Operation manual

for Power Distribution, Switchgear and Control Assembly – EJB Series

Rev. 1.0/03.2020
Material No. 753160

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

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

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ROSE
A Phoenix Mecano Company

Content

1. 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 and EN 60079-1:2014, IEC60079-31:2013 & EN 60079-31:2014, IEC 60529:2013 and 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 enclosures. 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
32457 Porta Westfalica, GERMANY

Explosion protection:

IECEx
Gas: Ex db IIB+H2 T6/T5/T4 Gb
Dust: Ex tb IIIC T85 °C/T100 °C/T135 °C Db

ATEX
Gas: Ⓔx II 2 G Ex db IIB+H_2 T6/T5/T4 Gb
Dust: Ⓔx II 2 D Ex tb IIIC T85 °C/T100 °C/T135 °C Db

IECEx Certificate of Conformity No: IECEx DEK 18.0073 X

EC Type examination Certificate No: DEKRA 18ATEX0117 X

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	IJB 01	IJB 02	IJB 03	IJB 04	IJB 05	IJB 06
Max rated current (A)	125	232	309	415	520	850
Max terminal size (mm²)	35	95	150	240	300	500
Max PE conductor size (mm²)	16	50	70	120	150	240

Ambient Temperature: "-60 °C*/-20 °C ≤ Ta ≤ +40 °C…..+110 °C"

IJB 04, IJB 05 and IJB 06 are suitable for "-20 °C" only, other types are suitable for both "-20 °C and 60 °C".

Use equipment within ambient temperature marked on Ex label.

Mechanical data: Enclosure: Marine grade copper free aluminium alloy or Stainless Steel (on request)
O Ring: Silicone (optional)
Finish: RAL 7035 for Aluminum and Natural finish for Stainless Steel
Earthing: 2Nos External and 1No Internal
Degree of protection: IP66 as per IEC 60529:2013 and EN 60529:1992+A2:2013
Installation: 4 mounting holes

Number, size and location of entries: Number, size and 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 per table. Generally these entries will be from sides of base. However, entries from rear of base can be provided as required subject to

a) Total area of entries from all sides and rear shall not exceed total area of entries allowed from all the four sides

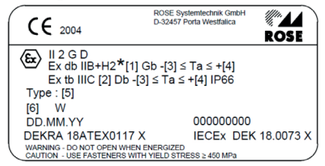
b) All reinforcement provided in the base shall remain intact and

c) Min center to center distance shall be maintained as in case of entries from sides.

Permissible entries for each side

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	
	short side	long side	short side	long side	short side	long side	short side	long side	short side	long side	short side	long side	short side	long side
IJB01	11	17	06	11	05	08	03	06	02	03	-	-	-	-
IJB02	14	20	09	14	06	09	05	08	03	04	-	-	-	-
IJB03	18	24	14	20	09	14	06	09	04	06	03	04	02	02
IJB04	22	28	17	23	11	15	08	11	05	07	04	05	02	02
IJB05	26	34	21	27	14	18	09	12	06	08	04	06	03	04
IJB06	34	40	27	33	18	23	12	15	08	10	06	07	04	05

Marking



Note:
1. Additional plate as under shall be affixed when option of Ingress protection with silicone grease is used.

   WARNING - APPLY SILICONE GREASE BEFORE CLOSING TO MAINTAIN IP66
2. Option of IP protection by silicone grease is not possible in case of dust marking.
3. Name plate with dust or gas or dual gas + dust marking can be given as required.
4. Name plate with IECEx or ATEX or dual IECEx + ATEX marking can be given as required.

*Note- Equipment may be marked as IIB or IIB+H_2 as required and marking shall be completed by using type of protection e, i, [i], m, q for certified equipment or component used for assembly.

