



## INSTALLATION AND MAINTENANCE MANUAL FOR LIGHT FITTING

# INP310LED-..-SF



Carefully read the instructions before  
mounting the light fitting.

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## 1. GENERAL INFORMATION

Compact, custodial LED light fitting with high impact resistance factor (IK11+). Destined to illuminate cells and corridors. INP310LED-SF is designed to be mounted on ceilings. Robust construction and special security screws prevents unauthorized access. The fixture is characterized by the high security for the users. Anti-ligature construction is designed to prevent from the injuries and acts of suicide.

I	N	P	3	1	0	L	E	D	-	-	-	-	E	-	11	P	C	I	-	GS	-	PC	-	-	-	I	-	SF	
<b>group</b> custodial light fittings																													
<b>type</b> product type 310																													
<b>source of light</b> LED modules																													
<b>aproximate length</b> ~ 300mm, ~ 600mm, 1200mm, 1500mm																													
<b>LED module type</b>																													
<b>LED module quantity</b>																													
<b>LED module type</b>																													
<b>LED module quantity</b>																													
<b>driving current</b>																													
<b>power supply</b> 11E - 24VDC 34E - 230V, 50+60Hz 35E - 230V, 0/50+60Hz																													
<b>wiring</b> 20 - single 2-pole terminal 22 - double 2-pole terminal 30 - single 3-pole terminal 33 - double 3-pole terminal 40* - single 4-pole terminal 44* - double 4-pole terminal 50* - single 5-pole terminal 55* - double 5-pole terminal 60* - single 6-pole terminal 66* - double 6-pole terminal																													
<b>available only with A3 emergency version</b>																													
<b>available only with A3 emergency version</b>																													
<b>available only with DALI version</b>																													
<b>available only with DALI version</b>																													
<b>available only with A3-DALI &amp; NL version</b>																													
<b>available only with A3-DALI &amp; NL version</b>																													
<b>cable inlets - quantity</b> 11 - 2 cable inlets in the center of the housing 20 - 2 cable inlets on one side of the housing 22 - 2 cable inlets on both sides of the housing																													
<b>cable inlets - type</b> PCI - plastic cable inlet Ø20 (wire Ø8-13mm)																													
<b>housing material</b> GS - galvanized steel NIRO - stainless steel																													
<b>diffuser material</b> PC - polycarbonate OPAL																													
<b>emergency version</b> A3 - version with 3h emergency module, available only with 34E power supply (230V, 0/50-60Hz). Wiring required 40 or 44. ZB - version with ballast for central battery without the switch module. Wiring required 30 or 33.																													
<b>special version</b> DA - version equipped with integrated DALI-2 interface. Wiring needed 50 or 55.																													
<b>protection class</b> I - first class III - third class																													
<b>additional equipment</b> SNS - version with automatic switcher based on motion and light level. The luminaire length with sensor differ from the standard version. Contact export for more details. NL - "night light" version allows to turn off the regular LED modules and turn on the night light LED module. Version saves energy, while maintaining constant lighting in night conditions. Night light version requires additional wiring depending on the power supply version. Wiring 60 or 66.																													
<b>mounting</b> SF - version designed to be mounted on surface																													

LED module risk group RG=1

## 2. TECHNICAL INFORMATION

<b>Protection degree:</b>	IP65
<b>IK:</b>	IK11+ (150J), test according to standard PN-EN 60598-1 / PN-EN 62262 / PN-EN 60068-2-75
<b>Admissions wires diameter:</b>	1-2.5 mm <sup>2</sup>
<b>Admission cable diameter:</b>	Ø8-13mm
<b>Surage protection:</b>	1 kV L-N, 2 kV L/N-PE (IEC 61000-4-5)
<b>Standard voltage:</b>	220-240V, 0/50-60Hz
<b>Emergency voltage:</b>	220-240V, 50-60Hz
<b>Voltage for 11E:</b>	24VDC, 0Hz
<b>Protection class:</b>	I, optional III
<b>Ambient temperature Ta:</b>	from -30°C up to +55°C (from 0°C up to +55°C for A3)

### FOR VERSIONS: STANDARD, ZB, DA, SNS

Type	Power	Electrical unit	IP	Protection class	Power factor	Ambient temp.
INP310LED-0300-M1-1-...-SF	5,3 W	220-240V 0/50+60Hz	65	I	≥0,97	from -30 up to +50°C
INP310LED-0300-M2-1-...-SF	9,4 W					from -30 up to +55°C
INP310LED-0600-J2-1-...-SF	18,2 W					from -30 up to +45°C
INP310LED-0600-J2-3-...-SF	25,9 W					from -30 up to +55°C
INP310LED-0600-B2-1-...-SF	34,7 W					from -30 up to +50°C
INP310LED-0600-B2-2-...-SF	40,3 W					from -30 up to +45°C
INP310LED-1200-J4-1-...-SF	34,8 W					from -30 up to +55°C
INP310LED-1200-J4-2-...-SF	40,4 W					from -30 up to +50°C
INP310LED-1200-J4-3-...-SF	48,6 W					from -30 up to +55°C
INP310LED-1200-B4-1-...-SF	65,0 W					from -30 up to +45°C
INP310LED-1200-B4-2-...-SF	75,3 W					from -30 up to +55°C
INP310LED-1500-J4M2-1-...-SF	42,7 W					from -30 up to +50°C
INP310LED-1500-J4M2-3-...-SF	61,0 W					from -30 up to +55°C

