



ELEKTROTEKHNIKA
AVTOMATIKA

2018

LED-lights
RAY

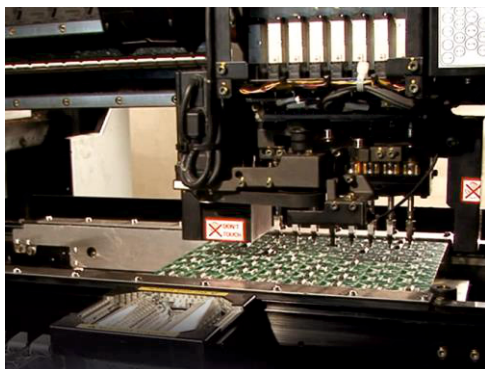


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Omsk plant "Elektrotekhnika i Avtomatika" is one of the leading Russian enterprises specializing in the development, production and supply of equipment for the security and fire alarm systems since 1995.

At the present moment the plant actively develops a parallel focus area, which is the manufacture of lighting products. We are committed to our traditions and continue using only high-quality materials that in combination with modern technologies give the opportunity to create an innovative product at a reasonable price.



Lighting fixtures are manufactured under the RAY trademark within our own production areas in Omsk. Competent circuit designers, programmers, designers and process engineers develop new modifications of products taking into account modern trends of the market development. At the same time, special attention is paid to reliability, design of appearance and ease of installation.

The plant offers products under the RAY trademark for various applications: commercial, office and storage premises, industrial facilities and HCS sector, lighting of roads, streets, park areas and other territories. High-efficiency LG and OSRAM LEDs are used as light sources in the RAY lighting fixtures. All products are certified for compliance with the requirements of the Technical Regulations of the Customs Union.

In 2016 RAY-S lighting fixtures won the 100 Best Goods of Russia Awards.

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RAY-S LED lamps for the HCS sector with innovative conceptual solution

Ø 180 mm (type 3)
Ø 150 mm (type 4)



Energy efficiency class	A
Power voltage, V	~220, 50 Гц
Watt consumption	3 / 4 / 5 / 6 / 8 / 10 / 12
Luminous flux, Lm	400 / 500 / 650 / 800 / 850 / 1050 / 1250 / 1400
Color temperature, K	4000 (3000 / 5700 - to order)
Working temperature range, °C	-40... +55 C
Dimensions, mm	180*180*50; 150*150*50
Mass, kg	0,4; 0,28

Purpose

RAY-S LED lamps are intended for the ambient and standby illumination of the administration and accommodation, commercial, storage and other premises. They replace traditional lighting fixtures with fluorescent lamps and incandescent lamps.



Lighting of stairwells, entranceways, lifts



Lighting of areas near the entranceways



Lighting of utility rooms



Lighting of underground parking, garages

Description

RAY-S LED lamps give the opportunity to save significantly when paying for electricity according to communal needs. For example, a 6W lamp gives light as a 60 W incandescent lamp, but consumes 10 times less electricity. During the year of service one lamp saves more than 15 EUR.

The case of the RAY-S lamps is made of impact-resistant polycarbonate and equipped with anti-theft plugs. LG LEDs with an operational life of up to 100 000 hours are used as light sources in the RAY-S lamps.

Modifications

The list of modifications includes models with sensors of various types (acoustic, photo, photoacoustic, microwave types) with power voltage of ~220 V, 50 Hz.

RAY-S advantages



Made in Russia



Developments of the own design department



Operational life of LG LEDs is up to 100 000 hours



Operational life of one lamp saves up to 25 000 rubles



All types of sensors



Quick payback



White light comfortable to eyes



Absence of mercury and other harmful substances



Anti-vandal case of impact resistant polycarbonate, anti-theft plugs



Large range of working temperatures -40...+50°C



Resistance to the network voltage changes



Increased protection from dust and moisture



We offer a 5 YEAR WARRANTY for LUCH-S lamps for the housing sector!

Modifications and Operating Principle of RAY-S Lamps

Depending on the modification, the lamps are available in versions of 3, 6, 8 and 10 W and can be equipped with acoustic, photo, photoacoustic and microwave sensors.

- **Lamps with an acoustic sensor (A)** turn on when the noise (more than 60 dB) occurs and turn off 60 seconds after the fade of noise. The countdown begins anew with each occurrence of noise. Such lamps are recommended to be installed in premises where there is no natural illumination and lighting is required only in the presence of person at any time of the day, for example, in tambours, pantries, cellars. To exclude false activations, the sensor sensitivity is electronically limited.

- **Lamps with a photosensor (F)** turn on when the illumination level reduces to the operation threshold (10 lx). 4 minutes after the illumination level increases above the operation threshold, lamps turn off. Such lamps are recommended to be installed in places where natural illumination is present, and the constant lighting is only required during the dark hours.

- **Lamps with a photoacoustic sensor (FA)** turn on at a low level of illumination (less than 10 lx) and during the occurrence of noise (more than 60 dB) and turn off 60 seconds after the fade of noise. At a sufficient level of illumination, the lamps are switched off and do not react to noise. They are recommended to be installed in rooms where the lighting is required only during the dark hours in the presence of a person. Such premises are staircases and stair flights, passes with windows, corridors, etc.

- Modifications with the "D" index provide a standby mode of operation, during which the luminous flux is reduced to 20% of full brightness. Lamps of modifications "DA" and "DFA" constantly (regardless of the time of day) operate in a standby mode. They are recommended to be installed in premises where a low level of lighting is constantly required. Lamps of the "DA" modification turn on at full power with the occurrence of noise and 60 seconds after the fade of noise switch to a standby mode. Lamps of the "DFA" modification turn on at full power for 60 seconds when the noise occurs in conditions of insufficient illumination. After 60 seconds the lamps switch to a standby mode. The countdown begins anew with each occurrence of noise.

- **Lamps of modification "DFA1"** in condition of sufficient illumination are switched off and do not react to noise. When the illumination level is reduced to the operation threshold of 10 lx, the lamps switch to a standby mode. Products turn on at full power only at a low level of illumination and the occurrence of noise. 60 seconds after the fade of noise, the lamps switch to a standby mode. The countdown begins anew with each occurrence of noise. The lamps turn off completely 3 minutes after the increase of the illumination level above the operation threshold. Such lamps are recommended to be installed in premises where lighting is required only during the dark hours.

