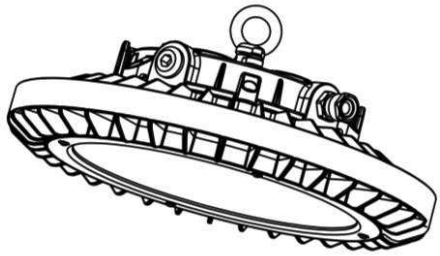

USER'S MANUAL

Explosion-proof LED luminaire
Type OREx1 G2
No. 52-1456/Z
(ZxEx23009-201r0)

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ATTACHMENTS:

1. Introduction

The subject of this manual is an explosion-proof energy-saving luminaire type OREx1 G2 with a power of up to 160W, equipped with LED diodes of high luminous efficiency.

1.1. Intended use

The OREx1 G2 luminaire is designed to illuminate, among others:
- industrial halls and spaces classified as zones 1, 2, 21 and 22 of the explosion hazard of dust, gases, vapors and mists of flammable liquids,
- auxiliary rooms with high dustiness with the possibility of splashes of water, i.e. boiler rooms, hydro junctions, baths, garages, shelters, warehouses in open and closed areas,
- workstation process lines, among others: chemical, petroleum, petrochemical, gas and wood industries, processing of loose mine, construction and food materials,
- places with increased temperature.

1.2. Functional properties

A wide range of power allows the luminaire to be used in high, medium and low buildings. Possible optional additional increase in energy efficiency by means of external control via the 1-10.

2. Design

The OREx1 G2 luminaire consists of the following components:
- body – aluminum alloy,
- cover – aluminum alloy,
- pressure ring – aluminum alloy,
- tempered glass,
- LED light module,
- as standard, the luminaire has two Ø20mm holes with an M20x1.5 cable gland and an M20 plug. Other configurations depends on versions,
- pass-through terminals enabling the use of wires from 1mm^2 to 4mm^2 – possible ways of electrical connection of the luminaire presented in annex 2,
- mounting eyelet,
- luminous flux adjustment via 1-10V according to versions.

3. Technical data

Technical parameters	
Parameter name	**Value (unit)**
Supply voltage	198-277 VAC, 198-250 VDC, 50-60/0Hz – standard version 90-250 VAC, 140-250 VDC, 50-60/0Hz – on request NV version 90-277 VAC, 140-250 VDC, 50-60/0Hz – on request WV version
Power	40-160 W *

* According to the table of execution types – point. 3.1. Rated power with a tolerance:
for power >100W - ±5% tolerance;
for power ≤100W - ±10% tolerance.

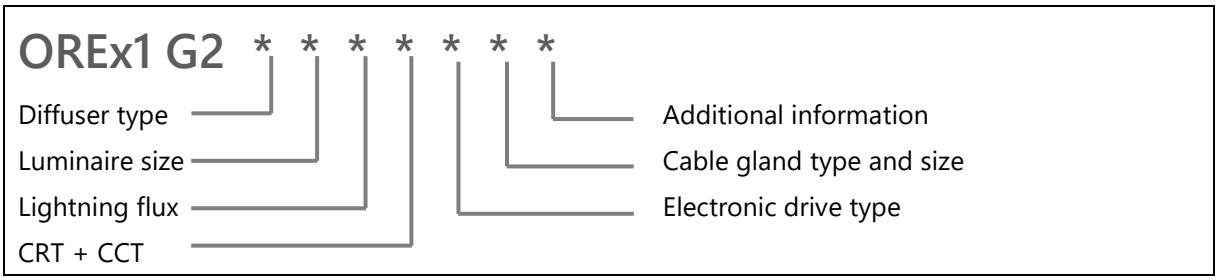
Technical parameters		
Parameter name	**Value (unit)**	
Power factor	PF ≥ 0.95 **	
ATEX marking	II 2G Ex eb ib mb op is IIC T5 Gb II 2D Ex tb op is IIIC T95°C Db for SPD variant: II 2G Ex db eb ib mb op is IIC T5 Gb II 2D Ex tb op is IIIC T95°C Db for HT variant: II 2G Ex eb ib mb op is IIC T4 Gb II 2D Ex tb op is IIIC T121°C Db	
IECEx marking	Ex eb ib mb op is IIC T5 Gb Ex tb op is IIIC T95°C Db for SPD variant: Ex db eb ib mb op is IIC T5 Gb Ex tb op is IIIC T95°C Db for HT variant: Ex eb ib mb op is IIC T4 Gb Ex tb op is IIIC T121°C Db	
EU-type examination certificate number	OBAC 21 ATEX0135X	
IECEx Certificate number	IECEx OBAC 21.0003X	
Standards	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-18:2015+A1:2017 EN 60079-7:2015+A1:2018	EN 60079-28:2015 EN 60079-11:2012 EN 60079-31:2014
Source of light	ultra-bright LED	
Color temperature	4000K ±10% as an option 3000K, 5000K, 6500K ±10% (other on request)	
Protection class	I	
Degree of protection	IP 66/67 ***	IK 10
CRT	80 (other on request) ±10%	

