

TECHNICAL SPECIFICATIONS:

Light source:	White LED ● (non-user replaceable)
Operating modes *:	M – mains and emergency operation ● NM – emergency operation
Test versions *:	MT – manual test ● AT – auto test ● CT – central test ● DA – DALI monitoring ● CB – central battery
Emergency duration *:	1 h ● 2 h ● 3 h ● 8 h
Output (emergency) power *:	1 W ÷ 5 W
ESS – battery *:	MT, AT, CT & DA models: LiFePO4 6.4 V 600 mAh ÷ 6000 mAh ● MT models: optional NiCd or NiMH 3.6 V 600 mAh ÷ 4500 mAh ● (non-user replaceable)
Battery charging duration:	max. 24 h
Power supply *:	MT, AT, CT & DA: 230 V AC 50/60 Hz ● CB (central battery): 230 V AC / 220 V DC
Protection class *:	MT, AT, CT & CB: II ● MT LT, AT LT, CT LT & DA LT: I
Max. power *:	1 W ÷ 20 W
Module (& marking) *:	GV1: NiCd & CB models (marking EL) ● GV2: LiFePO4 models (MT: marking EL; AT & CT: marking EL-T) & CB (marking EL) ● GV3: DA models (marking EL-T)
Luminous flux *:	min. 125 lm ÷ min. 650 lm
Blue light hazard *:	Risk groups - RG0 (models 125 ÷ 150) ● RG1 (models 250) ● RG2 (models 350 ÷ 650)
Threshold distance d(thr) *:	RG0 & RG1: n.a. ● RG2: max. 0.5 m
Visibility:	25 m
Enclosure IP rating *:	IP44 ● IP65
Ambient temperature *:	MT, AT, CT & DA: 10 °C ÷ 40 °C ● MT LT, AT LT, CT LT, DA LT & CB: -20 °C ÷ 40 °C

The image displays three views of the Fire Exit Sign. The top view shows the rectangular, recessed ceiling mount. The front view shows the illuminated green face with the white running man icon and a large white arrow pointing right. The side view shows the depth of the unit and the mounting bracket.

INTRODUCTION – SAFETY RECOMMENDATIONS

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15. In case of suspicion of damage to the electrical part of the device (supply circuit, light source, power wires or connector) or to any part of the housing, do not use the luminaire.
16. NOTE! Correct operation of the luminaire and a possibility of its long and unproblematic use depend on a proper battery forming and its periodical inspections and maintenance. More information in the following sections: „ACTIVATION“, „OPERATION“, „TESTING - TIPS“, FAULTY OPERATION AND ITS POSSIBLE DIAGNOSIS” and “MAINTENANCE AND REPAIRS”.
17. IMPORTANT! Use only battery packs delivered by the manufacturer. Replacement part code is placed on the battery label. The manufacturer is not responsible for inappropriate operation of the luminaire nor for damages nor losses connected to use of unauthorised batteries.
18. Cardboard or paper packaging parts should be disposed of as wastepaper or thrown into a paper container for recycling, while plastic packaging into a container for plastic waste.
19. Obsolete luminaire (or its parts) cannot be disposed of as a regular waste but should be delivered to special WEEE collecting points (for electric and electronic equipment and batteries).

INSTALLATION

1. Before installation make sure that the luminaire will be connected to 230 V AC power supply using minimum a 1.5 mm2 wire and that the cable can be passed through the cable gland.
2. The luminaire can be installed on a surface on a ceiling or a wall, for these ways no additional accessories are needed (only screws and plugs are necessary).
3. It is also possible to install the luminaire in the recessed ceiling or suspended from the ceiling. For these installation ways additional accessory sets are needed.
4. If the luminaire is installed as a directional one, appropriate pictograms should also be attached to the diffuser or to the optional light guide plate. Due to the convenience and accuracy of the operation, it is recommended to stick them on before starting the assembly.
5. For surface-mounted installation, using the installation template delivered with the luminaire, prepare holes, and plugs for screwing the housing base to the ceiling, and also make sure that the power cable can be passed through the chosen cable entry.
6. Then, first open the housing by removing the cover (see drawings: part I/1-2), then tilt (on hinges) the internal support plate for the LED source (see drawings: part I/3), lead the power cable through one of the several available cable entries (see drawings: part II/1-2), finally fix the housing base to the ceiling with screws and screw the cable strain relief (see drawings: part II/3-4).