### FOR 11E (24VDC) VERSIONS

Type	Power	Electrical unit	IP	Protection class	Power factor	Ambient temp.
INP310LED-0600-D2-0-...-SF	21,7	24V DC 0 Hz	65	III	≥0,97	from -40 up to +55°C
INP310LED-1200-D2-0-...-SF	21,7					
INP310LED-1200-D4-0-...-SF	42,2					from -40 up to +50°C

### FOR EMERGENCY VERSIONS

Type	Power	Electrical unit	IP	Protection class	Power factor	Ambient temp.
INP310LED-0300-M1-1-...-A3-SF	5,3 W	220-240V 50±60Hz	65	I	≥0,97	from 0 up to +50°C
INP310LED-0300-M2-1-...-A3-SF	9,4 W					from 0 up to +55°C
INP310LED-0600-J2-1-...-A3-SF	18,2 W					from 0 up to +45°C
INP310LED-0600-J2-3-...-A3-SF	25,9 W					from 0 up to +55°C
INP310LED-0600-B2-1-...-A3-SF	34,7 W					from 0 up to +50°C
INP310LED-0600-B2-2-...-A3-SF	40,3 W					from 0 up to +45°C
INP310LED-1200-J4-1-...-A3-SF	34,8 W					from 0 up to +55°C
INP310LED-1200-J4-2-...-A3-SF	40,4 W					from 0 up to +50°C
INP310LED-1200-J4-3-...-A3-SF	48,6 W					from 0 up to +45°C
INP310LED-1200-B4-1-...-A3-SF	65,0 W					from 0 up to +55°C
INP310LED-1200-B4-2-...-A3-SF	75,3 W					from 0 up to +50°C
INP310LED-1500-J4M2-1-...-A3-SF	42,7 W					from 0 up to +45°C
INP310LED-1500-J4M2-3-...-A3-SF	61,0 W					from 0 up to +55°C

### FOR VERSIONS: STANDARD, DA, SNS

Type	Luminous flux	Efficiency	Colour temperature	CRI	Lifetime
INP310LED-0300-M2-1-...-SF	555 lm	105 lm/W	4000K option: 3000K 5000K 6500K	>80	>70.000 h
INP310LED-0300-M2-1-...-SF	1110 lm	118 lm/W			
INP310LED-0600-J2-1-...-SF	2220 lm	122 lm/W			
INP310LED-0600-J2-3-...-SF	3134 lm	121 lm/W			
INP310LED-0600-B2-1-...-SF	4361 lm	126 lm/W			
INP310LED-0600-B2-2-...-SF	4930 lm	122 lm/W			
INP310LED-1200-J4-1-...-SF	4440 lm	128 lm/W			

INP310LED-1200-J4-2-...-SF	5019 lm	124 lm/W			
INP310LED-1200-J4-3-...-SF	6225 lm	128 lm/W			
INP310LED-1200-B4-1-...-SF	8722 lm	134 lm/W			
INP310LED-1200-B4-2-...-SF	9860 lm	131 lm/W			
INP310LED-1500-J4M2-1-...-SF	5550 lm	130 lm/W			
INP310LED-1500-J4M2-3-...-SF	7781 lm	128 lm/W			

Lifetime of a LED modules: L<sub>80</sub>B<sub>10</sub>

#### FOR 11E 24VDC VERSIONS

Type	Luminous flux	Efficiency	Colour temperature	CRI	Lifetime
INP310LED-0600-D2-...-SF	2173 lm	100 lm/W	4000K option: 5000K	>80	>70.000 h
INP310LED-1200-D2-...-SF	2173 lm	100 lm/W			
INP310LED-1200-D4-...-SF	4347 lm	103 lm/W			

Lifetime of a LED modules: L<sub>80</sub>B<sub>10</sub>

#### FOR EMERGENCY VERSIONS: A3 & ZB

Type	A3 version [lm]	ZB version [lm]
INP310LED-0300-M2-1-...-SF	-	555
INP310LED-0300-M2-1-...-SF	536	1110
INP310LED-0600-J2-1-...-SF	526	2220
INP310LED-0600-J2-3-...-SF	507	3134
INP310LED-0600-B2-1-...-SF	527	4361
INP310LED-0600-B2-2-...-SF	518	4930
INP310LED-1200-J4-1-...-SF	526	4440
INP310LED-1200-J4-2-...-SF	518	5019
INP310LED-1200-J4-3-...-SF	507	6225
INP310LED-1200-B4-1-...-SF	527	8722
INP310LED-1200-B4-2-...-SF	518	9860
INP310LED-1500-J4M2-1-...-SF	515	5550
INP310LED-1500-J4M2-3-...-SF	502	7781

#### FOR NIGHT LIGHT VERSION

Type	Luminous flux [lm]	Power [W]	Efficiency [lm/W]
INP310LED-NL	700	7,0	100

### 3. CONSTRUCTION DESCRIPTION

Housing is made of galvanized steel. Diffuser is made of polycarbonate typo OPAL. Mounting tray is made of powder painted galvanized steel. The frame has special snake eyes screws that prevent unauthorized persons from accessing the interior of the housing.