- Lamps of modification "MVF" are equipped with a photosensor and a microwave motion sensor. At the illumination level of more than 10 lx, the lamps turn off and do not react to movement. The lamps turn on for 60 seconds when the illumination level falls below 10 lx and when the movement occurs in the zone of the microwave sensor activation. The countdown begins anew each time the movement occurs. 60 seconds after the illumination level increases above the operation threshold and the movement stops, the lamps turn off. Lamps with photosensors and microwave sensors are recommended to be installed similarly to lamps with photoacoustic sensors - in those places where the lighting is required during the dark hours in the presence of a person.

Attention! A microwave sensor of the lamp is capable of detecting the movement of objects located behind various obstacles: thin walls, partitions, doors, etc. At the same time, the radius of movement detection is significantly reduced.


Lamps equipped with sensors during the voltage supply turn on for a period equal to the turn-off delay. At the end of the delay period, the lamps switch to a normal operation.

Lamps equipped with photosensors (F, FA, DFA, DFA1, MVF) are recommended to be installed in places with maximum illumination during daylight hours, avoiding placement in darkened areas, behind protruding parts of walls and other building structures in order to achieve the correct algorithm of operation of lamps and maximum energy savings. Photosensors of DFA and DFA1 lamps are recommended to be directed towards the source of natural light (window).


SENSOR OPERATING PROCEDURE


F - photosensor

Light hours

 Lamp is turned off

Dark hours


 Lamp is turned on




It is recommended to be installed in places where lighting is required only during the dark hours, for example, in the areas in front of the entrance.


A – acoustic sensor

Quiet

 Lamp is turned off

Noisy


 Lamp is turned on




It is recommended to be installed in places where lighting is required at any time of the day, but only in the presence of a person, for example, in tambours, pantries, cellars.

FA – photoacoustic sensor


Light hours

 Lamp is turned off


Dark hours



Noisy





Lamp is turned on




It is recommended to be installed in places where the lighting is required only during the dark hours in the presence of a person.

DA – acoustic sensor, standby mode of operation

 Lamp is turned on to 20% of its full brightness of light emission

 Lamp is turned on to its full brightness



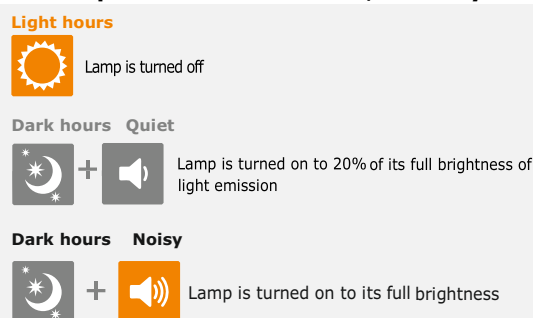
It is recommended to be installed in premises where it is required to constantly provide a small level of illumination, for example, for the organization of video surveillance.

DFA – photoacoustic sensor standby mode of operation



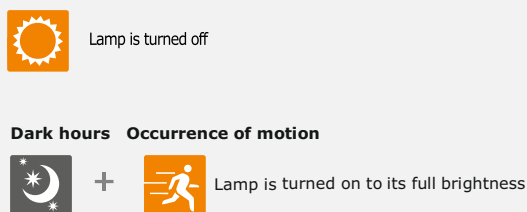
It is recommended to be installed in premises where it is required to constantly provide a small level of illumination.

DFA 1 - photoacoustic sensor, standby mode of operation



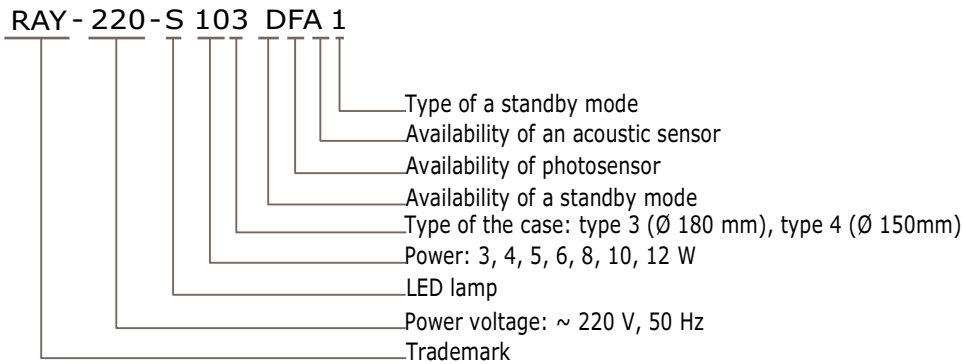
It is recommended to be installed in places where constant illumination is required during the dark hours, for example, for organizing video surveillance on staircases.

MVF – lamp with a photosensor and a microwave motion sensor

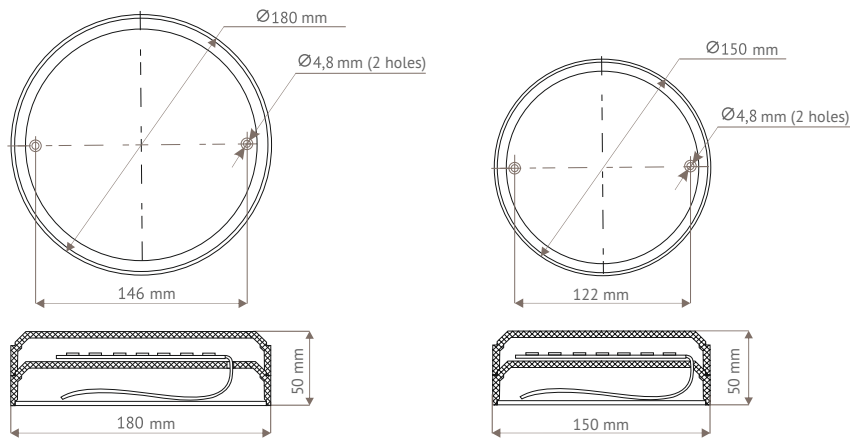


It is recommended to be installed in places where illumination is required during the dark hours in the presence of a person. Lamps with microwave sensors can react to insignificant movements of an object.