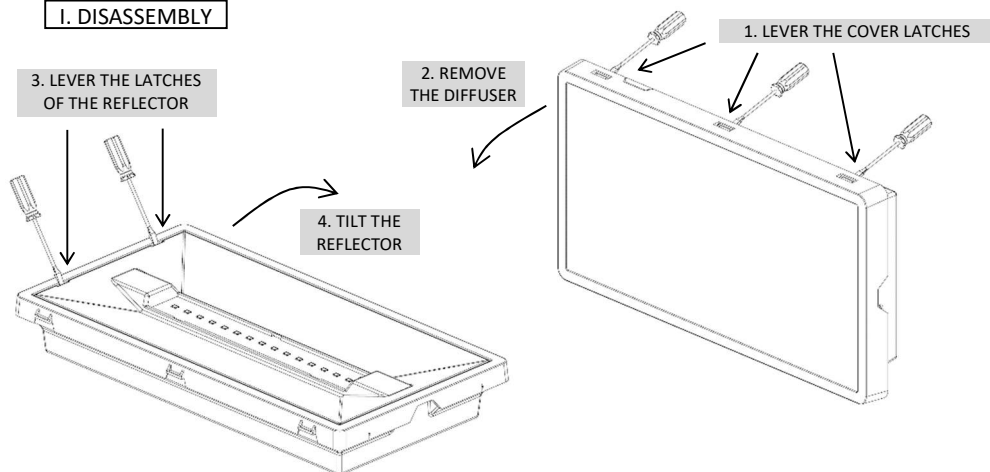
NOTE! When fixing screws remember to use seals (attached in set) to keep the IP protection level of the luminaire.

7. For versions mounted in a suspended ceiling, before installing the fixture, cut an appropriate hole in the ceiling using the template delivered with the PT recessed kit (see drawings: part V/1). Installation is carried out using special springs mounted at the ends of the housing body (see drawings: part V/2-5).
8. The luminaire should be additionally marked (on the label, by means of a permanent marker) depending on whether it is mounted as surface one or a recessed one. It is recommended to perform this operation before proceeding to the next stages of the assembly. See both markings on the right: →
9. When installing the luminaire make sure that its orientation reflects its function related to the built-in optics, see below:

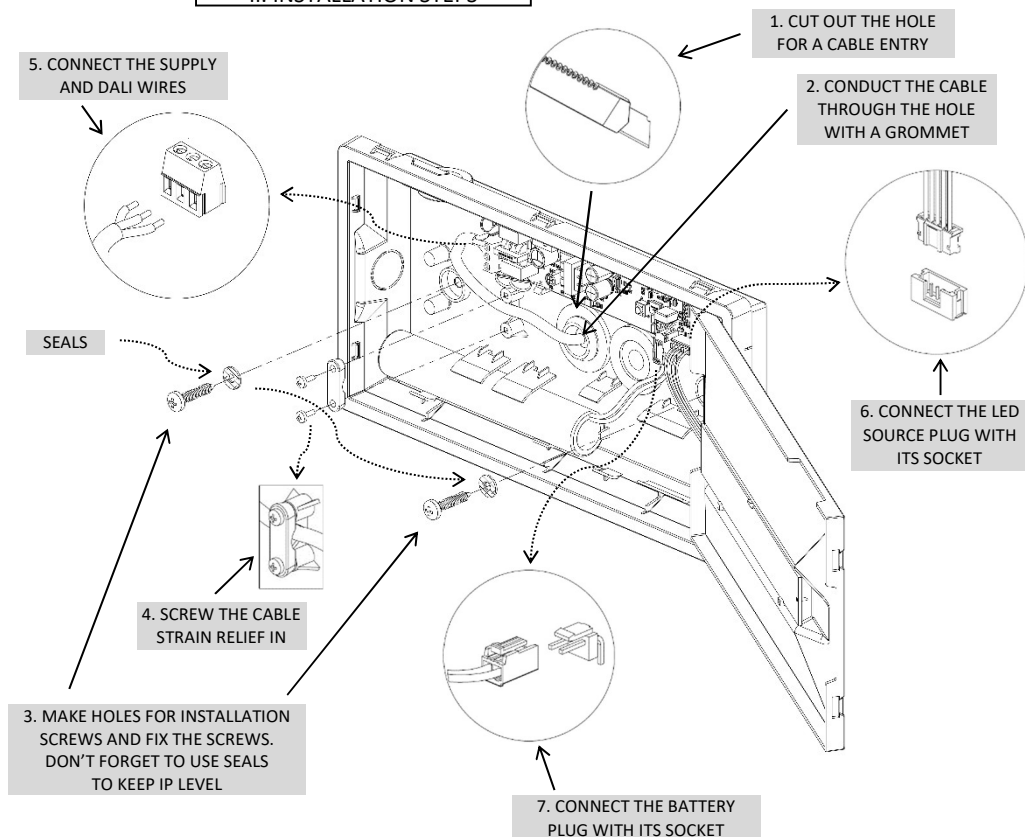
Surface	Recessed
☒ NT	☐ NT
☐ PT	☒ PT

OPTICS	SO	SQ	SOH	SC	SCH	SP
APPLICATION	Open space	Square open space	High open space	Corridor	High corridor	Safety point
TYPICAL BEAMS	120° approx.	120° approx, 135° approx. at corners	Around 80°	Around 30° x 150°	Around 20° x 130°	Beam tilted about 75° from ceiling
ORIENTATION	Inessential (optics fully symmetrical)	Square shape reflects square area	Inessential (optics fully symmetrical)	Arrows along the corridor	Arrows along the corridor	Arrows showing the safety point
PICTURE OF THE OPTICS (WITH MARKED ORIENTATION, IF ESSENTIAL)						