### 4. PRELIMINARIES

#### CONDITIONS OF SAFETY RULES

- Carefully read all the information included in the manual before mounting the light fitting
- General safety must be applied.
- Failure to comply with rules of the installation and use can lead to personal injury or property loses. Company ATM Lighting sp. z o.o. takes no responsibility in such cases.
- Failure to comply with rules included in manual results with void of the manufacturer warranty.
- The manufacturer is not liable for damage resulting from improper installation of the device, failure to maintain it in proper technical condition or use other than for its intended purpose,
- It is the user's responsibility to perform the installation in accordance with this manual and the safety regulations and standards applicable to the type of installation being performed,
- In the event of a malfunction, the device should be turned off and returned to the manufacturer or an entity authorized by him for repair.



Before performing any assembly activities, including opening the housing, it is essential to disconnect the device from the power source.

### 5. LIGHT FITTING MOUNTING

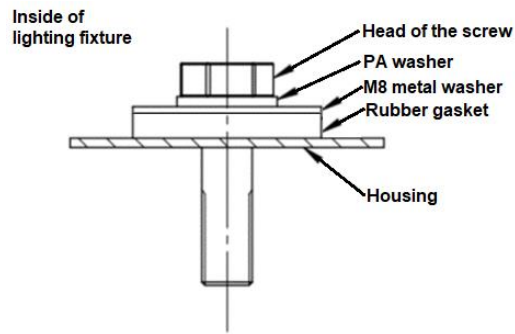
Light fitting is designed for direct installation on ceiling or wall. With each light fitting there are four silicone gaskets (1), four enlarged M8 stainless steel washers (2) and four PA washers (3) provided.

**Correct installation:**



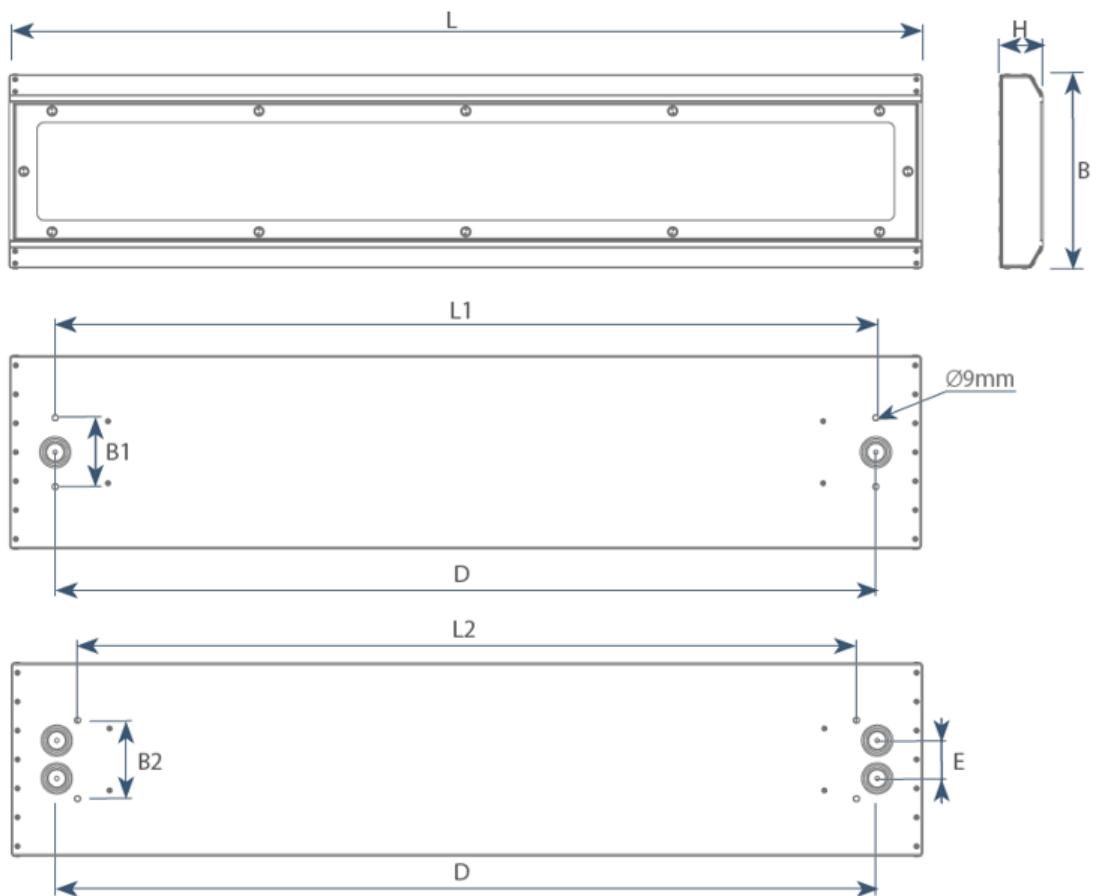
**Incorrect installation:**





They are to be used as on pictures above. Tightening torque of the screws must not exceed 1Nm so the gaskets won't be significantly deformed.

