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PRODUKTINFORMATION

Vi reserverar oss mot fel samt förbehåller oss rätten till ändringar utan föregående meddelande

ELFA artikelnr
76-456-09 Fasföljdsvisare MetraPhase 1

METRAPHASE 1
Phase Sequence Indicator

3-348-992-03
2/8.99

- Displays phase sequence
  by means of 6 optically rotating LEDs with different colors
  (clockwise: green, counterclockwise: red)
- Displays nominal line voltage
  with 3 LEDs
- Displays nominal line frequency
  with 6 LEDs
- Phase search
  with 3 LEDs for L1, L2 and L3
- Indication of errors for:
  – Asymmetries
  – Missing phases

Useful accessories

- Tester for meter start-up testing
- Mains power pack for continuous operation

Applications

Phase sequence, line frequency and phase voltage are tested and displayed simultaneously after the METRAPHASE 1 test instrument has been connected to the system under test at all phases with the included, contact-protected connector cables. The instrument is suited for initial testing, as well as for testing after repairs and modifications.

Features

Convenient Testing with Only 2 Cables (2-pole measurement)

In addition to normal testing with 3 measurement cables, phase sequence can also be tested with only 2 cables. After connection to L1 has been established, phases L2 and L3 are scanned separately, one after the other.
This operating mode is indicated by means of intelligent software which rules out the possibility of erroneous measurements.

Automatic Activation

The instrument is activated automatically as soon as a voltage of at least 100 V is applied to any 2 measurement sockets.

Battery Saving Circuit

The instrument is shut down automatically when zero voltage is applied in order to extend battery service life.

Applicable Regulations and Standards

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
IEC 61557 Part 7/ EN 61557-7/ VDE 0413 Part 7	Phase sequence indicators
EN 60529 VDE 0470 Part 1	Test instruments and test procedures – Protection provided by enclosures (IP code)
EN 50081-1	Electromagnetic compatibility (EMC) Generic standard for interference emission
EN 50082-1	Electromagnetic compatibility (EMC) Generic standard for interference immunity

Characteristic Values

Phase Direction	Phase Sequence	Phase Sequence LED Display	Phase Direction LED Display
Clockwise	L1 – L2 – L3	L1 L2 L3 light up	green LED rotates in clockwise direction
Counterclock-wise	L3 – L2 – L1	L1 L2 L3 light up	red LED rotates in counterclockwise direction
Asymmetrical	Lx – N/PE – Lx	connection with N/PE not indicated	green or red LED rotates clockwise or counterclockwise depending upon connection
Phase Missing	Lx – X – Lx	missing phase does not light up, the other 2 do light up	—

METRAPHASE 1
Phase Sequence Indicator

Nominal 3 phase ~ line voltage indicated with one LED each for
120/208 V, 230/400 V, 400/690 V
Total line voltage range: 100 ... 690 V

Line frequency indicated with one LED each for
50 Hz, 60 Hz, 100 Hz, 200 Hz, 300 Hz, 400 Hz
Total frequency range: 15 ... 410 Hz

Reference Conditions

Ambient Temperature	+23 °C ±2 K
Relative Humidity	45 ... 55%
Battery Voltage	4.5 V ±0.25 V
Adapter Voltage	4.5 V ±0.2 V
Line Voltage	230/400 V ±0.5%
Line Frequency	50 Hz ±0.1 Hz
Line Voltage Waveshape	sine, deviation between effective and rectified values < 1%

Ambient Conditions

Storage Temperature	–25 °C ... +75 °C
Operating Temp.	–10 °C ... +50 °C
Relative Humidity	max. 75%, no condensation
Elevation	to 2000 m

Power Supply

Batteries	4 mignon cells, alkaline-manganese per IEC LR6 or 4 mignon cells, zinc-carbon per IEC R6
Battery Voltage	4 V ... 6 V
Battery Service Life	with alkaline-manganese cells: approx. 100 hrs.
Mains Power Pack (accessory)	NA4/500

Electrical Safety

Protection Class	II per IEC 61010-1	
Overvoltage Category	III	IV
Operating Voltage	600 V	300 V
Contamination Level	2	
Test Voltage	5.55 kV	

Electromagnetic Compatibility (EMC)

Interference Emission	EN 50081-1: 1992
Interference Immunity	EN 50082-1: 1992

Mechanical Design

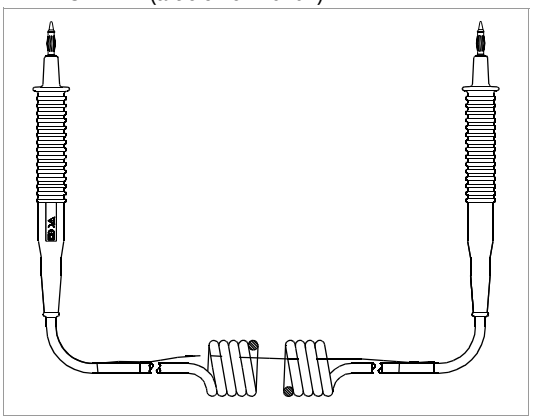
Protection	housing: IP40, sockets: IP20 per DIN VDE 0470 Part 1/EN 60529
Dimensions	84 mm x 195 mm x 35 mm
Weight	approx. 0.3 kg with batteries, without protective rubber cover

Standard Equipment

1 phase sequence indicator
3 plug-on measurement cables with contact-protected plugs
3 test probes for attachment to contact-protected plugs
1 alligator clip for attachment to contact-protected plugs
4 batteries
1 operating instructions
1 carrying case

Accessories (not included as standard equipment)

METRASTART 1 (article no. M620B)



The meter start-up tester – double insulated coil cable with 2 test probes – generates a resistive load of 705 Ω which loads the energy meter with approximately 75 W at a line voltage of 230 V. Overload capacity: 440 V. The test instrument is supplied with a convenient carrying case.

Variable Plug Adapter Set (article no. Z500A)

Three self-retaining, contact-protected test probes for the connection of measurement cables with 4 mm banana plugs or with contact-protected plugs to 3.5 to 12 mm outlets, e.g. CEE outlets, Perilex outlets etc. For example, the test probes fit into the square PE sockets at Perilex outlets. Maximum allowable operating voltage: 600 V per IEC 61010.

NA4/500 Mains Power Pack (article no. Z218A)

Installed Load 230 V~/4.5 V, 600 mA

The mains adapter is designed for continuous operation and generates a minimal amount of heat. Make certain that the mains power pack is not covered in order to ensure effective convection cooling. Protect against moisture.

Order Information

Description	Type	Article Number
Phase sequence indicator in HC20 carrying case	METRAPHASE 1	M620A
Tester for meter start-up testing in HC20 carrying case	METRASTART 1	M620B
Variable plug adapter set 3.5 ... 12 mm	Z500A	Z500A
Mains power pack: 230 V/4.5 V, 600 mA	NA4/500	Z218A

See Measuring Instruments and Testers catalog for additional information concerning accessories.

METRAPHASE 1
Phase Sequence Indicator

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