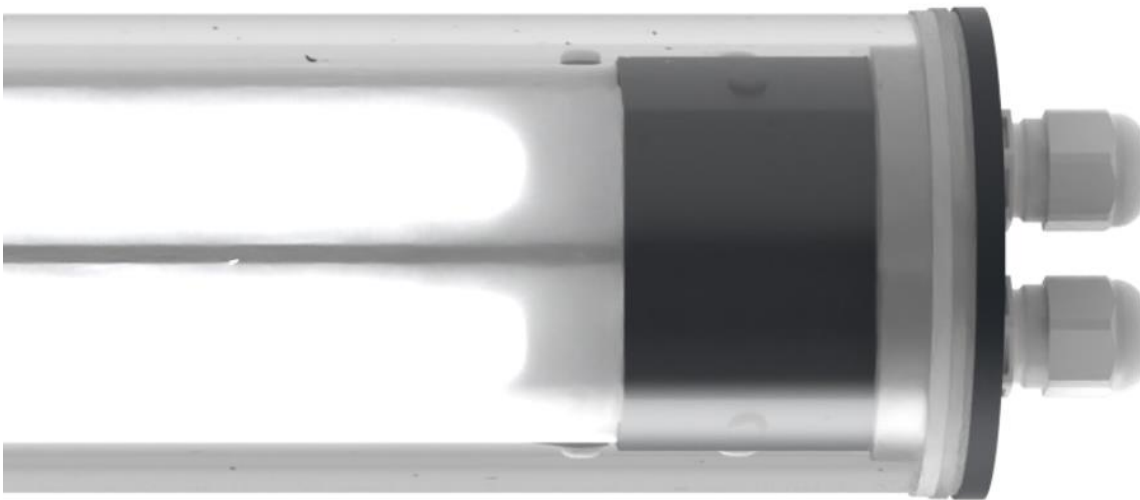




INSTALLATION AND MAINTENANCE MANUAL FOR
INDUSTRIAL LIGHT FITTING

INS240LED



Carefully read the instructions before
mounting the light fitting.

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2. TECHNICAL AND PHOTOMETRICAL DATA

Technical information:

Ingress Protection rating:	IP66, IP67, IP69K
Impact resistance:	IK11 (PC), IK08 (PMMA)
Cross section of admission wires:	1-2,5 mm ²
Admission cable diameter:	Ø6-13mm (Ø20 cable gland) Ø9-17mm (Ø25 cable gland) Ø7-13mm (RST connector)
Surge protection:	L-N: 4kV (IEC 61000-4-5) L/N-PE: 4kV (IEC 61000-4-5) EFT: 4kV (IEC 61000-4-4)
Total harmonic distortion THD:	<10%
Appliance class:	I
Voltage for standard version:	220-240V, 0/50-60Hz
Voltage for ZB version:	220-240V, 0/50-60Hz
Voltage for A3S version:	220-240V, 50-60Hz
Voltage for appliance class III:	24V, 0Hz

Ambient temperature Ta:

Standard version:	-40°C ... +60°C
A3S version:	-20°C* ... +45°C
ZB version:	-35°C ... +60°C

* - battery charging must be carried out in specified temperature range: 0°C ... +45°C for non-maintained operation or -10°C ... +45°C for maintained operation

For DA version of the luminaire, DALI functionality may be limited in temperatures below -30°C, power supply at the terminal should be >12V

Weight:

Luminaire length variant „0600”:	6,0 kg
Luminaire length variant „1200”:	11,5 kg

Type	Power	Electrical unit	IP	Appliance class	Power factor	Ta (PC tube)	Ta (PMMA tube)
STANDARD VERSION and ZB VERSION							
INS240LED-0600-J2-1	18,7 W	220-240V 0/50+60Hz	66 67 69K	I	≥0,95	-40* ... +55°C	-35 ... +50°C
INS240LED-0600-J2-3	26,3 W					-40* ... +50°C	-35 ... +50°C
INS240LED-0600-B2-1	34,3 W					-40* ... +45°C	-35 ... +45°C
INS240LED-1200-J2-1	18,8 W					-40* ... +60°C	-35 ... +55°C
INS240LED-1200-J2-3	26,6 W					-40* ... +55°C	-35 ... +50°C
INS240LED-1200-B2-1	34,3 W					-40* ... +55°C	-35 ... +50°C
INS240LED-1200-B2-3	48,8 W					-40* ... +45°C	-35 ... +45°C
INS240LED-1200-J4-1	34,7 W					-40* ... +55°C	-35 ... +50°C
INS240LED-1200-J4-3	51,0 W					-40* ... +45°C	-35 ... +45°C
INS240LED-1200-B4-0	60,2 W					-40* ... +40°C	-35 ... +40°C

* - for luminaire in ZB version, it is forbidden to switch power supply in temperature below -35°C