### FIXTURE DIMENSIONS



TYPE	L [mm]	L1 [mm]	L2 [mm]	B [mm]	B1 [mm]	B2 [mm]	H [mm]	D [mm]	E [mm]	Weight [kg]
INP310LED-0300-...-SF	500	400	320	280	90	115	65	410	55	~4,8
INP310LED-0600-...-SF	765	665	575	280	90	115	65	635	55	~8,0
INP310LED-1200-...-SF	1325	1225	1130	280	90	115	65	1195	55	~13,2
INP310LED-1500-...-SF	1650	1520	1500	280	90	115	65	1550	55	~17,0



## 6. ELECTRICAL CONNECTION

To connect power supply:

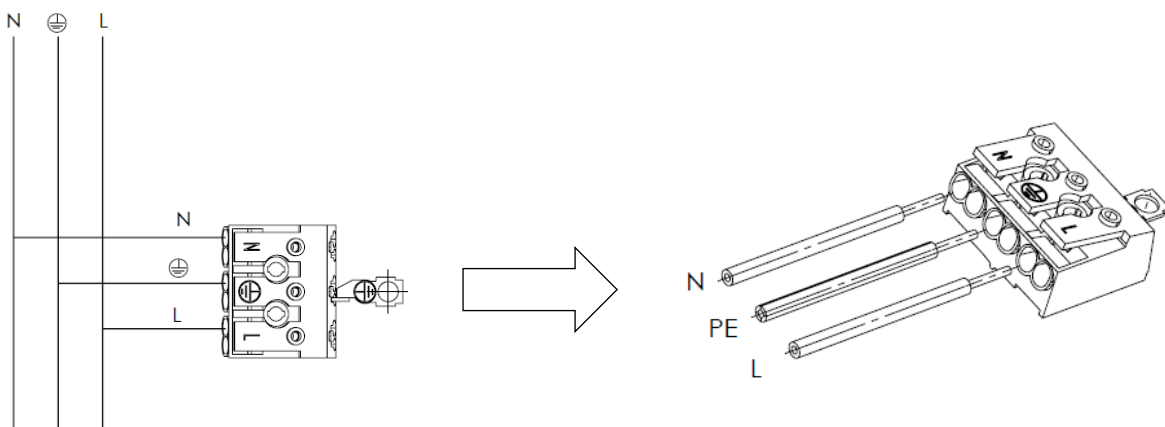
- enter the power cable to the housing through the cable,
- carefully unisolate the cables cores (8-10mm), and put it into the connector according to marking inside the light fitting,
- put the admission cable through the cable inlet and connect it with the socket;
- tight the power cable in the strain relief and then connect plug and socket;
- check the effectiveness of grounding (only in case of light fittings made in I protection class).



**Note:** The power supply must be absolutely disconnected before any installation or service work on the luminaire!!!

### – Standard verion:

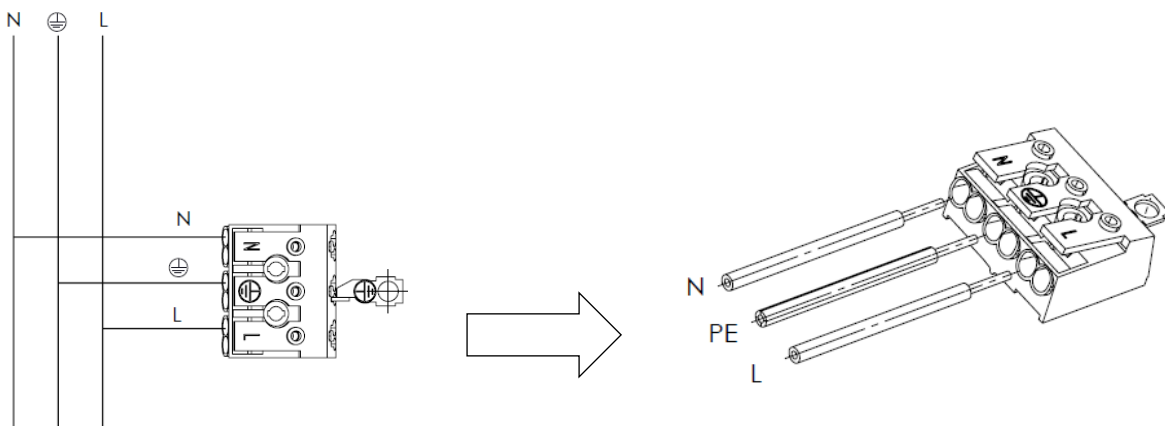
Power connection:



### – ZB version:

Emergency version designed to work with the central battery. This version does not have any additional switching module, 3-wire wiring required.

