

Instruction Manual for Power Distribution, Switchgear and Control Assembly –GUB Series



All work on this Ex-equipment must be carried out only by qualified Specialist personnel following EN/IEC 60079-14. Any subsequent modification must be within framework of this operation manual

The operating permit expires in the event of non-compliance!

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1.0 Safety Instructions

1.1 Safety notes



The target group of these instructions is electrical operatives and instructed staff following EN/IEC 60079-14.

- ❖ Operating permit expires in event of non-compliance.



Use the devices only for their intended purpose!

- ❖ We cannot be held liable for damage caused by incorrect or unauthorized use or by non-compliance with these operating instructions.
- ❖ Use the device only if it is undamaged.

Serious risk of injury!

- ❖ Only original parts supplied by ROSE are permissible for spares and repair work. Other spare parts can invalidate explosion protection.



The explosion group, temperature class and ambient temperature marked on the enclosure must be observed!

- ❖ Please look at marking on enclosure, it should be installed in zone, explosion group, T Class & ambient temperature for which they are suitable.
- ❖ We cannot be held liable for damage caused by incorrect selection.

Any unauthorized work on the device is prohibited!

- ❖ Installation, maintenance, overhaul and repair may only be carried out by appropriately authorized and trained personnel.

Repairs affecting the explosion protection must only be carried out by ROSE or a qualified authorized person in accordance with EN/IEC 60079-19!



Do not allow combustible dust deposit to form on enclosure!

- ❖ Regular cleaning of dust deposit is recommended to avoid hot surface becoming ignition risk.

Observe the following information during installation and operation

- ❖ Remove all foreign bodies (e.g. uncertified plugs for transportation) from enclosure.
- ❖ Any damage may compromise the explosion protection
- ❖ National and local safety regulation
- ❖ National and local accident prevention regulations
- ❖ National and local assembly and installation regulations
- ❖ Generally recognized technical regulations
- ❖ Safety notes in this instruction manual
- ❖ Characteristic values and related operating conditions on the rating plates and data plates
- ❖ Additional information plates on the device

1.2 Modification and alterations



Alteration and modifications to the device are not permitted!

Do not add terminals and components without consultation to manufacture.

Do not make additional cable or conduit entries.

We shall not take any liability or warranty obligations for damage resulting from alterations and modifications.

2.0 Standard Conformity

The equipment is tested and approved for explosion hazard area to IEC 60079-0:2017 & EN IEC 60079-0:2018, IEC 60079-1:2014 & EN 60079-1:2014, IEC60079-31:2013 & EN 60079-31:2014, IEC 60529:2013 & EN 60529:1992/A2:2013 standards and ATEX Directive 2014/34/EU.

The recognized national conditions and stipulation concerning electrical equipment in hazardous area must be considered while installing and operating explosion proof electrical equipment.

These enclosures can be used in hazardous area in Zones 1, 2, 21, 22.

They are not certified for Zone 0, 20.

3.0 Function



- ❖ These enclosures are used as Power Distribution, Switchgear and Control assembly. The protection technique allows using standard electrical products having arcing or sparking components inside enclosure. These electrical components are mounted & wired according to customer specification.
- ❖ Use the device for its intended purpose only!
- ❖ Otherwise, the manufacturer's liability and warranty expires.
- ❖ Use the device under operating conditions described in instruction manual.
- ❖ The device can be used in areas subject to explosion hazards only according to this instruction manual.
- ❖ No changes to the device impairing their explosion protection are permitted.
- ❖ Install the device only if is undamaged, dry and clean.

