NiK®




Catalogue

ABOUT US

NIK is one of the largest Ukrainian manufacturers of electrical equipment, including energy metering devices (single- and three-phase meters as well as single- and multi-tariff meters).

Over 14 years NIK has grown from a small trade business to a large successful trading and manufacturing company with its own trademarks well-known in Ukraine (NiK and Novasys), employing more than 400 people. NIK production facilities are located in different regions of Ukraine, namely in Kyiv, Dnipropetrovsk, and Gorlovka of Donetsk region.

Adoption of world's best practices and visits to the leading foreign companies made it possible to develop a mechanism, which allows to achieve high production efficiency and manufacture high-quality products due to the maximum optimization of the technological processes and cutting-edge equipment. The first priority of our company is the strict quality control which allows to achieve highly reliable operation of our products. Advanced technologies and innovative manufacturing processes implemented by our company enables to continuously increase production volumes and expand our product range.

Our core business activities include:

- manufacture of energy metering devices under trademark "NiK";
- introduction of Automatic Meter Reading Systems (AMRS) – NovaSys;
- production of AMRS components;
- production of high-quality electrical equipment (mounting boxes for electricity meters, automatic circuit breakers, fuses, current transformers, etc.);



- design, construction, and modernization of substations.

Among our major customers are large power supply, construction, and installation companies.

High-quality products, individual approach to each customer are core principles which guide our business activities.

NIK has demonstrated that competitive and high-quality products meeting world-class standards can be produced in Ukraine.

NIK aims to enter every home, bringing really useful things.

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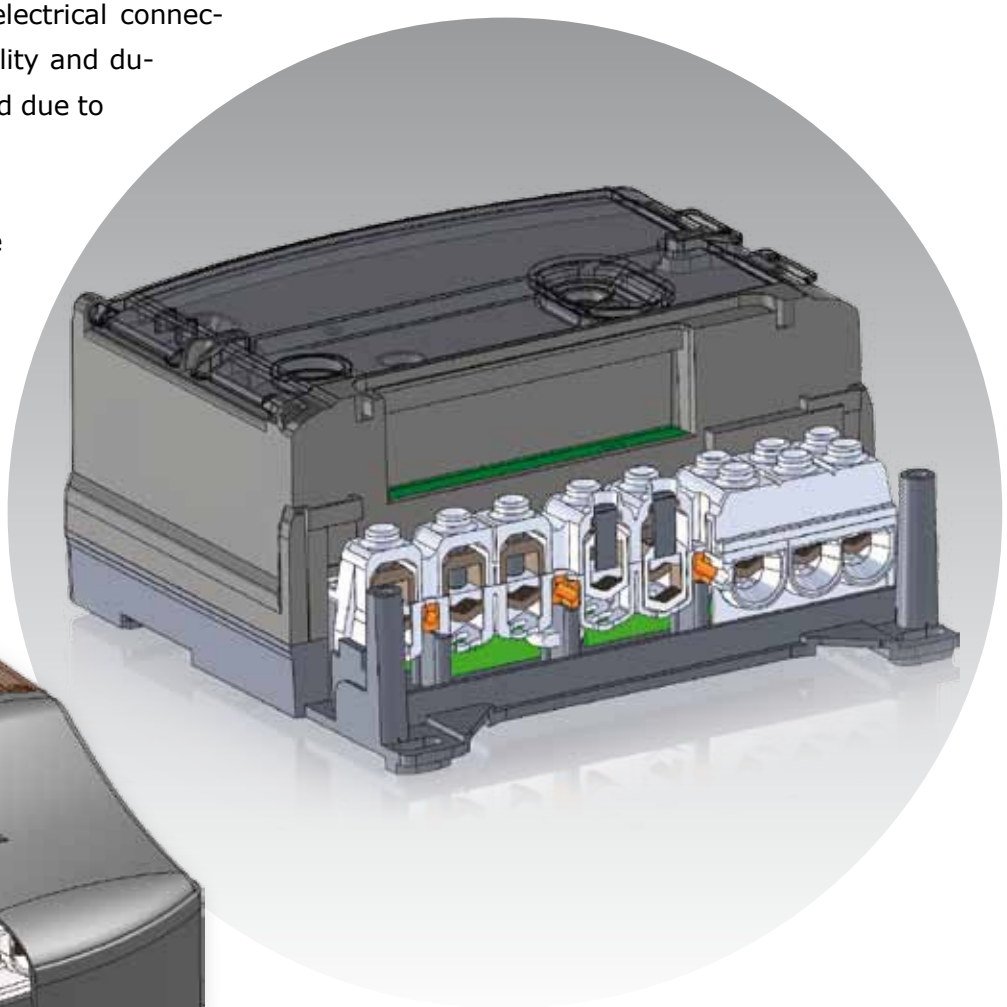
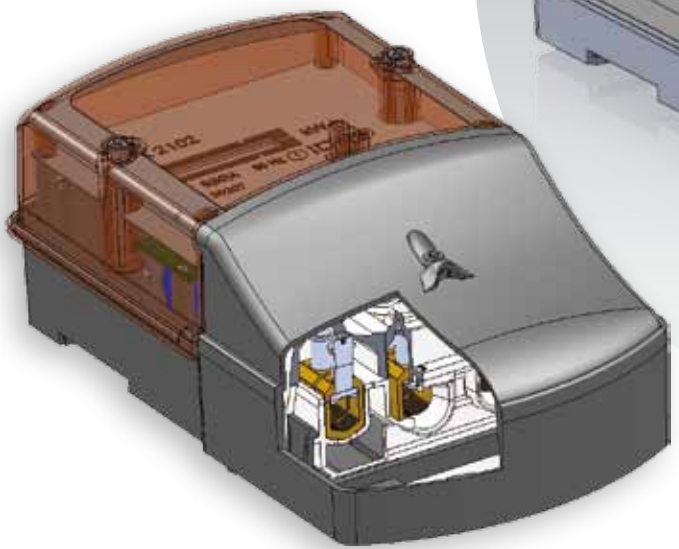
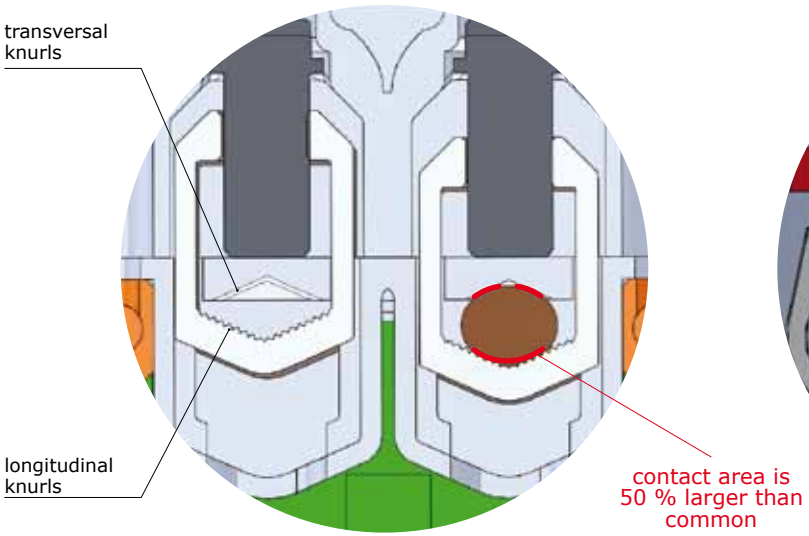
NIK Innovations for 2011:
Alligator Type Connector Strip

