

## PHASE INDICATOR PH-12



## OPERATING MANUAL

*Quality control system on the development and production complies with requirements  
ISO 9001:2015*

### **Dear customer,**

Company NOVATEK-ELECTRO LTD. thanks you for purchasing our products.  
You will be able to use properly the product after carefully studying the Operating Manual.  
Keep the Operating Manual throughout the service life of the product.

**ATTENTION!** ALL REQUIREMENTS OF THIS OPERATING MANUAL ARE COMPULSORY TO BE MET!



**WARNING!** – PRODUCT TERMINALS AND INTERNAL COMPONENTS ARE UNDER POTENTIALLY LETHAL VOLTAGE TO ENSURE THE PRODUCT SAFE OPERATION IT IS STRICTLY FORBIDDEN THE FOLLOWING:

- TO CARRY OUT MOUNTING WORKS AND MAINTENANCE **WITHOUT DISCONNECTING THE PRODUCT FROM THE MAINS;**
- TO OPEN AND REPAIR THE PRODUCT INDEPENDENTLY;
- TO OPERATE THE PRODUCT WITH MECHANICAL DAMAGES OF THE CASE.

IT IS NOT ALLOWED WATER PENETRATION ON TERMINALS AND INTERNAL ELEMENTS OF THE PRODUCT.

During operation and maintenance the regulatory document requirements must be met, namely:

- Regulations for Operation of Consumer Electrical Installations;
- Safety Rules for Operation of Consumer Electrical Installations;
- Occupational Safety when in Operation of Electrical Installations.

Installation, adjustment and maintenance of the product must be performed by qualified personnel having studied this Operating Manual.

In compliance with the requirements of this Operating Manual and regulations the product is safe for use.



This Operation Manual is intended to let you know the product, safety requirements, the procedure for operation and maintenance of the PHASE INDICATOR PH-12 (hereinafter referred to as product, PH-12).

**PH-12 meets the requirements of:**

- EN 60947-1;
- EN 60947-6-2;
- EN 55011;
- EN 61000-4-2.

Harmful substances in concentration more than allowed are absent.