4.0 Technical Data

Manufacturer: ROSE Systemtechnik GmbH
Erbeweg 13-15, D-32457 Porta Westfalica,
GERMANY

Explosion Protection:

IECEx Gas: Ex db IIC T6/T5/T4 Gb
Dust: Ex tb IIIC T85°C/T100°C/ T135°C Db

ATEX Gas:  II 2 G Ex db IIC T6/T5/T4 Gb
Dust:  II 2 G Ex tb IIIC T85°C/T100°C/ T135°C Db

IECEx Certificate of Conformity No: IECEx DEK 18.0076X

EC Type examination Certificate No: DEK18ATEX0120X

Electrical Data

Rated operation voltage: 1.1KV AC/DC (Declared voltage rating is nominal and item having higher voltage rating may be populated as required in consultation with manufacturer.

TYPE	GUB 01/ GUB 01W	GUB 02/ GUB 02W	GUB 03/ GUB 03W	GUB 04/ GUB 04W	GUB 05/ GUB 05W	GUB 06/ GUB 06W
Max Rated Current	125 A	150 A	232 A	309 A	253 A	415 A
Max Conductor Size	35 mm ²	50 mm ²	95 mm ²	150 mm ²	185 mm ²	240 mm ²
Max PE Conductor Size	16 mm ²	25 mm ²	50 mm ²	70 mm ²	95 mm ²	120 mm ²

Ambient Temperature

Enclosure without glass window: “-60°C*/-20°C ≤ Ta ≤ +40°C.....+110°C”

* Only GUB 01, GUB 02 and GUB 03 are suitable for “-60°C and -20°C”, other types are suitable for “-20°C” only.

Enclosure with glass window: “-60°C*/-20°C ≤ Ta ≤ +40°C.....+75°C”

* Only GUB 01W, GUB 02W and GUB 03W are suitable for “-60°C and -20°C”, other types are suitable for “-20°C” only.

❖ Use equipment within ambient temperature marked on Ex label

Mechanical data

Enclosure: Marine grade copper free aluminum alloy

O Ring: Silicone

Finish: RAL 7035

Earthing: 2Nos External and 1No Internal

Degree of protection: IP66 as per IEC 60529:2013 & EN 60529:1992+A2:2013

Installation: 4 mounting holes

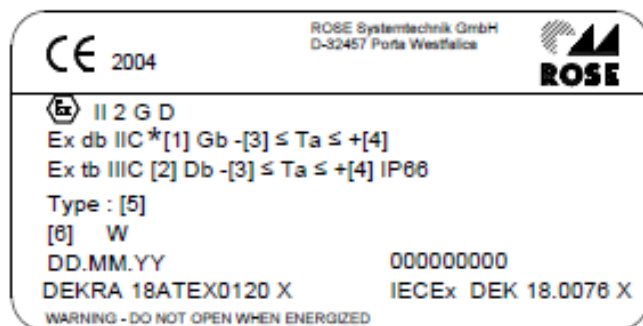
Number, Size & location of entries

Number, size & location of entries shall be in combination as required within max permissible limits in Metric as per ISO 965 or NPT as per ANSI/ASME B1.20.1 specified as under.

TYPE	M20 or 1/2"NPT	M25 or 3/4"NPT	M32 or 1"NPT	M40 or 1.1/4"NPT	M50 or 1.1/2"NPT or 2"NPT	M63 or 2.1/2"NPT	M75 or 3"NPT
GUB 01/GUB 01W	09	06	05	03	X	X	X
GUB 02/GUB 02W	12	08	06	04	X	X	X
GUB 03/GUB 03W	18	12	08	06	03	X	X
GUB 04/GUB 04W	21	14	09	08	04	03	X
GUB 05/GUB 05W	24	20	12	09	06	04	X
GUB 06/GUB 06W	27	23	14	11	06	05	03

Note: Base of GUB series enclosure with or without window for particular type number is common e.g. GUB01 and GUB 01W.

Marking



*Note- Equipment may be marked as IIB or IIC as required. Equipment marking shall be completed by using type of protection i, [i], m for certified equipment or component used for assembly and general arrangement drawing for assembly will refer to applicable certificates.