** At 230VAC and 160W luminaire power
*** When using a cable inlet with a lower IP or a narrower operating temperature range, the parameters of the entire luminaire are reduced – see point 8.2

	Ambient temperature	Power	Class temperature
Permissible ambient temperature	-32°C to +60°C	40 - 80 W	T5 / T95°C
	-32°C to +55°C	81 – 120 W	
	-32°C to +50°C	121 – 160 W	
	-32°C to +75°C	40 – 50 W HT	T4 / T121°C
	-32°C to +70°C	51 – 60 W HT	
	-32°C to +65°C	61 – 80 W HT	
Weight	6,3 kg		
External dimensions	Ø380x125 mm		
Wire diameter	wire 0,2-6 mm^2 / AWG 24-10 cord 0,2-4 mm^2 / AWG 24-12		
Recommended tightening torque for terminal block screws	0,6-0,8 Nm		
Length of the stripped part of the wire	9 mm		

3.1. Version types

Type designation:



Diffuser type	Luminaire size	Lighting flux Tolerance ± 10%	CRT + CCT	Electronic driver type	Cable gland type and size	Additional information
None: standard glass **GL1:** milky glass **GL..:** other glass on request	**38**: Ø380 mm	**64**: 6400 for 40W **96:** 9600 for 60W **128**: 12800 for 80W **160:** 16000 for 100W **192:** 19200 for 120W **224:** 22400 for 140W **240:** 24000 for 150W **256:** 25600 for 160W … other on request	**840:** CRI 80 and 4000K **850:** CRI 80 and 5000K Other on request	**None:** standard version **P**: service connector **ETDD**: Digital diming DALI **PDA:** service connector and digital dimming DALI **10V**: analog diming 1-10V **P10V**: service connector and analog dimming 1-10V **ET**: power cord **NV**: narrow voltage range **WV**: wide voltage range **SPD**: overvoltage module	**CG:** plastic cable gland **NiCG:** nickel-plated brass cable **BCG:** brass cable gland **ACG:** cable gland for armored cable **H:** housing with a hole for cable gland Standard size cable/hole M20 and one cable gland. Other size and quantity of cable gland on request.	**Painting:** RAL.. type **HT:** high ambient temperature … other on request

Additional accessories:

Accessories		
Lighting system	**Mounting accessories**	**Others**
None – no reflector; **R** – symmetrical reflector; **AR** – asymmetrical reflector; **WG** – steel mesh; ... – other on request;	**None** – single eyebolt; **WM** – wall mount; **ST** – pipe mount; **WU** – universal mounting; **NA** – luminaire without mounting accessories .. – other on request;	**JB**.. – junction box; **CR** – power cords with an Ex connector; ... – other on request;

Examples of type designation:

- **OREx1 G2 38 240-840 CG** – OREx1 G2, 24000 lm, CRI 80, 4000K LED matrix, plastic cable gland M20.

- **OREx1 G2 38 160-930 2HM25 R WU JB** – OREx1 G2, 16 000 lm, CRI 90, 3000K LED matrix, two holes for the M25 cable gland (cable gland in accordance with the list in point 8.2), symmetrical reflector, universal mounting, additional connection box.

3.2. Advantages of the luminaire

- robust and compact design,
- quick, simple and easy installation,
- high resistance to a corrosive industrial environment,
- very high luminous efficacy,
- high-quality power supply unit and LEDs,
- very high protection IP66/67,
- UV-resistant.

