TOP TRONIC

HellermannTyton

T887

PHASE ROTATION INDICATOR

INSTRUCTION MANUAL

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SAFETY RULES

CAUTION  **RISK OF ELECTRIC SHOCK**

This tester has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when lack of caution or poor safety practices are used.

Do not carry out field measurements on either the power system grounding, during periods of forecast lightning activity, in areas that encompass the station being measured or of the power network connected to the station being measured. In the event that lightning occurs, stop all testing and isolate any temporarily installed test spikes.

Preparations for testing of power system grounding can leave personnel vulnerable to exposure caused by faults at or fed from the system under test, transferred potentials from remote test grounds, and inadvertent line energisations.

While the probability of the occurrence of one of these events is low, personnel safety will, nevertheless, be enhanced by the following：

When working near high tension systems rubber gloves and shoes should be worn.
Work on clean, dry crushed rock or an insulating blanket.
Avoid bare hand to hand contact between the tester and extended test leads.

When using the tester with test leads, ensure that they are safe and properly authorized

Disconnect the tester from any external circuit when checking or changing the Fuses.

CAUTION  **READ THE MANUAL**

Follow the instructions in the Manual for every check. Read and understand the general instructions before attempting to use this tester.

SAFETY CHECK

Before using the tester check the condition of the test leads and the fuses. This is done by using a prooving unit.

The test leads must be free of cracks or any damages and must be insulated as when they were new.

Fuse replacement is described later in this user's manual.

When changing the fuses by removing the cover to access the internal circuitry, always disconnect the test leads.

When replacing the fuse use only the type specified, HBC fuse, and insert correctly into the fuse holder.

Always double check the lead connections before making measurements. This instruments has 2 internal fuses. For increased safety, use fused test leads (optional).

DON'T TOUCH

Don't touch exposed wiring, connections or other "Live" parts of an electrical circuit. If in doubt, check the circuit first for voltage before touching it.

Do not use cracked of broken test leads.

THIS CHECKER SHOULD ONLY BE USED BY A COMPETENT, SUITABLY TRAINED PERSON.

REMEMBER

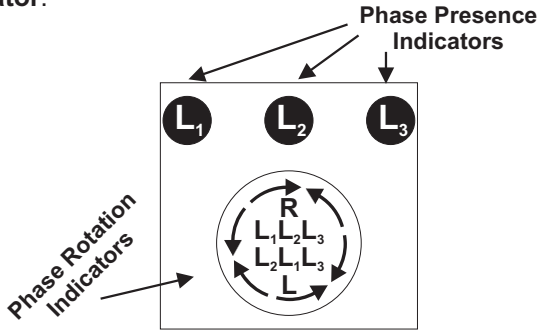
SAFETY IS NO ACCIDENT

CAUTION RISK OF ELECTRIC SHOCK

CAUTION READ THE MANUAL

GENERAL DESCRIPTION

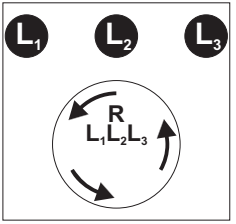
This Test Instrument **is a 3 Phases Presence and Rotation Indicator** which display the results on a **large "high contrast" Liquid Crystal Display**.
It does not need any battery as it derives it's power from the system under test.
It can be utilized on a **3 Phase Powered System** (the supply side) without having to worry about damage to the tester. Furthermore, **it has internal fuses**, so non fused test leads can be utilized.
When utilized on a 3 Phase Powered System**,** the instrument is then utilized as a **3 Phases Presence Indicator**.



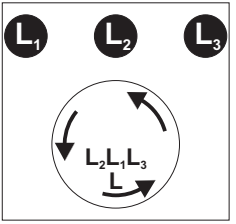
When utilized on a 3 Phase Powered System**,** the instrument is **also** utilized as a **3 Phases Rotation Indicator**.

When utilized on a 3 Phases Powered System, this instrument is a rotary field indication instrument which display all three phases by showing up it's corresponding LCD Phase Presence Indicators (L_1, L_2 and L_3).

It display the rotation (clockwise or anti-clockwise) on the LCD.