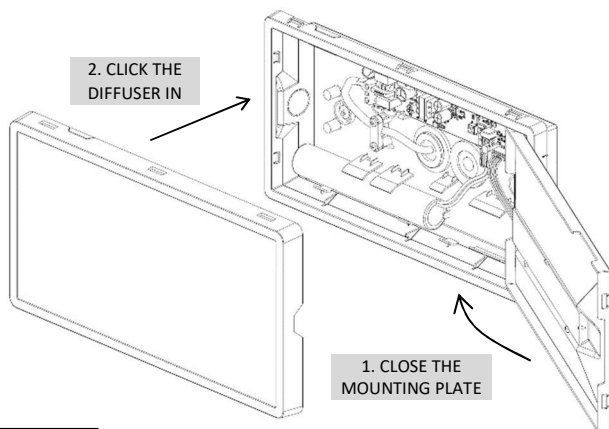
I. DISASSEMBLY



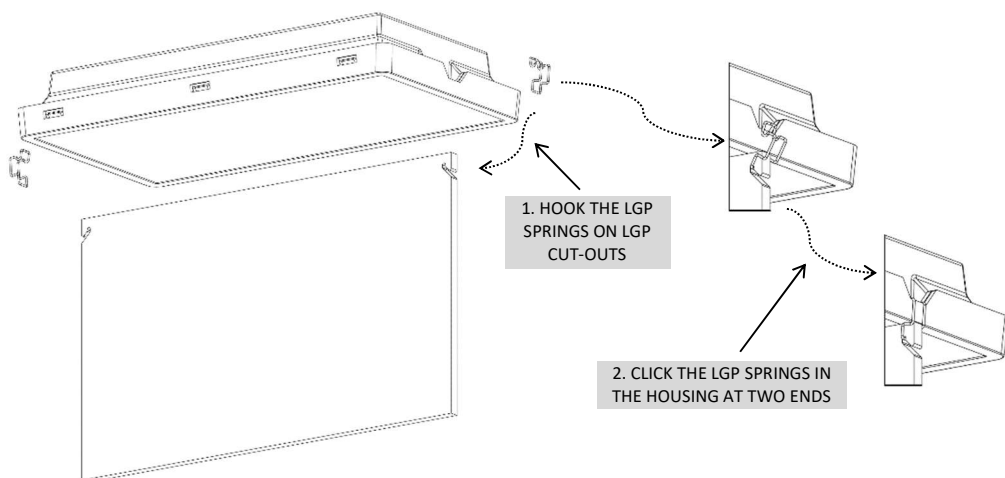
II. INSTALLATION STEPS



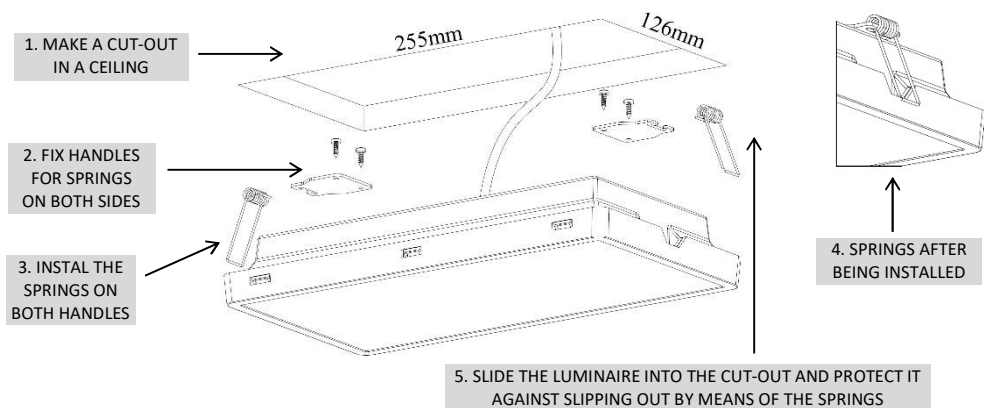
III. CLOSE THE LUMINAIRE



IV. INSTALLING A DOUBLE-SIDED VERSION



V. INSTALLING A RECESSED VERSION



10. Connect all the wires of a prepared power cable to the appropriate terminal block entries (see drawings: part II/5).

The description of luminaire's terminals:

L – permanent phase - brown or black insulation colour;

L1 – a terminal for Maintained version – brown or black insulation colour; for NM version – do not wire; for M version – connect in parallel with L terminal; can be optionally wired through a wall switch, enabling to switch an M luminaire off during mains operation;

N – neutral wire - blue insulation colour;

DA – two DALI monitoring data bus wires – usually grey and black insulation colour (only DA models);

PE – protection earth terminal – green and yellow insulation colour (only LT versions).

LUMINAIRE VERSION	MT / AT / CT				DA	DA / LT	CB
	NM	NM / LT	M	M / LT			
DESCRIPTION	Non-Maintained	Non-Maintained Low-Temperature	Maintained	Maintained Low-Temperature	DALI	DALI Low-Temperature	Central Battery
WIRING SCHEME							

11. NOTE! In the delivered luminaire the LED light source is not yet connected to the electronic circuit. It is necessary to insert the 5-pin plug into its socket on the PCB board (see drawings: part II/6).
12. Before switching the mains supply on, connect the battery – insert the white battery plug into the socket on the PCB (see drawings: part II/7).
13. Please remember to write the installation date on the label attached to the battery pack.
14. To complete the installation, tilt the internal supporting plate of the LED source towards the base of the housing and snap it in place, then snap the cover into the base (see drawings: part III/1-2).
15. The optional directional LGP plate should be snapped onto the housing body using dedicated installation springs (see drawings: part IV/1-2).
16. For directional luminaires, it is necessary to modify their marking in the third segment of the designation table by adding the letter G there, using a permanent marker.