The most challenging task for electrical connections in devices is to ensure reliability and durability of such connections achieved due to maximum possible contact area.

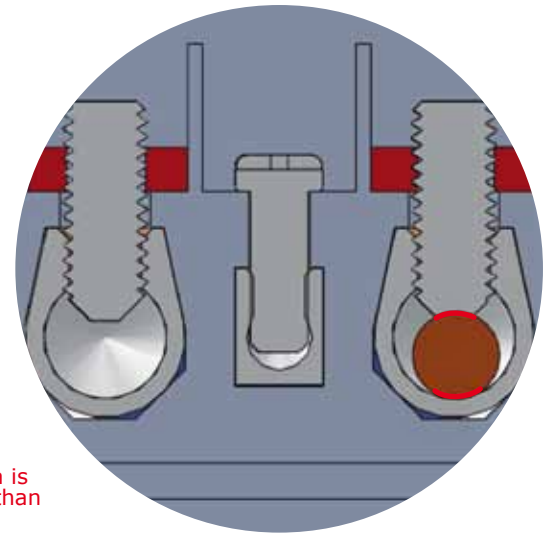
These parameters are vulnerable to contact heating, which depends on many factors, including the contacting area of connected elements.



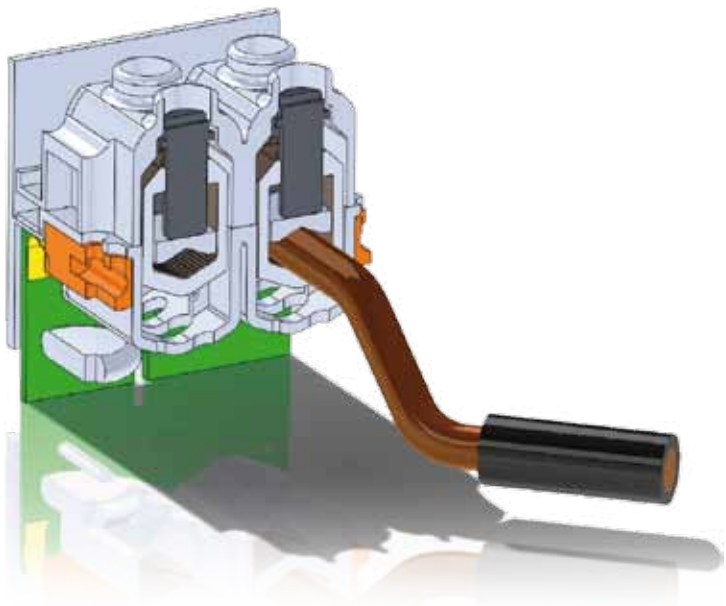




INNOVATIVE ALLIGATOR TYPE CONNECTOR STRIP



COMMON CONNECTOR STRIPS



Designers have grappled with the problem since the day electricity was first used by industry and households.

This problem has also been addressed by specialists of NIK Engineering Department, who invented and patented connector strip designed for electricity meters – Alligator Type Connector Strip.

Its fundamental advantage is its contact area, which is 50 % larger than in common connection strips.

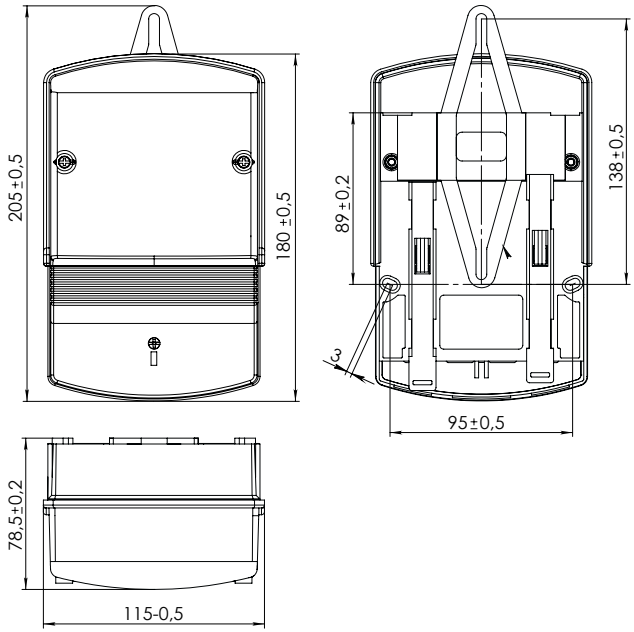
All NIK electricity meters will be equipped with connector strips of new type from 2012.