Type	Power	Electrical unit	IP	Appliance class	Power factor	Ta (PC tube)	Ta (PMMA tube)
A3S VERSION							
INS240LED-0600-J2-1-...-A3S	18,7 W + 3W*	220-240V 50+60Hz	66 67 69K	I	≥0,95	-20** ... +45°C	-20** ... +45°C
INS240LED-0600-J2-3-...-A3S	26,3 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-0600-B2-1-...-A3S	34,3 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-J2-1-...-A3S	18,8 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-J2-3-...-A3S	26,6 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-B2-1-...-A3S	34,3 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-B2-3-...-A3S	48,8 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-J4-1-...-A3S	34,7 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-J4-3-...-A3S	51,0 W + 3W*					-20** ... +45°C	-20** ... +45°C
INS240LED-1200-B4-0-...-A3S	60,2 W + 3W*					-20** ... +40°C	-20** ... +40°C

* - power consumption of the luminaire increases by 3W during battery charging

** - battery charging must be carried out in temperature above 0°C (non-maintained operation) or -10°C (maintained operation)

Type	Power	Electrical unit	IP	Appliance class	Power factor	Ta (PC tube)	Ta (PMMA tube)
24VDC POWER SUPPLY VERSION (appliance class III)*							
INS240LED-0600-D1-0	12,3 W	24V 0Hz	66	III	≥0,95	-25 ... +55°C	-25 ... +50°C
INS240LED-0600-D2-0	23,5 W		67			-25 ... +50°C	-25 ... +50°C
INS240LED-1200-D4-0	45,0 W		69K			-25 ... +50°C	-25 ... +50°C

* - cannot be applied to following luminaire versions: A3S, ZB, DA, CLO

PHOTOMETRICAL DATA

Type	Wide beam optics		Narrow beam optics		C4 LED modules		Colour temperature	CRI	LED Lifetime
	Luminous flux	Efficiency	Luminous flux	Efficiency	Luminous flux	Efficiency			
INS240LED-0600-J2-1	2677 lm	143 lm/W	2691 lm	144 lm/W	2744 lm	147 lm/W	3000K (optional) 4000K 4500K (C4 variant) 5000K (optional) 6500K (optional)	>80	>70 000 h* >100 000 h**
INS240LED-0600-J2-3	3711 lm	141 lm/W	3730 lm	142 lm/W	3804 lm	145 lm/W			
INS240LED-0600-B2-1	5179 lm	151 lm/W	5205 lm	152 lm/W	5104 lm	149 lm/W			
INS240LED-1200-J2-1	2714 lm	144 lm/W	2728 lm	145 lm/W	2782 lm	148 lm/W			
INS240LED-1200-J2-3	3783 lm	142 lm/W	3802 lm	143 lm/W	3878 lm	146 lm/W			
INS240LED-1200-B2-1	5137 lm	150 lm/W	5163 lm	151 lm/W	5266 lm	154 lm/W			
INS240LED-1200-B2-3	7111 lm	146 lm/W	7147 lm	146 lm/W	7289 lm	149 lm/W			
INS240LED-1200-J4-1	5371 lm	155 lm/W	5398 lm	156 lm/W	5506 lm	159 lm/W			
INS240LED-1200-J4-3	7453 lm	146 lm/W	7491 lm	147 lm/W	7640 lm	150 lm/W			
INS240LED-1200-B4-0	9583 lm	159 lm/W	9632 lm	160 lm/W	9824 lm	163 lm/W			
INS240LED-0600-D1-0	1330 lm	108 lm/W	1337 lm	109 lm/W			4000K		
INS240LED-0600-D2-0	2660 lm	113 lm/W	2674 lm	114 lm/W	-	-	5000K (optional)		
INS240LED-1200-D4-0	5319 lm	118 lm/W	5346 lm	119 lm/W					

* - lifetime of LED modules: L₈₀B₁₀

** - lifetime of LED modules: L₇₀B₁₀

EMERGENCY OPERATION (only for emergency A3S version)	
Type	Average emergency luminous flux*
INS240LED-0600-J2-1-...-A3S	774 lm
INS240LED-0600-J2-3-...-A3S	737 lm
INS240LED-0600-B2-1-...-A3S	838 lm
INS240LED-1200-J2-1-...-A3S	785 lm
INS240LED-1200-J2-3-...-A3S	751 lm
INS240LED-1200-B2-1-...-A3S	831 lm
INS240LED-1200-B2-3-...-A3S	789 lm
INS240LED-1200-J4-1-...-A3S	853 lm
INS240LED-1200-J4-3-...-A3S	811 lm
INS240LED-1200-B4-0-...-A3S	852 lm

