution Degree	2	
Type of protection	IP65	
CE	EN61326 : EN55011 :	
Safety	EN61010-1 : 2010 EN61010-031 : 2008 EN61243-3 : 2010 UTE 18-510 EN60529 : 2000/AI2000 GS38	
Functionality	EN61243-3 : 2010 EN61557-7 : 2007 EN61557-10 : 2001 EN 61557-1 : 2007	
Weight	230g (IVT-10), 240g (IVT-20), (incl. Batteries)	
Dimensions	239x68x29mm	

<b>Overvoltage category</b>	
Overvoltage class	CAT III 1000V/CAT IV 600V
CAT.	Application field
CAT I	The circuits not connected to mains.
CAT II	The circuits directly connected to Low-voltage Installation.
CAT III	The building installation
CAT IV	The source of the Low – voltage installation.

## Limited Warranty

This meter is warranted to the original purchaser against defects in material and workmanship for 3 years from the date of purchase. During this warranty period, RS Components will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction.

This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling.

Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. RS Components shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you. For full terms and conditions, refer to the RS website.

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