Operating Instructions

Explosion-protected LED-Steep roof light fitting

Series nD822…

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The safety of people and equipment in hazardous areas depends on the observance of all safety standards. Exact knowledge about all applicable regulations and standards is mandatory for installation maintenance and repair of explosion proof equipment, especially

- the determinations of IEC/EN 60079-14 and IEC/EN 60079-17 for maintenance of explosion-proof appliances
- the generally accepted rules of the technical side
- the national rules for prevention of accidents and for safety standards
- the safety instructions of these operating instructions
- the characteristic data on the type plate and the instruction plates

1. Safety Instructions

- Mounting and installation must be done in accordance with the respective regulations.
- The light fitting must be protected against overvoltage, overcurrent, short circuits and other electrical failures.
- The light fitting must be operated in an undamaged condition only.
- The light fitting may only be opened if it has been disconnected from the mains supply completely.
- The non-stationary use of the light fitting as well as any other inappropriate usage is prohibited.
- The operation of the light fitting is allowed within its assessment thresholds only.
- In regard to the minimum and maximum admissible ambient temperature potential sources of cold and heat (e.g. direct heat or solar radiation, cooling units) have to be considered.
- If the light fitting is subject to particular stresses - chemical, mechanical, thermal and electrical, as well as vibrations or moisture - prior consultation with Adolf Schuch GmbH is required.
- Every structural modification will cause dangerous situations and consequently the certification of this light fitting will be null and void.
- **The light fitting is not allowed to be installed in process areas where strong electrical fields may occur (i.e. HV Sparkling Electrodes or Particle Streams). Reason is to avoid any electrostatic charge of the light fitting itself.**
- Replace damaged parts by original spare parts from the Adolf Schuch GmbH only.
- The LED-reflector with the LED-modules attached to it and the control gear of this light fitting must be replaced by Adolf Schuch GmbH, by a service technician who is instructed from Schuch or by any other person with equivalent qualification only.

2. Operating Advice

- Against penetration of humidity into the light fitting a special Ex breathing gland is often quite effective. It is allowed to use an Ex breathing gland which is released by the Adolf Schuch GmbH only. If using such a gland, its operating instructions must be taken into account, as well as the influence on the permissible ambient temperature and the Ingress protection of the light fitting.
- In case of light fittings without through-wiring, the connection cable must be inserted on the side that is closest to the connection terminal. If this is not possible, original through-wiring from Adolf Schuch GmbH must be installed subsequently.
- Any application of the light fitting that is incorrect or even forbidden will lead to the fact that the manufacturer's warranty is lost.
- LED are sensitive electronic components. Please ensure that the LED are protected against mechanical and electrostatic attacks whenever the light fitting is open. For this reason the LED must not be touched either. This also applies to the cable ends leading to the reflector if they are detached from the Electronic control gear!
- Due to harmful gases and other corrosive substances (e.g. ammoniac, sulphur- or chlorine compounds) it may come to damages of the LEDs. Depending on the substance, the concentration, the temperature and the dwell time, damages up to total black-out are possible. This may occur also to fittings with high degree of protection. The suitability of the light fitting for the respective application can only be checked by running a test at site.
- Due to a high inrush current when switching on the light fitting, the number of light fittings which can be connected to a single fused circuit is limited (Possible number of light fittings per circuit breaker see section 3, Technical Data).
- Standard versions of this light fitting must not be built into thermally insulated ceilings.



- All DALI dimmable light fittings have two additional terminals marked „DA“. Lines to the control terminals must be mains voltage proof.
- In case of versions for connection to group or central battery systems (-J, -C, ZB), the type of operation (Stand-by operation = 0; Maintained operation = 1) must be permanently marked on the type plate of the light fitting (see illustration).

Z	*	****

Delivery status

Z	**0**	****

Stand-by operation

Z	**1**	****

Maintained operation

3. Technical Data

Series: nD822 …
Explosion-proof LED-Steep roof light fittings for operating in hazardous areas of zones 2 and 22

Explosion protection:
Ⓔx II 3 G Ex ec IIC T4 Gc (standard version)
Ⓔx II 3 G Ex ec q IIC T4 Gc (with Schuch monitoring module)
Ⓔx II 3 G Ex ec ib mb IIC T4 Gc (mit CEAG/Eaton monitoring module)
Ⓔx II 3 D Ex tc IIIC T80 °C Dc

Certification: SH 20.8220

Rated voltage: 220…240 V AC; 50 … 60 Hz
176…264 V DC

Isolation class: I

Ingress protection: IP65 (When using an Ex breathing gland see section 2)