* - values determined for luminaire with standard WB optics

CENTRAL BATTERY POWER SUPPLY (only for ZB version)		
Type	Luminous flux*	Power
INS240LED-0600-J2-1-...-ZB	1339 lm	9,4 W
INS240LED-0600-J2-3-...-ZB	1856 lm	13,2 W
INS240LED-0600-B2-1-...-ZB	2590 lm	17,2 W
INS240LED-1200-J2-1-...-ZB	1357 lm	9,4 W
INS240LED-1200-J2-3-...-ZB	1892 lm	13,3 W
INS240LED-1200-B2-1-...-ZB	2569 lm	17,2 W
INS240LED-1200-B2-3-...-ZB	3556 lm	24,4 W
INS240LED-1200-J4-1-...-ZB	2686 lm	17,4 W
INS240LED-1200-J4-3-...-ZB	3727 lm	25,5 W
INS240LED-1200-B4-0-...-ZB	4792 lm	30,1 W

* - values determined for luminaire with standard WB optics

3. CONSTRUCTION DESCRIPTION

Light fittings are built according to common electrical engineering rules. The product meets the essential requirements of the Directives and the harmonized standards listed in the EU Declaration of Conformity. Used solutions and materials, electrical equipment and proper insulating spaces ensure that during normal exploitation there is no possibility of any sparks, electrostatic charge, dangerous heating or light fitting destruction caused by the occurrence of environmental factors

The housing of the luminaire is in form of a transparent tube, made of PC or PMMA. End caps are made of aluminium or stainless steel. If the luminaire is supposed to meet C5 corrosion protection category requirements, the end caps must be made of stainless steel. Mounting tray, located inside of the luminaire, is made of powder-coated galvanized steel.

Used terminals ensure safe and non-sparking connection of inner wires and admission cables.

4. PRELIMINARIES

SAFETY RULES

- Carefully read all the information included in the manual before mounting the light fitting,
- General safety rules must be followed,
- Failure to comply with rules of the installation and use can lead to personal injury or property losses. ATM Lighting sp. z o.o. company takes no responsibility in such cases,
- Failure to comply with rules included in the manual results with void of the manufacturer warranty,
- Manufacturer takes no responsibility for any damages resulting from improper installation, maintenance or improper use,
- The user is responsible to perform the installation in accordance with this manual and the safety regulations and standards applicable to the type of installation,
- In case of malfunction, the device must be turned off and returned for repair to the manufacturer or his authorized entity.

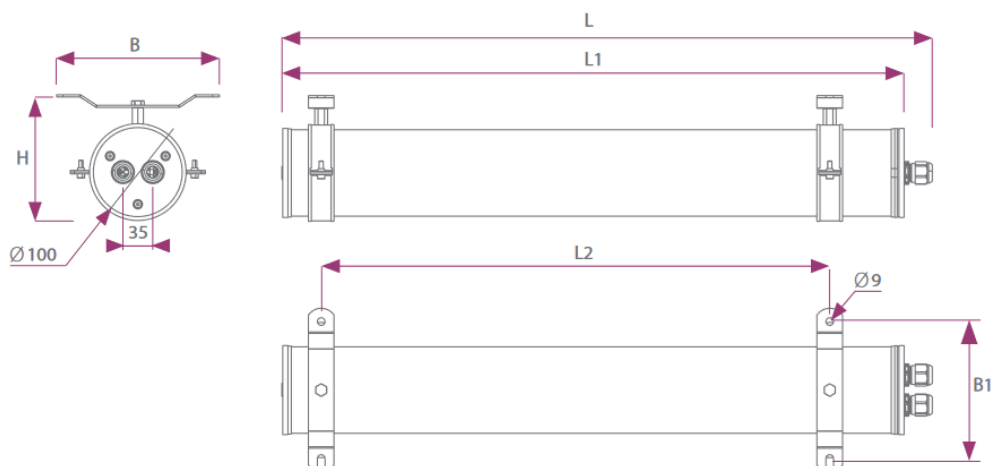


Before performing any installation work, including opening the enclosure, be absolutely sure to disconnect the unit from the power source.

5. LIGHT FITTING MOUNTING

The INS240LED light fitting is equipped with **AMO1** mounting brackets by default. Mounting dimensions of this version are presented below:

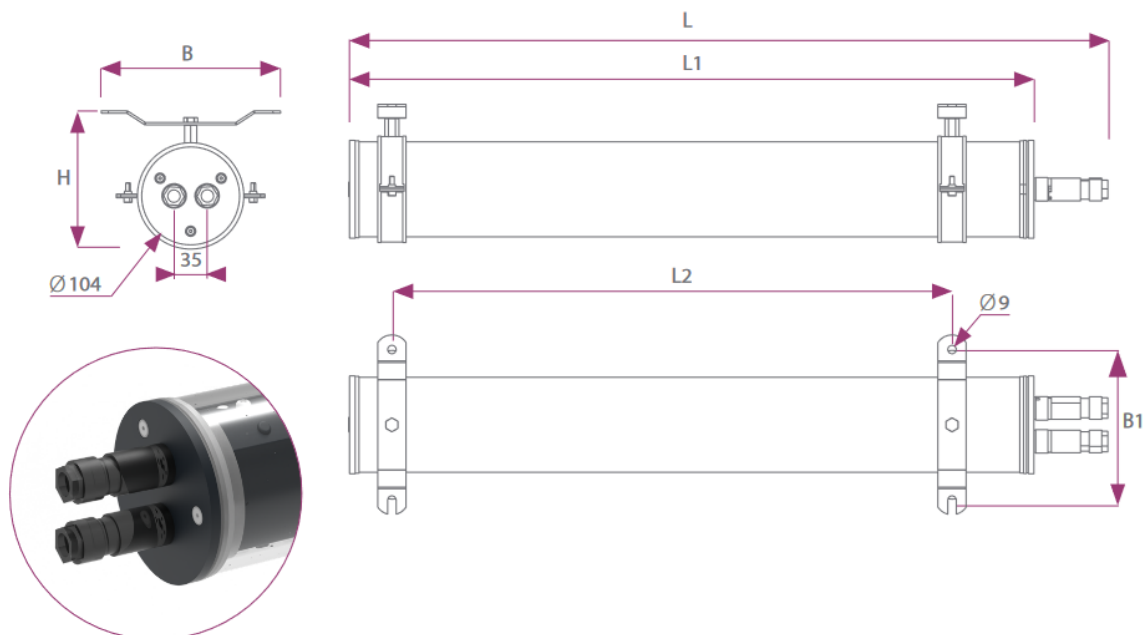
CABLE GLANDS VERSION:



TYPE	L [mm]	L1 [mm]	L2 [mm]	B [mm]	B1 [mm]	H [mm]
INS240LED-0600	760	727	min 595 - max 650	190	160	147
INS240LED-1200	1320	1287	min 1155 - max 1210	190	160	147

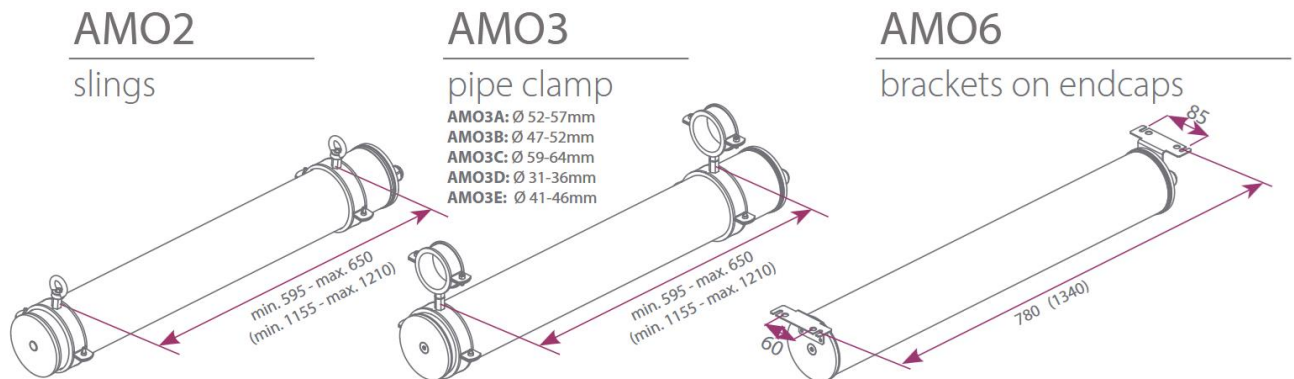
Optional variant (unavailable for A3S version):

RST CONNECTORS VERSION



TYPE	L [mm]	L1 [mm]	L2 [mm]	B [mm]	B1 [mm]	H [mm]
INS240LED-0600	806	727	min 595 - max 650	190	160	147
INS240LED-1200	1366	1287	min 1155 - max 1210	190	160	147

Alternate mounting systems are also available. There are three options to choose from:



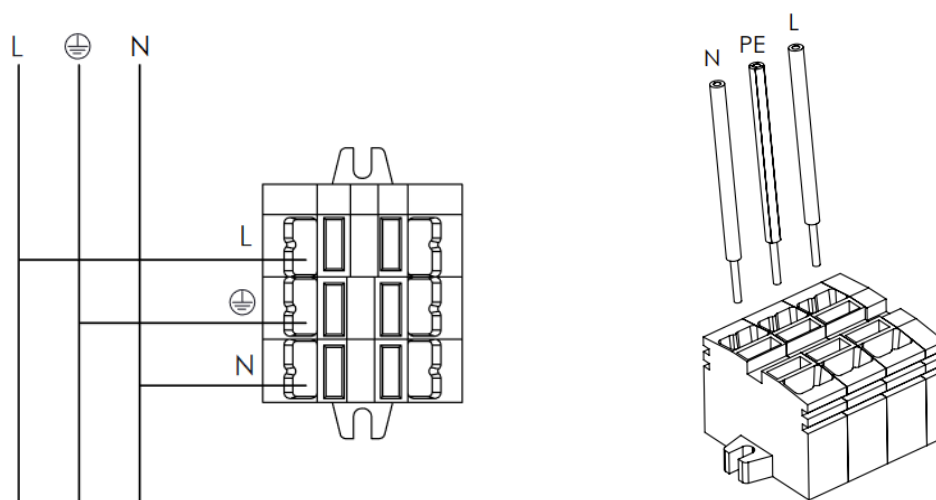
6. ELECTRICAL CONNECTION

6.1. INS240LED with cable glands:

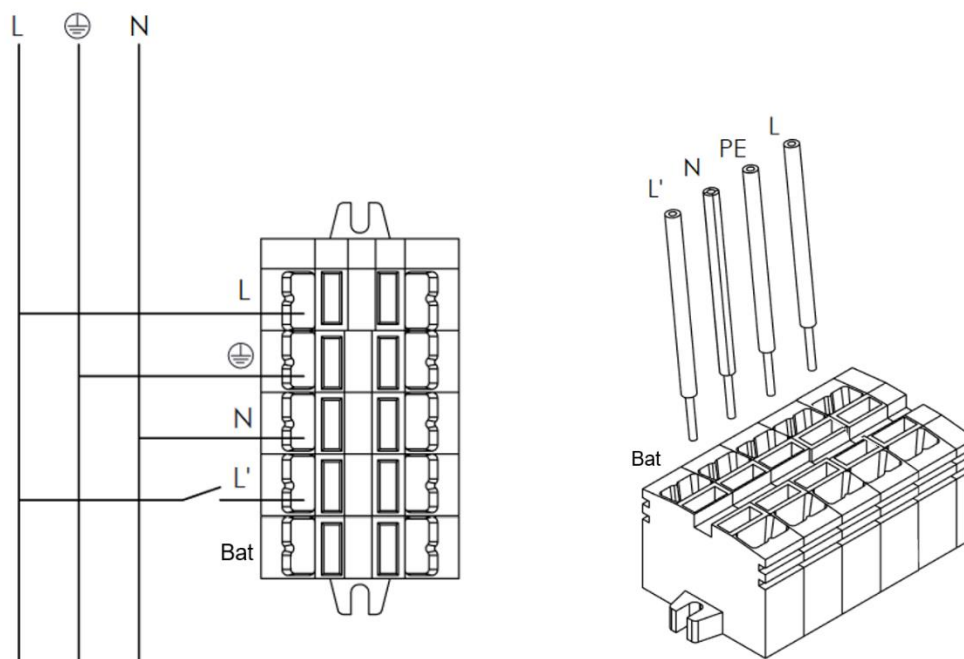
To connect power supply:

- enter the power cable to the housing through the cable entry (gland),
- carefully remove insulation from the tip of every wire (8-10mm), and put them into the connector according to a label inside the light fitting,
- precisely tighten power cable in the gland with two wrenches,
- check the effectiveness of grounding.

Power connection scheme – standard version and ZB version:



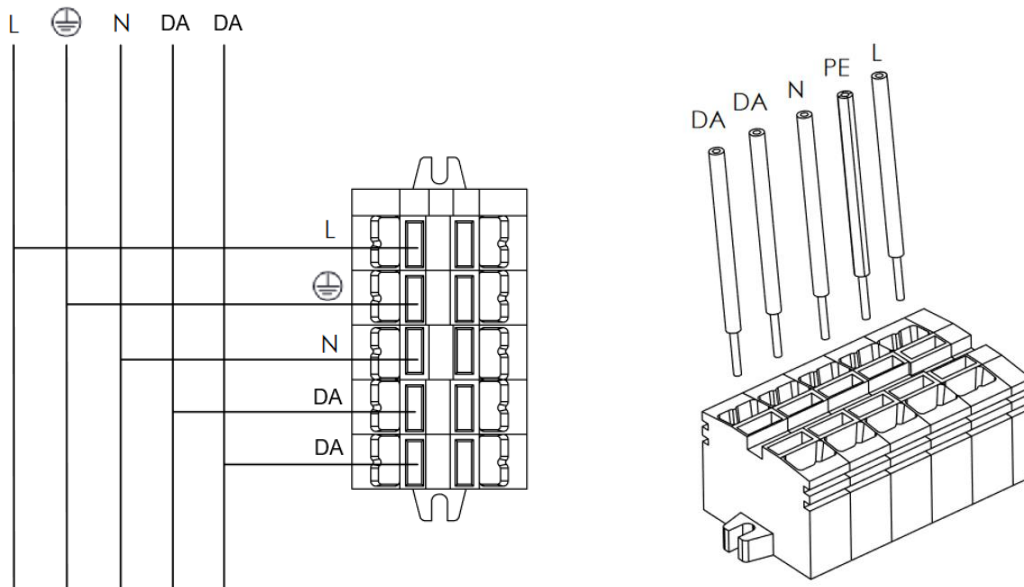
Power connection scheme – emergency A3S version:



L' – a switchable phase that should be connected from the L phase

Bat – additional slot for battery connection inside the luminaire (battery remains disconnected during transport operations)

Power connection scheme - DALI version:



Remarks:

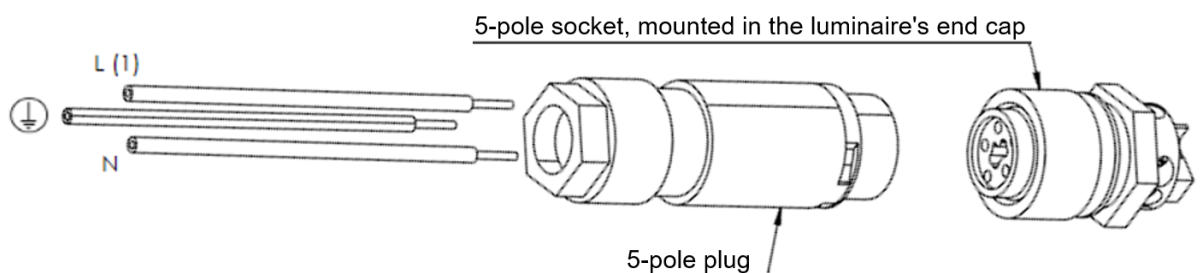
- Use one wrench to tighten the sealing nut, while using the second wrench to block gland body against rotation. Failing to do so may cause damage of the sealing, resulting in reduced sealing level.

6.2. INS240LED with RST connectors:

To connect power supply:

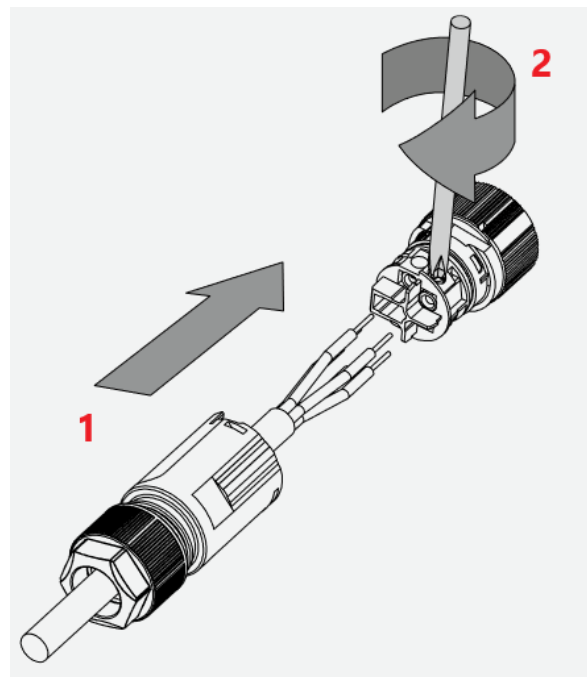
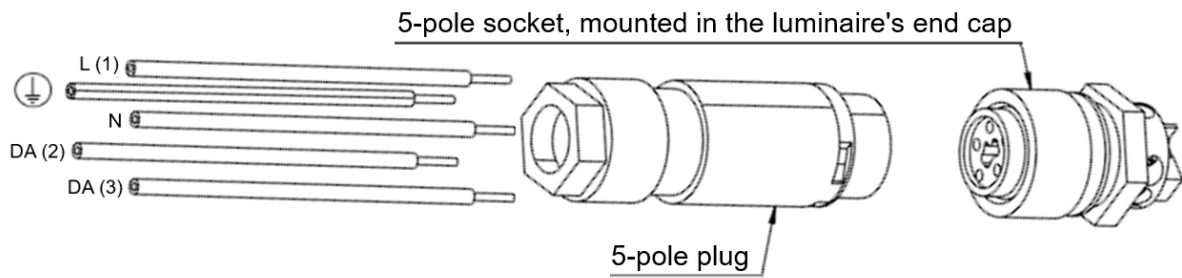
- carefully remove insulation from the tip of every wire (8mm), and put it through the long part of the plug,
- connect tip of each wire to corresponding slot in the short part of the plug, according to the drawings below:

Standard version and ZB version:

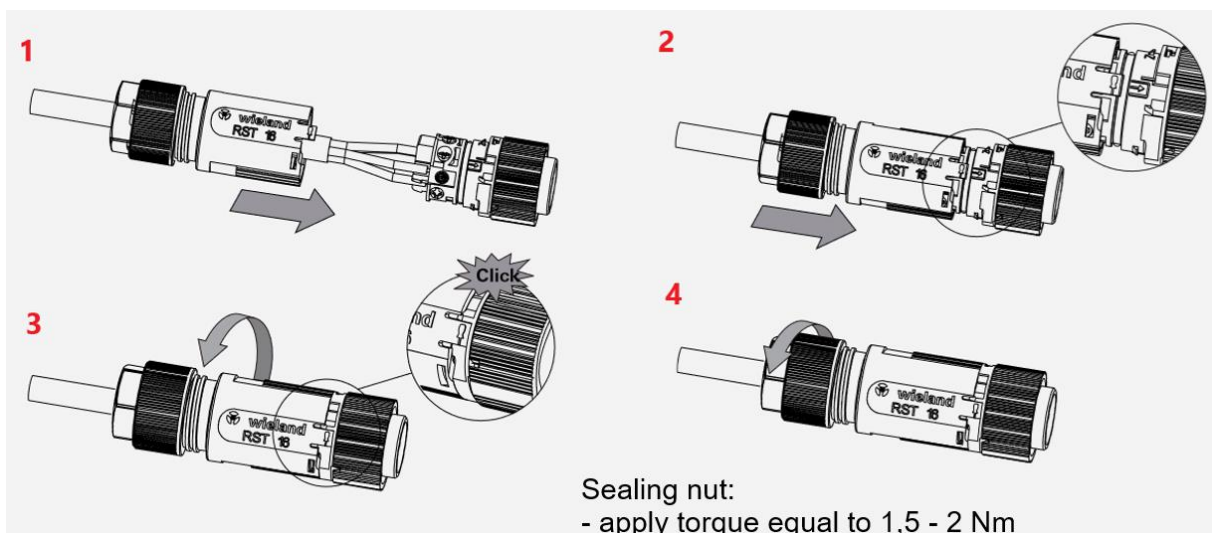


*slots marked with (2) and (3) are meant to be empty

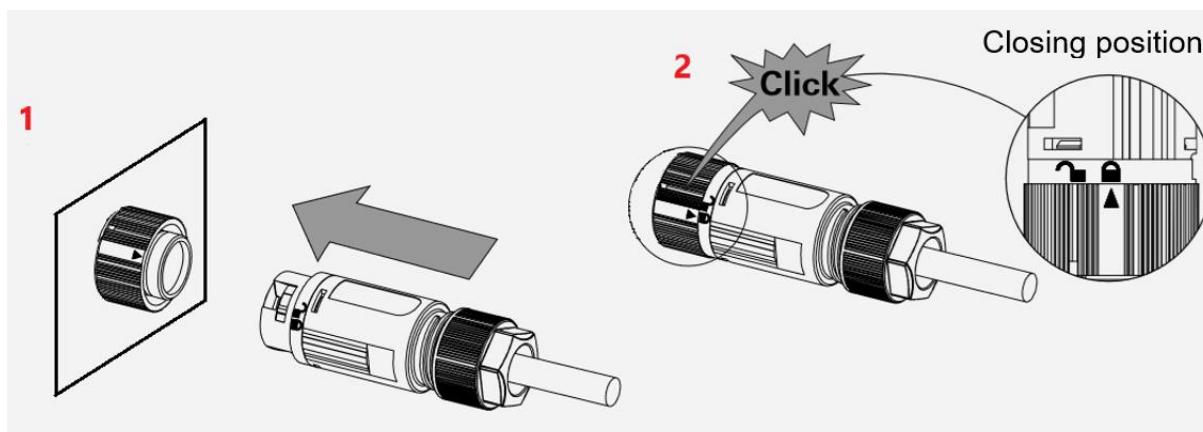
DA version (compatible with DALI-2 interface):



- assembly both parts of the plug, as presented on the scheme below:

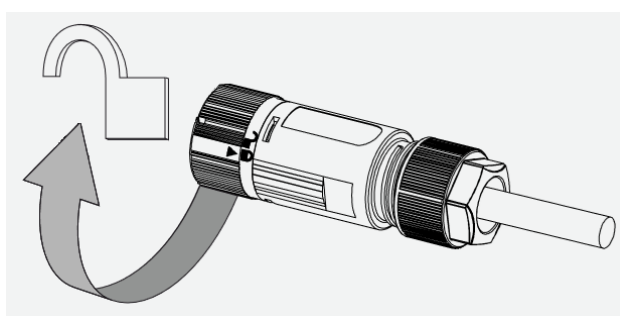


- connect the plug to the socket, mounted in the end cap of the luminaire:



- check the effectiveness of grounding.

In order to disconnect the plug from the socket, twist the nut to position marked with “unlocked padlock”:



MAXIMUM QUANTITY OF LINE CONNECTED LIGHT FITTINGS

THE LIGHT FITTING	C16	B16	Max. inrush current	Start-up time
INS240LED	45	27	4A	1,3ms (1300µs)

It is recommended to use MCB type C with LED lighting. Variables may vary depending on specific case of luminaire operation. Both starting and continuous current calculations are based on ABB S200 series circuit breakers for $T_a=30^{\circ}\text{C}$.