ACTIVATION

TEST FOR CORRECT OPERATION ● Test for correct operation - turn on the AC power. The green LED indicator should light up to indicate connection to the AC network and battery charging. After charging, the LED indicator should remain green all the time, which means that the luminaire is ready to operate in emergency mode. By pressing the test button, it's possible to check whether the luminaire enters the emergency operation when the power supply is off. Attention should also be paid to continuous lighting or flashing of the red LED diode (does not concern MT and CB models). The way how to press the test button and how to read the luminaire's behaviour depends on its version. Please refer to the detailed description in the "TESTING" section.

IMPORTANT! – BATTERY FORMATION ● Before using the luminaire, the battery pack must be properly formed. During formatting, do not perform any tests or disconnect the power in any other way than indicated. The first charging of the battery pack should last continuously for at least 48 hours. After 48 hours, disconnect the power supply and allow the luminaire to operate in emergency for its entire rated time, then reconnect the power supply for at least 36 hours. After charging, discharge the luminaire again for at least its declared rated duration. Then connect the power supply again for min. 24 hours. This sequence completes the formatting cycle, and the luminaire is ready for use.

OPERATION

EMERGENCY OPERATION MODE (NM) ● Used in MT and AT models as a wiring option and in CT and DA models as a control option. In this mode during AC supply the luminaire does not light. When AC supply is off, the luminaire automatically starts operating in emergency mode and the light source is supplied from a battery pack.

MAINS AND EMERGENCY OPERATION MODE (M) ● Used in MT and AT models as a wiring option and in CT and DA models as a control option. In this mode during AC supply the luminaire lights up. When AC supply is off, the luminaire automatically starts operating in emergency mode and the supply of light source is switched from mains to battery pack. ● NOTE! In a case of M luminaire version, but wired as NM one, it behaves according to NM typical behaviour.

BATTERY PACK ● MT, AT, CT & DA luminaires are equipped with an ESSS source, which is rechargeable nickel-cadmium NiCd, nickel-metal-hydride NiMH or lithium-iron-phosphate LiFePO4 battery pack. Please remember to carry out the correct first-time charge cycle (see last point in "ACTIVATION"). After such a formatting cycle it achieves its capacity and is prepared to perform a possible full time emergency operation. It is suggested to discharge and then to re-charge the battery every three months, even if it hasn't been used, to extend its performance. 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.

ESSS LUMINAIRE OPERATION ● Correct operation of luminaires with own ESSS source (MT, AT, CT & DA) requires a continuous connection to 230 V AC mains network (L terminal). Correct operation of the device is confirmed by LED indicator lighting up in green. The battery is being continuously charged / trickle charged for the purpose of a possible emergency operation. When AC power supply is off (no voltage on L), the luminaire automatically starts operating in emergency mode and the source of light is supplied from ESSS emergency source (battery pack) for the period specific for a particular model. During emergency operation, the green LED indicator is off.

WELLS MONITORING (CT) ● Enables remote supervision and control of operation and testing of an emergency luminaire. Wells monitoring is wireless, so it doesn't require additional data bus wiring (the wiring is standard, as for MT & AT models). More information can be found in Wells instruction manual.

DALI MONITORING (DA) ● Requires additional 2-wire data bus wiring of the DALI system monitoring. It enables remote supervision and control of operation and testing of an emergency luminaire from a central controller. Standard DALI luminaire can work in M mode, with a choice of a light level setting and with a possibility to switch to NM mode. More information can be found in DALI instruction manual.