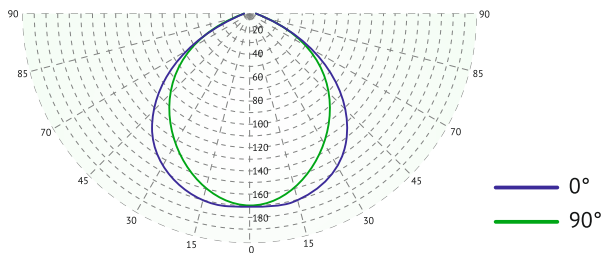
Interpretation of a product name



Overall and installation dimensions



Light intensity distribution curve



RAY-S, type 3 (ø180 mm)

technical characteristics

Name		RAY-220-S 63	RAY-220-S 83	RAY-220-S 103	RAY-220-S 123
Power voltage, V		~220, 50 Hz			
Availability and type of the sensor	No sensor	Available			
	A	Available			
	F	Available			
	FA	Available			
	DA	Available			
	DFA	Available			
	DFA1	Available			
Ingress protection rating, IP		54			
Climatic category		Boreal climate 2			
Electrical safety class		II			
Energy efficiency class		A			
Power consumption in the lighting mode, W		6	8	10	12
Power factor		> 0.9			
Number of light sources, items		7	7	10	12
Luminous flux, lm		450	500	710	850
Color temperature, K		4000 (3000 / 5700 – under the order)			
Optical operation threshold, lx		10			
Acoustic operation threshold, dB		60..80			
Turn-off delay time, sec		Depending on the modification			
LEDs operational life, hours, to		to 100 000			
Dimensions, mm		180*180*50			
Mass, kg		0.25			
Working temperature range, C		-40...+55			
Relative air humidity at 25 C, % maximum		95			

RAY-S, type 4 (ø150 mm)

technical characteristics

Name		RAY-220-S 63	RAY-220-S 83	RAY-220-S 103	RAY-220-S 123
Power voltage, V		~220, 50 Hz			
Availability and type of the sensor	No sensor	Available			
	A	Available			
	F	Available			
	FA	Available			
	DA	Available			
	DFA	Available			
	DFA1	Available			
Ingress protection rating, IP		54			
Climatic category		Boreal climate 2			
Electrical safety class		II			
Energy efficiency class		A			
Power consumption in the lighting mode, W		3	4	5	6
Power factor		> 0.9			
Number of light sources, items		7		10	12
Luminous flux, lm		450	500	710	850
Color temperature, K		4000 (3000 / 5700 – under the order)			
Optical operation threshold, lx		10			
Acoustic operation threshold, dB		60..80			
Turn-off delay time, sec		Depending on the modification			
LEDs operational life, hours, to		to 100 000			
Dimensions, mm		150*180*50			
Mass, kg		0.25			
Working temperature range, C		-40...+55			
Relative air humidity at 25 C, % maximum		95			

RAY-S MVF, type 3 (ø180 mm)

technical characteristics

Name	RAY-220-S 63 MVF	RAY-220-S 83 MVF	RAY-220-S 103 MVF
Power voltage, V	~220, 50 Hz		
Ingress protection rating, IP	54		
Climatic category	Boreal climate 2		
Electrical safety class	II		
Energy efficiency class	A		
Power consumption in the lighting mode, W	6	8	10
Power consumption in the standby mode, W	0.3		
Current consumption in the lighting mode, A	0.15		
Current consumption in the standby mode, A	0.03		
Number of light sources, items	15	20	25
Luminous flux, lm	850	1050	1300
Color temperature, K	4000 (3000 / 5700 – under the order)		
Optical operation threshold, lx	10		
Operation range of motion sensor, m	5...9		
Angle of motion sensor sensitivity, °	160		
Turn-off delay time, sec	60		
LEDs operational life, hours, to	to 100 000		
Relative air humidity at 25 C, % maximum	95		
Working temperature range, C	-40...+55		
Mass, kg	0.4		
Dimensions, mm	180*180*50		

RAY-S MVF, type 4 (ø150 mm)
technical characteristics

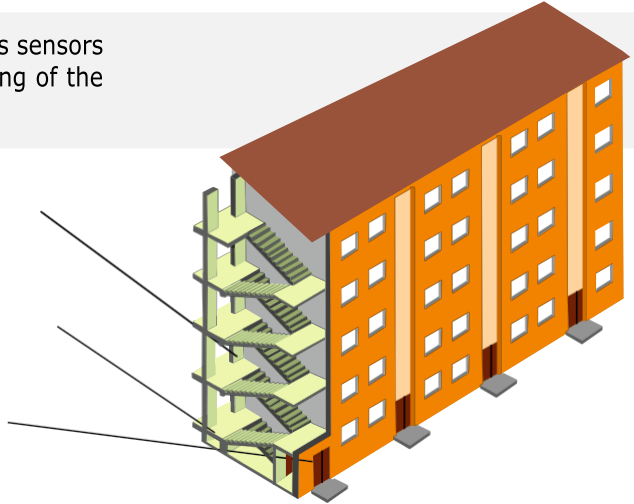
Name	RAY-220-S 34 MVF	RAY-220-S 64 MVF
Power voltage, V	~220, 50 Hz	
Ingress protection rating, IP	54	
Climatic category	Boreal climate 2	
Electrical safety class	II	
Energy efficiency class	A	
Power consumption in the lighting mode, W	3	6
Power consumption in the standby mode, W	0.3	
Current consumption in the lighting mode, A	0.15	
Current consumption in the standby mode, A	0.03	
Number of light sources, items	6	15
Luminous flux, lm	460	800
Color temperature, K	4000 (3000 / 5700 – under the order)	
Optical operation threshold, lx	10	
Operation range of motion sensor, m	5...9	
Angle of motion sensor sensitivity, °	160	
Turn-off delay time, sec	60	
LEDs operational life, hours, to	100 000	
Relative air humidity at 25 C, % maximum	95	
Working temperature range, C	-40...+55	
Mass, kg	0.28	
Dimensions, mm	150*150*50	

ECONOMY CALCULATION

Let's consider on the specific example the usage of LED lighting in a standard five-story house

26 LED lamps with various sensors are required for the lighting of the house

- 1 20 stair landings
- 2 2 utility rooms (cellars)
- 3 4 entrance porches



- 1 **20 lamps with photoacoustic sensors** are installed in stair landings - 1 lamp per landing (the average operating duration is 4 hours per day with an average occupation density of 45 people per entrance).

- 2 **2 lamps with acoustic sensors** are installed in utility rooms - 1 lamp per room (operating duration is not more than 40 minutes per day).

- 3 To illuminate the entrance porch, **4 lamps with photosensors** are installed - 1 lamp per each entrance. On average, their operating duration is 12 hours per day (in winter 14 hours, in summer 7 hours).