Ambient temperature: -30 °C … +40 °C (Standard versions)
Special versions with monitoring modules (nD822…-J, nD822…-C), special versions for installation in thermally insulated ceilings acc. to EN 60598 (nD822… wD), as well as versions for higher ambient temperatures (nD822… H): see type plate

Energy efficiency class: This light fitting contains a light source of the energy efficiency class: C

Power consumption: The power consumption of the LED is dependent on production fluctuations as well as on the service temperature.
This is why just reference values can be given as follows:

nD822 06L42: ca. 28 W	nD822 06L60: ca. 40 W
nD822 12L42: ca. 28 W	nD822 12L60: ca. 40 W
nD822 12L85: ca. 54 W	nD822 12L120: ca. 79 W

Possible number of light fittings per circuit breaker*:

Type	B 10 A	B 16 A	C 10 A	C 16 A
nD822	11	19	19	32

*) Typical values; possible deviations depending on make, cable impedance and temperature

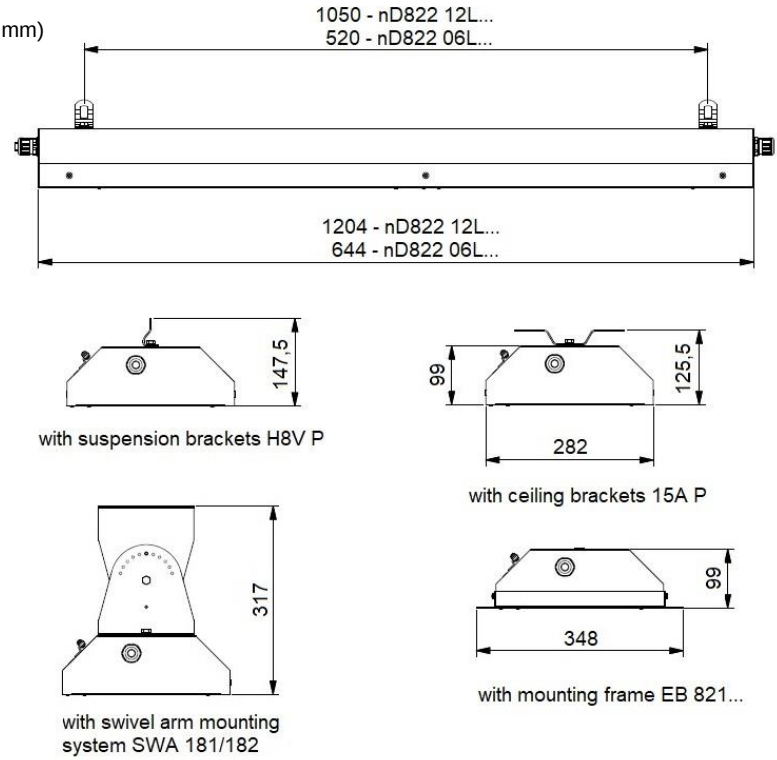
Locking: Central locking actuated by a 5 mm Hexagon key

Cable entry: Bore: 25 mm -0,2/+0; Wall thickness: 1 mm
If supplied: Ex cable gland with thread size M25 x 1.5 and lock nut
Sealing range: 8 - 17 mm (for 10 - 17 mm remove the small sealing ring)
Torques: Connection thread 3 Nm; Pressing screw 2 Nm
Torque of Ex locking screw: 5 Nm

See information label on the front page when having special versions!

Connection per terminal:	Ampacity: 16 A max. (At maximum current load, a cross section of 2.5 mm² is required) Clamping range: 2 x 0.75 - 2.5 mm² (solid core or stranded) 2 x 1.5 - 2.5 mm² (flexible) Required stripping length: 8 mm (conductor 0.75 – 1.0 mm²) 9 mm (conductor 1.5 – 2.5 mm²) See information label on the front page when having special versions!
Locking:	Central locking actuated by a 5 mm Hexagon key
Operation position:	lighting down or forward
Equipotential bonding:	Connection terminal for equipotential bonding on the outside of the light fitting; Clamping range: 4 mm² max.; Torque of terminal screw: 2 Nm max.

Dimensions:
(all measures in mm)



4. Installation

- The safety of this light fitting is only guaranteed as long as it is operated within its assessment threshold. Installation and maintenance must be done in accordance with the respective regulations!
- The installation of explosion-proof light fittings must be done by Ex-skilled electricians only!
- In regard to the minimum and maximum admissible ambient temperature potential sources of cold and heat (e.g. direct heat or solar radiation, cooling units) have to be considered!

- The application of this light fitting in an explosive dust atmosphere is depending on the properties of the surrounding dust. Please ensure that there will be an adequate difference between the maximum surface temperature of the fitting and the glowing and the ignition temperature of the respective dust!
- The light fitting must be mounted in the instructed operation position (see section 3, Technical Data)!