Type	T Class	T6			T5					T4				
	Dust temp. marking	T85 °C			T100 °C					T135 °C				
	max. ambient temperature	+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
IJB01	max. Watt dissipation	108 W	x	56 W	x	x	108 W	x	56 W	x	x	x	108 W	56 W
IJB02		120 W	x	72 W	x	x	120 W	x	72 W	x	x	x	120 W	72 W
IJB03		145 W	x	76 W	x	x	145 W	x	76 W	x	x	x	145 W	76 W
IJB04		198 W	150 W	95 W	280 W	220 W	x	160 W	x	480 W	430 W	360 W	x	x
IJB05		300 W	200 W	136 W	408 W	309 W	x	241 W	x	659 W	586 W	491 W	x	x
IJB06		332 W	218 W	155 W	473 W	400 W	x	282 W	x	894 W	818 W	636 W	x	x

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

5.2 Installation conditions

Built in components
The T Class is dependent on power dissipation of components, wiring and Max ambient temperature. Refer Technical data.
Only replacement of components built inside the 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 and mounting dimension.
- Tighten the mounting screws properly.

Opening the enclosure
- The enclosure lid is bolted. Use Allen key of appropriate size to open lid bolts.

Closing the enclosure
- These enclosures are with/ without O ring in base. In case O ring is damaged, please replace with supplies from ROSE and mount properly in groove.
- In case O Ring is not provided, ingress protection is ensured by application of silicone grease Anabond 662 or equivalent (e.g. Fuchs Renolit Unitemp 2).
- To prevent corrosion of flange joint it is coated with silicone grease Anabond 662 or equivalent (e.g. Fuchs Renolit Unitemp 2).
- Apply a coat of silicone grease Anabond 662 or equivalent (e.g. Fuchs Renolit Unitemp 2) on flange of lid & base before closing.
- Bolt the lid of enclosure and tighten the bolts using appropriate size of Allen keys. No bolts should be missing or loose.
- Lid bolts are of SS A2.70 grade. In case of replacement, replace by same size of same or higher strength.

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 (Antirotational) 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 mm²	Minimum cross sectional area of the corresponding PE conductor in mm²
S ≤ 16	S with min of 4 mm²
16 < S ≤ 35	16
S > 35	½ 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.

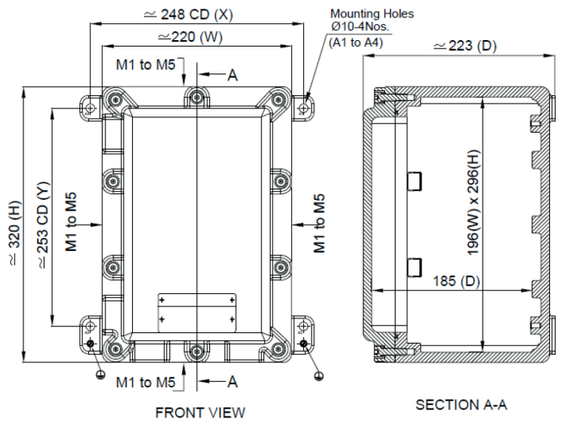
Risk of Electric Shock!
Before opening the device, disconnect it from power supply and wait for some time to allow internal components to cool down.

7.2 Repair and Overhaul
Damaged enclosure cannot be repaired at site. Only control accessories, electrical components, cable glands and 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 flanged 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.

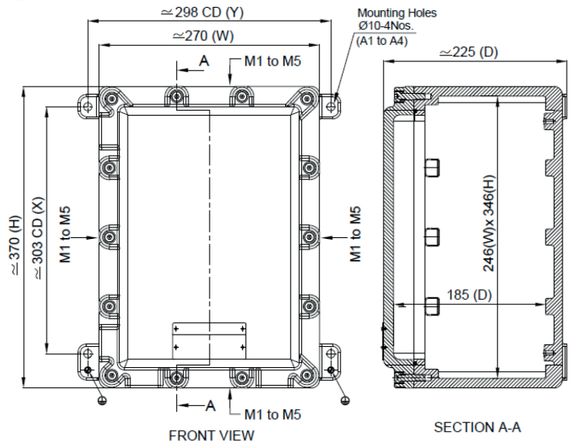
9.0 Technical Support:
Contact ROSE Systemtechnik GmbH, Erbeweg 13-15, D-32457 Porta Westfalica, GERMANY for technical support.