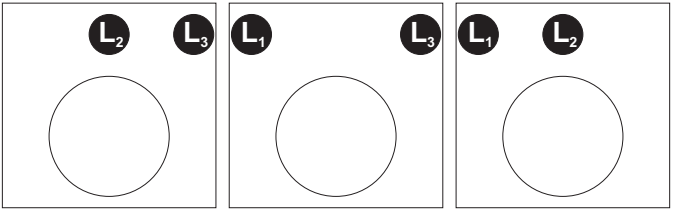
3 Phases Presence Rotating Right L1L2L3



3 Phases Presence Rotating LEFT L2L1L3

This instrument represents the quickest and Easiest way for verifying the presence and rotation of a 3 Phase System.

You can, before connecting Supply to Load, and from the supply side;
Quickly and easily verify the presence of the three Phases on a 3 Phases Power System. The LCD will indicate the presence of each respective Phase with it's Phase presence indicators.

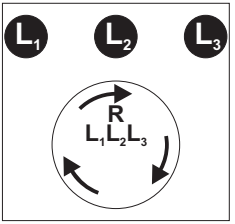


L1 Missing No Rotation Indication

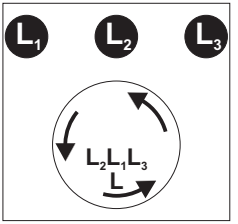
L2 Missing No Rotation Indication

L3 Missing No Rotation Indication

You can confirm the Phase Rotation on a Powered 3 Phase System.



3 Phases Presence OK
Rotating Right L1L2L3



3 Phases Presence OK
Rotating LEFT L2L1L3

The corresponding **Arrows** and **L_1, L_2 and L_3** will clearly indicate the rotation of the phases.

BRIEF PRODUCT DESCRIPTION

This 3 Phases Presence and Rotation Indicator has 3 test leads which connects to the 4 mm female sockets on the tester, on the one side.

These Test leads are color coded.

L1 = Red which connects to L1 on the tester.
L2 = Yellow which connects to L2 on the tester.
L3 = Blue which connects to L3 on the tester.

On the other side of the test leads are the probes, also color coded.

The tester has three individuals LCD Phase presence Indicators

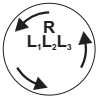
LCD for Individual Phase Presence Indication = L1 → L_1

LCD for Individual Phase Presence Indication = L2 → L_2

LCD for Individual Phase Presence Indication = L3 → L_3

Please note that any of these LCD Indicators will only start to light up if more than 80Vac is present between any 2 phases.

The LCD to display clockwise rotary direction.



The LCD to display counter clockwise.

OPERATING INSTRUCTIONS

Determination of the rotary field direction and phase presence

On a 3 Phase System, the sequence of the 3 phases determine the rotation of a 3 phase motor connected to that system.

The correct 3 Phase Sequence L_1, L_2, L_3 results in a clockwise rotation of the connected motor.

Connect the Test Leads to the sockets of the Instrument, respecting the correct color. Red to L_1, Yellow to L_2, Blue to L_3.

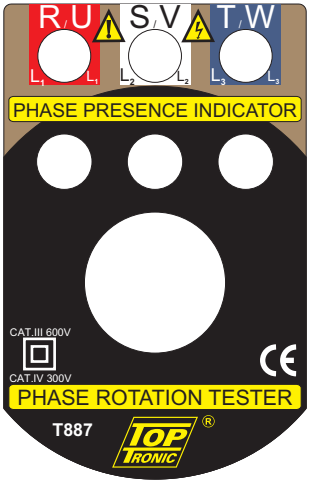
Clip the test probes to the Powered three mains phase, L_1, L_2, L_3.

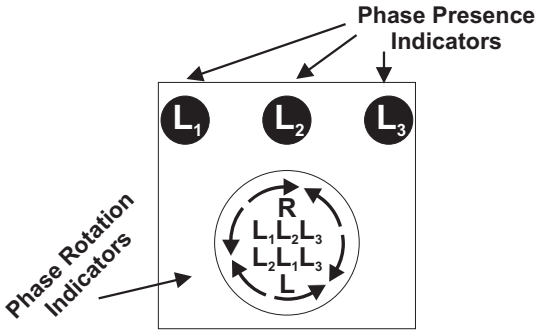
When connecting to a voltage superior to 40V AC, the corresponding LCD Indicator will show, indicating the presence of the voltage on it's corresponding lead (L_1, L_2, L_3 LCD).

If the LCD (Right arrows) L_1-L_2-L_3 is illuminated, clockwise rotary field is present.

If the LCD(Left arrows) L_3-L_2-L_1 is illuminated, a counter clockwise rotary field is present.