TYPE [5]	T Class [1]	T6			T5					T4					Min Ambient temp[3]
	Dust Temp Marking [2]	T85°C			T100°C					T135°C					
	Max Ambient Temp[4]	+40°C	+50°C	+60°C	+40°C	+50°C	+55°C	+60°C	+75°C	+40°C	+50°C	+60°C	+90°C	+110°C	
GUB 01	Max Watt Dissipation [6]	82W	X	38W	X	X	82W	X	38W	X	X	X	82W	38W	-20°C or -60°C
GUB 01W													X	X	
GUB 02		86W	X	45W	X	X	86W	X	45W	X	X	X	86W	45W	
GUB 02W													X	X	
GUB 03		114W	X	64W	X	X	114W	X	64W	X	X	X	114W	64W	
GUB 03W													X	X	
GUB 04		170W	120W	70W	230W	180W	170W	126W	70W	410W	376W	316W	170W	70W	-20°C
GUB 04W										X	X	X	X	X	
GUB 05		218W	168W	91W	291W	226W	218W	159W	91W	491W	451W	400W	218W	91W	
GUB 05W										X	X	X	X	X	
GUB 06	250W	182W	150W	405W	282W	250W	215W	150W	723W	609W	472W	250W	150W		
GUB 06W									X	X	X	X	X		

Note 1: Name plate with gas or dust or dual gas & dust marking can be given as required.

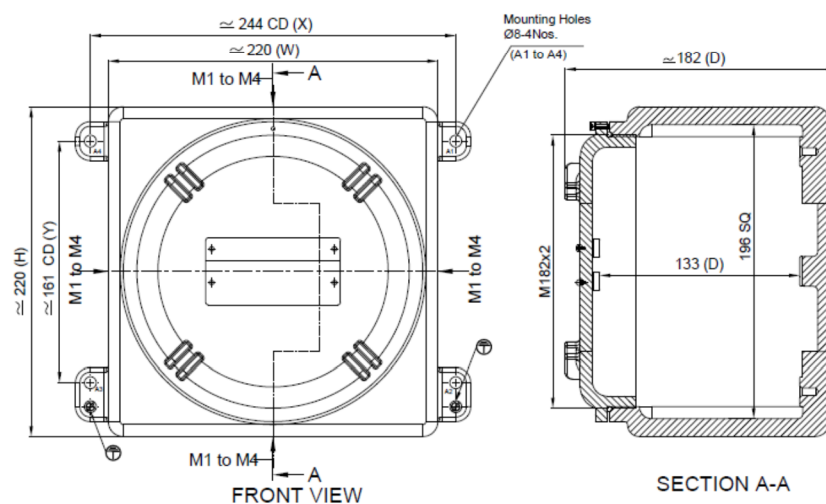
Note 2: Name plate with IECEx or ATEX or dual IECEx & ATEX marking can be given as required.

Thread type i.e. Metric or NPT and size of threaded entry shall be marked on supplied enclosure by affixing suitable sticker near each entry.

5.0 Installation

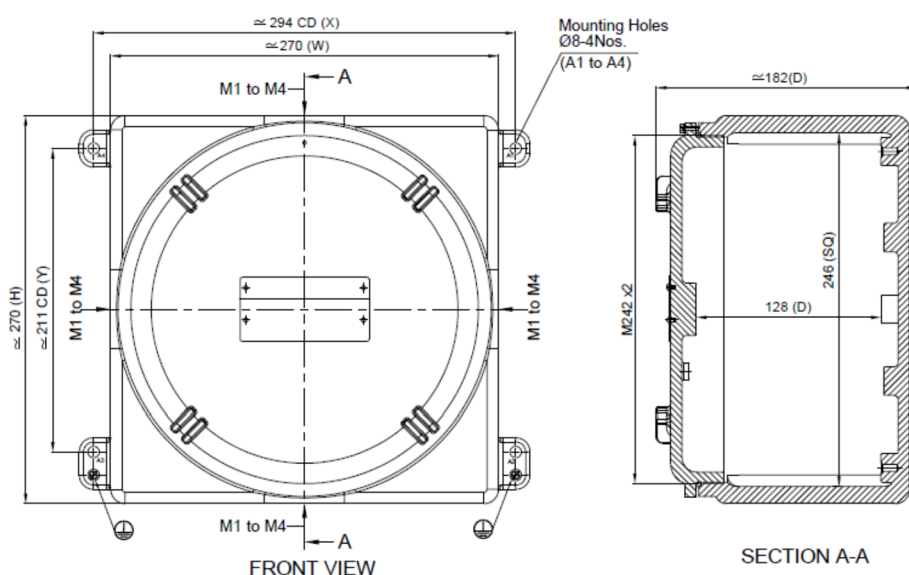
5.1 Dimensional drawings (All dimensions in mm) – subject to alterations