USING LUMINAIRES FOR CB SYSTEM ● Correct operation of CB luminaires requires a continuous connection to 230 V AC / 220 V DC of a CB system (L & N terminals). Presence of power supply is confirmed by LED indicator lighting up in green. All control over a luminaire's operation and testing is supervised by a CB system central unit, depending on its functions and possibilities. A CB luminaire does not have an in-built ESSS (battery).

NORMATIVE TESTING – REQUIREMENTS

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. For an MT version the test is being performed manually, for AT, CT and DA versions is being performed automatically, according to programmed cycles. CB models testing depends on settings and functions of a given system.

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

ONCE MONTHLY ● 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.

ONCE YEARLY ● It is necessary to perform a duration test by disconnect the AC power supply and checking if the luminaire operates in emergency mode for a specified time. If the autonomy time of emergency operation is not sufficient, the ESSS (e.g. 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.

TESTING – TIPS

BASIC INFORMATION

TESTING OPTIONS	MT	AT	CT	DA	CB
AVAILABLE MODELS	YES (NiCd or LiFePO4)	YES (LiFePO4)	YES (LiFePO4)	YES (LiFePO4)	YES
TEST BUTTON	YES (1)	YES (1)	YES (1)	---	---
GREEN LED INDICATOR	YES	YES	YES	YES	YES
RED LED INDICATOR	---	YES	YES	YES	---

Test button: (1) – internal, on the PCB board or external, on the housing

MANUAL TEST (MT) ● The green signal LED confirms connection to the mains network. For a luminaire installed properly it means that a battery is being continuously charged / trickle charged. Mains failure makes the signal LED going off and powering the luminaire from its battery pack. A situation when – despite connected mains network – signal LED is off, may mean a failure or a damage of either an electronic circuit, a battery, or a light source. ● 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.

AUTO TEST (AT) ● The test button in AT and CT models can be optionally used for manual tests' initiations. It enables to check the readiness for emergency operation at any time, apart from planned 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 2s<t<5s initiates the function test, for 10s<t<15s initiates the autonomy test. For a convenient counting 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. When the luminaire is during any (manually initiated) test procedure, pressing the button for a time >10s – breaks any currently running test. ● Note 1 – If such an optional test is finished less than 24h before any planned test, the planned test will be delayed in order to achieve full 24h battery charging time. The delay will be applied also in a case of mains failure and its restoration at the moment that is closer than 24h before such a planned test. ● Note 2 – Automatic normative tests cannot be interrupted! ● Note 3 – During emergency operation (mains failure) the test button is inactive! ● During a standard luminaire's operation, both functional and autonomy tests are being initialised automatically. After installation and connection of the mains network the luminaire randomly chooses its testing schedule. The first functional test will be performed within the first month of installation, then it will be automatically repeated every 28 days. The first duration test will be performed within the first year of installation, then it will be repeated every 340 days. ● It is not possible to erase any test results, which means that any signalled failures will be cancelled only after the luminaire has been repaired. ● IMPORTANT - if a power failure occurs during the test, the luminaire will interrupt the test and then switch to emergency operation. After the emergency operation ends and the power supply returns, the luminaire will not signal any results of the interrupted test (the green LED will be lit as in the basic state). The interrupted scheduled test (unless more than 7 days have passed since the power failure) will be repeated after min. 24 hours from the return of power. A manually initiated test will not be repeated. ● All possible AT luminaire operating states and its LED signals are gathered in the table below.