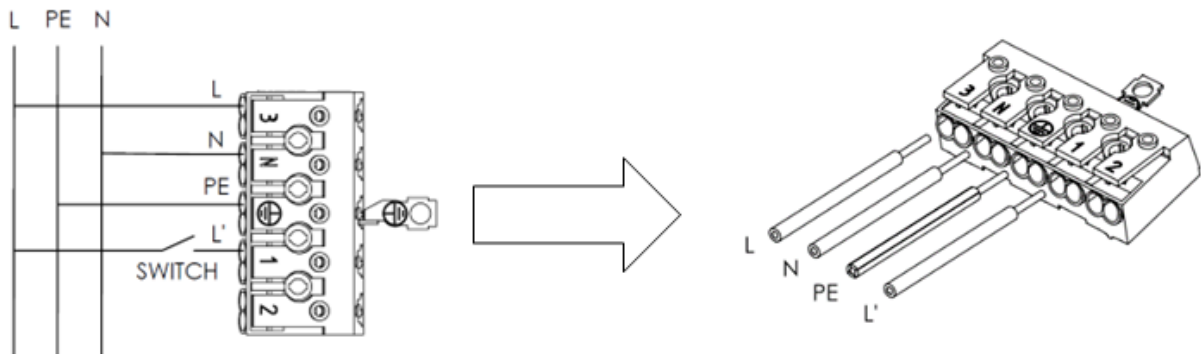
Power connection:



– **Emergency A3 version:**

Emergency version equipped with a converter, battery and control diode, 4-wire wiring required. For more information, see chapter "8. EMERGENCY WORK - A3 VERSION".

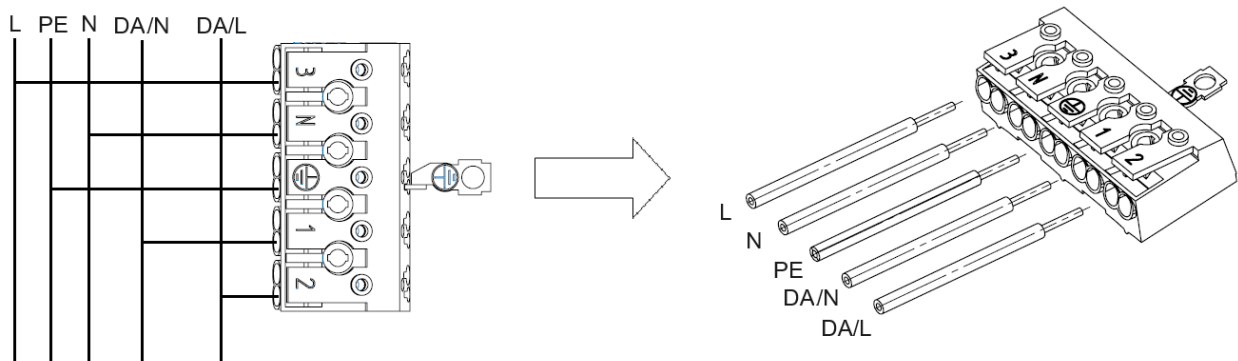
Power connection:



– **DA VERSION [power supply with DALI]:**

The luminaire is equipped with a power supply with DALI control function. A DALI or switchDIM digital signal can be connected to the same terminals (DA/N and DA/L). The control input is non-polar for digital control signals (DALI, DSI). The control signal is not SELV. The control cable must be installed in accordance with the requirements of low-voltage installations, 5-wire wiring required.

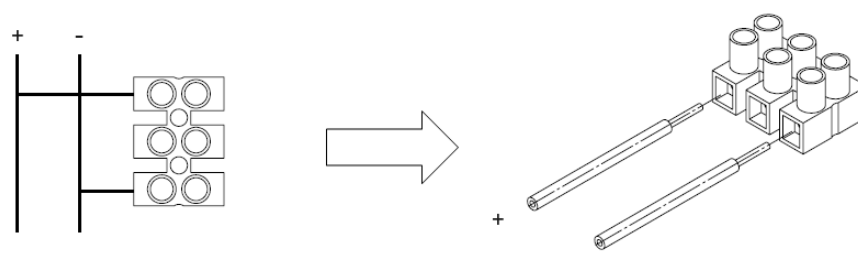
Power connection:



– **24VDC version:**

The luminaire is equipped with 24VDC LED modules, there is no power supply in the luminaire, 2-wire wiring required.

