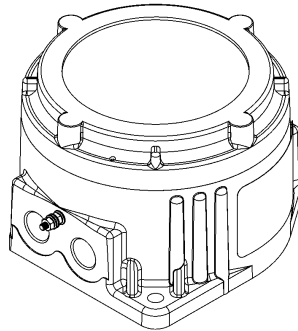


INSTRUCTION MANUAL
GNE_xJ2
Flameproof Junction Box
For use in Flammable Gas and Dust Atmospheres



GNE_xJ2

1) Warnings



- POTENTIAL ELECTROSTATIC CHARGING HAZARD.
 - DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.
 - ALL ENTRIES M20 X 1.5MM.
 - USE SUITABLE RATED CABLES AND CABLE GLANDS IF TEMPERATURE EXCEEDS AS PER STANDARDS INDICATIONS BELOW.
- FOR ATEX / IECEx STANDARDS:
 70°C AT ENTRY OR 80°C AT BRANCHING POINT.
- FOR NEC / CEC STANDARDS:
 60°C AT ENTRY OR 60°C AT BRANCHING POINT.

2) Marking & Rating Information

All units have a rating label, which carries the following important information:

Unit Type No.:	GNE _x J2
Max. Voltage:	60Vdc
	260Vac 50/60Hz
Max Power Dissipation:	5W


Table 1: Electrical Ratings.

2.1. ATEX / IECEx Ratings

Standards
EN IEC 60079-0:2018 / IEC60079-0:2017 (Ed 7): Explosive Atmospheres - Equipment. General Requirements
EN60079-1:2014 / IEC60079-1:2014 (Ed 7): Explosive Atmospheres - Equipment Protection by Flameproof Enclosures "d"
BS EN 60079-31:2014 / IEC 60079-31:2013 (Ed 2): Explosive Atmospheres - Equipment Dust Ignition Protection by Enclosure "t"

Ratings	
GNE _x J2	Ex db IIC Gb T6 Ta -50°C to +70°C Ex tb IIIC Db T80°C Ta -50°C to +70°C

Certificate No. DEMKO 15ATEX1448X
IECEx UL15.0003X

Epsilon x, Equipment Group and Category:  II 2G
II 2D

CE Marking Notified Body No.  2813

2.2. NEC / CEC Ratings



All models are approved for use as Visual Signal Device for use as General Signalling:

UL1638A & CSA C22.2 No 205-17

NEC Class / Zone Ratings US Codes

Standards	
UL 60079-0 (Ed. 7) 04/15/2020 Explosive Atmospheres - Part 0: Equipment - General Requirements	
UL 60079-1 (Ed. 7) 2015 Explosive Atmospheres - Part 1: Equipment Protection by Flameproof Enclosures 'd'	
Ratings	
GNE _x J2	Class 1 Zone 1 AEx db IIC T6 Gb Ta -50°C to +70°C

Installation must be carried out in compliance with the National Electric Code.

CEC Class / Zone Ratings Canada Codes

Standards	
CAN/CSA C22.2 No. 60079-0 (Ed. 4) 02/2019 Explosive Atmospheres - Part 0: Equipment - General Requirements	
CAN/CSA C22.2 No. 60079-1 (Ed. 3) 2016 Electrical Apparatus for Explosive Gas Atmospheres - Part 1: Flameproof Enclosures 'd'	
Ratings	
GNEExJ2	Ex db IIC T6 Gb Ta -50°C to +70°C

Installation must be carried out in compliance with the Canadian Electric Code.

NEC & CEC Class / Division Ratings for US / Canada, USL CNL

Standards	
UL1638A (Ed. 1) 2016 Standard for Visual Signal Appliances for General Signalling Use	
CSA C22.2 No. 205-17 (Ed. 3) 2017 Signal Equipment	
Ratings	
GNEExJ2	Class I Div 2 Group ABCD T6 Ta -50°C to +70°C

Installation must be carried out in compliance with the National Electric Code / Canadian Electric Code.

