TEKNEKA

PR811

Phase Rotation Indicator

User Manual

Content **Page**

1.Safety

This instrument has been designed, manufactured and tested according to following standards and delivered in the best condition after passing quality control tests.

- IEC61010-1 Measurement CAT II 1000V/CAT IV 600V Pollution degree 2
- IEC61010-031

This instruction manual contains warnings and safety rules which have to be observed by the user to ensure safe operation of the instrument and to maintain it in safe condition, therefore, read through these operating instructions before using the instrument.

1-1.Safety Symbols

⚠	Refer to the instructions in the manual to protect the user and instrument.
⧈	Indicates instrument with double or reinforced insulation.
~	AC
	This instrument satisfies the marking requirement defined in the WEEE Directive. Thissymbol indicates separate collection for electrical and electronic equipment.

1-2.Safety Warnings

⚠WARNING

- Read through and understand instructions contained in this manual before using the instrument.
- Keep the manual at hand to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications.
- Understand and follow all the safety instructions contained in the manual.
- It is essential that the above instructions are adhered to, failure to follow the above instructions may cause injury and or instrument damage
- The symbol "⚠" indicated on the instrument, means that the user must refer to the related parts in the manual for safe operation of the instrument.
- It is essential to read the instructions wherever the symbol appears in the manual.

⚠**DANGER** is reserved for conditions and actions that are likely to cause serious or fatal injury.

⚠**WARNING** is reserved for conditions and actions that can cause serious or fatal Injury.

⚠**CAUTION** is reserved for conditions and actions that can cause minor injury or instrument damage.

⚠DANGER

- Please make sure that the power supply is known to be working properly.
- In the energized state, the energized LED may not light up (Voltage to ground below 70V, etc.), do not touch the wires.
- Never make measurement on a circuit in which the earth potential exceeds 1000V to avoid electrical shocks.
- Do not make measurement when thunder is rumbling, if the instrument is in use, stop the measurement immediately and remove the instrument from the measured object.
- Do not attempt to make measurement in the presence of flammable gasses, otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
- Keep your fingers and hands behind the Protective figerguard on the instrument to avoid the possible shock hazard.
- Put insulated protective gears when there is a danger of electrical shock hazard.
- The tip of clip is made of metal and it is not completely insulated, be especially careful about the possible shorting where the measured object has exposed metal parts.
- Never attempt to use the instrument if it's surface or your hand is wet, otherwise, electrical shock accident may occur.
- Never open the battery compartment cover and the instrument case when making a measurement.
- The instrument is to be used only in its intended applications or conditions, otherwise safety functions equipped with the instrument doesn't work, and instrument damage or serious personal injury may be caused.
- Only the qualified person can use the instrument at the secondary side of high voltage power receiving equipments.

⚠WARNING

- Never attempt to make any measurement, if any abnormal conditions are noted, such as broken case, and exposed metal parts.
- Do not install replacement parts or make any modifications to the instrument.
- Always keep your fingers and hands behind the barrier on the instrument to avoid the possible shock hazard.
- Do not try to replace batteries if the surface of the instrument is wet.
- Disconnect the clips from the measured conductors first and power off the instrument before opening the Battery compartment cover for a battery replacement.
- Stop using the test lead if the outer jacket is damaged and the inner metal or color jacket is exposed.

⚠CAUTION

- Do not apply shocks, vibrations or excessive forces onto the Measurement clips.
- Never force to open the Measurement clips when they are frozen.
- This instrument can be operated with safe at temperatures between -10 to 50°C and altitude up to 2000m.
- Keep away from dust and water.
- Precise measurement cannot be made near a charged body or equipment generating electromagnetic waves.
- Measurable conductor size is between dia 2.4 to 30mm, accurate measurements for conductors out of this range cannot be made.
- Measured results are influenced by voltage wires on which twice or more of the measured voltages exist near the point to be clipped, the clip point should be far from such voltage wires.
- This instrument cannot identify wiring status correctly when an earth line is connected between phases via delta connection, check the connection specification of the measured object.
- Incapable of measuring bus bars or shielded wires, clip onto a covered conductor and make a measurement.
- All the clips should be clipped onto the covered wires and make measurements, otherwise, it may cause a malfunction.
- Do not touch the Clips during measurements to get accurate results.
- This instrument cannot find the missing line of the earth line.
- Do not pull the cable when removing the Measurement clips from the measured conductors, it may cause a break in cable
- Power off the instrument after use, remove the batteries if the instrument is to be stored and will not be in use for along period.
- Do not expose the instrument to direct sunlight, high-temperature and humidity or dew.
- Dry and store the instrument if it is wet.
- Do not step on or pinch the cord to prevent the jacket of cable from being damaged.
- Bending or pulling the cord may cause a break in a cord.
- Never give shocks, such as vibration or drop, which may damage the instrument.
- Use a damp cloth and detergent for cleaning the instrument, do not use abrasives or solvents.