NIK 2102

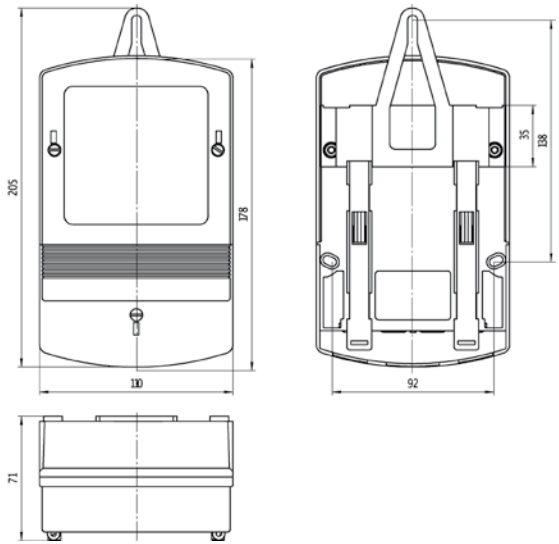
ELECTROMECHANICAL ELECTRICITY METERS

SINGLE-PHASE METER

Overall and Mounting Dimensions



Overall and Mounting Dimensions



Meter Configurations

Meter Type	Meter Configurations	Rated (Maximum) Current Intensity	Rated Voltage (V)	Meter Constant (impulses/kWh)	Casing Type	Number of measuring elements in the current circuit
NIK 2102	02.M1	5 (60) A	220	6400	flat	1
NIK 2102	02.M2	5 (60) A	220	6400	flat	2
NIK 2102	04.M1	5 (50) A	220	6400	flat	1
NIK 2102	04.M2	5 (50) A	220	6400	flat	2
NIK 2102	05.M1	10 (60) A	220	6400	flat	1
NIK 2102	05.M2	10 (60) A	220	6400	flat	2
NIK 2102	02.M1B	5 (60) A	220	6400	convex	1
NIK 2102	02.M2B	5 (60) A	220	6400	convex	2
NIK 2102	04.M1B	5 (50) A	220	6400	convex	1
NIK 2102	04.M2B	5 (50) A	220	6400	convex	2
NIK 2102	05.M1B	10 (60) A	220	6400	convex	1
NIK 2102	05.M2B	10 (60) A	220	6400	convex	2

Features

- Measurement of active energy in single-phase two-wire alternating-current circuits;
- Extended operating voltage range (from – 35 % to +15 % of the basic value);
- Two-element meter (shunt and transformer used as current sensors);
- Enhanced level of protection against constant and variable magnetic fields in accordance with the requirements of SOU-N MPE 40.1.35.110:2005 (Additional Requirements for Electricity Metering Devices, Aimed to Prevent Unauthorized Interference with Operation, issued by the Ministry of Fuel and Energy of Ukraine);
- Protection against unauthorized energy consumption (indication of reverse current direction, current inequality in the phase and neutral wire);
- Quick and easy installation (mounting dimensions and clamp layout allow installation without any modifications of the connected cable lines when replacing induction meters);
- Technological accuracy class margin is no less than 50%;
- Low internal energy consumption;
- Modern casing design;
- Mountable on a DIN-rail;
- Durable operation at U=380 V (up to 24 hours);
- ID number in the State Register of Measuring Instruments: U2162-11;
- operable in boxes for outdoor installation.

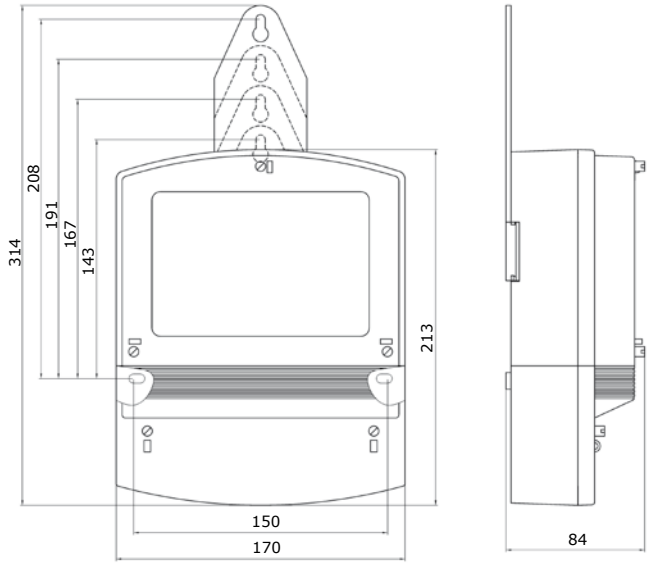
Technical Specifications

Accuracy Class	1,0 (GOST 30207) DSTU IEC 61036
Rated (max.) current intensity: — 02 — 04 — 05	 5(60) A 5(50) A 10(60) A
Sensitivity	12,5 мА
Recalibration interval	16 years
Operating temperature range	from -40 °C to +55 °C
Total wattage of meter voltage circuit	Max. 8 W•A
Total wattage of meter current circuit	Max. 0.2 W•A
Weight	Max. 1.0 kg
Mean time between verhauls	no less than 30 years
Reliability indicator. Mean time between failures, if properly maintained	no less than 200 000 h

NIK 2301

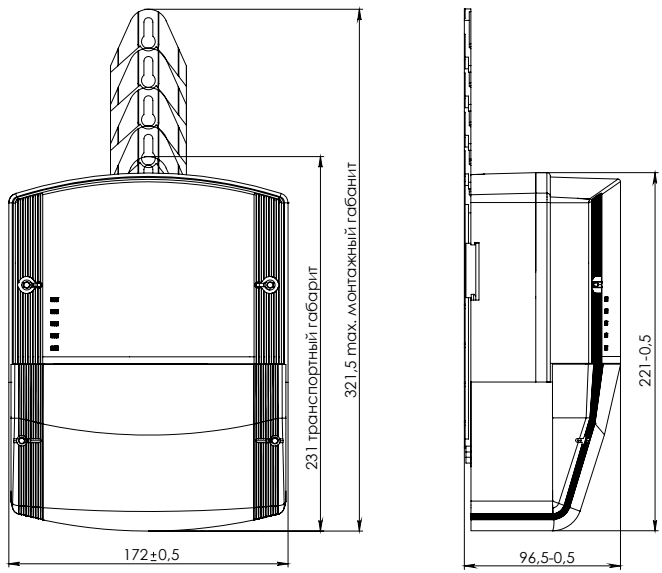
ELECTROMECHANICAL ELECTRICITY METERS
THREE-PHASE METER