IJB 01



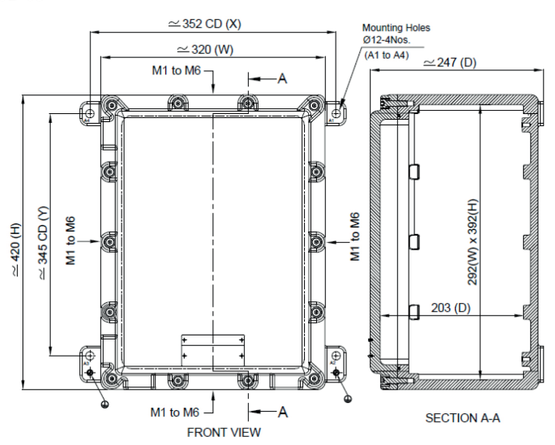
Weight in Al: 12.1 Kg

IJB 02



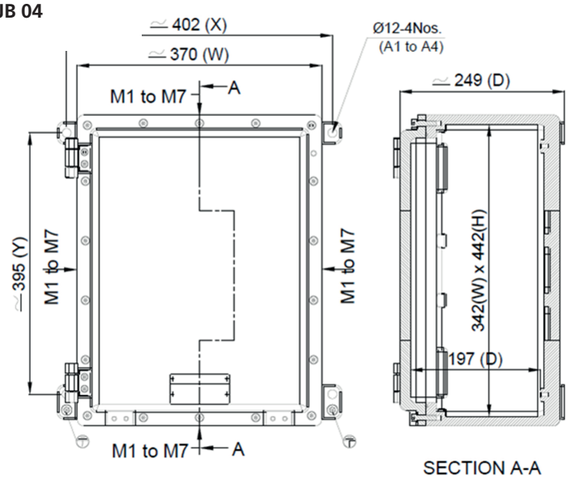
Weight in Al: 15.7 Kg

IJB 03



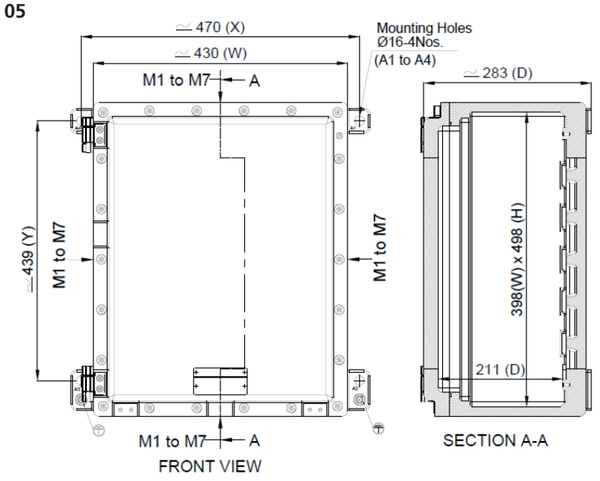
Weight in Al: 22.9 Kg

IJB 04



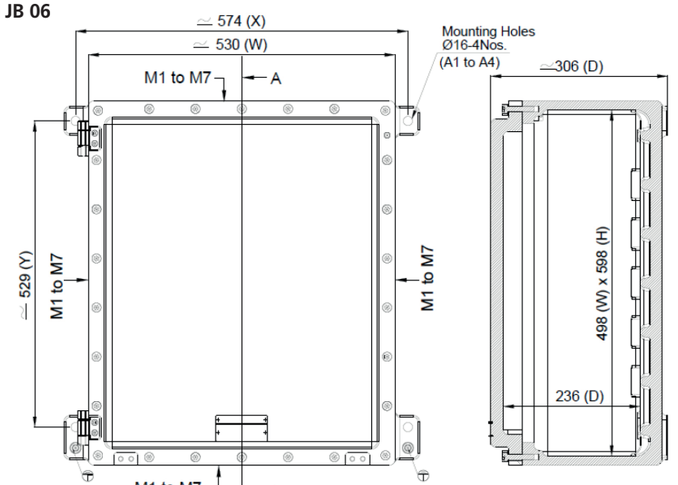
Weight in Al: 29.8 Kg

IJB 05



Weight in Al: 49.3 Kg

I JB 06



Weight in Al: 74.2 Kg