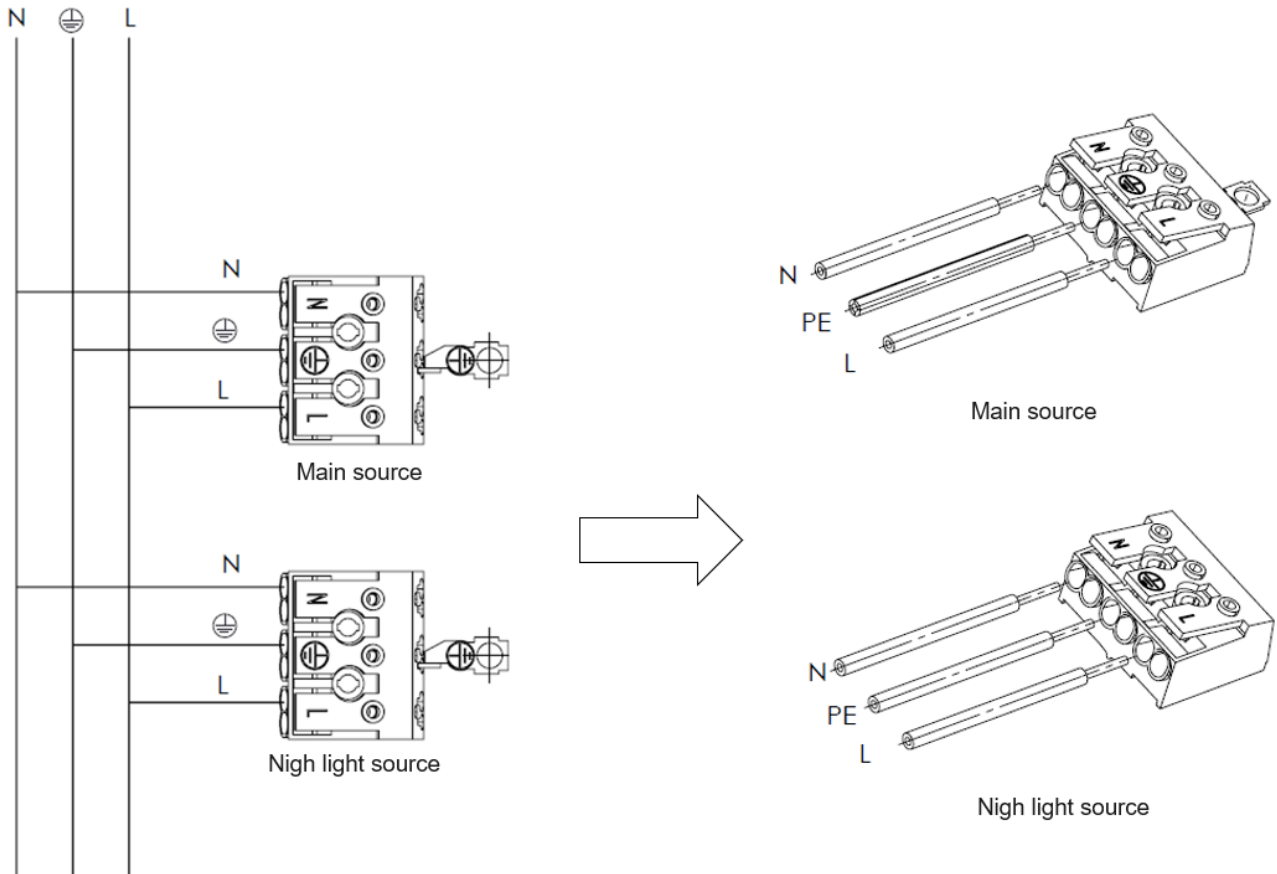
Power connection:



**- NL version:**

The Night Light version is equipped with an additional LED module and an additional power supply, which requires a separate power supply. 6-wire wiring required (3 wires for main source and 3 wires for additional Night Light source).

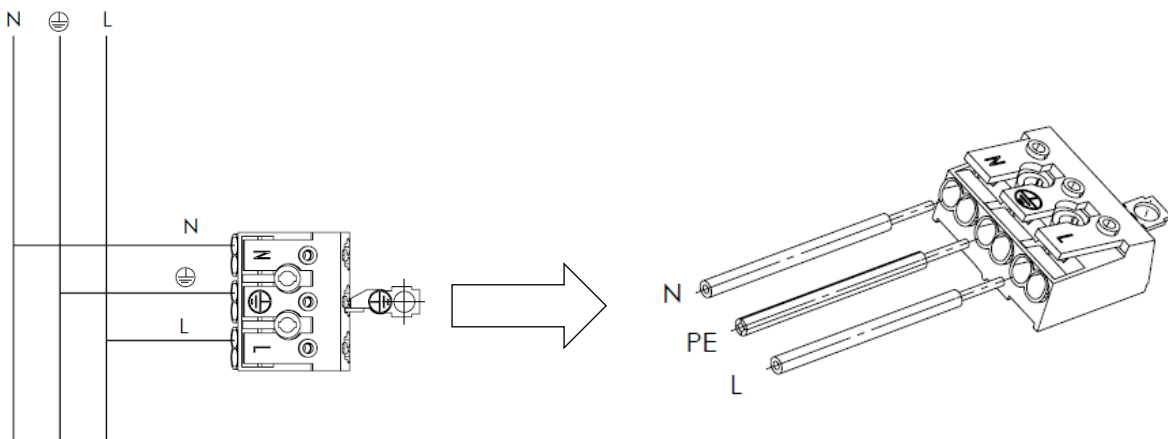
Power connection:



**- SNS version:**

The SNS version is equipped with a sensor activated by motion and light intensity, and does not require additional wiring. 3-wire wiring required. More information about sensor settings can be found in chapter "9. SENSOR – SETING UP SNS VERSION".

Power connection:



Remarks:

- If cable entries are made from rubber to put cable into housing it is necessary to carefully made a hole in cable gland. The diameter of the hold need to provide a tight fit of the gland membrane with power cable.
- Use one wrench to tighten the sealing nut, while using the second wrench to block gland body against rotation, otherwise damage of the sealing can be caused and therefore sealing level will be decreased.

