

# INSTRUCTION MANUAL (ATEX / IECEx)

## GNExJ2 Flameproof Junction Box

### For use in Flammable Gas and Dust Atmospheres

### 1) Introduction

The GNExJ2 is a flameproof junction box which is certified to meet the requirements of the ATEX directive 94/9/EC and the IECEx scheme. The junction box can be used in hazardous areas where potentially flammable gas and dust atmospheres may be present. The GNExJ2 can be used in Zone 1 and Zone 2 areas with gases in groups IIA, IIB and IIC and Temperature Classifications of T1, T2, T3, T4, T5 and T6. The unit can be used in Zone 21 and Zone 22 with dusts in groups IIIA, IIIB and IIIC and Temperature Classifications of T1, T2, T3, T4, T5 and T6.

### 2) Marking

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

Unit Type No. GNExJ2

Max. Voltage: 60Vdc / 260Vac 50/60Hz

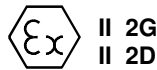
Max Power Dissipation: 5W

Codes:

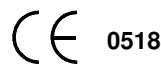
Ex db IIC Gb T6 Ta -50°C to +70°C  
Ex tb IIIC Db T80°C Ta -50°C to +70°C

Certificate No. DEMKO 15ATEX1448X  
IECEx UL15.0003X

Epsilon x  
Equipment Group and  
Category:



CE Marking  
Notified Body No.



### “Warnings”

POTENTIAL ELECTROSTATIC CHARGING HAZARD  
DO NOT OPEN WHEN AN EXPLOSIVE  
ATMOSPHERE IS PRESENT  
ALL ENTRIES M20 X 1.5  
IF TEMPERATURE EXCEEDS 70°C AT ENTRY OR 80°C AT  
BRANCHING POINT USE SUITABLE RATED CABLE AND CABLE  
GLANDS

### 3) Type Approval Standards

The junction box has an EC Type examination certificate issued by UL and have been approved to the following standards:-

EN60079-0:2012 / IEC60079-0:2011 (Ed 6): 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"

### 4) Installation Requirements

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

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.

### 5) Zones, Gas Group, Category, IP Rating and Temperature Classification

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

#### Area Classification Gas:

Zone 1	Explosive gas air mixture likely to occur in normal operation.
Zone 2	Explosive gas air mixture not likely to occur, 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:

T1	450° C
T2	300° C
T3	200° C
T4	135° C
T5	100° C
T6	85° C

#### Area Classification Dust:

Zone 21	Explosive dust air mixture likely to occur in normal operation.
Zone 22	Explosive dust air mixture not likely to occur, and if it does, it will only exist for a short time.

#### Dust Groupings:

Group IIIA	Combustible Flyings
Group IIIB	Non-conductive Dust
Group IIIC	Conductive Dust

**IP Rating:** IP6X to EN/IEC60079-0 and IP66 to EN/IEC60529

**Equipment Category:** 2G/D  
**Ambient Temperature Range:** -50°C to +70°C  
**Maximum Surface Temperature for Dust Applications:** 80°C

## 6) 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 1).

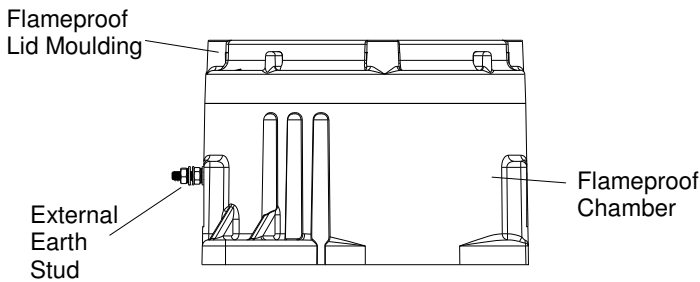
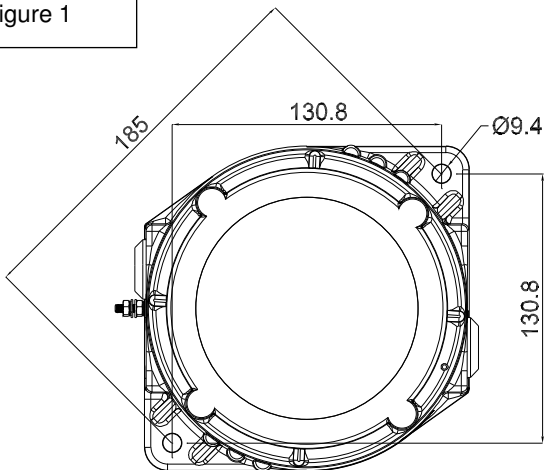


Figure 1



## 7) 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 2).

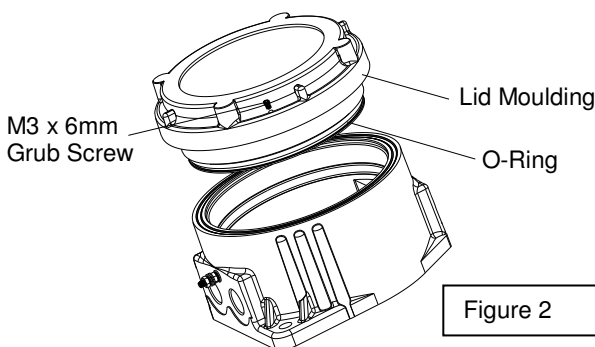


Figure 2

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. Also check 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.