Overall and Mounting Dimensions



2011 Design

Overall and Mounting Dimensions



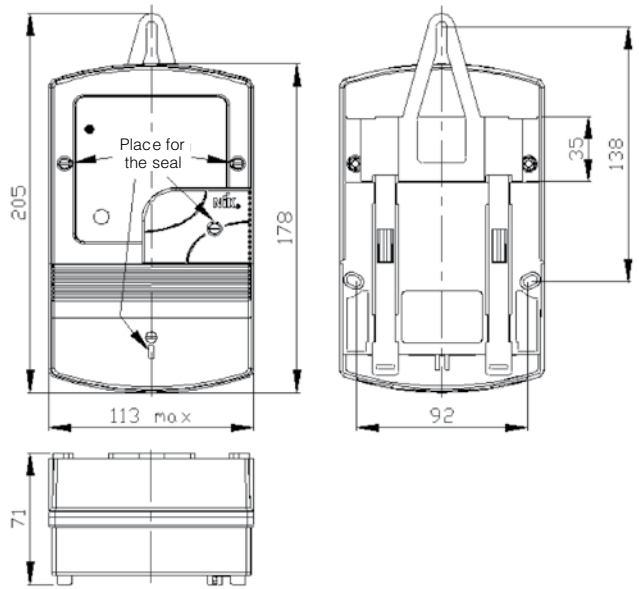
Features

- Measurement of active electric energy;
- Protection against unauthorized energy consumption (indication of inappropriate connections, reverse current direction, phase under/over voltage);
- Improved connector strip, which ensures reliable wire fastening;
- Enhanced level of protection against constant and variable magnetic fields in accordance with the requirements of SOU-N MPE 40.1.35.110:2005;
- Technological accuracy class margin is no less than 50%;
- Low internal energy consumption;
- Extended temperature range (from – 40 °C to + 55 °C);
- Modern casing design;
- Quick and easy installation (mounting dimensions and connector strip layout allow installation without any modifications of the connected cable lines when replacing induction meters);
- Mountable on a DIN-rail;
- Registration of influence of magnetic field (in new casing design);
- ID number in the State Register of Measuring Instruments: U2299-11.

Technical Specifications

Accuracy Class	1,0 (GOST 30207)
Rated Voltage: – AP1, AP2, AP3, AK1 – AT1	3×220/380 Un, V 3×100 Un, V
Permissible mains voltage deviation	from -20 % to +15 %
Rated current intensity, In	5 A
Maximum current intensity, Imax, for the direct connection meter: – AP1 – AP2 – AP3 – AK1, AT1	100 A 60 A 120 A 10 A
Maximum current intensity, Imax, for the transformer connection meter (AK1, AT1)	10 A
Rated frequency	50 Hz
Sensitivity	12,5 mA
Recalibration interval	16 лет
Power consumption: In voltage circuits In the current circuits (I = In)	Max. 10 (≤2) V•A (W) Max. 0,05 V•A (W)
Number of counter mechanism digits	6+1
Meter constant: duration of additional output impulses	8000 imp/kW•h
Temperature range for operation storage	from – 40 °C to + 55 °C from – 40 °C to + 70 °C
Relative humidity	< 95 % at 30 °C
Weight	Max. 2.3 kg

Overall and Mounting Dimensions



Meter Configurations

NIK 2102	-	XX	.	X	X	M	T	P	1

Presence of load control relay

Presence of radio channel (ZigBee module)

T added to reference designation of multi-tariff meters only

Magnetic field sensor

Number of measuring elements in the current circuit
1 one measuring elemen
2 two measuring elements

Type of counter mechanism
E Electronic Display

Rated voltage; Rated and maximum current intensity:
01 220 V; 5(60)A
03 220 V; 5(50)A

Meter Type

Features

- Measurement of active energy in single-phase two-wire alternating-current circuits;
- Compatible with AMRS, using radio channel (ZigBee module);
- Data transmission rate: 38400 baud over the radio channel;
- Protection against unauthorized energy consumption (indication of inappropriate connections, reverse current direction, clamp cover opening sensors, and housing cover opening sensors);
- Improved connector block, which ensures reliable wire fastening;
- Enhanced level of protection against constant and variable magnetic fields in accordance with SOU-N MPE 40.1.35.110:2005 (Additional Requirements for Electricity Metering Devices, Aimed to Prevent Unauthorized Interference with Operation, issued by the Ministry of Fuel and Energy of Ukraine);
- Indication of influence of magnetic field;
- Technological accuracy class margin is no less than 50%;
- Low internal energy consumption;
- Optional connection of external power source with voltage from 9 to 12 V to take the readings in case of a mains power failure;
- Modern casing design;
- Casing design complies with the international standards (meter can also be installed on a TN -35 rail);
- Durable operation at U=380 V (up to 24 hours);
- ID number in the State Register of Measuring Instruments: U2162-11.

Technical Specifications

Accuracy Class for active energy measuring	1,0 under GOST 30207 DSTU IEC 61036
Rated current intensity	5 A
Maximum current intensity	50 A or 60 A (depending on meter configurations)
Rated voltage	220 V
Maximum voltage	253 V
Minimum voltage	143 B
Gear-ratio	6400 imp/(kW•h)
Rated frequency	50 Hz
Sensitivity	12,5 mA
Recalibration interval	16 years
Counter mechanism type	Seven-segment LCD
Number of events (internal failures, triggering of clamp/casing cover opening sensors) are stored in memory	
Set operating temperature range	from -40 ºC to +55 ºC
Weight	Max. 1.0 kg

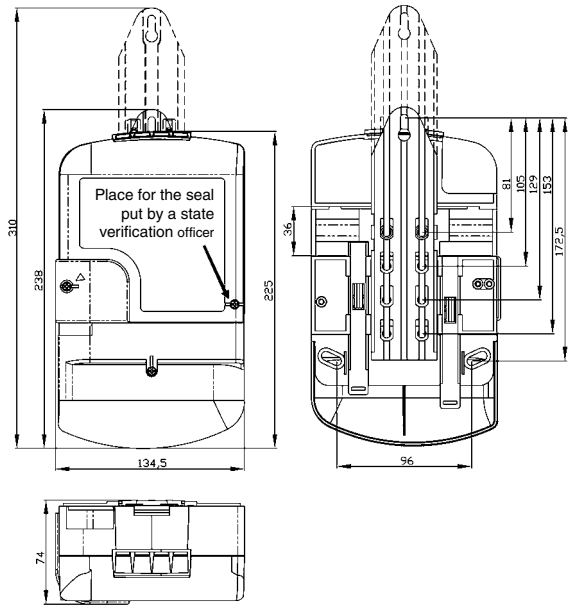
NIK 2102-XX.XXXT – Multi-Tariff Meter

- Counter mechanism type - Seven-segment LCD;
- Number of tariffs – up to the 4 tariffs and 12 time zones;
- Automatic Summer/Winter time switch;
- Daily recording of energy consumption per tariff at the moment of date change and data storage up to 63 days;
- Monthly recording of energy consumption per tariff at the moment of month change and data storage up to 48 months;
- Recording and storage of a load profile up to 63 days with the integration period of 30 minutes;
- Storage of events and time of events (parameterization, correction of clock rate, internal failures, triggering of clamp/casing cover opening sensors, influence of magnetic field, over-voltage and under-voltage).