**MAXIMUM NUMBER OF LUMINAIRES CONNECTED IN THE LINE DEPENDING ON THE CURRENT BREAKERS USED**

TYPE	B16	C16
INP310LED-0300-M1-1	78	130
INP310LED-0300-M2-1	23	38
INP310LED-...-J2, B2, J4	16	26
INP310LED-...-B4, J4M2	10	16

\*the above numbers of luminaires are for 230VAC voltage

## 7. EMERGENCY WORK – A3 VERSION

- The light fitting is equipped with emergency power supply module EM converterLED ST 50/250V made by TRIDONIC, which is powered by 230V AC, 50-60Hz. During normal work module charges the battery pack with appropriate current. Failure of mains supply will switch light fitting into emergency mode.
- Battery parameters: 4.8V | 4.0Ah.
- Time of full charge of battery is 24h (first charge is 48h). Beside this emergency module has:
  - a) Stability control system – it ensures that battery is not overcharged or discharged too much, which may shorten its life or even destroy the battery.
  - b) Discharge control system - preventing too deep discharge of battery cells.
  - c) Automatic switch system – switches light fitting between emergency and standard work.
  - d) Signaling system – LED which shows current work state.
- Battery should be connected to emergency module with mains supply switched off. After that mains must be switched on. During maintenance, transport or storage battery must be disconnected from emergency module. It is unacceptable to continuously switch on and off the mains when battery is connected to emergency module.
- To ensure reliable work of emergency module batteries must be changed each 4 years or when the capacity falls below 50% or emergency work time is lower than 3h.
- Temperature while battery charging must be  $\geq 0^{\circ}\text{C}$
- New battery obtains full capacity after 24h of charging. To ensure appropriate forming of battery first charging must last for 48h. It is unacceptable to make any test or witch light fitting into emergency mode during this time. After 48 hours light fitting must be switched into emergency mode to complete discharge of battery. Then the battery must be charged for 36h. This ends the process of forming.
- The battery pack can be replaced by ATM Lighting Sp. z o. o. and specially trained staff, using original components provided by ATM Lighting Sp. z o. o.

LED indication	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red ( 1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged / incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Chargin failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Green and red off	DC mode	Battery operation (emergency mode)

## 8.1 Testing

### Commissioning test

A full commissioning test is carried out automatically after permanent connection of the supply for 5 days. The easy commissioning feature will set the initial test day and time to ensure random testing of units.

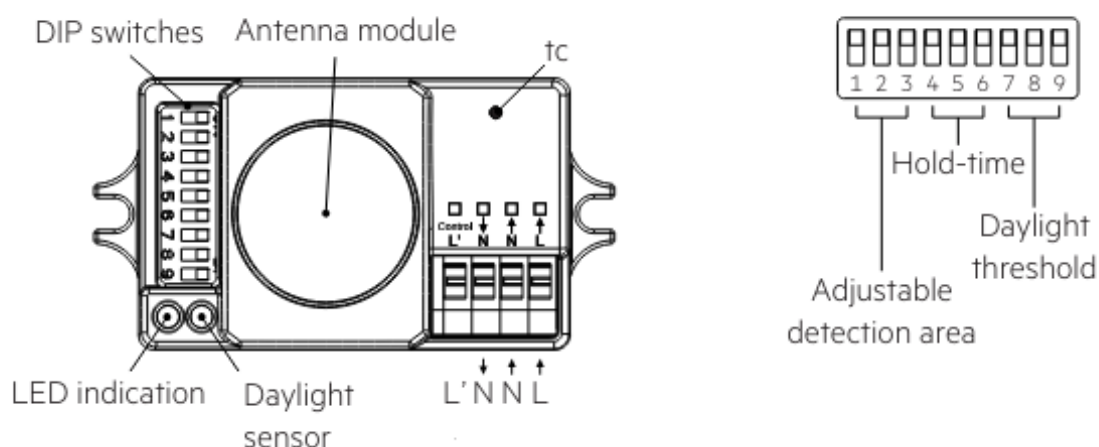
### Functional test

Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

### Duration test

A full duration test is carried out yearly to check the capacity of the batteries. For a full description of commissioning and test features please refer to application notes.

## 8. SENSOR - SETTING UP SNS VERSION



### Setting the detection area (DIP switches 1-3)

The detection area can be restricted to prevent the lighting system being switched on unnecessarily, as would be the case if the area was too large. The detection area indicates the diameter within which motion is detected.

	1	2	3	Sensitivity
I	●	●	●	100 % (default)
II	○	●	●	75 %
III	○	●	○	50 %
IV	○	○	●	30 %
V	○	○	○	10 %



### Setting the switch-off delay (DIP switches 4-6)

To prevent the lighting system being switched on and off unnecessarily you can set a switch-off delay. The delay starts after the last motion in the detection area. If a further motion is detected in the detection area during this delay then the delay is retriggered. At the end of the delay the light will be switched off or the corridorFUNCTION is started.

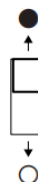
	4	5	6	Hold time
I	●	●	●	5 s (default)
II	●	○	●	30 s
III	●	○	○	1 min
IV	○	●	●	5 min
V	○	●	○	10 min
VI	○	○	●	20 min
VII	○	○	○	30 min



### Setting the daylight threshold value (DIP switches 7-9)

A threshold value can be set to prevent the lighting system from being switched on when there is already adequate illuminance. The threshold value indicates the illuminance value below which detected motion causes the lighting system to be switched on.