Incandescent lamp:

26 items x 60 W x 12 h x 30 days x 12 months

6739 kW*year or in monetary terms **23 992** rubles



Compact fluorescent lamp:

26 items x 20 W x 12 h x 30 days x 12 months

2246 kW*year or in monetary terms **7 997** rubles



LED lamp:

with an acoustic sensor for cellar lighting

2 items x 6 W x 40 min x 30 days x 12 months*=3 kW*year;

with a photosensor for the porch lighting

4 items x 6 W x 12 h x 30 days x 12 months*=104 kW*year;

with a photoacoustic sensor for staircase lighting

20 items x 6 W x 4 h x 30 days x 12 months*=173 kW*year

280 kW*year or in monetary terms **997** rubles

COMPARE	Power consumption kW * year	Coast, rub.	Operational life
incandescent lamp	6 739	23 992	1 000 hours
fluorescent lamp	2 246	7 997	3000 -5000 hours
LED lamp	280	997	to 100 000 hours

The calculation shows that the most advantageous is the usage of LED lamps with sensors: when consuming electricity of 280 kW *year, only 997 rubles are spent, which is 24 times less than when using incandescent lamps and 8 times less than when using compact fluorescent lamps.

*At the price of 1 kW = 3.56 rubles



LED RAY lamps underwent all certification tests and meet the requirements of the regulatory documents. The activation of LED lamps does not induce flicker, which affects the citizens' health. LUCH-S lamps for the HCS sector are installed in hundreds of dwelling houses in Russia and Kazakhstan, where they gained credibility and were highly appraised by the residents.

Circuit solutions used in the manufacture of lamps give the opportunity to obtain high-quality lighting, and reliable LEDs guarantee a long operational life of lamps in the absence of maintenance costs.

Feedback on the RAY S Lamps

«Our management company solved the issue of electricity saving on the communal needs, installing the RAY lamps with sensors. The light on the landings became brighter and more comfortable. The power of the lamps is only 6 W, we are saving significantly on electricity consumption. The installers were comfortable while mounting these lamps, and they quickly completed the work. In addition, now we do not spend resources on replacing the lamps. Residents do not feel uncomfortable, as these lamps are instantly switched on when a person appears in the entrance...»

A. V. Pisarevsky, chief engineer, MC "Homservice"

«LLC "Kvartal" installs LED RAY lights in common facilities of multi - apartment dwelling houses. The owners of the apartments approved the choice. They appraised the design of lamps, anti-vandal function, also noted the significant savings in paying for electricity for the communal needs...»

V. G. Andreev, director, LLC "Kvartal"

Top seller



RAY-4x8 LED

LED lamps RAY-4x8 LED are intended for general and background lighting of administrative and household, office, residential, commercial, storage and other premises. They can be used both as built-in and as surface-mounted lamps. They are suitable for suspended ceilings of the Armstrong type.

To order



RAY-6x8 LED

LED lamps RAY-6x8 LED are characterized by an increased luminous flux. They are intended for general and background lighting of administrative and household, office, residential, commercial, storage and other premises with a ceiling height of more than 3 meters.

Economy



RAY-3x8 LED

LED lamps RAY-3x8 LED are the consumer grade of standard commercial and office lighting fixtures. Low cost and high energy-saving characteristics can significantly reduce the payback period.

Diffuser types: microprism, prism, broken ice, opal, pinspot.



LEDs (LG)
operational life is
up to 100 000
hours



Resistance to
the changes of
voltage in the
network



Absence of
mercury and
other harmful
substances

Low level of energy consumption can significantly reduce lighting costs.

LED lamps do not contain mercury as part of them and do not require special conditions for disposal.

RAY-4x8 LED; RAY-6x8 LED; RAY-3x8 LED

technical characteristics

Name	RAY-4x8 LED	RAY-6x8 LED	RAY-3x8 LED
Power voltage, V	~220, 50 Hz		
Nominal power consumption, W	32	53	26
Ingress protection rating, IP	20 (40 – under the order)		
Climatic category	Boreal climate 4		
Electrical safety class	I		
Energy efficiency class	A		
Value of Cos F	1		
Pulsation factor, %	<1		
Luminous efficiency factor, %	91		
Number of light sources, items	68	102	51
Luminous flux without a diffuser*, lm	4250	6400	3200
Color temperature, K	5700 (3000/4000 – under the order)		
Color rendering index	80		
Dimensions, mm	595*595*40		
Mass, kg, maximum	3.5		
LEDs operational life, hours, to	to 100 000		
Relative air humidity at 25 C, % maximum	95		
Working temperature range, C	-20...+55		

* The value of the luminous flux may vary slightly, depending on the diffuser used.

Trapezium-shaped case
1200x120x50 mm

Rectangular case
1200x100x40 mm



RAY-4x8 LED 1,2

Lamps of modification RAY-4x8 LED 1,2 are intended for the illumination of commercial and office, storage, household, industrial and other premises. They are perfectly suitable for use in the suspended version. Due to the structural peculiarities they can be used as surface-mounted lamps.

RAY-4x8 LED 1,2-1

Lamps of modification RAY-4x8 LED 1,2-1 are characterized by simple design. They are perfectly suitable for use in a surface-mounted version for lighting corridors, commercial, storage, industrial and other premises. Due to the structural peculiarities they can be used as surface-mounted lamps.

The use of high-performance LG LEDs determines the long operational life of commercial and office RAY lamps. High luminous efficiency of lamps allows the most efficient conversion of the consumed energy into the visible light. Low level of energy consumption significantly reduces lighting costs. Commercial and office RAY lamps are a full-fledged replacement of fluorescent lamps.

Diffuser types: microprism, prism, broken ice, opal, pinspot.



LEDs (LG)
operational life is
up to 100 000
hours



Resistance to
the changes of
voltage in the
network



Absence of
mercury and
other harmful
substances

With the observation of service instructions, the RAY LED lamps do not require maintenance during operation.

LED lighting contributes to the concentration of attention due to the comfortable color temperature and the absence of pulsations.

RAY-4x8 LED 1,2; RAY-4x8 LED 1,2-1

technical characteristics

Name	RAY-4x8 LED 1,2	RAY-4x8 LED 1,2-1
Power voltage, V	~220, 50 Hz	
Nominal power consumption, W	32	
Ingress protection rating, IP	20 (40 – under the order)	
Climatic category	Boreal climate 4	
Electrical safety class	I	
Energy efficiency class	A	
Value of Cos F	1	
Pulsation factor, %	<1	
Luminous efficiency factor, %	91	
Number of light sources, items	68	
Luminous flux without a diffuser*, lm	4250	
Color temperature, K	5700 (3000/4000 – under the order)	
Color rendering index	80	
Dimensions, mm	1200x120x50	1200x100x40
Mass, kg, maximum	1.5	1.6
LEDs operational life, hours, to	100 000	
Relative air humidity at 25 C, % maximum	95	
Working temperature range, C	-20...+55	

* The value of the luminous flux may vary slightly, depending on the diffuser used.