7. EMERGENCY OPERATION (emergency A3S version only)

- INS240LED light fitting in emergency A3S version is equipped with emergency power supply module EM converterLED ST204 50V MH/LiFePO4 or EM converterLED ST205 250V MH/LiFePO4 made by TRIDONIC, which is powered by 230V AC, 50-60Hz. During standard operation the battery pack is charged with appropriate current. Failure of mains supply will switch light fitting into emergency mode
- Battery pack parameters: 3,2V | 7,5Ah
- Time of full battery charge is 24h (first charge requires 48h). Additionally 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. Automatic switch system – switches light fitting between emergency and standard operation,
 - c. Signalling 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 replaced after 4 years or when the capacity falls below 50% or emergency work time drops below 3h. Temperature during battery charging must be $\geq 0^{\circ}\text{C}$,
- Battery replacement can be carried out by ATM Lighting Sp. z o.o or specially trained personnel, only with use of original components provided by ATM Lighting Sp. z o.o. ,
- The luminaire should be marked "Use only ATM Lighting replacement battery packs",
- The replacement battery pack shall be marked:
„Battery pack – ATM Lighting – INS240LED-...-A3S”
- Discharged battery obtains full capacity after 24h of charging. To ensure appropriate formation of battery, first charging must last for 48h. It is prohibited to carry out any tests or switch light fitting into emergency mode during this time. After 48 hours light fitting must be switched into emergency mode and remain in this state until complete discharge of battery. Finally, the battery must be charged for another 36h. This concludes the process of battery formation.

LED indication	Status	Additional information
Constant green	System OK	AC mode
Fast flashing green (0,1 sec. on – 0,1 sec. off)	Functional test underway	
Slow flashing green (1 sec. on – 1 sec. off)	Duration test underway	
Constant red	System failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec. on – 1 sec. off)	Battery failure	Battery failed the duration test or functional test / Battery is defect or deeply discharged / incorrect battery voltage
Fast flashing red (0,1 sec. on – 0,1 sec. off)	Charging failure	Incorrect charging current

Double pulsing green	Inhibit mode	Switching into inhibit mode via the controller
Green and red off	DC mode	Battery operation (emergency mode)

7.1 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 every week under the control of the microcontroller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test

A full duration test is carried out every year to check the capacity of the batteries.

8. CONDITIONS OF SAFE USAGE

- Every light fitting must have label with rated data on it. Each light fitting is equipped with 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 be labelled with a warning sign: „DO NOT OPEN UNDER VOLTAGE”,
- Admission cables should consist of specified number of wires: 3 wires with PE wire (standard and ZB version), 4 wires with PE wire (emergency A3S version) or 5 wires with PE wire (DALI version). Maximum external diameter of admission cable can be 6-13mm (for Ø20 glands), 9-17mm (for Ø25 glands) or 7-13mm (for RST connectors).
- Use power wires with cross section 1-2,5mm²,
- Maximum cross current I=16A,
- If diffuser is made of polycarbonate, it shouldn't be exposed to chemical agents that can damage it, especially avoid contact with: oil, acetone, chlorine, ethyl, ether, solvents. If it is uncertain whether harmful chemical agents are present in the luminaire's operation environment or not, take necessary actions to determine that.



- Do not stare into working light source.



- Risk of electrical shock.

9. MAINTENANCE AND SERVICING

REMARK: During the servicing and maintenance of the luminaire, touching of LED is prohibited, as it will decrease the lifetime of light fitting and cause the loss of manufacturer's warranty.

INSPECTION: At least once a month without opening of 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 should occur. Bolts used to mount light fitting should be properly tightened, washers mustn't be cracked. Outer surfaces must remain clean. 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. All found abnormalities must be fixed.

MAINTENANCE AND SERVICING: At least once a year. Service and maintenance must be carried out with power supply turned off. User must make inspection steps first. After opening the luminaire, check condition of the following: metal parts painting, inner wiring and its mounting, insulating materials, cable glands gaskets, connection terminals. All abnormalities 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 every two years. Power supply must be turned off.

Beside of examination during inspections and maintenance, it is necessary to carry out electrical examination: light fitting current consumption, insulation condition, protective earth condition. Special attention must be paid to condition of insulating parts, as they should show no signs of cracks or burns.

10. CLEANING



Do not use any chemical agents that could cause damage of any part of this light fitting.

11. REPAIRING AND EXCHANING PARTS

- All parts considered as spare parts must be ordered from manufacturer of the light fitting,
- Replacement of the battery and the light source can be carried out only by ATM Lighting Sp. z o.o. or trained personnel, using original components provided by ATM Lighting Sp. z o.o.

12. TRANSPORT AND STORAGE CONDITIONS

Light fittings should be transported only by vehicles with closed cargo space and they should not be exposed to mechanical shock.

Light fittings can be stored only in sheltered warehouses, within specified temperature range: +5°C ...+35°C and relative humidity lower than 75%. Storage environment should be free of vapours and gasses that could cause corrosion of any of the luminaire's parts.

13. DISPOSAL OF WASTE EQUIPMENT



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

14. WARRANTY

- It is forbidden to use damaged or malfunctioning luminaire. Installation checks must be carried out to detect any abnormalities,
- It is forbidden to make any changes to the light fitting construction. Any unauthorized interference may result in reduced functionality or damage to the device and may in some cases endanger life or health. It also relieves the manufacturer of all 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/

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