	7	8	9	Daylight sensor
I	●	●	●	Disable (default)
II	○	●	●	50 Lux
III	○	●	○	20 Lux
IV	○	○	●	5 Lux
V	○	○	○	2 Lux



**Note!** To ensure the sensor switches on in conjunction with the corridorFUNCTION you should set the threshold value to I = Disable. If the threshold value disabled the sensor will always switch on.

## 9. CONDITIONS OF SAFETY USE

- Every light fitting has to have rating plates with rating data on it. Each light fitting must have this „Installation and maintenance manual” , which must be kept by user until the end of exploitation.
- Light fittings are designed for fixed installations only.
- Using light fitting outside the designated operating temperature range is unacceptable and will decrease a lifetime of light fitting and/or damage it. It will also cause a loss of warranty.
- Each light fitting must have a warning sign: „do not open under voltage” on it.
- Admission cables in standard version & ZB & SNS must have 3-wires and diameter 6-12mm.
- Admission cables in 24VDC version must have 2-wires and diameter 6-12mm.
- Admission cables in emergency version must have 4-wires and diameter 6-12mm.
- Admission cables in DALI version must have 5-wires and diameter 6-12mm.
- Admission cables in Night Light version must have 6-wires and diameter 6-12mm.
- Use power wires with cross section 1-2,5mm<sup>2</sup>.
- Maximum cross current I=16A.
- The diffuser is made of polycarbonate, so it mustn't be exposed on chemical substances which may destroy it, especially: oil, acetone, chloride, ethyl, ether. In case of doubts with substances are in work place of light fitting, which can damage the product, the action of fixing should be taken.



- Do not stare into working light source.



- Risk of electrical shock.

## 10. LIGHT FITTING MAINTENANCE AND SERVICING

**REMARK:** during the servicing and maintenance touching of LED are prohibited, because it will decrease the lifetime of light fitting and cause the loss of manufacturer's warranty.

**INSPECTION:** at least once a month. Inspection is made without opening the light fitting. User must check admission cables condition (insulation damage, cracks, burns etc.). Cables must not have any acute bends. Outside parts of the light fitting must be checked. No cracks or corrosion signs may occur. Bolts used to mount light fitting should be properly tightened, washers mustn't be cracked. Cleanliness of outer surfaces and light fittings surroundings must be checked. Light fittings may not be soiled by paint or grease. Do not allow for dust (dirt) deposition on the light fitting. The readability of rating and warning plates must be checked. Abnormalities found must be fixed.

**SERVICE AND MAINTENANCE:** at least once a year. Service and maintenance must be made with power supply turned off. User must make inspection steps first. After opening the metal parts painting, condition of inner wiring and its mounting, insulating materials, cable glands gaskets, terminals. Abnormalities found must be fixed. Rating and warning plates must be cleaned. Surfaces of insulating materials and covers must be clean.

**VERIFICATION OF TECHNICAL CONDITION:** at least once for 2 years. Power supply must be switched off. Light fitting must be uninstalled. Besides all the examination from inspection, service and maintenance paragraphs electrical examination from the inspection, service and maintenance

paragraphs electrical examination must be also made: light fitting current consumption, insulation examination, protective earthing condition. Special attention must be paid to insulating parts condition. No crack or burns may occur.

**CLEANING:** do not allow for dust (dirt) deposition on the light fitting. Cleaning must be proceeded without use of chemical. Cleaning must be proceeded with use of compressed air and soft cleaning cloth or soft brush. If necessary use water and/or neutral detergent, however without any chemicals, which can damage any part of the light fitting.

## 11. REPAIR AND REPLACEMENT PARTS

All replacement parts must be ordered from the lighting fixture manufacturer. Additionally, the battery and light source can be replaced by ATM Lighting Sp. z o. o. and specially trained staff, using original components provided by ATM Lighting Sp. z o. o.

## 12. LAMP SOURCE EXCHANGE

Lamps exchange may be made only by specially trained personnel using the original components provided by ATM Lighting sp. z o.o. ATM Lighting sp. z o.o.

## 13. TRANSPORT AND CONDITIONS OF STORAGE

During transportation light fittings shouldn't be exposed to precipitation or mechanical shock. Light fittings may be storage only in sheltered warehouses, within +50°C to +35°C temperature range, and relative humidity lower than 75%. No corrosion causing vapors or gases should be present.

## 14. DISPOSAL OF WASTE EQUIPMENT



User must obey relevant rules and regulations about disposal of wasted equipment valid in their country.

## 15. WARRANTY

- It is forbidden to use damaged or malfunctioned light fitting.
- It is required to disconnect power supply from the light fitting before any maintenance work.
- It is not allowed to make changes to the luminaire's structure yourself. Any unauthorized interference may reduce the functionality or damage the device, and in special cases may pose a threat to life or health. At the same time, this releases the manufacturer from any warranty liability.
- All specific information can be found in document „General terms and conditions warranty ATM Lighting sp. z o.o.” available at the website [www.atmlighting.pl/en/](http://www.atmlighting.pl/en/)









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