NIK 2104

ELECTRONIC ELECTRICITY METERS
SINGLE-PHASE METER

Overall and Mounting Dimensions



Meter Configurations

NIK 2104	-	XX	.	X	X	X	T

Multi-tariff meter

Presence of the relay
P added to reference designation of meters equipped with a load control relay
P1 added to reference designation of meters equipped with a relay output
P2 added to reference designation of meters equipped with a load control relay and relay output

Presence of a radio channel
0 No radio channel
1 Radio channel in meter configurations with a built-in antenna without a power amplifier
2 Radio channel in meter configurations with a built-in antenna and a power amplifier

Presence of interfaces
2 Four-wire electrical RS-485 interface and optical port interface
3 Optical port interface

Rated voltage; rated and maximum current intensity
02 20 V; 5(60) A
04 220 V; 5(50) A

Meter Type

Note: *Multi-tariff meters are available in the following configurations: NIK 2104-XX.20 XT, NIK 2104-XX.30 XT, NIK 2104-XX.31 XT, NIK 2104-XX.32 XT.*

Features

- Measurement of active energy in single-phase two-wire alternating-current circuits;
- Protection against unauthorized energy consumption (indication of inappropriate connections, reverse current direction, clamp cover opening sensors, and housing cover opening sensors);
- Improved connector block, which ensures reliable wire fastening;
- Enhanced level of protection against constant and variable magnetic fields in accordance with SOU-N MPE 40.1.35.110:2005 (Additional Requirements for Electricity Metering Devices, Aimed to Prevent Unauthorized Interference with Operation, issued by the Ministry of Fuel and Energy of Ukraine);
- Technological accuracy class margin is no less than 50%;
- Low internal energy consumption;
- Optional connection of external power source with voltage from 9 to 12 V to take the readings in case of a mains power failure;
- Optional installation of the electrical RS-485 interface and radio channel (ZigBee module) for data reading, programming meters, and their adoption in AMRS;
- Data transmission rate:
  - 9600 bit/sec over the electrical RS-485 interface;
  - 38400 bit/sec over the radio channel;
- Optional installation of load-control relay and consumer load disconnecting relay in case instantaneous mains voltage or power exceeds threshold values set at meter parameterization, as well as for consumer's failure to pay for consumed electricity.
- Modern casing design;
- Casing design complies with the international standards (meter can also be installed on a TN -35 rail);
- ID number in the State Register of Measuring Instruments: U2777-11.

Technical Specifications

Accuracy Class for active energy measuring	1,0 under GOST 30207 DSTU IEC 61036
Rated current intensity	5 A
Maximum current intensity	50 A or 60 A (depending on meter configurations)
Rated voltage	220 V
Maximum voltage	253 V
Minimum voltage	143 B
Gear-ratio	6400 imp/(kW•h)
Rated frequency	50 Hz
Sensitivity	12,5 mA
Recalibration interval	16 years
Counter mechanism type	Seven-segment LCD
Number of events (internal failures, triggering of clamp/casing cover opening sensors) are stored in memory	
Set operating temperature range	from -40 ºC to +55 ºC
Weight	Max. 1.0 kg

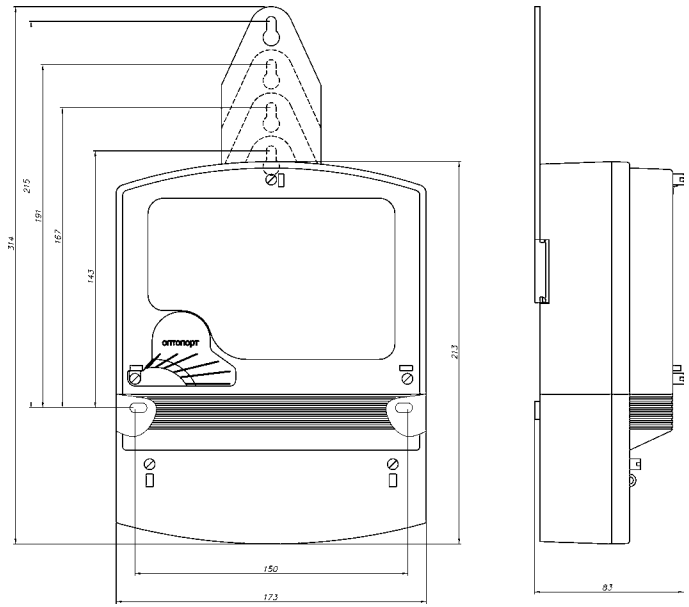
NIK 2104 – Multi-Tariff Meter

- Counter mechanism type - Seven-segment LCD with optional installation of the backlight module;
- Number of tariffs – up to the 4 tariffs and 12 time zones;
- Automatic Summer/Winter time switch;
- Daily recording of energy consumption per tariff at the moment of date change and data storage up to 63 days;
- Monthly recording of energy consumption per tariff at the moment of month change and data storage up to 48 months;
- Recording and storage of a load profile up to 63 days with the integration period of 30 minutes;
- Storage of events and time of events (parameterization, correction of clock rate, internal failures, triggering of clamp/casing cover opening sensors, influence of magnetic field, over-voltage and under-voltage).

NIK 2303

ELECTRONIC ELECTRICITY METERS
THREE-PHASE METER

Overall and Mounting Dimensions



Features

- Measurement of active and reactive electric energy;
- Protection against unauthorized energy consumption (indication of inappropriate connections, reverse current direction, phase under/over voltage);
- Improved connector strip, which ensures reliable wire fastening;
- Enhanced level of protection against constant and variable magnetic fields in accordance with SOU-N MPE 40.1.35.110:2005 (Additional Requirements for Electricity Metering Devices, Aimed to Prevent Unauthorized Interference with Operation, issued by the Ministry of Fuel and Energy of Ukraine);
- 2 independent interfaces: current loop, RS-485 (RS-232, ZigBee) for data reading and adoption in AMRS;
- Technological accuracy class margin is no less than 50%;
- Low internal energy consumption;
- Modern casing design;
- Quick and easy installation (mounting dimensions and connector strip layout allow installation without any modifications of the connected cable lines when replacing induction meters);
- Casing design complies with the international standards (meter can also be installed on a TN -35 rail);
- ID number in the State Register of Measuring Instruments: U2541-11.
- Indication of influence of magnetic field.

Recorded Parameters

- Electricity metering with the progressive total consumption per every tariff and total value;
- Recording and storing energy consumption per tariff and total energy consumption at the end of day – up to 60 days;
- Recording and storing energy consumption per tariff and total energy consumption as of the end of month – up to 16 months;
- 0.5-hour load profile, storage duration up to 120 days;
- Data storage in the nonvolatile memory within up to 20 years;
- Memory capacity of up to 1024 events:
  de-energization;
  energization;
  voltage underrating below threshold value;
  voltage overrating over threshold value;
  exceeding power limit;
  dates of last 30 parameterizations;
  internal failures;
  casing opening.