3) Zones, Gas Group, Category and Temperature Classification

The units can be installed in locations with the following conditions:

Area Classification	
Zone 1	Explosive gas air mixture likely to occur in normal operation.
Zone 2	Explosive gas air mixture not likely to occur in normal operation, and if it does, it will only exist for a short time.
Zone 21 (ATEX / IECEx only)	Explosive dust air mixture likely to occur in normal operation.
Zone 22 (ATEX / IECEx only)	Explosive dust air mixture not likely to occur in normal operation, and if it does, it will only exist for a short time.
Gas Groupings	
Group IIA	Propane
Group IIB	Ethylene
Group IIC	Hydrogen and Acetylene
Temperature Classification for Gas Applications	
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

Dust Groupings (ATEX / IECEx only)	
Group IIIA	Combustible Flyings
Group IIIB	Non-conductive Dust
Group IIIC	Conductive Dust
Maximum Surface Temperature for Dust Applications (ATEX / IECEx only)	
GNEExJ2	80°C
Equipment Category	
2G / 2D	
Ambient Temperature Range	
-50°C to +70°C	
IP Rating	
IP6X to EN/IEC60079-0 IP66 to EN60529	

4) Special Conditions of safe use

Repair of the flame path is not permitted.

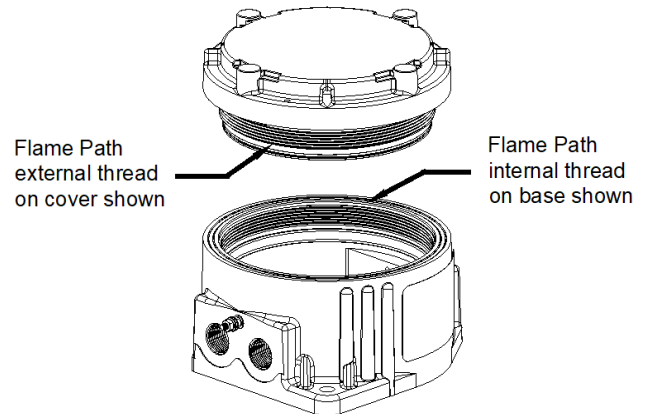


Figure 1: Flame Path.

The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces.

5) Product Mounting and Access

5.1. Location and Mounting

The Junction Box should only be fixed to services that can carry the weight of the unit.

The junction box should be securely bolted to a suitable surface using the 9.4mm diameter bolt holes in the base of the unit (see figure 2).

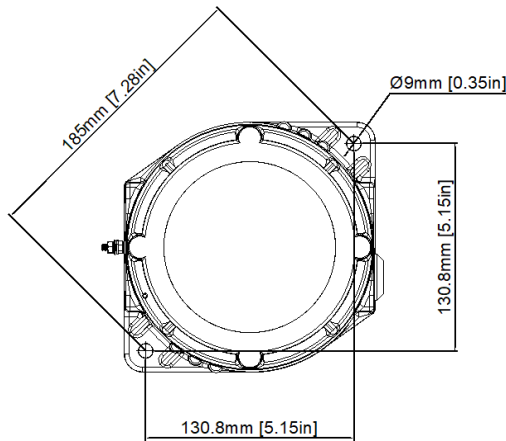


Figure 2: Fixing Location for B2 Junction Box.

5.2. Access to the Flameproof Enclosure

In order to connect cabling in the junction box it is necessary to remove the flameproof cover to gain access to the flameproof chamber. To access the Ex d chamber, loosen the M4 grub screw on the junction box cover. Open the enclosure by turning the junction box cover counterclockwise and remove the cover taking extreme care not to damage the flameproof threads in the process (see figure 3).

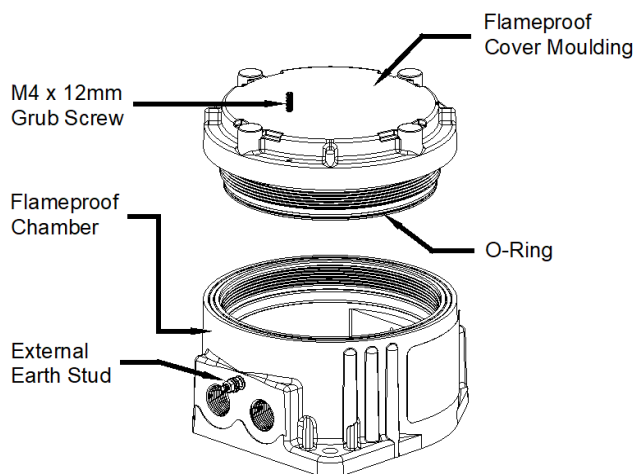


Figure 3: Accessing the Flame Proof Enclosure.