FRONT PANEL and LCD LAYOUT





PRINCIPLE OF HOW IT WORK

As this instrument takes it's power from the circuit under test, it has a power supply circuit which derive it's power from the system. That supply circuit regulate a +5V for the circuitry. This is why you need a minimum of 40Vac before this instrument is operational.

The first circuit is the 3 Phase presence indicator, which is shown by the individual Phase Presence LCD Indicators and the second circuit is the three phase sequence indicator by LCD indication.

3 Phase Presence Indication circuit:
The voltage measured between phases is utilized to trigger the corresponding Phase Presence LCD indication. Once that voltage is high enough, it's presence is shown on the LCD Indicator.

3 Phase sequence indicator circuit:
The sequence of these measured voltages are feed into a digital circuit which compare which phase sequence to indicate and indicate it on the LCD.
An oscillator clock the LCD to increase it's life duration.

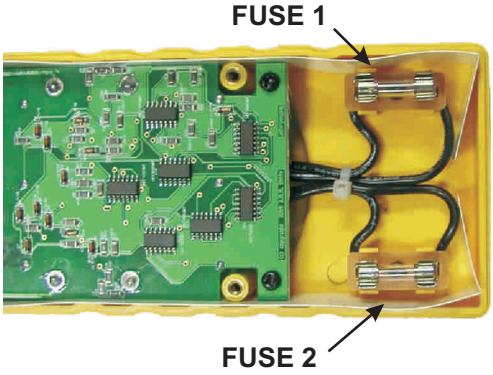
PREPARATION FOR USE

Fuses:
In doubt, check the fuses using a ohm meter.
Please note that this instrument will not indicate anything, should the fuses be blown.

Test Leads:
Check the test leads for defects or cracks. Replace if cracked or damaged. Only replace with the same type.

Cleaning:
Use a damp cloth to clean the case. Do not use chemicals.

FUSES REPLACEMENT
Unscrew the back cover and replace the faulty fuse(s) with the same type, then screw the cover back into place correctly
Once you open the case, you will see the fuse as on the photo below.



SPECIFICATIONS

ELECTRICAL

Determination of the Phase Presence

Nominal Voltage for Phase Presence Indication (the voltage required for the LCD L_1, L_2, L_3 indicators to come on)..... From 40Vac to 700Vac.

Frequency Range ..... From 15Hz to 400Hz.

Determination of the Phases Rotary Field Direction:

Direction Indication by LCD Display (the voltage required to have the LCD Direction Arrows to indicates and the $L_1L_2L_3$ or $L_3L_2L_1$ indicators to show) ..... From 40 to 700Vac.

Frequency Range ..... From 15Hz to 400Hz.

Protection

OverLoad..... 700V (between all terminals)

Over Voltage ..... Class III - 700V towards ground.

Fuses..... 2 x 3mA, 6 x 31mm, HBC,600V Fast Blow

General

Current Consumption ..... Max 3 mA.

MECHANICAL

Size..... 72 x 150 x 33.8 (mm)

Material..... Polycarbonate /ABS

Weight (less carrying case)..... 158.5g

Display..... Liquid Crystal Display

ENVIRONMENTAL

Operating temperature Range： 1 °C to + 55 °C not in full sun!!!

Storage Temperature： -20°C to + 70 °C

CLEANING

Clean the instrument case with an anti-static cleaner and wipe with dry cloth.

Pouch

Vinyl

LIMITED WARRANTY

We warrant the product manufactured by us to be free from defective material or factory workmanship and agree to repair or replace this product which, under normal use and service, disclose the defect to be the fault of our manufacturing, with no charge for parts and service. If we are unable to repair or replace this product, we will make a full refund of the purchase price.

Consult the user's manual for proper instruction regarding use of this instrument.

Our obligation under this warranty is limited to repairing, replacing or making refund of this test equipment which proves to be defective within twenty four months from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way so as, in our sole judgement, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence or accident or which have had the serial numbers altered, defaced or removed.

Accessories, not of our manufacture used with this product, are not covered by this warranty.

All warranties implied by law are hereby limited to a period of twenty four months, and the provisions of the warranty are expressly in lieu of any other warranties expressed or implied.

The purchaser agrees to assume all liability for any damages or bodily injury which may result from the use or misuse of the product by the purchaser, or it's user, his employees, or others, and the remedies provided for in this warranty are expressly in lieu of any other liability we may have including incidental or consequential damages.

We reserve the right to discontinue models at any time, or change specification, price or design, without notice and without incurring any obligation.