GUB 01



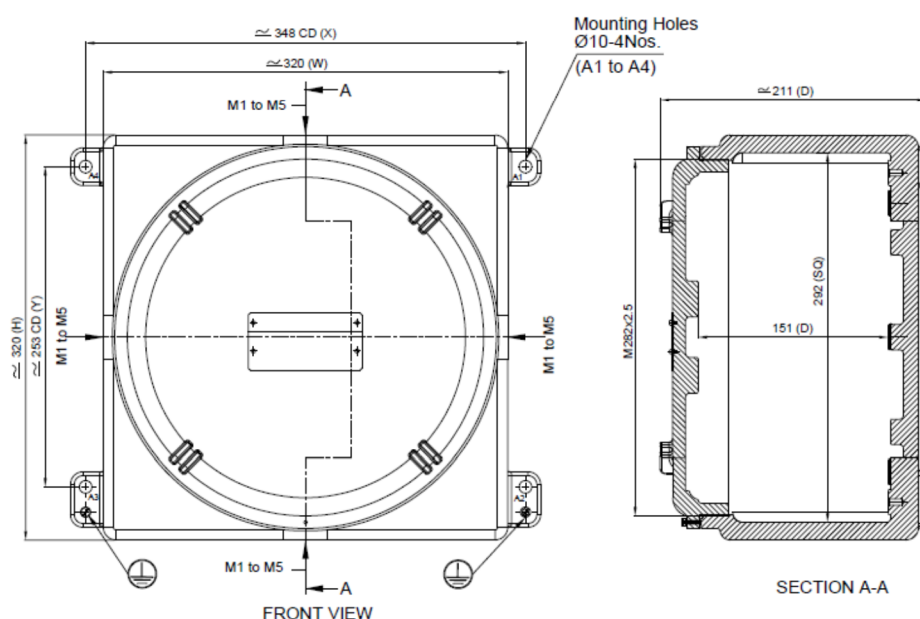
Weight in Al: 6.2 Kg

GUB 02



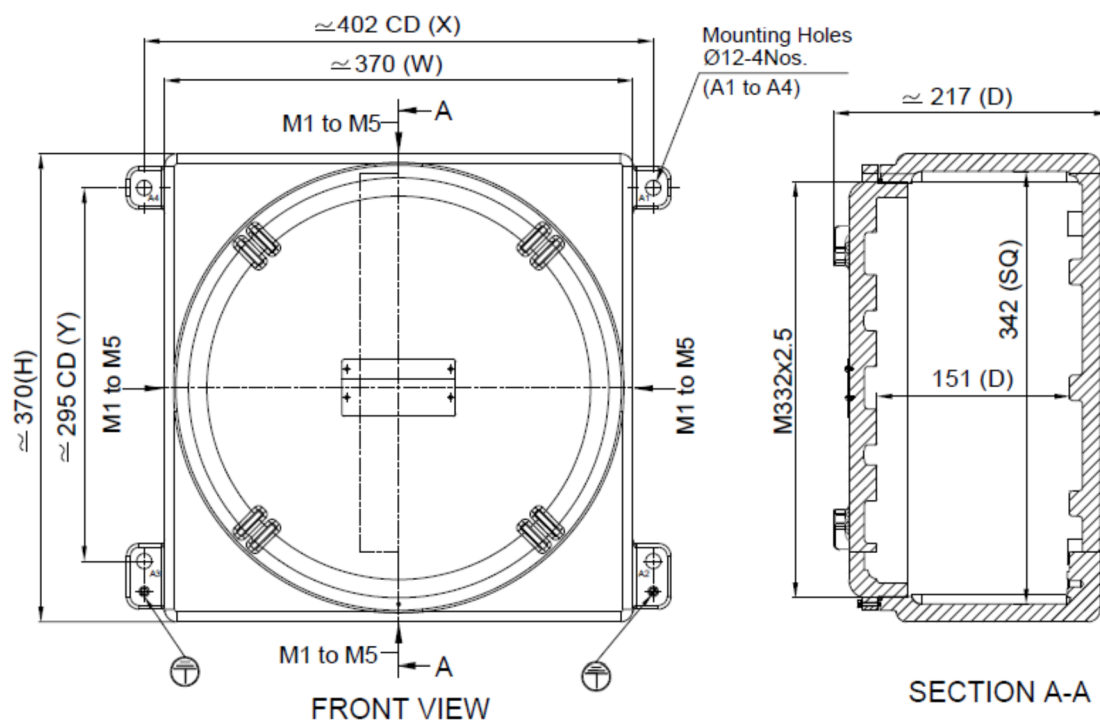
Weight in Al: 8.8 Kg

GUB 03



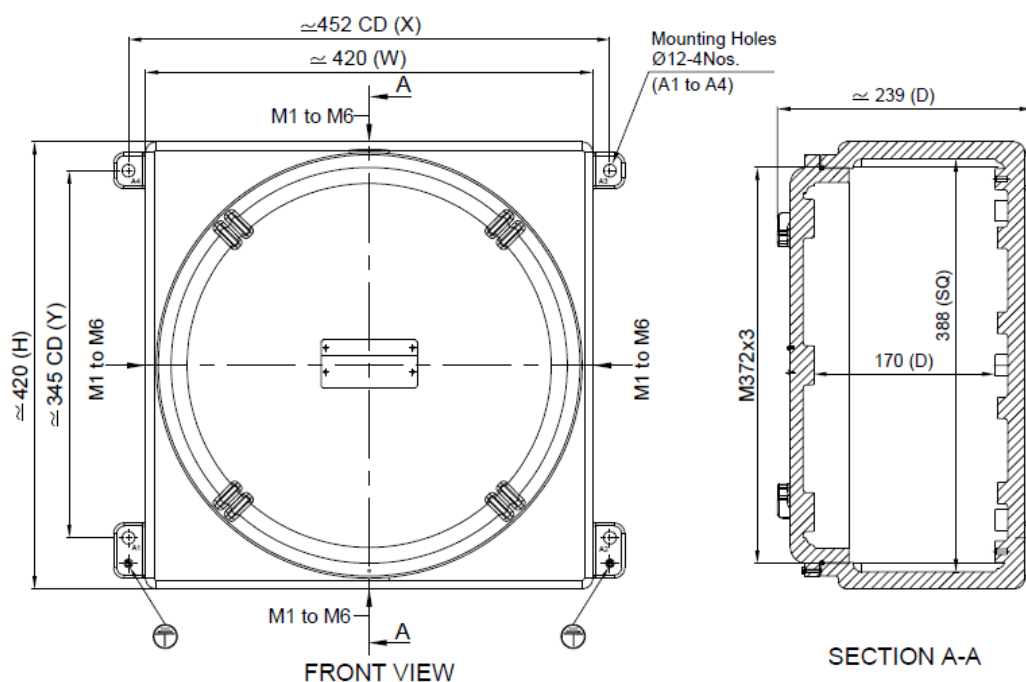
Weight in Al: 15.5 Kg

GUB 04



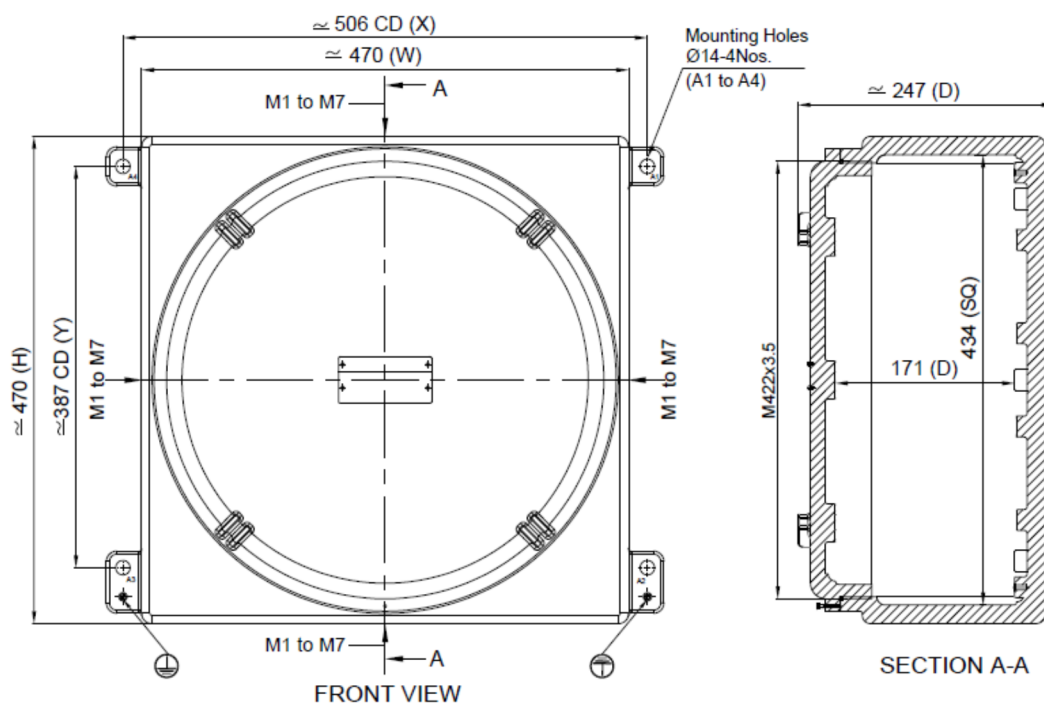
Weight in Al: 21.0 Kg

GUB 05



Weight in Al: 30.0 Kg

GUB 06



Weight in Al: 39.3 Kg

5.2 Installation conditions

Built in components

The T Class is dependent on power dissipation of internal components, wiring and Max ambient temperature. Refer Technical data.

Only replacement of components built inside enclosure is permitted. Any addition or alternation without consultation to ROSE is not permitted and may lead to ignition risk. Replacement of display window is not possible.

5.3 Mounting and operating position

Mounting the enclosure

- ❖ Mount the enclosure by using four screws. Refer dimensional drawing for mounting holes & mounting dimension.
- ❖ Tighten the mounting screws properly.

Unscrewing the enclosure LID

- ❖ Loosen the grub screw
- ❖ Unscrew the enclosure lid and put it safely.

Screwing down the enclosure LID

- ❖ To prevent corrosion the lid thread must be coated with silicone grease Anabond 662 or equivalent.
- ❖ Screw lid of enclosure carefully onto base of enclosure. Do not tilt the thread.
- ❖ Screw in threads all the way.
- ❖ Fasten the grub screw to lock the lid.



Danger due to not approved cable glands & accessories!

- ❖ Only certified cable glands & accessories of required Ex protection shall be used.
- ❖ Each entry shall have no more than one thread adopter. A blanking element shall not be used with a thread adopter.
- ❖ In case of non-compliance explosion protection can no longer be guaranteed.

Danger due to open holes or unused cable entries on the enclosure!