4.1 How to open the light fitting



- Turn the locking device (see picture) in direction of the arrow ”Open”
- Open the glass cover

4.2 Electrical connection

- The reflector is locked by two screws located on the lock side of the light fitting. Unscrew these screws so that the reflector can be pushed towards the hinges, thereby unlocked and folded out of the light fitting.

- For the electrical connection of the light fitting, the reflector should not be removed, because therfore it is necessary to disconnect the electrical connection between Electronic control gear and LED-modules. This requires precautionary measures that are necessary with regard to ESD protection – see section 2, Operating Advice!

- Screw the Ex cable glands and Ex proof locking screw supplied with the fitting into the borings of the housing by using the lock nuts. (Torques see section 3, Technical Data)

- It is necessary to check back with the Adolf Schuch GmbH before installing other Ex cable glands or Ex proof locking screws than the ones supplied!

- Insert the connection cable through the Ex cable gland. An inlaid dust protective disc, if existing, must be removed before.
- Fasten the pressing screw of the Ex cable gland (Torque see section 3, Technical Data)

- Outside the light fitting appropriate measures (e.g. pull relief clips) must be taken to protect the connection cable from twist and it must be ensured that no tensile forces react on the wiring and the Ex cable gland!
- The diameter of the connection cable must correspond to the sealing range of the Ex cable gland (see section 3, Technical Data)!
- Ex cable glands that are not used for cable entry must be closed with the enclosed closure plug! An inlaid dust protective disc, if existing, must be removed before.
- The conductors must not be damaged when skinning resp. stripping the cable!
- When stripping the cable special attention needs to be paid to the correct length of the conductor end sections (see section 3, Technical Data)!

- Connect the conductors to the right terminals as per marking on the terminal block.

➤ It is important to ensure that the bare conductor is fully inserted into the terminal and that no cable insulation is clamped!

– Push the reflector into the housing of the light fitting and lock it properly with the existing screws.

4.3 How to close the light fitting

– move the glass cover towards the housing of the light fitting.

– push the glass cover on to the housing of the light fitting. Now turn the locking device clockwise towards "Close" by means of a hexagon key.

– After closing the light fitting take care that the whole gasket is effective.

5. Commissioning

Before commissioning this explosion-proof lighting fitting please check and ensure that:

– the light fitting has been installed according to the regulations and in the allowed operating position.

– the Ex cable glands resp. Ex locking screws are securely fixed in the housing (Torques see section 3, Technical Data).

– the pressing screw of every Ex cable gland is tightened with the required torque (Torques see section 3, Technical Data).

– the connection cable has been firmly installed and is not subject to any tension whatsoever.

– the bare conductor is fully inserted into the terminal and that no cable insulation is clamped.

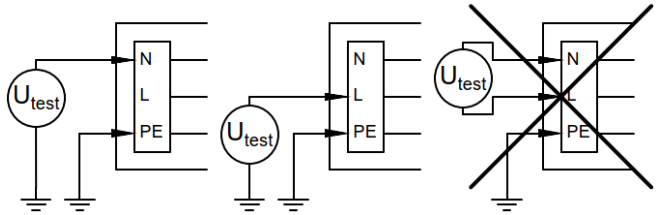
– the light fitting is closed correctly.

– all gaskets are effective.

– the light fitting is not damaged whatsoever.

5.1 Isolation measurement

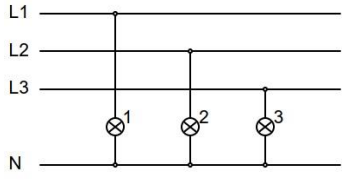
For measuring the isolating resistance the test voltage must be put on between the outer conductor and the earth conductor or between the neutral conductor and the earth conductor only.



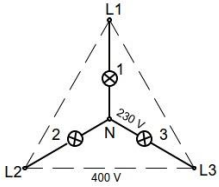
After finishing the isolation test the conductor between the mains and the light fitting must be reconnected safely. Before starting operation the connection of the neutral conductor must be safe for avoiding any damage whatsoever of the electronic control gear caused by any inadmissible excess-voltage in case of an unbalanced mains load. (see section 5.2)

5.2 Electronic gear in 3-phase-operation

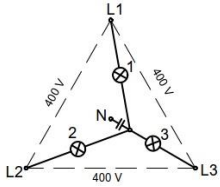
The diagram shows the wiring for light fittings or light fitting groups in 3-phase circuits and with a common neutral conductor N.
If the common neutral conductor is interrupted and voltage is present, then light fittings or groups of light fittings may be exposed to unacceptably high voltages and consequently the electronic gear may be destroyed.