2.Features

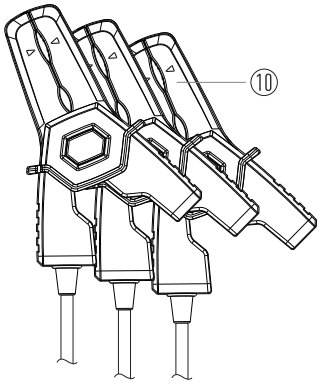
- This is a Phase indicator and can indicate a presence of live line and phase sequence with the quipped LED and Buzzer while clipping the 3-phase line over the jacket of a conductor.
- Brightness switch is equipped to make the indication visible in dimly lit areas.
- A magnet on the backside of the instrument can fix the instrument onto the distribution board and enables safety and easy measurements.
- Designed to International safety standard IEC 61010-1 (CAT III 1000V/CAT IV 600V Pollution degree 2).

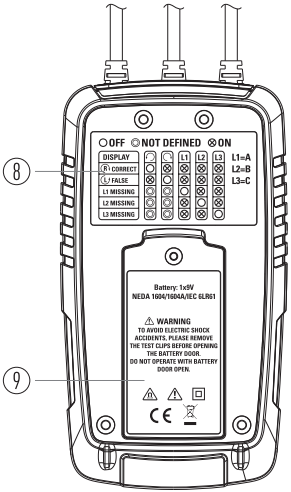
3.Specification

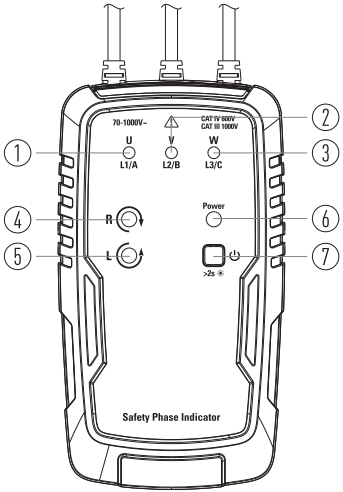
Voltage Range	3-Phase AC 70 to 1000V (Voltage to earth, continuous sine wave)
Frequency Range	45 to 66Hz
Operating Temperature	-10 to 50°C
Operating Humidity	Relative humidity 80% or less (no condensation)
Storage Temperature	-20 to 60°C
Operating Humidity	Relative humidity 80% or less (no condensation) (without batteries)
Location for Use	Altitude 2000m or less, Indoor use
Applicable Standards	IEC61010-1Measurement CAT III 1000V/CAT IV 600V Pollution degree 2 IEC61010-031
Dust-Proof	IP40 (IEC60529)
Insulation Resistance	10MΩ or more/ 1000V between the tip of Measurement clip and enclosure
Battery	9V alkaline, IEC 6LR61
Auto Power Off	10 min after powering on the instrument
Low Battery Warning	Power LED flashes at 7.2±0.2V or less (Powers off automatically at 6.2±0.2V or less)
Conductor Size	External diameter of the covered conductor Dia. 2.4 to 30mm
Cable Length	Approx 80cm
Dimension (LxWxD)	135x75x31mm
Weightange	Approx 340g (Batteries included)

4.Instrument Layout

1-L1 Indicator
2-L2 Indicator
3-L3 Indicator
4-Clockwise Rotation Indicator
5-Counter Clockwise Rotation Indicator
6-Power LED
7-Power/Brightness Button
8-Brief Instructions on Instrument Rear
9-Battery Cover
10-Measurement Clip