4. Operation, service and use

Turning on the power causes the luminaire to light up automatically. The variants equipped with a control connector (DIMMING) have the option of adjusting the output power in the range from 10% to 100% of the nominal power.

5. Installation, mounting, disassembling

Note!

Installation of the device should be carried out by an installer, professional fitter having the necessary knowledge, tools and qualifications, taking into account all the recommendations of this manual.

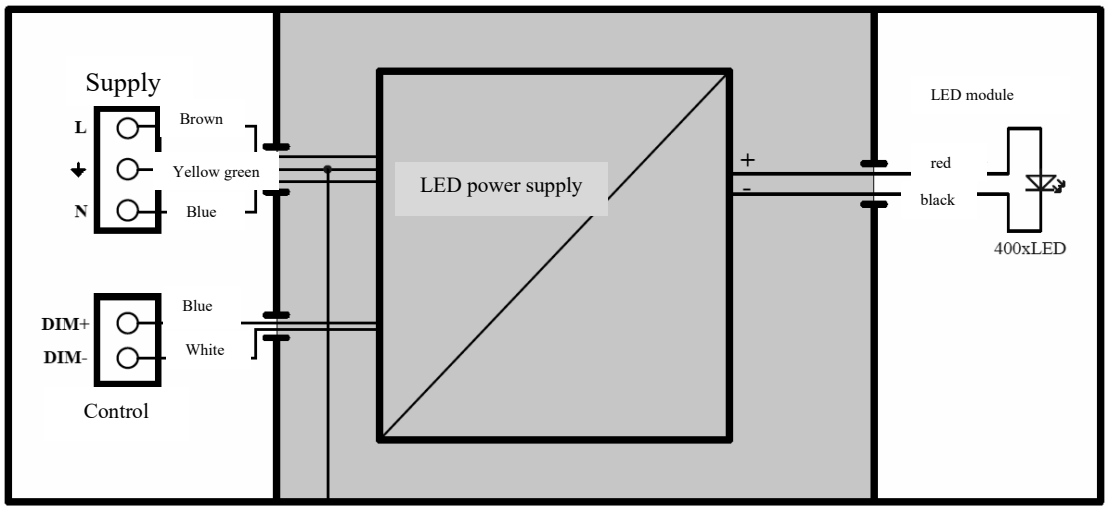
Electrical installation

The luminaire is equipped with an integrated connection chamber enabling the implementation of power supply: pass-through, end or connecting the luminaire to the power line and controlling the brightness (dimming). The power cables (and the optional brightness control cables) should be led into the chamber through cable gland and connected to the terminal strip. The diagram of the electrical connection for all the above-mentioned variants is presented in figure 2. Due to the anti-explosion construction, the diameter of the power and brightness control wires must be selected in accordance with point 3 of these operating instructions. The electrical connection must be made in a way that prevents accidental sliding of wires from the terminal strip or short-circuit of isolated parts of wires.

As standard, the luminaire is equipped with one M20x1.5 cable gland (made of plastic) and a blind Ø20 hole, to which an additional cable gland can be mounted. The list of cable gland approved for use in the luminaire can be found in point 8.2. On request, it is possible to install other cable gland units and / or make holes for the cable gland of a different diameter.

The outer diameter of the power cables must be compatible with the throttling range of the cable glands used. Additionally, special attention should be paid to the correctness of tightening the cable gland.

Luminaire diagram



Mechanical assembly

The back cover of the luminaire is screwed to the body with six M5 allen screws. The connection is sealed with a dedicated silicone gasket. When assembling (screwing the cover on), special attention must be paid to the correct seating of the gasket. The fixing screws should be screwed in alternately to ensure even pressure across the gasket.

As standard, the luminaire is adapted for pendant mounting on a cable. Optionally, with the use of additional accessories, the luminaire can be mounted, for example, to the surface of a wall, pipe / mast.

If mounting accessory is disassembled for transport, at the assembly stage, fix it using the included screws and spring washers.