On completion of the installation the flameproof threaded joints should be inspected to ensure that they are clean and that they have not been damaged during installation.

Flameproof threaded joints are not intended to be repaired.

Ensure that the 'O' ring seal is in place.

When replacing the flameproof cover ensure the thread is engaged correctly. Fully tighten the cover all the way, ensure no gap is visible between the cover and base of the junction box enclosure. Tighten the M4 grub screw.

6) Installation Requirements

6.1. Installation Standards Compliance



Warning – High voltage may be present, risk of electric shock.
DO NOT open when energised, disconnect power before opening.

The junction box must only be installed by suitably qualified personnel in accordance with the latest issues of the relevant standards.

ATEX / IECEx installation standards:

EN60079-14 / IEC60079-14: Explosive atmospheres - Electrical installations design, selection and erection

EN60079-10-1 / IEC60079-10-1: Explosive atmospheres - Classification of areas. Explosive gas atmospheres

EN60079-10-2 / IEC60079-10-2: Explosive atmospheres - Classification of areas. Explosive dust atmospheres

NEC Class / Zone, CEC Class / Zone, and NEC & CEC Class / Division installation standards:

National Electrical Code, NFPA 70 or CSA 22.1 Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32.

The installation of the units must also be in accordance with any local codes that may apply and should only be carried out by a competent electrical engineer who has the necessary training.

The GNExJ2 is not intended for directly supporting live parts. All conductors must be suitably insulated and secured against loosening.

The Junction Box may be fitted with terminal blocks or active modules up to a power consumption of 5W. Any module fitted must be secured to the mounting bosses in the base of the junction box and must maintain a minimum gap of 10mm to all walls of the enclosure.

6.2. Cable Selection and Connections

When selecting the cable size, consideration must be given to the input current that each unit draws (see table 1), the number of junction boxes on the line and the length of the cable runs. The cable size selected must have the necessary capacity to provide the input current to all of the junction boxes connected to the line.

Electrical connections are to be made into the terminal blocks in the flameproof enclosure (see figure 5 and figure 6), using solid wire 0.5-4mm² / AWG 20-12 or stranded wire, sizes 0.5-2.5mm² / AWG 24-14. Wire insulation needs to be stripped 8mm. Wires may be fitted securely with crimped ferrules.

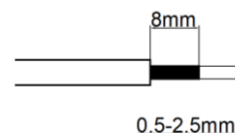


Figure 4: Wire Preparation.

Terminal screws need to be tightened down with a tightening torque of 0.45 Nm / 5 Lb-in.

Terminal Block Options Available

The STExJ2 can have two pre-fitted wire connectors: Terminal Block Version or DIN Rail Version.

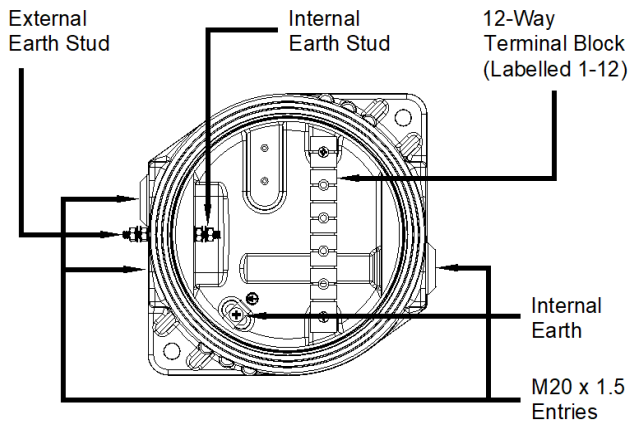


Figure 5: Terminal Block Version – GNExJ2T01.