5.Operation Steps

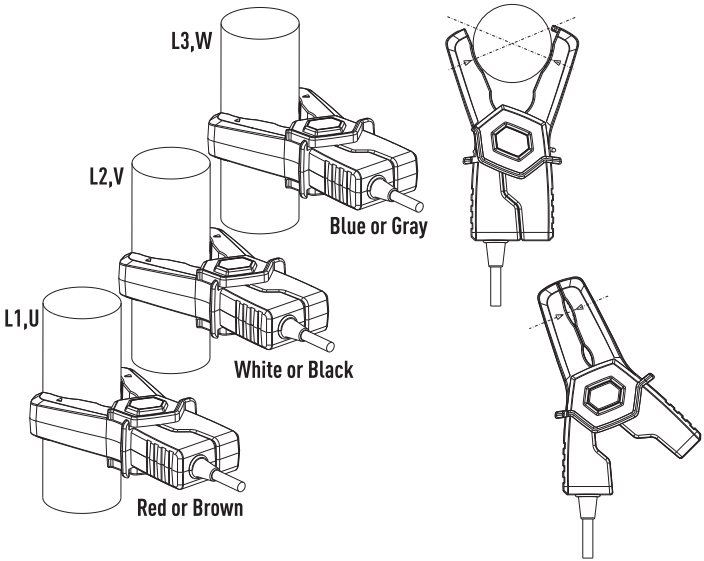
5-1.Prior Confirmation

1.Press the Power switch and power on the instrument, then all the LEDs flash in order for about 1 sec.

2.Confirm all the LEDs light up and flash, only the Power LED keeps lighted up in about 1 sec later.

3.Apex of "▼" mark on the Measurement clip shall indicate the center of the measured conductor, connect each Measurement clip to 3-phase line as follows: Red to L1, Phase-U; White to L2, Phase-V; Blue to L3, Phase-W.

4.Lines connecting the apexes of "▼" marks should pass through the center of the conductor.



5.Measure a covered conductor AC 70V or more first to confirm each live LED lights up, do not use the instrument when any of the LED doesn't light up.

6.Presence of live wires and phase sequence are informed by LED indication and Buzzer sound as soon as connecting the clips.

5-2.Status Display

⚠**DANGER:** LED does not illuminate when voltage to ground is below 70V.

⚠**DANGER:** Voltage may also be generated when grounding phase.

State	Indication
Power On	The lit phase is the energized state.
Open Phase or Grounded Phase	The phase where the light is off is the open phase or grounded phase.
Positive Phase	When the clockwise LED is lit (Green), indicates that it is positive phase, the beep tone is intermittent (beep beep)
Inverse Phase	When the counterclockwise LED is lit (Red), the indicates that it is reverse phase, continuous beep (beep ---------).

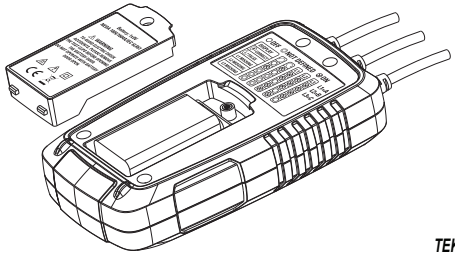
- If the display of each LED is not visible, press and hold the switch, all LEDs (Except the power LED) will become brighter.
- short press the **Power/Brightness** Button to turn the machine on and off, and Long press to switch the LED brightness.

6.Battery Replacement

⚠**CAUTION:** Power off the instrument and remove the Measurement clips from the measured object when replacing batteries to avoid electrical shocks.

⚠**CAUTION:** Do not mix old and new batteries, use the same model of batteries from the same manufacturer.

- When the Power LED on the front side of the instrument is flashing, battery voltage is low, replace batteries with new ones to continue further measurements.
- Install batteries in correct polarity as indicated inside the case.
- Low battery voltage may not affect measurement accuracies, the instrument is powered off automatically when batteries are exhausted.



TEKNEKA PR811_R1.0