Technical Specifications

Accuracy Class for active energy measuring	1,0 under GOST 30207
Accuracy Class for reactive energy measuring	2,0 under DSTU IEC 61268
Counter mechanism type	Seven-segment LCD (with optional installation of the backlight module)
Number of tariffs	4
Number of time zones	12
Recalibration interval	16 years
Extended temperature range	from -35 °C to +55 °C
Data transmission rate	9600 bit/sec
Supplementary indication via LCD	• current time; • current date; • current active power; • current reactive power (positive/ negative value, direct - reverse); • current voltage; • effective current intensity; • power-factor; • voltage underrating or voltage overrating; • current reverse; • internal meter error; • moment of information reading via interfaces; • indication of meter address number (factory number); • influence of magnetic field
Sealed optical probe for data retrieval and programming	
Optional connection of external power source (12 V) to take the readings in case of a mains power failure	

Meter Configurations

NIK 2303 X X X X X X M C

Meter is protected against radio interference

Presence of magnetic field sensor

Presence of relay outputs
- **0** No relay outputs
- **1** One relay output of telemetry command
- **2** load-control relay
- **3** load-control relay and a relay output of telemetry command

Presence of complementary interface module
- **0** no complementary interface module
- **1** equipped with complementary RS-232 interface module
- **2** equipped with complementary RS-485 interface module
- **3** equipped with complementary wireless channel interface module in configuration with built-in antenna
- **4** equipped with complementary wireless channel interface module in configuration with external antenna
- **5** equipped with complementary current loop interface module

Presence of main interface
- **1** with installed main current loop interface
- **2** with installed main RS-485 interface

Presence of optical port interface
- **0** no optical port interface
- **1** with installed optical port interface

Network Connections
- **П1** Direct connection (5-100 A)
- **П2** Direct connection (5-60 A)
- **П3** Direct connection (5-120 A)
- **К1** Combined connection: direct voltage connection and transformer current connection (5-10 A)
- **Т1** Transformer connection (5-10 A); measuring A+
- **Т2** Transformer connection (5-10 A); measuring A+, A-

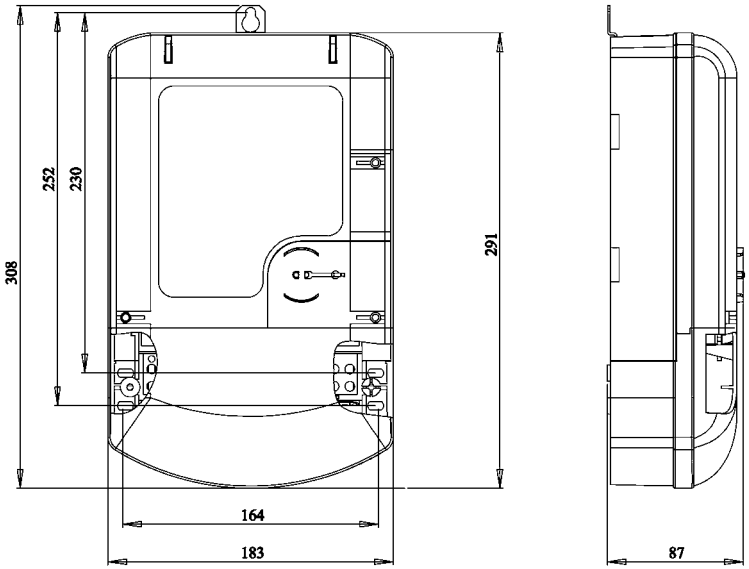
Measured energy
- **А** Active energy A+
- **АР** Active and reactive energy A+, R+, R-

Meter type

Note: *the following configurations of NIK 2303 XXT meters are available: 1100, 1101, 1110, 1111, 1120, 1121, 1130, 1131, 1140, 1141, 1150, 1151.*

NIK 2305

Overall and Mounting Dimensions



Features

- Measurement of active and reactive energy;
- Enhanced level of protection against constant and variable magnetic fields in accordance with SOU-N MPE 40.1.35.110:2005 (Additional Requirements for Electricity Metering Devices, Aimed to Prevent Unauthorized Interference with Operation, issued by the Ministry of Fuel and Energy of Ukraine);
- Compatible with AMRS;
- Protection against unauthorized energy consumption (indication of inappropriate connections, reverse current direction, clamp cover opening sensors, and housing cover opening sensors);
- Optional installation of consumer disconnecting relay;
- User friendly interface, detailed information on the display, possibility to view meter parameters and settings, audible indication;
- Optional installation of the electrical RS-232, RS-485 interfaces; optional installation of a GSM modem;
- Improved connector strip, which ensures reliable wire fastening;
- Technological accuracy class margin is no less than 50%;
- Casing design complies with the international standards (meter can also be installed on a TN -35 rail);
- Equipped with a relay output, commutating current of up to 1 A at voltage of 265 V;
- Available meter configurations: meters for direct, combined and transformer connection; single- and multi-tariff meters;
- convenient ergonomics casing;
- ID number in the State Register of Measuring Instruments: U2777-11.

Technical Specifications

Accuracy Class:	1,0 under GOST 30207-94 when measuring active energy and 2,0 under DSTU IEC 61268-2001 for measuring reactive energy
Rated voltage	3x220 V/380 V, 3x100 V (depending on the configuration)
Rated current intensity	5 A
Max. current intensity	10 A, 60 A, 100 A, 120 A, 160 A (depending on the configuration)
Rated frequency	50 Hz
Meter constant	8000 imp/(kW•h) (pulse/kVAr-h)
Counter device capacity	999999,99 kW•h (kVAr-h)
Operating ambient temperature range	from - 35 °C to + 55 °C
Relative humidity	Max. 95 % at + 30 °C
Dimensions	308 mm × 64 mm × 87 mm
Weight	Max. 2.8 kg
Mean time between failures	No less than 60 000 hours
Average life span	Min. 24 years
Number of tariffs	Up to the 4 tariffs and 12 time zones
Seasonal change of tariffs and time zones	
Automatic Summer/Winter time switch	
Daily recording of energy consumption per tariff at the moment of date change and data storage up to 60 days	
Monthly recording of energy consumption per tariff at the moment of month change and data storage up to 16 months	
Recording and storage of a load profile up to 60 days with the integration period of 30 minutes	
Storage of events and time of events (parameterization, correction of clock rate, internal failures, triggering of clamp/ casing cover opening sensors, influence of magnetic field, over-voltage and under-voltage).	

