

### MT manual test function

When the emergency luminaire is connected to mains and there is no voltage drop, pressing and holding TEST button will result in activation of the "voltage drop" mode, the signal LED will go off and the luminaire should light up. When the button is released - the luminaire will switch back into its standard operation mode.

The above action means that in a case of emergency mode version the luminaire will go from unlit to illuminated. In a case of mains and emergency mode the luminaire will change a power source, from mains to a battery supply, the switch-over moment should be visible as a quick blink – during a very short while the light source will be off.

CAUTION! In a case of SA (M) luminaire version, but wired as A (NM) one, the lamp behaves according to A (NM) typical behaviour.

### CB central battery version

Note – CB version can be equipped in a test button, however it is in this case inactive. The button pressing will not cause any luminaire's reaction.

CB version is being monitored directly by a central battery system controller, in a way depending on such system's possibilities and settings.

## FAULTY OPERATION AND ITS POSSIBLE DIAGNOSIS

### LED indicator does not light up

AC power failure.

### LED indicator is red, the luminaire does not operate (MT version, e.g. in SA / M mode)

Battery pack is damaged or disconnected.

### The luminaire does not operate in emergency mode the required time for a selected model

It is possible that the battery requires a full charge cycle (24h). If after 24 hours of charging the luminaire still does not keep a predefined autonomy, it is possible that the battery is run-down or damaged, e.g. due to possible incorrect formatting and needs to be replaced.

### Red LED indicator lights up or blinks

The luminaire performs testing or damage of any part of the luminaire possible. Please, refer to the "TESTING" section.

## RECOMMENDED PERIODICAL MAINTENANCE

The luminaire should be tested on regular basis in accordance with valid laws and regulations. The results of the tests should be recorded and stored for the use of a fire safety inspector.

### One time daily

It is suggested to check visually if the LED indicator in the luminaire lights up in green.

### One time each month

It is necessary to perform a function test by disconnecting the AC power supply and checking whether the luminaire is operating in emergency mode - the green LED indicator should turn off, and LED light source light up.

### One time each year

In order to make an autonomy test, disconnect the AC power supply and test if the luminaire operates in emergency mode for a specified time. If the autonomy time of emergency operation is not sufficient, the battery needs to be fully recharged and the test is to be carried out again. If the result of the test continues to be negative, the battery needs to be replaced.

### CAUTION!

All damage that might occur as an effect of the device being used not in accordance to this instruction will result in loss of guarantee.

Used or damaged lamps including batteries, are subject to be recycled. They should be delivered to the point of collection of electrical and battery waste or to the manufacturer.



The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person.

### Handling of obsolete equipment



Pursuant to the Act of 29 July 2005 on waste electrical and electronic equipment and the Act of 24 April 2009 on batteries and accumulators, the presented device, after use, due to hazardous substances contained in it, is subject to collection of waste electrical and electronic equipment. Detailed information on WEEE collection can be obtained from municipal authorities.



## LED EMERGENCY LUMINAIRE

### Installation and maintenance instructions



TECHNICAL SPECIFICATIONS:	
Light source (non-replaceable):	White LED
Operating modes *:	SA - mains and emergency operation (M) or A - emergency operation (NM)
Test versions *:	MT – manual test or AT – auto test or CT – central test
Emergency autonomy *:	1h, 2h or 3h
Battery (replaceable) *:	NiCd or NiMH 3,6V 1500mAh ÷ 4500 mAh
Battery charging duration max.:	24h
Power supply *:	MT, AT and CT: 220-240V AC 50Hz CB (central battery): 220V AC/DC
Max. power *:	4W ÷ 7W
Module:	Orion LED
Luminous flux *:	Versions – 100: 104 lm; 150: 152 lm; 250: 273 lm
Visibility *:	20 metres (with flat cover) or 30 metres (D / DS)
Enclosure IP rating:	IP65
Ambient temperature *:	10°C ÷ 55°C (standard) or -25°C ÷ 55°C (LT version)

\*- depending on model





## INTRODUCTION

1. The lamp should be installed when power supply is off. Safety rules, construction and electrical installation standards should be followed all the time.
2. The luminaire should not be powered with circuits connected to inductive power-receiving devices at the same time. This type of solution may cause damage to the electronic module of the luminaire.
3. The luminaire should be used indoors.

## INSTALLATION

1. Before installation one has to make sure that the luminaire will be connected to 220-240VAC mains by means of a min. 1,5mm<sup>2</sup> wire.
2. Open the luminaire by unscrewing two screws on its ends. Remove the cover.
3. Open the reflector plate with LED light source either by unscrewing two screws at indicated points (for Orion LED 100) or releasing two plastic locks (Orion LED 150/250/D). Leave it on hinges.
4. Cut out an opening in the body for power supply wires. When making openings in the body, bear in mind the IP rating of the body and use appropriate sealing afterwards. It is necessary to use either grommets or cable glands to maintain IP65 protection level.
5. Install the body of the luminaire on the wall or ceiling, making the information label visible for people who will carry out testing in future.