It is possible to order the luminaire without mounting accessories, then proper mounting of the luminaire should be ensured. The elements used for fixing the fittings (adapters, lugs) should be properly secured against loosening, e.g. with thread glue, spring washers, self-locking nuts, etc. Fixing the fitting should take the entire load so that the power cable is not stressed.

In the case of installation in the proximity of machines or devices that may cause excessive heating of the luminaire, the use of additional thermal shields should be considered.

Using the luminaire in a place exposed to direct sunlight may cause excessive heating of the luminaire, which may reduce its lifetime and even damage it. It is recommended that the luminaire installed in such places is turned off during the day.

Correct installation of the cover gasket and cable glands ensures the tightness of the luminaire.

6. Maintenance and repairs

Observe the laws and regulations in your country/workplace when using the lamp.

During periodic inspections, check:

- Correctness of tightening of power cables in cable gland units.
- Correct installation of wires in the terminal strip; Unused clamps must be tightened.
- Correct installation of the cover gasket.
- Check the housing for mechanical damage.
- Check the technical condition of the gaskets, especially the cover gaskets.

- Condition of the paint coat, especially when using a C5 category paint coat (on request).

In the event of heavy soiling, the luminaire should be cleaned with a damp cloth.

In the case of using a luminaire with a special paint coating in category C5, a coating control plan should be introduced in accordance with EN ISO 12944-8. The control plan is adapted to the specific operating conditions of the luminaire. It should contain a description of the control tasks and the scope of the work performed. The coating corrosion assessment should be made on the basis of the ISO 4628 standard. Failure to follow the above procedure may result in the loss of the paint coating warranty.

The lifetime of the light source depends on the ambient temperature of the luminaire and its power. During operation, LEDs gradually reduce their luminous flux - this is a natural process, characteristic of all white LEDs. The degree of LED wear does not affect the luminaire's operational safety.

Due to the explosion-proof design, service repairs are made to the device (apart from replacement of spare parts mentioned in this manual) may only be performed by the manufacturer's service or a unit by him authorized person with appropriate service documentation.

Before opening the housing, disconnect the power supply.

It is forbidden to open the luminaire while it is energized. After turning off the power, wait 30 minutes before opening the fixture.

In case of dirt clean the luminaire only with a damp cloth.

When replacing the power supply unit, pay special attention to the correct electrical connection with the LED matrix.

7. Transport and storage

7.1. Transport

The originally packed devices should be transported using covered means of transport. The packaging should be secured against shifting and sudden shocks. Devices should be transported at a temperature not lower than -20°C and not higher than +50°C.

7.2. Storage

The equipment should be stored in closed areas at a temperature not lower than -20°C and not higher than +50°C and away from heaters.

8. Additional information

8.1. CE marking

CE The CE marking has been affixed under the following regulations:
Explosion-proof equipment – Directive 2014/34/EU (ATEX)
Electromagnetic compatibility – Directive 2014/30/EU (EMC)
Restriction of hazardous substances – Directive 2011/65/EU (RoHS II)

Information on the obtained certificates and standards applied to the equipment evaluation has been specified in the declaration of conformity attached to every copy of the device.
The harmonised standards applied to demonstrate the compliance with the relevant directive are set out in the EU declaration of conformity supplied together with the device.

8.2. Special conditions for safe use

- Due to the risk of electrostatic charge, the luminaire should be cleaned with a damp cloth only.
- The ambient temperature range depends on the temperature class / max. surface temperature and the power of the luminaire.
- During operation, the temperature inside the cable gland may reach 95°C – this should be taken into account when selecting the power cables.
- The luminaire is standard equipped with two cable glands, or one cable gland and a stopping plug. It is allowed to change standard cable gland or stopping plug to another provided with the following requirements:
    - The cable entry and / or stopping plug must be listed in the table no. 2 constituting an appendix to the user manual,
    - If you want to use a cable gland and / or a stopping plug that is not included in the table no. 2 please contact with the manufacturer for a conformity assessment,
    - Changes of the type of cable gland and/or stopping plug must be recorded in table 1 – attachment.

8.3. Basic safety principles

- Before attempting any works related to the equipment, the provisions of this manual should be read thoroughly.
- Follow good engineering practices during the selection of the equipment for a given application, during installation and during operation.
- The device should only be operated by personnel trained for this purpose.
- The safety rules of this type of equipment should be observed.
- Prior to the installation, check whether the marking on the rating plate satisfies requirements for a given application.
- Following the guidelines of the manual is a condition for warranty claims.