RAY-6x8 LED 1,2-1

Lamps of modification RAY-6*8 LED 1,2-1 are characterized by the increased luminous flux. They are intended for the illumination of commercial, storage, industrial, office and other premises with the ceiling height of more than 3 meters. Due to the structural peculiarities they can be used as suspended and surface-mounted lamps.



RAY-6x8 LED 1,2-2

The increased width of the case of lamps RAY-6x8 LED 1,2-2 contributes to the uniform dispersion of the luminous flux, which is very important for the arrangement of workplaces. As the RAY-6x8 LED modifications, lamps RAY-6x8 LED 1,2-1 have an increased luminous flux. Suspended and surface-mounted options are available.

The flicker of light, characteristic of fluorescent lamps, causes rapid vision fatigue and work decrement. The absence of flickering in commercial and office lighting fixtures RAY-S prevents visual fatigue and improves the concentration of attention. This is especially important with long-term presence of staff in the premises.

Diffuser types: microprism, prism, broken ice, opal, pinspot.



LEDs (LG)
operational life is
up to 100 000
hours



Resistance to
the changes of
voltage in the
network



Absence of
mercury and
other harmful
substances

LED lights operate silently and are therefore indispensable in those premises where great importance is given to silence: offices, educational institutions, libraries.

Unlike fluorescent lamps, LED lamps do not contain in their spectrum the ultraviolet radiation, detrimental to the retina of the eye.

RAY-6x8 LED 1,2-1; RAY-6x8 LED 1,2-2

technical characteristics

Name	RAY-6x8 LED 1,2-1	RAY-6x8 LED 1,2-2
Power voltage, V	~220, 50 Hz	
Nominal power consumption, W	53	
Ingress protection rating, IP	20 (40 – under the order)	
Climatic category	Boreal climate 4	
Electrical safety class	I	
Energy efficiency class	A	
Value of Cos F	1	
Pulsation factor, %	<1	
Luminous efficiency factor, %	91	
Number of light sources, items	102	
Luminous flux without a diffuser*, lm	6400	
Color temperature, K	5700 (3000/4000 – under the order)	
Color rendering index	80	
Dimensions, mm	1200x100x40	1200x180x40
Mass, kg, maximum	1.6	1.7
LEDs operational life, hours, to	100 000	
Relative air humidity at 25 C, % maximum	95	
Working temperature range, C	-20...+55	

* The value of the luminous flux may vary slightly, depending on the diffuser used.

New



RAY-2x8 LED 0,6-1

Lamps RAY-2x8 LED 0,6-1 are intended for general and background lighting of administrative, household industrial, residential, commercial, storage and other premises. Due to the structural peculiarities they can be used as suspended and surface-mounted lamps. They are a full-fledged replacement of fluorescent lamps.

To order



Modification with an acoustic sensor

RAY-2x8 LED 0,6-1A

LED lamps with an acoustic sensor RAY-2x8 LED 0,6-1A are intended for the illumination of premises where there is no natural light and the lighting is required only in the presence of a person (for example, in tambours, cellars, etc.). They turn on when the noise occurs and turn off after a specified time after it fades. They can be used both as suspended and as surface-mounted lighting fixtures.

The compact overall dimensions significantly expand the scope of application of RAY-2x8 LED 0,6-1 and RAY-2x8 LED 0,6-1A lamps, for example, they can be used in the housing and communal services. The availability of an acoustic sensor in the modification of RAY-2x8 LED 0,6-1A allows the lamp to turn on only in the presence of a person, which significantly reduces the electricity costs.

Diffuser types: microprism, prism, broken ice, opal, pinspot.



LEDs (LG) operational life is up to 100 000 hours



Resistance to the changes of voltage in the network



Absence of mercury and other harmful substances

The high color rendering index of RAY LED lighting fixtures give the opportunity to see objects in the illumination zone in the most accurate tints.

The variety of modifications of RAY LED lighting fixtures creates more opportunities in the design of lighting.

RAY-2x8 LED 0,6-1; RAY-2x8 LED 0,6-1A

technical characteristics

Name	RAY-2x8 LED 0,6-1	RAY-2x8 LED 0,6-1A
Power voltage, V	~220, 50 Hz	
Nominal power consumption, W	18	
Availability and type of sensor: A - acoustic	yes	
Ingress protection rating, IP	20 (40 – under the order)	
Climatic category	Boreal climate 4	
Electrical safety class	I	
Energy efficiency class	A	
Value of Cos F	1	
Pulsation factor, %	<1	
Luminous efficiency factor, %	91	
Number of light sources, items	34	
Luminous flux without a diffuser*, lm	2130	
Color temperature, K	5700 (3000/4000 – under the order)	
Acoustic operation threshold,** dB	60/65	
Turn-off delay time***, sec	60/300	
Color rendering index	80	
Dimensions, mm	600x100x40	
Mass, kg, maximum	0.7	
LEDs operational life, hours, to		
Relative air humidity at 25 C, % maximum	95	
Working temperature range, C		

* The value of the luminous flux may vary slightly, depending on the diffuser used.

**Determined by the position of the SOUND strap.

***Determined by the position of the TIME strap.



RAY-4x8 LED 1,3

LED lamps of RAY-4x8 LED 1,3 (IP65) modifications are an economical version industrial lamps RAY. The lamps are characterized by attractive price and high energy-saving characteristic which give the opportunity to significantly shorten the payback period.



RAY-5x8 LED 1,3

LED lamps RAY-5x8 LED 1,3 (IP 65) are intended for covered car parks, sports and shopping centers, storage, industrial and other premises. They are suitable for installation in premises with high humidity: swimming pools, car washes.

Apart from the efficiency and long service life, RAY-4x8 LED 1,3 and RAY-5x8 LED 1,3 lamps have a high degree of reliability. They are protected from the ingress of moisture, dust and dirt. Neutral white light and the absence of flicker provide comfortable working conditions.

Industrial RAY lamps are a full-fledged replacement of fluorescent lamps.