Light fittings with electronic gear



OK



fault

6. Maintenance

6.1 Repair- and maintenance works

- For applications in dusty atmospheres the light fitting must be cleaned before opening!
- Ensure that no dust can get into the light fitting when it is open!
- Replace damaged parts by original spare parts from the Adolf Schuch GmbH only!

Spare Parts:
For spare parts inquiries, in addition to the complete type designation of the light fitting, the serial number of the light fitting must be stated. The serial number is printed on the type plate of the light fitting – on the bottom left.

6.2 Cleaning the light fitting

- If possible glass and housing of the light fitting shall be cleaned with water only. When using any kind of cleaning agent make sure that there is no damaging influence at all especially on the sealing material!

Pay attention to the following in case of application of this light fitting in dusty atmospheres:
Dust deposits show heat-insulating properties and thus reduce the service life of the light fitting. It is necessary to clean the fitting from dust regularly. In case the dust layer may be higher than 5 mm it must be ensured that the surface temperature of the light fitting does not exceed the maximum permissible surface temperature of the specific dust considering the thickness of the dust layer. The dust layer must not exceed 50 mm at any time.

6.3 Regular maintenance work

- Follow the instructions of section 6.1!

Explosion-proof light fittings need regular maintenance according to the national rules of the country they are installed. Especially components which are important for the Explosion Category have to be carefully checked. Therefore it must to be checked very carefully:

- glass, housing and gaskets for any kind of damages
- the correct installation and tightness of Ex cable glands and Ex locking screws (Torques see section 3, Technical Data).
- all parts of plastic inside the light fitting to attend to colour change, deformation and damaging.
- the tight fit of the conductor and the condition of the cable insulation.
- that the light fitting is closed correctly and the gasket is effective.

The test certificates are ready to be loaded down from our homepage - www.schuch.de - or we shall send it on request.

Misprints, modifications and errors are excepted

EU-Konformitätserklärung
EU-Declaration of Conformity
Déclaration UE de Conformité

SCHUCH

Bezeichnung des Betriebsmittels Name of product Nom du produit	nD 822 ..L...
Beschreibung des Betriebsmittels Description of product Description du produit	Explosionsgeschützte Leuchte Explosion-proof luminaire Luminaire antidéflagrant
EU-Konformitätserklärung Nr. EU-Declaration of confomity No Déclaration UE de Conformité N°	SH 20.8220
Relevante EU-Richtlinie Relevant EU directive Directive UE importante	2014/34/EU ATEX-Richtlinie (ABL L 96 29.03.2014 S. 309) 2014/34/EU ATEX Directive (OJ L 96 29.03.2014 S. 309) 2014/34/UE Directive ATEX (JOUE L 96 29.03.2014 S. 309)
Angewandte Normen Applied standards Normes appliquées	EN IEC 60079-0:2018/AC:2020-02, EN IEC 60079-7:2015+A1:2018, EN 60079-31:2014 EN 60598-1:2015+A1:2018, EN IEC 60598-2-1:2021
Relevante EU-Richtlinie Relevant EU directive Directive UE importante	2014/30/EU EMV-Richtlinie (ABL L 96 29.03.2014 S. 79) 2014/30/EU Electromagnetic compatibility (OJ L 96 29.03.2014 S. 79) 2014/30/UE Compatibilité électromagnétique (JOUE L 96 29.03.2014 S. 79)
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Relevante EU-Richtlinie Relevant EU directive Directive UE importante	2011/65/EU RoHS-Richtlinie (ABL L 174 01.07.2011 S. 88) 2011/65/EU RoHS-Directive (OJ L 174 01.07.2011 S. 88) 2011/65/UE Directive RoHS (JOUE L 174 01.07.2011 S. 88)
Angewandte Normen Applied standards Normes appliquées	EN IEC 63000:2018

Hiermit erklären wir in alleiniger Verantwortung, dass das oben aufgeführte Produkt mit den Anforderungen der angegebenen Richtlinien und Normen übereinstimmt.
We hereby declare in our sole responsibility that the product above complies with the requirements of the specified directives and standards.
Nous déclarons de notre seule responsabilité que le produit mentionné ci-dessus est conforme aux exigences des directives et des normes indiquées.

Adolf Schuch GmbH - Mainzer Str. 172, 67547 Worms, GERMANY

Worms, 17.02.2022
Ort und Datum
Place and date
Lieu et date

ppa. Prof. Dr. Bruno Weis
Technischer Leiter
Technical Director
Directeur de technique

EU-Konformitätserklärung
EU-Declaration of Conformity
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