8.4. Recycling and disposal

The symbol of a crossed-out waste container that appears on a product indicates that it is subject to the provisions of European Directive 2012/19/EU (WEEE) and the Waste Electrical and Electronic Equipment Act (Journal of Laws of 2015, item 1688 as amended). The worn-out device together with a battery (if included) may not be disposed of jointly with other waste. The worn-out equipment should be handed to the manufacturer or to a point collecting discarded electronic and electric equipment to ensure its proper disposal. The requirements for the management and disposal of other waste are specified in the Waste Law (Journal of Laws of 2013, item 21 as amended).

In order to obtain more detailed information on product recycling, please contact the manufacturer, a local government unit, or waste management services. The packaging consists of a cardboard box and a polyurethane foam or cardboard filling.

9. List of spare parts

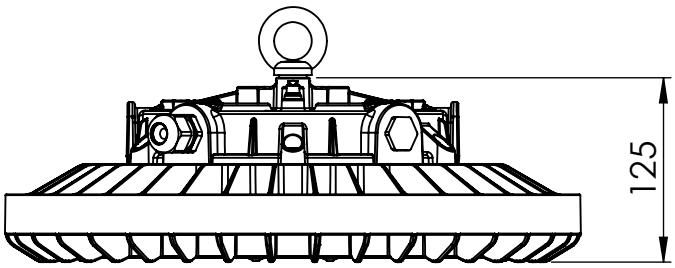
No.	Part name	Position	Index number
1.	Protective glass	-	34-1008
2.	Gasket under glass	-	35-1037
3.	PSEHB1**** power supply assembly	according with tab. 9.1	
4.	Cover gasket	-	…9316
5.	Lighting assembly	-	72-3061/…

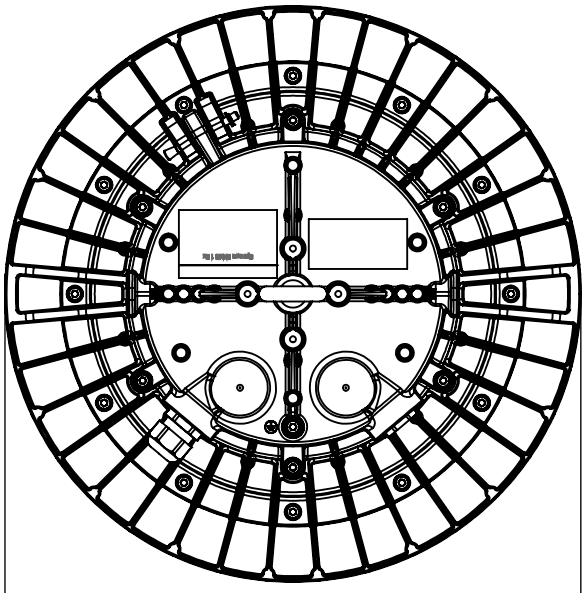
Parts for luminaires are available only to authorized service or authorized persons and trained in the servicing of luminaires.

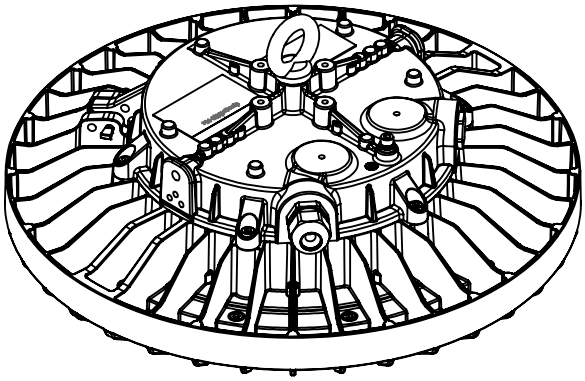
9.1. PSEHB1 power supply unit:

Power [W]	Control	Cable gland			Painting
		Quantity	Type	Size	
40; 60; 80; 100; 120; 140; 150; 160; 40HT; 60HT; 80HT;	**None:** standard version	**None** – one cable gland	**None** – cable gland made form nickel-brass	**None** – M20	**None** – RAL1003
	Variants on request:				
	P – diagnostic connector **ETDD** – digital dimming DALI **PDA** – service connector and digital dimming DALI **10V** – analog dimming 1-10V **P10V** – service connector and analog dimming 1-10V **ET** – power cord **WV**: wide voltage range **SPD**: overvoltage module	**1** – one cable gland and plug **2** – two cable glands ...	**CG** – plastic cable gland **NiCG** – nickel-plated brass cable gland **BCG** – brass cable gland **ACG** – cable gland for armored cable **H** – housing with a hole for cable gland	**20** – M20 **25** – M25 **1”** **¾”** **...** – other on re-quest	RAL...

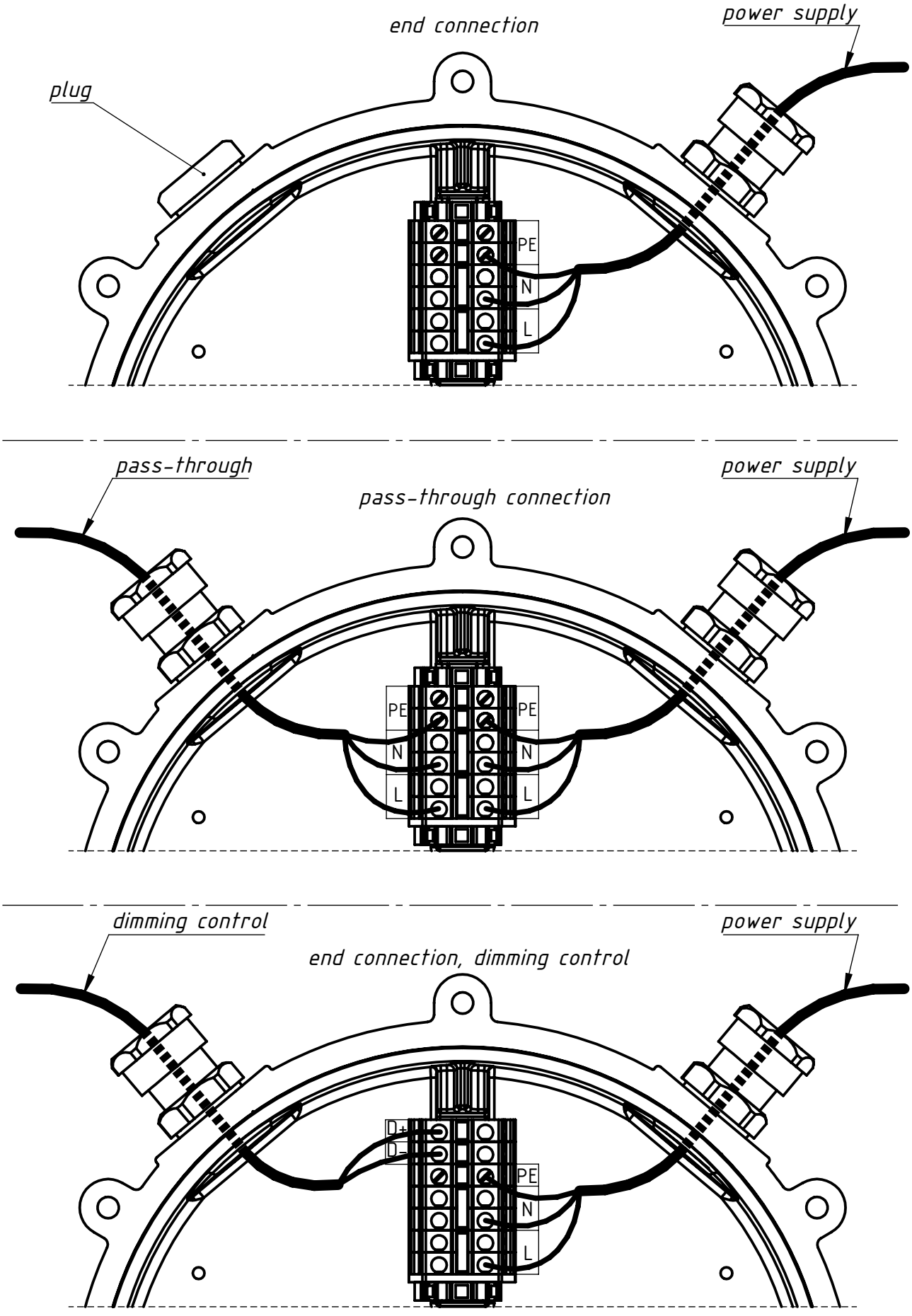
**** To order a power supply, please provide its specific version in accordance with point 9.1. The marking of the power supply corresponds directly to the design of the OREx1 G2 fitting.