Diffuser type: opal.



LEDs (LG) operational life up to 100 000 hours



Increased protection from dust and moisture



Absence of mercury and other harmful substances

Long service life of LEDs (up to 100 000 hours) approximately corresponds to 11 years of continuous operation.

Industrial RAY lamps have a degree of protection of the enclosure IP 65, and can be used for the illumination of dusty or humid premises.

RAY-4x8 LED 1,3; RAY-5x8 LED 1,3

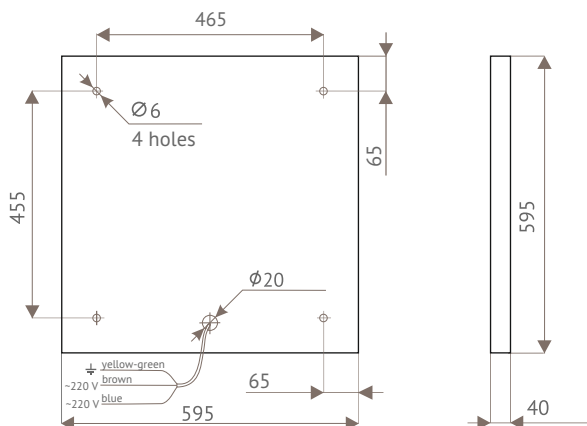
technical characteristics

Name	RAY-4x8 LED 1,3	RAY-5x8 LED 1,3
Power voltage, V	~220, 50 Hz	
Nominal power consumption, W	32	45
Ingress protection rating, IP	65	
Climatic category	Boreal climate 3	
Electrical safety class	I	
Energy efficiency class	A	
Value of Cos F	1	
Pulsation factor, %	<1	
Luminous efficiency factor, %	84	
Number of light sources, items	68	84
Luminous flux without a diffuser*, lm	4250	5100
Color temperature, K	5700 (3000/4000 – under the order)	
Color rendering index	80	
Dimensions, mm	1280x135x100	
Mass, kg, maximum	1.6	1.7
LEDs operational life, hours, to	100 000	
Relative air humidity at 25 C, % maximum	95	
Working temperature range, C	-20...+55	

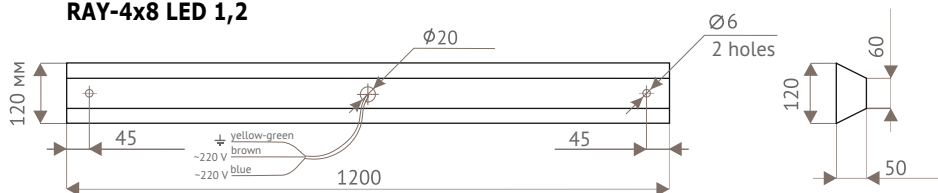
* The value of the luminous flux may vary slightly, depending on the diffuser used.