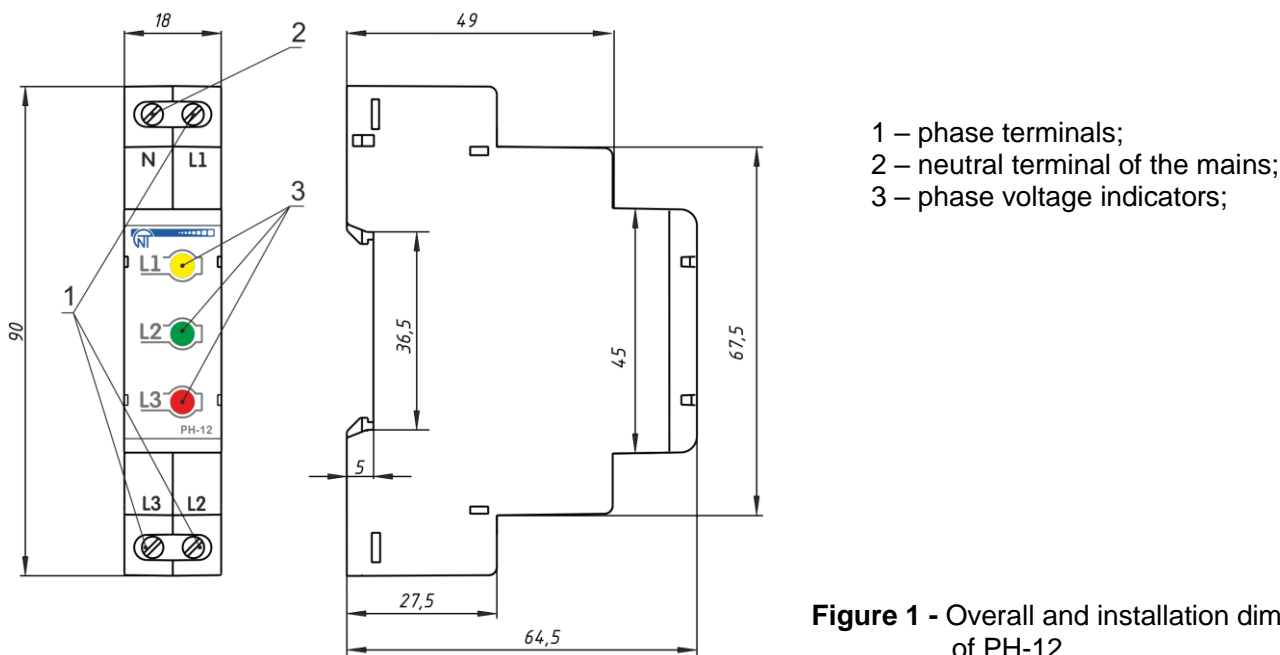
**1. APPLICATION**

**1.1 Application of product**

PH-12 is designed to indicate presence of phase voltages in a three-phase AC network.

**1.2 Overall and installation dimensions of PH-12**

Overall and installation dimensions of PH-12 are shown in Figure 1.



**Figure 1 - Overall and installation dimensions of PH-12**

**1.3 Operation conditions**

The product is designed for operation in the following conditions:

- Ambient temperature: from minus 35 to +55°C;
- Atmospheric pressure: from 84 to 106.7 kPa;
- Relative air humidity (at temperature of +25°C): 30 ... 80%.

If the temperature of the product after transportation or storage differs from the environment temperature at which it is expected to operate, then before connection to electric mains keep the product under the operating conditions within two hours (because the product elements may have moisture condensation).

**ATTENTION! The product is not intended for operation in the following conditions:**

- Significant vibration and shocks;
- High humidity;
- Aggressive environment with content in the air of acids, alkalis, etc., as well as severe contaminations (grease, oil, dust, etc.).

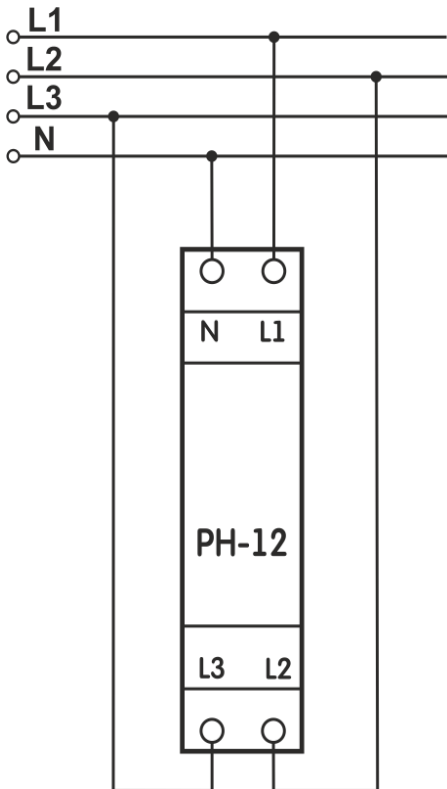
**2. TECHNICAL CHARACTERISTICS**

Description	Value
Rated voltage of the network: AC, three-phase with the general neutral, V	3x400, N
Mains frequency, Hz	45 – 65
Maximum power consumption, W	0.5
Rated operating mode	Long
Protection degree of the front panel	IP40
Protection degree of terminals block	IP20
Electric shock protection class	II
Climatic version	NF 3.1
Допустимая степень загрязнения	II
Категория перенапряжения	II
Nominal voltage of insulation, V	450
Rated impulse withstand voltage, kV	2.5
Cross-section of connection terminal wires, mm <sup>2</sup>	0.3 – 3.3
Screw torque of terminal clams, N*m	0.4
Overall dimensions H*B*L, mm	90x18x64.5
Weight, kg, not more than	0.08
Standard 35 mm DIN rail mounting	
The product remains operational capability in any position in space	
Housing material - self-extinguishing plastic	

**3. THE INTENDED USE**

**3.1 Preparation for connection:**

- Unpack and check the product for damage after transportation; in case of such damages detection, contact the supplier or manufacturer;
- If you have any questions regarding the installation of the product, please contact the manufacturer by telephone number indicated at the end of this Operating Manual.