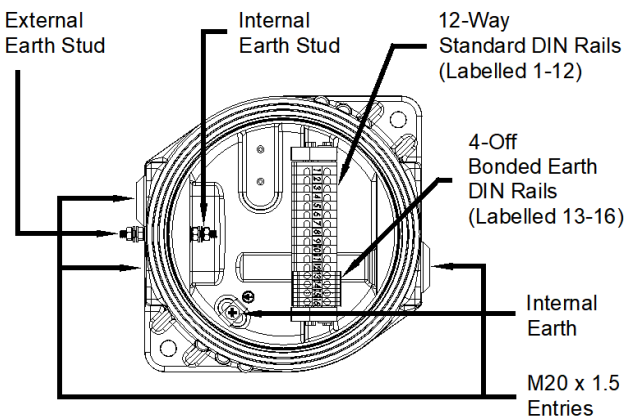


Figure 6: DIN Rail Version – GNExJ2D01.

When connecting wires to the terminals great care should be taken to dress the wires so that when the cover is inserted into the chamber the wires do not exert excess pressure on the terminal blocks. This is particularly important when using cables with large cross-sectional areas such as 2.5mm².

Earthing

Junction box units must be connected to an earth according to EN/IEC 60079/14. The units are provided with internal and external earth terminals which are both located on the terminal chamber section of the unit (see figures 5 or 6).

Internal earthing connections should be made to the Internal Earth terminal in the base of the housing using a ring crimp terminal to secure the earth conductor under the earth clamp, or to the bonded Earth terminals of DIN rail (see figure 6). The earth conductor should be at least equal in size and rating to the incoming power conductors.

External earthing connections should be made to the M4 earth stud, using a ring crimp terminal to secure the earth conductor to the earth stud. The external earth conductor should be at least 4mm² in size.

6.3. Cable Glands, Blanking Elements & Adapters

For high ambient temperatures, the cable entry and the cable branching point temperatures may exceed the following temperatures:

- For ATEX / IECEx: 70°C at entry or 80°C at branching point.
- For NEC / CEC: 60°C at entry or 60°C at branching point.

Therefore, suitable heat resisting cables and cable glands must be used with a rated service temperature at least as stated in the Instructions document of the product being used. Refer to GNExB2 Xenon (D156-00-201-IS) and GNExB2 LED (D156-00-401-IS) Instructions.

Cable Glands

The cable gland entries have an M20 x 1.5 entry thread. Only use suitably rated and certified cable glands, as per type of approval, which must be suitable for the type of cable being used and also meet the requirements of the current flameproof installation standards (see section 6.1).

Blanking Plugs

When only one cable entry is used the other entries must be closed with suitably rated and certified blanking plugs as per type of approval.

Any unused cable entries must be closed with suitably rated and certified blanking plugs.

Ingress Protection

If a high IP (Ingress Protection) rating is required, then a suitable sealing washer must be fitted under the cable glands or blanking plugs.

A minimum ingress protection rating of IP6X must be maintained for installations in explosive dust atmospheres.

For combustible dust applications, the cable entry device and blanking elements shall be in type of explosion protection and shall have an IP 6X rating.

For use in Class I Division II locations, in order to maintain the db type protection, flameproof conduit seals and/or cable glands must be used.

Adapters

The GNExJ2 can be supplied with the following types of adapters:

- M20 to ½" NPT
- M20 to ¾" NPT
- M20 to M25

It is important to note that stopping plugs cannot be fitted onto adapters, only directly onto the M20 entries.

Any other adapters used must be suitably rated as per the applicable standards.

If the installation is made using conduit, openings must have a sealing fitting connected as close as practical to the wall of the enclosure, but in no case more than the size of the conduit or 50mm, whichever is the lesser.

7) Maintenance, Overhaul and Repair

Maintenance, repair and overhaul of the equipment should only be carried out by suitably qualified personnel in accordance with the current relevant standards:

EN60079-19/IEC60079-19 Explosive atmospheres -
Equipment repair, overhaul and reclamation

EN 60079-17/IEC60079-17 Explosive atmospheres -
Electrical installations inspection and maintenance

Units must not be opened while an explosive atmosphere is present.

If opening the unit during maintenance operations a clean environment must be maintained and any dust layer removed prior to opening the unit.

Electrostatic charging hazard - Clean only with a damp cloth.