Meter Configurations

NIK 2305 X X T X X X X

Presence of relay outputs
- **0** No relay outputs
- **1** Relay output

Presence of complementary interface module
- **0** no complementary interface module
- **1** equipped with complementary RS-232 interface module
- **2** equipped with complementary RS-485 interface module
- **3** equipped with complementary wireless channel interface module in configuration with built-in antenna
- **5** equipped with complementary current loop interface module
- **7** equipped with complementary Ethernet interface module

Presence of main interface
- **0** no main interface module
- **1** equipped with main RS-232 interface module
- **2** equipped with main RS-485 interface module
- **3** equipped with main wireless channel interface module in configuration with built-in antenna
- **4** equipped with main wireless channel interface module in configuration with external antenna
- **5** equipped with main current loop interface module
- **6** equipped with main GSM/GPRS interface module
- **7** equipped with main Ethernet interface module

Presence of optical port interface
- **1** with installed optical port interface

«T» means a multi-tariff meter; if there is no "T", a meter is of single-tariff type

Network Connections
- **П1** Direct connection (5-100 A) **П2** Direct connection (5-60 A)
- **П3** Direct connection (5-120 A)
- **П4** Direct connection (5-160 A)
- **К1** Combined connection: direct voltage connection and transformer current connection (5-10 A)
- **Т1** Transformer connection (5-10 A); measuring A+
- **Т2** Transformer connection (5-10 A); measuring A+, A-

Measured energy
- **А** Active energy A+
- **АР** Active and reactive energy A+, R+, R-

Meter Type

The System is developed to provide solutions to existing and recurring problems in today's power market environment:

- prevention of unauthorized electric power consumption in the household sector;
- control of household networks for the detection of unauthorized electric power consumption;
- monitoring of electric power consumption and timely payments made by residential electricity consumers;
- control over electric power consumption by disconnecting debtors from electricity networks;
- electric power supply and demand balance for districts, substations, houses;
- forecasting electricity demand in the networks of electric power owner;
- cost reduction and simplification of configurations of commercial power consumption data collection, storing, and transmitting systems.

NovaSys developed by NIK effectively solves these problems by implementing the following:

- wireless metering data retrieval from electricity meters;
- collection of metering data without accuracy loss, no matter how many floors and consumers there are in a building;
- remote monitoring of electric power balance;
- non-volatile memory in the installed equipment, which allows to register all unauthorized interventions in the data collection system;
- remote connection/disconnection of consumers to/from the network;
- unlimited expandability of the scanned network.

KC-02/03

AMRS Components

DATA CONTROLLER

Features

The controller is a stand-alone device designed to remotely retrieve electricity consumption data from single-phase and three-phase electricity meters equipped with relevant interfaces, to accumulate collected data and transmit such data to the server. As a part of AMRS the controller receives data both from electricity meters and switching controllers, which can function as intermediates between meters and data controller within the system. The device can be remotely controlled either via Ethernet or GPRS. The device can also be directly controlled from the computer equipped with the relevant console. The data are saved to a built-in flash-disk (KC-02: 300 Mb; KC-03: up to 4 Gb). An external flash-disk can be connected to save the data-base.

Technical Specifications

Maximum number of meters simultaneously connected to the same controller	1000 pcs.
Non-volatile memory capacity	300 MB
Random-access memory capacity	60 MB
Central processing unit frequency	180 MHz
Radio-module operating frequency	2,4 GHz
Radio-module output power	+17dbm
GSM/GPRS modem operating ranges	900/1800/1900 MHz
Compliance with the GSM classes	Class 4 (2 W @ 900 MHz) Class 1 (1 W @ 800/1900MHz)
Rated supply voltage Urated	220 V
Operating voltage range	from 143 to 400 V
Power consumption	Max. 10 W
Rated supply frequency	50 Hz
Temperature range for operation storage	from -20 °C to +55 °C from -45 °C to +80 °C
Relative air humidity at + 30 ºC	Max. 95 %
Weight	Max. 2 kg

Configurations of KC-02-xx Controller

Controller Configurations	Presence of modules and interfaces			
	RS-485	USB 2.0	Ethernet	GSM
01	+	–	–	+
02	+	–	+	+
03	+	–	+	–
04	–	+	+	+
05	+	+	–	+
06	+	+	+	+
07	+	+	+	–

Note: *Configuration 06 is standard.*

Configurations of KC-03-xx Controller

Controller Configurations	Presence of modules and interfaces					
	Module	Radio module	USB	GSM/ GPRS	Ethernet	Digital/analog inputs/outputs
01	1 X RS-485	+	2	+	+	-
02	4 X RS-485	-	2	+	+	4/4
04	2 X RS-232	-	2	+	+	4/4
05	2 X RS-485	-	2	+	+	4/4
06	2 X RS-485 2 X RS-232	-	2	+	+	4/4
07	-	+	2	+	+	4/4
08	GSM/GPRS	-	2	+	+	4/4
09	-	-	6	+	+	4/4

Note: *Configuration 06 is standard (can be replaced with KC-02-06 Controller).*

Meter Configurations

Controller Configurations	Type of controller interface «+» - RS-485 «-» - radio module	Counter Channel Antenna «+» - external «-» - built-in	Controller Channel Antenna «+» - external «-» - built-in	Notes
01	-	-	-	Standard model with two radio modules and two built-in antennas
02	+	-		One radio module and RS-485 interface module
03	-	+	-	two radio modules, one built-in and one external antennas
04	-	-	+	two radio modules, one built-in and one external antennas
05	-	+	+	two radio modules and two external antennas
06	+	+		One radio module with an external antenna and RS-485 interface module

Features

The switching controller KK-01 is a functional device designed to operate within AMRS. The controller enables communication between any electricity meters equipped with a radio channel module, with a data controller. Data transfer between meters and a switching controller is made through IEEE802.15.4 radio channel (2.4 GHz), and the data controller – through one of the interfaces (chosen in advance) (depending on a device configuration).

The controller has a hermetic casing. It is powered from the three-phase alternating current network through mains leads connected to the device terminal block. Device is mounted by means of standard casing fasteners.