Name:	No.:
OREx1 G2	Fig. 1



Name:	No.:
Luminaire connection diagram	Fig. 2

Table 1:
In the case of using a cable gland/fast connector with a protection degree lower than IP66 / 67 or a temperature range narrower than specified in point 8.2 the parameters of the entire luminaire are reduced. Changes should be noted in the table below, specifying the actual degree of protection and the operating temperature range.

No.	Luminaire serial number or range	Type of cable gland/fast connector unit used	Working temperature range	Degree of protection	Date	Responsible person	Signature
1							
2							
3							
4							
5							
6							
7							

Table 2:
List of additional accessories

No.	Producer	Type	Choke diameter	Material	Order code	Comments
1	HAWKE	Cable gland 501/421/O M20	6,5 - 11,9 [mm]	Brass	005795	for unshielded cable
2				Nickel-plated brass	006079	
3				316 stainless steel	006072	
4		Cable gland 501/421/B M25	13,0 - 20,0 [mm]	Brass	005797	for unshielded cable
5				Nickel-plated brass	008332	
6				316 stainless steel	008323	
7		Cable gland 501/421/Os M20	3,2 - 8,0 [mm]	Brass	005319	for unshielded cable
8				Nickel-plated brass	008539	
9				316 stainless steel	008111	
10		Cable gland 501/421/A M20	10,0 - 14,3 [mm]	Brass	005796	for unshielded cable
11				Nickel-plated brass	003795	
12				316 stainless steel	0013059	
13		Cable gland 501/423/O M20	6,5 - 11,9 [mm]	Brass	005806	for unshielded cable, double seal
14				Nickel-plated brass	010516	
15		Cable gland 501/423/B M25	13,0 - 20,2[mm]	Brass	005808	for unshielded cable, double seal
16				Nickel-plated brass	010572	
17		Cable gland 501/453/UNIV O M20	9,5 - 16,0 [mm]	Brass	005786	for shielded cable
18				Nickel-plated brass	008622	
19				316 stainless steel	011272	
20		Cable gland 501/453/UNIV B M25	11,1 - 19,7 [mm]	Brass	005788	for shielded cable
21				Nickel-plated brass	003770	
22		Stopping plug Ex M20 487		Brass	009946	Ex d, Ex e
23				Nickel-plated brass	003777	
24				316 stainless steel	009638	
25		Stopping plug Ex M25 487		Brass	008524	Ex d, Ex e
26				Nickel-plated brass	003776	
27				316 stainless steel	010277	
28		Stopping plug Ex M20 375		Plastic	006476	Ex e
29		Stopping plug Ex M25 375		Plastic	006477	Ex e
30		Nut M20		Brass	005824	-
31				Nickel-plated brass	008571	
32				316 stainless steel	009639	
33		Nut M25		Brass	005826	-
34				Nickel-plated brass	008519	
35				316 stainless steel	006680	
36		Cable gland cover SHROUD		Plastic	006942	
37		Cable gland cover SHROUD/B		Plastic	006943	
38	HUMMEL	O-ring sealing M20		VMQ (silicone)	14168	
39		O-ring sealing M25		NBR	03151	
40		Cable gland type HSK-M-Ex, M20	7,0 - 12,0 [mm]	Nickel-plated brass	3517	
41		Cable gland type HSK-M-Ex, M25	10,0-16,0 [mm]	Nickel-plated brass	2372	
42	WISKA	Cable gland Ex M20 no. 10103365	7,0 - 13,0 [mm]	Plastic	13456	
43		Cable gland Ex M25 no. 10103366	10,0-17,0 [mm]	Plastic	13524	