OVERALL AND INSTALLATION DIMENSIONS, mm

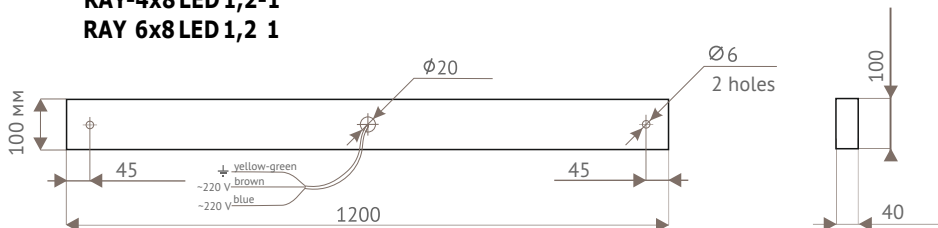
RAY-4x8 LED
RAY-6x8 LED
RAY-3x8 LED



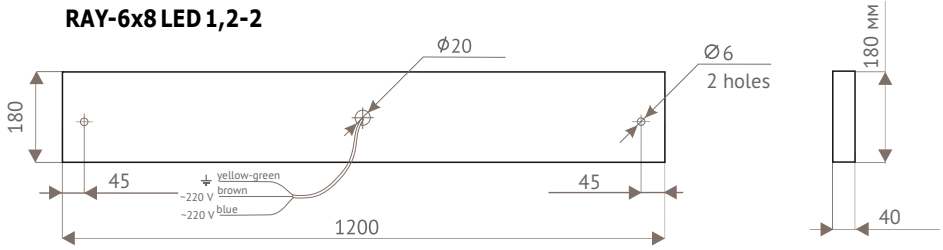
RAY-4x8 LED 1,2



RAY-4x8 LED 1,2-1
RAY 6x8 LED 1,2 1

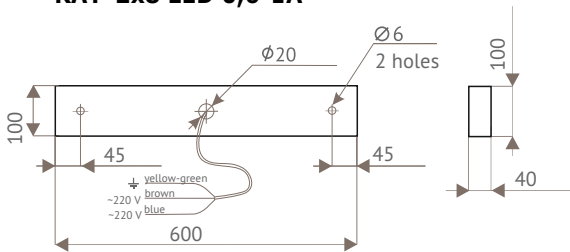


RAY-6x8 LED 1,2-2



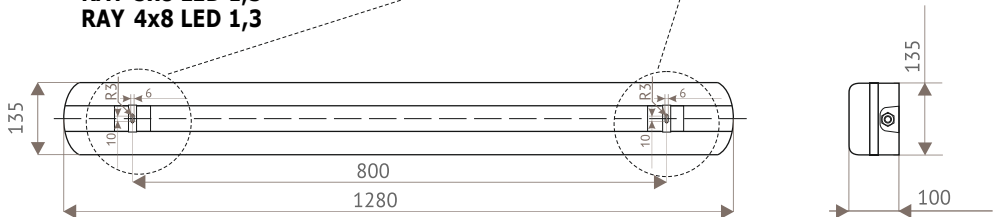
RAY-2x8 LED 0,6-1

RAY 2x8 LED 0,6 1A

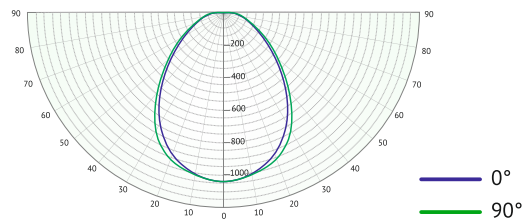


RAY 5x8 LED 1,3

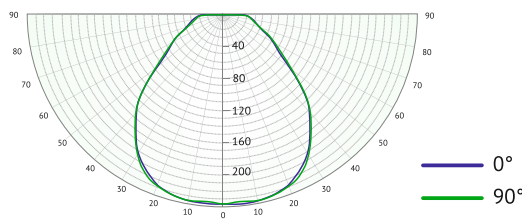
RAY 4x8 LED 1,3



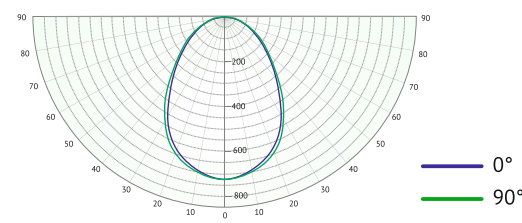
RAY-4X8 LED



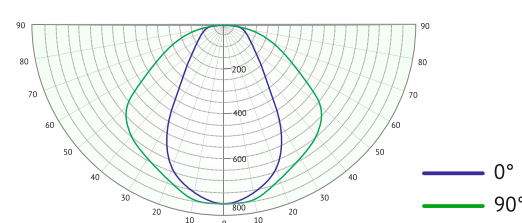
RAY-6X8 LED



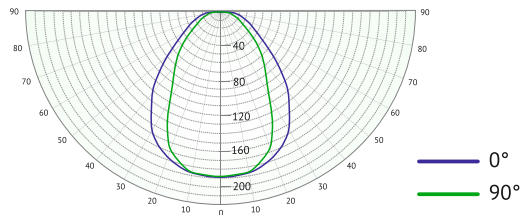
RAY-3X8 LED



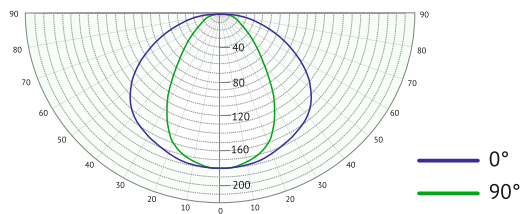
RAY-4X8 LED



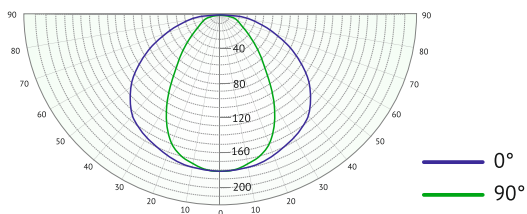
RAY-2X8 LED 0,6-1
RAY-2X8 LED 0,6-1A



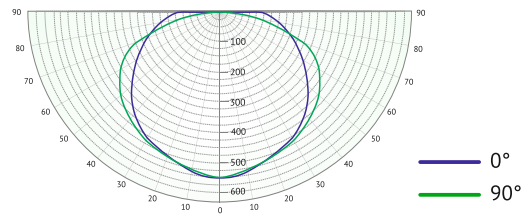
RAY-6X8 LED 1,2-1



RAY-6X8 LED 1,2-2



RAY-5X8 LED 1,3



RAY-220-ST

LED street lights (LED lights)



Illumination of motor roads



Illumination of streets, parks, pedestrian areas



Illumination of territories adjacent to buildings



Illumination of parking areas, open garage complexes

Purpose

LED street lights of series RAY-220-ST are intended for the illumination of motor roads, yards, parks, foot pavements, open parking areas, territories adjacent to buildings, etc.

Description

In the process of production of RAY-220-ST lights, special attention is paid to the efficient heat elimination, which is conducted due to the structure peculiarities of the products. Modern technologies give the opportunity to cast parts with high accuracy, which increases the tightness and longevity of lights. The elaborate design and use of the well-known OSRAM LEDs as light sources provide high energy efficiency and long service life of the RAY-220-ST lights .

The lights are able to withstand unfavorable weather conditions due to the IP 67 protection of enclosure. The aluminum case reliably protects the products from corrosion and ensures good heat exchange.

Advantages

Highly-efficient OSRAM LEDs



High-level protection of the enclosure



Wide range of working temperatures



Long service life of lights



Efficient technology of heat elimination



No maintenance costs during the operation

**RAY-220-ST 50**

LED lights of the RAY-220-ST 50 modification (50 W) are the best option for the illumination of roads, parks, sidewalks, car parks. They are suitable for the illumination of pedestrian areas, territories adjacent to buildings, etc.

**RAY-220-ST 100**

LED street lights RAY-220-ST 100 (100 W) are intended for the illumination of main roads and streets of district status in the city center and beyond. They are suitable for the illumination of pedestrian areas, territories adjacent to buildings, etc.

LED lights RAY-220-ST are mounted on the L-shaped bracket or a lightning pole with a diameter from 43 to 64 mm. The small weight of the aluminum case ensures convenient installation and reduces the bearing load on the pole. The lights save up to 70% of electricity compared to mercury arc lamps. At the same time, the service life of LEDs reaches 10 years or more. Products do not require maintenance during the operation.

High energy efficiency, tightness and long service life turning the street lights RAY - 220-ST into an optimal replacement for incandescent lamps, gas-discharge and sodium lamps. The lamps have a 3-year warranty.



LEDs service life is up to 60 000 hours



Resistance to the changes of voltage in the network



Absence of mercury and other harmful substances

The white-blue light emitted by the RAY-220-ST (5000 K) lights increases the contrast and clarity of the perception of illuminated objects and significantly improves the night vision.

The RAY-220-ST lights immediately turn on, operate in a wide temperature range and are resistant to voltage changes in the network (85-277V), which is especially important for street lighting.