Technical Specifications

Rated Voltage U_{rated}	220 V
Operating voltage range	from 143 V to 253 V
Power Consumption	Max. 5 W
Rated mains frequency	50 Hz
Radio-module operating frequency	2.4 GHz
Max. radio-module output power	+ 19 dbm
Temperature range for: operation storage	 from - 40 °C to + 80 °C from - 45 °C to + 80 °C
Relative air humidity at +30 ° C	Max. 95%
Weight	Max. 1 kg

OPTICAL PROBE

Features

NIK optical probe is a double-sided interface for data exchange between a tariff device and a meter via infrared waves.
The optical probe is designed and manufactured in compliance with IEC 62056-21 (MEK 1107) and can be synchronized with all meters which comply with these standards. It has a standard USB-plug, which is connected to a desktop computer or a notebook. The probe is compatible with Win98 / Win2000 / WinXP installed on PC.

It requires installation of an additional driver for proper operation.

Technical Specifications

Dimensions (Ø x H)	32 x 29 mm
Material	aluminium
Cable length	3 m
Weight	about 150 g
Consumed current	about 20 мA (transmission)
Data transmission rate	9600 bit/sec
Operating voltage	5 V (via USB)
Transmission mode	Full Duplex
Wave length	940 nm
Operating temperature range	from -40 °C to +85 °C

P-485 EXTENDER

Meter Configurations

P-485 - X X

Presence of an external antenna
0 built-in antenna
1 external antenna

Software is compatible with
0 KK-01 (extender mode)
1 KC-02(03-01) (coordinator mode, firmware for connection with KK-01)
2 KK-01 or KC-02 (03-01) (coordinator mode, firmware for connection with meters)
3 NIK meters (radio module emulation mode)

Extender type

Features

The extender is a portable device in a separate hermetic casing. It is designed to transmit data from a device with RS-485 interface to other devices equipped with the radio channel compliant with IEEE 802.15.4 (2.4 GHz). The device is mounted on a DIN- rail or other bearing surface. Flexible wires are connected to the extender terminals.

Technical Specifications

Rated supply voltage U_{rated}	5 v
Operating supply voltage range	from 4 V to 12 V
Power consumption	Max. 1 W
Operating radio-module frequency (IEEE 802.15.4)	2.4 GHz
Max. radio-module output power	+19 dbm
Data transmission rate via RS-485 interface	300-9600 bit/sec
Temperature range for operation storage	from - 40 °C to + 80 °C from - 45 °C to + 80 °C
Relative air humidity at +30 °C	Max. 95 %
Weight	Max. 0.3 kg

CONNECTOR STRIPS

Technical Specifications

Type	KP 25	KP 125
Operating voltage U_{rated}	3×220/380 V	
Maximum current intensity, I_{max}	25 V	125 V
Rated mains frequency	50, 60 Hz	
Operating temperature range	from - 40 °C to + 55 °C	
Storage temperature range	from - 50 °C to + 75 °C	
Relative humidity	< 95 % at 30 °C	
Protection level under GOST14254	IP30	
Average lifespan	30 years	
Weight	Max. 0.5 kg	Max. 1 kg
Dimensions, max.	170×112×36 mm	218×126×48 mm

SCHRN-01

BOARDS

Features

- The low-voltage distribution board is designed for outdoor installation of single and three phase alternating-current electricity meters operating at voltage up to 380 V in order to protect devices from mechanical damage, prevent unauthorized energy consumption, protect meters from dust and precipitation. Its casing is made of a flameproof material. Casing design allows to take meter readings through a viewing window, without removing a cover. Viewing windows are made of UV stabilized plastic, which remains completely transparent in course of time.
- The distribution board has universal fasteners for mounting the meters on a DIN-rail, as well as for installing and fastening other equipment inside a switching board (circuit breakers, corrugated pipes, and cables). Board casing can be sealed.
- Protection level of the board is IP 54 under GOST 14254.

Technical Specifications

Casing wall thickness	Min. 2.5 mm
Viewing window glass thickness	Min. 3 mm
Operating and storage temperature range	from -50 °C to +70 °C
Relative air humidity at +30 ºC	Max. 95%
Electrical insulation density	Min. 4 kV
Average lifespan	Min. 25 years
Warranty period	3 years
Weight	Max. 5 kg
Dimensions	615x580x114 mm

Meter Configurations

Configuration		Schrn 01-4	Schrn 03-2
Number of phases in meters installed in boards		1	3
Max. number of meters installed in one board		4	2
Max. board weight, kg		6	6
Max. number of holes for fastening a corrugated pipe		22	22
Max. number of automatic switches	Single-pole	8	2
	Three-pole	-	2

Note *Boards are also available in other configurations to satisfy customer's needs, taking into account number of available seats in the board.*

Features of Connector Strips

- Connector strips are designed for mounting and dismantling of three-phase electricity meters (combined and transformer connection) in the metering spot without load disconnection. Connector strips allow to measure current intensity and load voltage without load disconnection and interruption of energy metering due to meter connection to the connector strip.
- Connector strips can be used in any industry.
- Climatic and mechanical features of connector strips comply with GOST 22266 for the indoor use of connector strips in buildings free from aggressive fumes, dust, and gases.
- Isolation between the conductive parts of different connector strip phases with disengaged jumpers can withstand sinusoidal alternating-current voltage of 2000 V at frequency 50 Hz within one minute.
- Connector strip clamps can withstand tenfold current overload within 0.5 sec.
- Convenient ergonomic casing.

DOT.3-1

BOXES

Technical Specifications

Casing wall thickness	Min. 2,5 mm
Viewing window glass thickness	Min. 3 mm
Operating and storage temperature range	from -35 °C to +85 °C
Relative air humidity at +30 ºC	Max. 95%
Electrical insulation density	Min. 4 kV
Average lifespan	Min. 25 years
Warranty period	3 years
Dimensions: DOT.3-1 DOT.3-1B	280x305x117 мм 280x305x167 мм

Features

- The Box is designed for outdoor installation of a single phase alternating-current electricity meter operating at voltage up to 380 V in order to protect a device from mechanical damage, prevent unauthorized energy consumption, protect a meter from dust and precipitation.
- The box is designed for meters with electric damage protection class II.
- Protection level of the box is IP 54 under GOST 14254.
- Its casing is made of a flameproof material.
- Casing design allows to take meter readings through a viewing window, without removing a cover. Viewing windows are made of UV stabilized plastic, which remains completely transparent in course of time.
- The box has universal fasteners for mounting a meter on a DIN-rail, as well as for installing and fastening other equipment inside the box (circuit breakers, corrugated pipes and cables).
- Box casing can be sealed.

Meter Configurations

Configuration	DOT.3-1	DOT.3-1B*
Number of phases in meters installed in the box	1	1
Max. number of meters installed in one box	1	1
Max. box weight	6 kg	6 kg

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