6. Prepare power cable and connect all the wires to the appropriate terminal block entries.
7. The description of luminaire terminals:  
**L** - phase wire - brown or black insulation colour; power source for battery charging, presence signalled by signal LED lighting up in green;  
**L1** - a terminal to be optionally used for a wall switch connection, enabling to switch a luminaire off during M mode operation, if no switch is used the terminal L1 should be connected to a phase wire in parallel with the L terminal;  
**N** - neutral wire - blue insulation colour;  
**PE** - earth wire - yellow and green insulation colour.
8. **Luminaire designed for EMERGENCY operation (A, NM).** To wire a luminaire designed for a Non-Maintained operation, AC mains power has to be connected to appropriate terminals: **L** (phase) and **N** (neutral). Always remember about connecting the protection earth wire (**PE**). The luminaire should be constantly supplied by power - voltage drop on **L** will result in emergency mode activation.
9. **Luminaire designed for MAINS AND EMERGENCY operation (SA, M).** To wire a luminaire designed for a Maintained operation, AC mains supply needs to be connected to appropriate terminals: **L** (phase), **N** (neutral) and **L1** (wall switch wire). Always remember about connecting the protection earth wire (**PE**). **L1** terminal can be optionally connected through a wall switch, enabling switching the luminaire off for a time (the luminaire stays ready for an emergency operation). The luminaire should be constantly AC supplied, phase loss on **L** will cause automatic activation of the emergency mode.
10. Please remember to indicate the date of installation on the label attached to the battery pack.
11. Insert the battery plug into the socket on the PCB.
12. Close the reflector/LED plate and fix it to the body, using either screws or locks, depending on model.
13. Install the diffuser and screw it to the body. If a luminaire with flat cover is to be used as directional (one-sided), one need to stick a desired pictogram on it, too. If an optional DS directional set is being installed, one need to fix (in pair with the diffuser, on its outside, by means of same screws) a metal frame with PMMA light guide plate put inside, on which desired pictograms were stuck prior to this assembly.
14. One need to remember about sticking the desired pictograms for version D (with a high cover) and DS (with an optional DS set), in the latter case this operation should be done before final assembly of the DS set. Sticking the pictogram for a version with a flat cover is optional, depending on planned use.
15. Orion LED 100, 150 or 250 versions, which will work as directional luminaires, either by means of a pictogram stuck on a flat transparent cover or by using a DS directional set, require a modification of their marking in the third segment of the classification table by putting there the letter G, by means of a permanent marker. 
16. For versions being installed in a recessed ceiling, one need first to make a hole with dimensions 550x125mm in the ceiling, then screw the base into the upper arms of the frame by means of attached M4x10 screws. Installation in the ceiling is being done using springs mounted on both sides of the PT frame.
17. After the luminaire is being installed, one need to mark (on label, by means of a permanent marker) if the luminaire was installed as surface one or as recessed one. See on right both markings: 
18. For quick operation testing – switch on the AC power supply. The green LED indicator should light up, signaling the battery charging.
19. First-time charge of the luminaire battery pack should be carried out continuously for 48 hours. This will allow appropriate formatting of the battery pack. During the first-time charge, no testing should be carried out and power supply should not be disconnected for any other purpose. Power supply should be disconnected after 48 hours for the first time. The luminaire should complete a full emergency operation cycle, after which it should be connected to power supply for another 36 hours. This sequence shall complete the formatting cycle.

## OPERATION

### Emergency operation mode

In this mode (A / NM) the luminaire does not light when powered by AC supply voltage. Correct operation of the device is confirmed by LED indicator lighting up in green. The battery is being continuously trickle charged for the purpose of a possible emergency operation. When AC power supply is off, the luminaire automatically starts operating in emergency mode and the source of light is activated for the period specific for a particular model.

### Mains and emergency operation mode

In this mode (SA / M) the luminaire lights up when powered by AC supply voltage. Correct operation of the device is also confirmed by LED indicator lighting up in green. The battery is being continuously trickle charged for the purpose of possible emergency operation. When AC power supply is off, the luminaire automatically starts operating in emergency mode and the source of light is activated for the period specific for a particular model.

### Information on lamp operation

The luminaire operates correctly and charging circuit works if the LED indicator lights up in green. If the indicator does not light up, the lamp is not operating with AC power supply on or the battery has been damaged. See more info about signaling in "TESTING" section.

### Battery pack

The luminaire is equipped with a rechargeable Ni-Cd or Ni-MH battery pack. Please remember to carry out the correct first-time charge cycle. After such a formatting cycle it achieves its capacity and is prepared to perform a possible full time emergency operation. It is recommended to replace the battery once every four years of operation or in a case of poor test results. Obsolete batteries, similarly to packaging, fluorescent lamps or electronics, are recyclable products that should be disposed to a recyclable waste collection point.