LUMINAIRE WORKING STATE OR ACTION	GREEN LED INDICATION	RED LED INDICATION	COMMENTS
BASIC STATES			
MAINS SUPPLY ON, BATTERY BEING CHARGED	ON	OFF	
MAINS SUPPLY FAILURE, BATTERY OPERATION	OFF	OFF	
FUNCTIONAL TEST STATES			
FUNCTIONAL TEST – PART 1 (LIGHT SOURCE AND ELECTRONICS)	OFF	FLASHING (1/T2)	DURATION: 70s
FUNCTIONAL TEST – PART 2 (CHARGING CIRCUIT)	ON	FLASHING (2/T1)	DURATION: 10s

CHARGING, ELECTRONICS, LIGHT SOURCE OR BATTERY FAILURE	ON	ON	
LUMINAIRE (ELECTRONICS, BATTERY, LIGHT SOURCE) – OK	ON	OFF	
DURATION TEST STATES			
DURATION TEST – PART 1 (LIGHT SOURCE, ELECTRONICS AND DURATION)	OFF	FLASHING (2/T2)	DURATION: 1h, 2h, 3h 8h (*)
DURATION TEST – PART 2 (CHARGING CIRCUIT)	ON	FLASHING (2/T)	DURATION: 10s
CHARGING, ELECTRONICS, LED SOURCE, BATTERY OR DURATION FAILURE	ON	ON	
LUMINAIRE (ELECTRONICS, BATTERY, DURATION, LIGHT SOURCE) – OK	ON	OFF	
TEST BUTTON FUNCTIONS			
FUNCTIONAL TEST INITIATION – PRESS THE BUTTON FOR $2s < t < 5s$	ON	FLASHING (1/T)	FLASHING ALLOWS TIME (t) COUNTING
DURATION TEST INITIATION – PRESS THE BUTTON FOR $10s < t < 15s$	ON	FLASHING (1/T)	
BREAKING OFF ANY TEST (**) – PRESS THE BUTTON FOR $t > 10s$	FLASHING (5/T)	FLASHING (***)	

T – 1s period; $T2$ – 10s period; t – time of pressing the test button • FLASHING: (1/T)/(2/T)/(5/T) – 1 flash / 2 flashes / 5 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 • (**): automatic normative tests cannot be interrupted, it concerns solely manual tests • (***): signalling depends on a test being executed at the moment, as in a given test

CENTRAL TEST (CT) • 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 state is the "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
WELLS COMMUNICATION STATES			
"UNBOUND" SIGNAL, 24h AFTER LOSS OF COMMUNICATION WITH A CENTRAL UNIT	FLASHING (6/T2)	FLASHING (6/T2)	SIMULTANEOUS

FLASHING (6/T2) – 6 quick consecutive simultaneous pairs of green LED and red LED flashes, repeated in a 10s period, the sequences interrupt signalling of a basic luminaire's state (according to the table described for AT)

IMPORTANT – for a luminaire not connected with a central unit (wireless network) it means only no connection between the luminaire and the central unit. 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.

DALI MONITORING (DA) • A luminaire dedicated for integration with DALI network. All control possibilities are described in a separate DALI system instruction manual. DALI luminaires are not equipped with a test button. All supervision or control operations should be done from DALI system dedicated control units. • A luminaire's testing is carried according to user pre-programmed testing schedules. In a case of lack of own settings, all tests will be carried according to factory settings – a function test every 7 days and a duration test every 52 weeks. • Loss of a communication between a DA luminaire with a DALI system controller does not influence a correct operation of the luminaire nor pre-programmed cyclic testing according to the recent schedule. Therefore, it is not signalled on the luminaire itself, but in the central controller only. • In the DA system it is possible to use Rest command as well as putting into Inhibit state. Using the Rest function is same as for CT system, however for the Inhibit it must be noted that DA models can be put into the Inhibit state only for a limited time. In a case of a single command it is max. 15 min., after this period they automatically return to the basic operation. It is also possible to either extend or break the work in Inhibit by using relevant commands by DALI controller. • DA luminaires are being delivered without a possibility to set an emergency output light level. It will be always lit up with its maximum level, according to the declared flux. • States of DA luminaires – basic, function test and duration test – their and relevant signalling way are identical as for AT models, except remarks referring to the test button (no test button for DA models). • An additional state for DA models is signalling of a luminaire's identification process. It's shown in the table below:

LUMINAIRE WORKING STATE OR ACTION	GREEN LED INDICATION	RED LED INDICATION	COMMENTS
SIGNALISATION OF DALI LUMINAIRES IDENTIFICATION			
SIGNALISATION BY SIGNAL LEDs	FLASHING (10/T2)	FLASHING (10/T2)	ALTERNATELY
SIGNALISATION BY LED LIGHT SOURCE	ALTERNATELY TURNING ON AND OFF EVERY 0,5 s APPROX.		

$T2$ – 10s period • BLYSKI: (10/T2) – 10 flashes, each lasting 0.5 s, with 0.5 s off, in 10 s period

CENTRAL BATTERY (CB) • 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

GREEN LED INDICATOR IS OFF ● AC power failure. For MT models it can also mean that one of the luminaire's elements (e.g., battery pack) is damaged. For more details, please, refer to the "TESTING – TIPS" section.

RED LED INDICATOR IS ON ● For AT and CT models it can mean that one of a luminaire's elements (a charging circuit, a light source supply circuit, a light source itself or a battery) is damaged or a duration time in an emergency mode is too short. It is recommended to repeat the test and - in a case of confirmation of bad results - to call a service team. For more information, please, refer to the "TESTING – TIPS" section.

RED LED INDICATOR FLASHES ● The luminaire performs testing. Please, refer to the "TESTING – TIPS" section.

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

MAINTENANCE AND REPAIRS

MAINTENANCE ● Cleaning the luminaire should be done with a soft and dry cloth. It is unacceptable to use detergents, solvents, and other aggressive chemicals. ● If the emergency flux achieved is insufficient or when the light source reaches its end of life, the light source shall be replaced with a new one.

● If the emergency luminaire does not any longer meet its rated duration of operation after the corresponding (correct and full) recharge period, the ESSS source (battery) must be replaced with a new one.

REPAIRS AND REPLACEMENTS ● Any repairs to the luminaire should only be carried out with the power turned off and the ESSS source (battery) disconnected. ● The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person. ● The ESSS electric source (battery) for safety service is not a user serviceable item and shall only be replaced by the manufacturer service agent or a similar qualified person. ● Each newly installed battery must undergo its full forming process, according to procedure from last point in "ACTIVATION" section. ● NOTE! Only replacement parts authorised by the manufacturer can be used. Replacement parts' codes (light source and ESSS / battery source) are given on labels of relevant components.



GUARANTEE

Detailed information about guarantee for the products and its components can be found on www.inteligh.pl site in the "General Terms and Conditions of Warranty" document. ● The guarantee shall not cover mechanical damage, damage caused by improper installation, operation, or modifications of the luminaire or its parts as well as changes occurring due to natural wear and tear of the product or its elements. ● The manufacturer reserves the right to assume no liability for the incorrect operation of the luminaire resulting from interference in the structure of the luminaire carried out by the user without any consent.

HANDLING OF OBSOLETE EQUIPMENT



Pursuant to the act of 4 July 2012 on waste electrical and electronic equipment (WEEE) and the act of 6 September 2006 on batteries and accumulators and waste batteries and accumulators, this device, after use, due to hazardous substances contained in it, is a subject to collection of waste electrical and electronic equipment. Below there are guidelines for the correct procedure:

1. It is prohibited to place used electrical and electronic equipment together with other waste - this is confirmed by the "crossed-out wheeled bin" marking, which requires selective collection of this type of waste.

2. Electrical and electronic equipment may contain hazardous substances, mixtures, and components which, when released into the environment may pose a serious threat to the health and life of people and living organisms.

3. Waste electrical and electronic equipment, including batteries, should be sent only to authorized collection points, the list of which should be included on the website of each municipal authority.



Cd

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