**3.2 The product connection**

To ensure the reliability of electrical connections the flexible (stranded) wires with insulation for voltage of at least 450 V should be used, the ends of which it is necessary to be striped of insulation for 5±0.5 mm and tightened with bootlaces. It is recommended to use the wire with cross-section of at least 1 mm<sup>2</sup>. Wires fastening should exclude mechanical damage, twisting and abrasion of the wire insulation.

**IT IS NOT ALLOWED TO LEAVE EXPOSED PORTIONS OF WIRE PROTRUDING BEYOND THE TERMINAL BLOCK.**

For reliable contact, it is necessary to tighten the terminal block screws with a force of 0.4 N\*m.

When reducing the tightening torque, the junction point is heated, the terminal block may be melted and wire can burn. If you increase the tightening torque, it is possible to have thread failure of the terminal block screws or the compression of the connected wire.

**3.2.1.** Connect the product (terminals L1, L2, L3, N) to the mains according to the circuit shown in Figure 2.

**3.2.2** Apply the supply voltage.

When voltage is applied to the PH-12, the product indicates its presence at the phases corresponding to the marking relative to the neutral wire.

**Figure 2 - PH-12 Connection diagram**

## 5. MAINTENANCE

### 5.1. Safety precautions



**THE TERMINALS AND THE PRODUCT INTERNAL ELEMENTS CONTAINS POTENTIALLY LETHAL VOLTAGE.**

**DURING MAINTENANCE IT IS NECESSARY TO DISABLE THE PRODUCT AND CONNECTED PRODUCTS FROM THE MAINS.**

5.2. Maintenance of the product must be performed by the skilled professionals.

5.3. Recommended frequency of maintenance is **every six months**.

#### 5.4. Maintenance Procedure:

- 1) Check the connection reliability of the wires, if necessary, clamp with the force at 0.4 N\*m;
- 2) Visually check the integrity of the housing, in case of detection of cracks and damages take the product out of service and send for repair;
- 3) If necessary, wipe the front panel and the housing of the product with cloth.

**Do not use abrasives and solvents for cleaning.**

## 6. SERVICE LIFE AND MANUFACTURER WARRANTY

6.1 The lifetime of the product is 10 years. Upon expiration of the service life, contact the manufacturer.

6.2 Shelf life is 3 years.

6.3 Warranty period of the product operation is 5 years from the date of sale.

During the warranty period of operation (in the case of failure of the product) the manufacturer is responsible for free repair of the product.

**ATTENTION! IF THE PRODUCT HAS BEEN OPERATED WITH THE VIOLATION OF THE REQUIREMENTS OF THIS USER MANUAL, THE USER WILL LOSE THE RIGHT TO WARRANTY MAINTENANCE.**

6.4 Warranty service is performed at the place of purchase or by the manufacturer of the product.

6.5 Post-warranty service of the product is performed by the manufacturer at current rates.

6.6 Before sending for repair, the product should be packed in the original or other packing excluding mechanical damage.

*You are kindly requested, in case of the product return and transfer it to the warranty (post-warranty) service please indicate detailed reason for the return in the field of the claims data.*

## 7. TRANSPORTATION AND STORAGE

The product in the original package is permitted to be transported and stored at the temperature from minus 45 to +60 °C and relative humidity of no more than 80 %.

## 8. ACCEPTANCE CERTIFICATE

PH-12 has been manufactured and accepted in accordance with the requirements of valid technical documentation and classified as fit for operation.

Head of QCD

Date of manufacture

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Seal

## 8 CLAIMS DATA

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*The Company is grateful to you for the information about the quality of the product and suggestions for its operation.*



For all questions, please contact the manufacturer:

NOVATEK-ELECTRO Ltd,  
59, Admiral Lazarev Str.  
Odessa, 65007, Ukraine.

Tel.: +38 (048)738-00-28,  
Tel./fax: +38 (0482) 34-36-73.  
www.novatek-electro.com

Date of sale: \_\_\_\_\_