## 8) Electrical Ratings

Type No.	Max. Power Dissipation
GNExJ2	5W

## 9) Cable Selection

When selecting the cable size, consideration must be given to the input current that each unit draws (see table above), 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.

**SAFETY WARNING:** The cable entry temperature may exceed +70°C or the cable branching point temperature may exceed 80°C at high ambient temperatures and therefore suitable heat resisting cables and cable glands must be used, rated 80°C for ambient temperatures of 70°C.

## 10) Earthing

The junction box units must be connected to a good quality earth. The units are provided with internal and external earth terminals which are both located on the flameproof enclosure section of the unit (see figures 4 or 5).

## 11) Cable Glands

The cable gland entries have an M20 x 1.5 entry thread. Only suitably rated and ATEX / IECEx certified cable glands which must be suitable for the type of cable being used.

When only one cable entry is used the other entries must be closed with suitably rated and ATEX / IECEx certified blanking plugs.

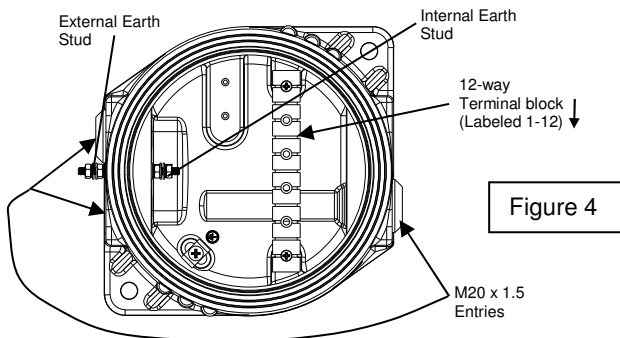
If a high IP (Ingress Protection) rating is required then a suitable sealing washer must be fitted under the cable glands or blanking plugs. A minimum ingress protection rating of IP6X must be maintained for installations in explosive dust atmospheres.

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.

## 12) Cable Connections

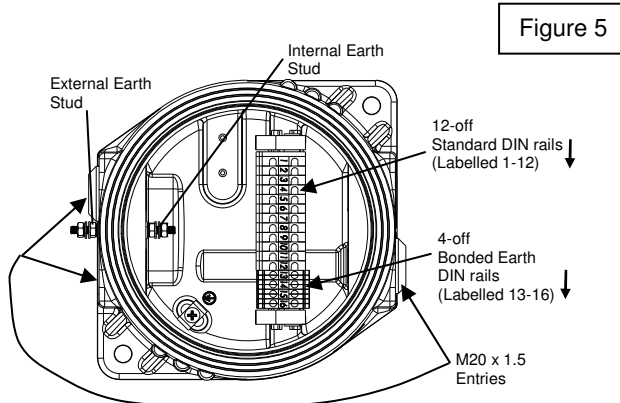
### Terminal Block Version (GNExJ2T01)

The cable connections are made into the terminal block in the flameproof enclosure. See section 7 of this manual for access to the flameproof enclosure.



### DIN Rail Version (GNExJ2D01)

The cable connections are made into the DIN Rail in the flameproof enclosure. See section 7 of this manual for access to the flameproof enclosure.



Wires having a cross sectional area of up to 2.5mm<sup>2</sup> can be connected to each terminal way. If an input and output wire is required the 2-off Live/Neutral or +/- terminals can be used. If fitting 2-off wires to one terminal way the sum of the 2-off wires must be a maximum cross sectional area of 2.5mm<sup>2</sup>. Strip wires to 8mm. 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 2.5mm<sup>2</sup>.

Internal earthing connections should be made to the terminal connections in terminal block or bonded Earth terminals of DIN rail (see figure 5). 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 between the two M4 stainless steel flat washers, then reassemble the M4 spring washer and tighten the M4 nut to ensure that the cable lug is secured against loosening and twisting. The external earth conductor should be at least 4mm<sup>2</sup> in size.

## 13) 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.

## 14) Adapter Options

The GNEx Junctino Box can be supplied with the following types of adapters:

M20 to 1/2" NPT

M20 to 3/4" NPT

M20 to M25

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

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.

## 15) Special Conditions of safe use

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.