## TESTING

ORION LED luminaire can be delivered with an auto AT or central CT test versions. It is equipped with a test button that can be optionally used for manual tests' initiations. It enables to check the readiness for emergency operation at any time, apart from planned tests.

### AT auto test function

If a luminaire version has an auto test functionality, the TEST button is being used to initiate and break either function or autonomy tests. When the luminaire is connected to mains network and there is no voltage drop, pressing and holding the test button, depending on time of pressing, will result in activation of any of the two. Pressing the button for more than 2s and not longer than 5s (2s<t<5s) initiate the function test, for more than 5s and not longer than 10s (5s<t<10s) – initiate the autonomy test, while for t>10s – breaks any currently running test. For a convenient counting of nr. of seconds – when a test button is pressed and hold – after every second the luminaire confirms the passing time by a quick flash of a red indication LED.

In a standard luminaire's operation, both functional and autonomy tests are being initialised automatically, function test every 28 days and autonomy test every 336 days. There is no possibility to break any automatically planned test. There is also no possibility to erase any test results, this means that any signalled failures will be cancelled only after making the luminaire repaired.

All the possible luminaire working states and LED indications are gathered in the table below.

LUMINAIRE WORKING STATE OR ACTION	GREEN LED INDICATION	RED LED INDICATION	COMMENTS
<b>BASIC STATES</b>			
MAINS SUPPLY ON, BATTERY BEING CHARGED	ON	OFF	
MAINS SUPPLY FAILURE, EMERGENCY OPERATION	OFF	OFF	
<b>FUNCTIONAL TEST STATES</b>			
FUNCTIONAL TEST (PART 1: CHARGING CIRCUIT) BEING INITIATED	ON	FLASHING (2/T)	DURATION: 10s
FUNCTIONAL TEST (PART 2: LIGHT SOURCE AND ELECTRONICS) IN PROGRESS	OFF	FLASHING (1/T2)	DURATION: 60s
CHARGING, ELECTRONIC CIRCUIT, LIGHT SOURCE OR BATTERY FAILURE	ON	ON	
LUMINAIRE (ELECTRONICS, BATTERY, LIGHT SOURCE) – OK	ON	OFF	
<b>AUTONOMY TEST STATES</b>			
AUTONOMY TEST (PART 1: CHARGING CIRCUIT) BEING INITIATED	ON	FLASHING (2/T)	DURATION: 10s
AUTONOMY TEST (PART 2: LIGHT, ELECTRONICS, AUTONOMY) IN PROGRESS	OFF	FLASHING (2/T2)	DURATION: 1h, 2h or 3h (*)
CHARGING, ELECTRONICS, LIGHT SOURCE, BATTERY OR AUTONOMY FAILURE	ON	ON	
LUMINAIRE (ELECTRONICS, BATTERY, AUTONOMY, LIGHT SOURCE) – OK	ON	OFF	
<b>MANUAL TEST BUTTON FUNCTIONS</b>			
INITIATION OF A FUNCTIONAL TEST – PRESSING A BUTTON FOR A 2s<t<5s	ON	FLASHING (1/T)	FLASHING ENABLING TIME (t) COUNTING
INITIATION OF AN AUTONOMY TEST – PRESSING A BUTTON FOR A 5s<t<10s	ON	FLASHING (1/T)	

T – 1s period; T2 – 10s period; t – time of pressing the test button

FLASHING: (1/T) / (2/T) – 1 flash / 2 flashes every 1s period

FLASHING: (1/T2) / (2/T2) – 1 flash / 2 flashes every 10s period

(\*): test duration is same as an autonomy time declared for a given luminaire

### CT central test version

This version in a basic make is designed for co-operation with a WELLS wireless central monitoring system. All control possibilities are described in a separate instruction manual dedicated for WELLS system. Signalling ways of all luminaire's states and tests' schedules and results are identical to those described for AT version. An additional signal that can arise is "UNBOUND" signal, which means that a luminaire is not (temporarily or permanently) in a communication contact with a control unit:

LUMINAIRE WORKING STATE OR ACTION	GREEN LED INDICATION	RED LED INDICATION	COMMENTS
<b>WELLS COMMUNICATION STATES</b>			
„UNBOUND" SIGNAL, LOSS OF COMMUNICATION WITH A CENTRAL UNIT	FLASHING (6)	FLASHING (6)	SIMULTANEOUS

FLASHING (6) – 6 consecutive simultaneous pairs of green LED and red LED flashes (0,1s flashes with 0,1s interspaces, the sequence lasts 1,3s), repeated in a 6,8s period, the sequences interrupt signalling of a basic luminaire's state (according to the table described for AT)

The luminaire can be still working correctly, performing planned tests and signalling their results on signal LEDs, assuring safety of a building, but tests' results are not being transferred to a central unit.