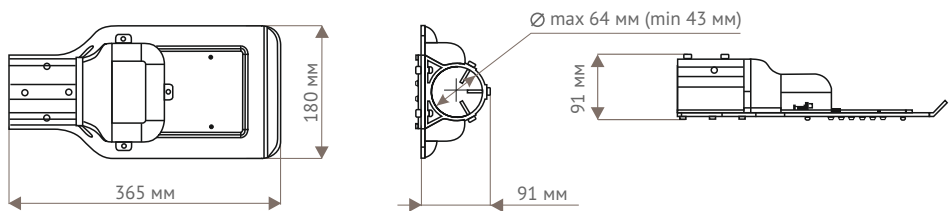
RAY-220-ST 50; RAY-220-ST 100

technical characteristics

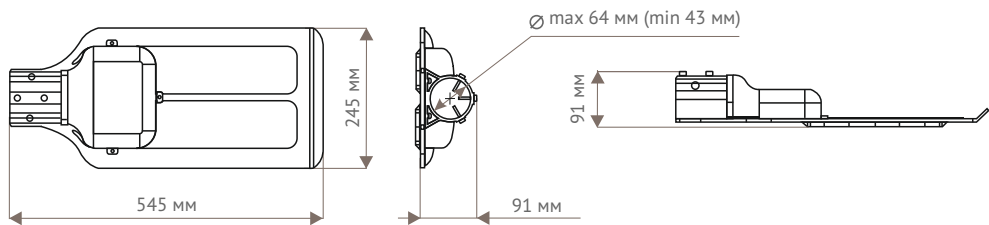
Name	RAY-220-ST 50	RAY-220-ST 100
Power voltage, V	~85-277, 50 Hz	
Nominal power consumption, W	50	100
Ingress protection rating, IP	67	
Climatic category	Boreal climate 1	
Electrical safety class	I	
Energy efficiency class	A	
Power factor	0.98	
Luminous efficiency factor, %	95	
Number of light sources, items	48	112
Luminous flux, lm	5200	10700
Color temperature, K	5000	
Color rendering index	80	
Fixation type	Cantilever	
Fixation hole diameter, mm	64	
Dimensions, mm	365x180x91	545x245x91
Mass, kg, maximum	1.7	2.8
LEDs operational life, hours, to	60 000	
Relative air humidity at 25 C, % maximum	95	
Working temperature range, C	-40...+55	

OVERALL AND INSTALLATION DIMENSIONS

RAY-220-ST 50

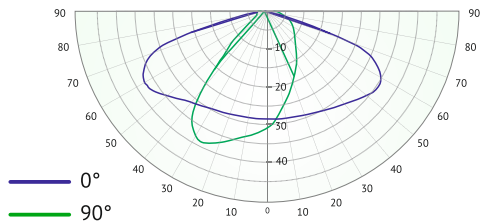


RAY-220-ST 100

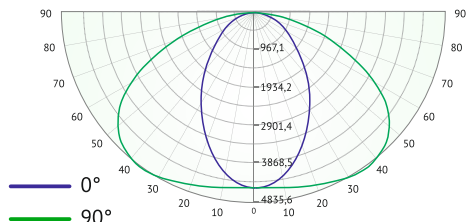


LIGHT INTENSITY DISTRIBUTION CURVES

RAY-220-ST 50



RAY-220-ST 100



Light signs are intended for the indication of emergency exits, escape routes for people in hazardous situations. They can be used as information displays.

LIGHT SIGNS



Contemporary design



Uniform distribution of illumination



Application of any inscriptions and pictograms



Wide range of modifications

CRYSTAL



Series	Power voltage	Current consumption	Power consumption	IP	Climatic type
CRYSTAL	= 12, 24 V	17 mA	—	52	Boreal climate 2
	~220 V, 50 Hz	—	7.5 V•A	50	Boreal climate 3

Modifications are available with a hidden inscription, with a built-in sound alarm (100 dB), with increased light intensity. The outdoor (for outdoor operation) and double-sided versions of products are possible.

LUX



Series	Power voltage	Current consumption	Power consumption	IP	Climatic type
LUX	= 12, 24 V	20 mA	—	55	Boreal climate 2
	~220 V, 50 Hz	—	6 V•A	50	Boreal climate 3

Modifications are available with a hidden inscription, with a built-in sound alarm (100 dB), with increased light intensity, with an emergency power source. **The outdoor (IP 66, 220 B)** and double-sided versions of products are possible.

PRESTIGE



Series	Power voltage	Current consumption	IP	Climatic type	Dimensions
PRESTIGE	= 12, 24 V	40 mA	41	Boreal climate 2	322x125x12 mm
PRESTIGE PREMIUM		80 mA			500x125x10 mm

Double-sided version of products is possible. PRESTIGE PREMIUM size of the information

MINI



Series	Power voltage	Current consumption	Power consumption	IP	Climatic type
MINI	= 12, 24 V	40 mA	—	41	Boreal climate 2
	~220V, 50Hz	—	4.4 V•A	40	Boreal climate 3

Light signs of the MINI series create the illumination directed downward. A modification with an emergency power source.

DYNAMIC LIGHT SIGNS



Uniform illumination



The ability to change direction of the pointer



Bright dynamic pictograms

CRYSTAL-DIN



Series	Power voltage	Current consumption	Flashing rate	IP	Climatic type
CRYSTAL-DIN1	= 12, 24 V	80, 60 mA	—	41	Boreal climate 2
CRYSTAL-DIN2			1.3 Hz		

The controllable pointer is able to change direction depending on the applied voltage: left, right or to both directions simultaneously. CRYSTAL-DIN 2 modifications during the alert operate in a flashing mode.

MINI-DIN



Series	Power voltage	Current consumption	IP	Climatic type	Modification peculiarities
MINI-12-DIN1	= 12 V	180 mA	41	Boreal climate 2	Pointer to the left/ right/ both directions
MINI-12-DIN2		100 mA			Pointer forward/ STOP pictogram
MINI-DIN4	=9...30 V	140...280 mA			4 images under the order

The light signs of the MINI-DIN4 series are divided into the following modifications: MINI-DIN4 100, MINI-DIN4 200 and MINI-DIN4 250, which differ in the area of filling the information field, current consumption and cost.

VOICE ANNOUNCEMENT



The ARIYA voice announcement system is intended for the generation, transmission and playback of voice communications concerning the hazard outbreak, evacuation instructions, service information and background music. The system is divided into active, passive and transformer. The ARIYA voice announcement system is characterized by high reliability, reasonable price and ease of operation.

ALARM DEVICES



Alarm devices of the MAYAK series are intended for the emittance of light and audio signals at the facilities, equipped with security and fire alarm. Depending on the nature of the emitted signals, the alarm devices are divided into light, audio, combined (light + audio). They are characterized by competitive price, low current consumption and simple design.

POWER SUPPLY UNITS



The IBIS is a series of contemporary switch-mode power supply units, which provide electronic devices with constant voltage of direct current. The IBIS power supply units allow for a wide input voltage range, automatic protection of accumulator batteries from or overdischarging, recharge, misconnection, fault signal generation to external circuits.

DMCS



The VEKTOR is a consumer grade range of equipment to be used in diagnostics monitoring and control systems. The system is perfectly suitable for the installation in office premises, banks, administrative buildings, shops, manufacturing enterprises, etc.



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