- ❖ If holes or unused cable entry is left open, explosion protection can no longer be guaranteed.
- ❖ Close open holes using stopping plugs approved for required type of protection.

5.4 Electrical Connection

Internal wiring



Incorrect wiring inside enclosure!

- ❖ Strictly adhere to wire size and length for which heat loss dissipation are taken into account for permissible wattage for a given T Class. In case of non-compliance explosion protection can no longer be guaranteed.
- ❖ Strictly adhere to the creepage and clearance required.
- ❖ Use only insulated wires of suitable voltage grade.
- ❖ Mounting rails or components must be loosened and fastened properly.

External Wiring

Danger due to improper cables!

- ❖ The cables must comply with IEC/EN 60079-14 and relevant regulation and must have the required cross section.
- ❖ Strictly adhere to cable size and length for which heat loss dissipation are taken into account for permissible wattage for a given T Class and ambient temperature.
- ❖ In case of non-compliance explosion protection can no longer be guaranteed.

Danger due to improper cable glands!

- ❖ The cable glands shall be appropriate to cable type and size and with suitable approval as per IEC/EN 60079-14.
- ❖ Entry threads have been marked on enclosure by sticker, please use cable gland of appropriate size and type.
- ❖ In case of non-compliance explosion protection can no longer be guaranteed.

Protective Earth conductor connection

Always connect the protective earth (PE) conductor!

- ❖ The device is equipped with one internal and two external protective conductor connection arrangements with SS Screw, 1 No. tooth (Anti-rotational) washer and 2 No. plain washers.
- ❖ Use ring type lug of suitable material and size to be affixed between 2 plain washers.
- ❖ The PE conductor size shall be as under:

Cross sectional area of phase Conductor S mm ²	Minimum cross sectional area of the corresponding PE conductor in mm ²
$S \leq 16$	S with min of 4mm ²
$16 < S \leq 35$	16
$S > 35$	0.5 S

6.0 Commissioning



Check the device before putting it into service!

To ensure proper operation the equipment must be checked prior to putting it in service.

If the enclosure is connected incorrectly, explosion protection is no longer guaranteed!

The device must be operated only with completely closed enclosures.

Before commissioning ensure that:

- ❖ No components are damaged.
- ❖ The equipment has been installed according to regulations.
- ❖ There are no foreign bodies inside the device.
- ❖ The specified tightening torques has been observed.

7.0 Inspection, Maintenance, Repair and Overhaul

7.1 Inspection and Maintenance:

- ❖ Consult the relevant national regulations (e.g. IEC/EN 60079-17) to determine the type and extent of inspections.
- ❖ Plan the intervals such that any expected defects are detected promptly.



Risk of Electric Shock!

Before opening the device, disconnect it from power supply and wait for some time to allow internal components to cool down.

7.2 Repair and Overhaul

Damaged enclosure cannot be repaired at site. Only electrical components, cable glands & accessories can be changed. Please follow IEC/EN 60079-19 for repair of damaged enclosure.

8.0 Specific conditions of use:



- ❖ The ambient temperature range depends on the model (with or without glass window), the pressure applied during the routine overpressure test and on the glass thickness. See instruction manual point no 4.
- ❖ For enclosures provided with a powder coating or liquid painting and intended for use in Group III applications, the user shall minimize the risk from electrostatic discharge by suitable selection and installation.
- ❖ The maximum number of apertures, their maximum sizes and their positions are specified in the instruction manual point no 4.
- ❖ The threaded flame path is more than required by IEC 60079-1. Contact ROSE for information on the dimensions of the flameproof joint.
- ❖ Refer to associated certificates of Ex components/ equipment used in assembly.
- ❖ Use cables and cable glands suitable for operating temperature referring to marking as per recommendation of IEC 60079-14.

9.0 Technical Support:



Contact ROSE Systemtechnik GmbH, Erbeweg 13-15, D-32457 Porta Westfalica, GERMANY for technical support.