
	Scope : <b>USER MANUAL</b> <b>For ENCLOSURE TYPE TB-JB-R</b> <b>Zones 1, 2 &amp; 21 and 22</b>				Date : <b>28-03-2019</b>
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## 1. Marking:


### Labels

JUNCTION BOX: TB-JB-R... and TB-JBP-R....


IECEX only

 Veersteeg 15 4212 LR Spijk Netherlands <b>IP 66</b>	
<b>Series TB-(a) - R (-b)</b> S.No.	
IECEX DEK 13.0028X <small>Ex eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>	$U_N = \text{*****}$ <small>****</small> mm <sup>2</sup> T. amb. ***** Year of construction:
<b>WARNING - DO NOT OPEN WHEN ENERGIZED</b>	

ATEX only


 Veersteeg 15 4212 LR Spijk Netherlands <b>IP 66</b>		CE 0344
<b>Series TB-(a) - R (-b)</b> S.No.		
		$U_N = \text{*****}$ <small>****</small> mm <sup>2</sup> T. amb. ***** Year of construction:
DEKRA 12ATEX 0500X <small>Ex eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>		
<b>WARNING - DO NOT OPEN WHEN ENERGIZED</b>		

ATEX and IECEX


 Veersteeg 15 4212 LR Spijk Netherlands <b>IP 66</b>		CE 0344
<b>Series TB-(a) - R (-b)</b> S.No.		
IECEX DEK 13.0028X <small>Ex eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>	$U_N = \text{*****}$ <small>****</small> mm <sup>2</sup> T. amb. ***** Year of construction:	
DEKRA 12ATEX 0500X <small>Ex eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>		
<b>WARNING - DO NOT OPEN WHEN ENERGIZED</b>		


CONTROL STATION: TB-CS-R..... and TB-JB/CS-R.... and TB-JBP/CS-R...

ATEX only


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<b>Series TB-(a) - R (-b)</b> S.No.		
		$U_N = \text{*****}$ <small>****</small> mm <sup>2</sup> T. amb. -20°C / *** Year of construction:
DEKRA 12ATEX 0500X <small>Ex db eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>		
<b>WARNING - DO NOT OPEN WHEN ENERGIZED</b>		

IECEX only

 Veersteeg 15 4212 LR Spijk Netherlands <b>IP 65</b>		
<b>Series TB-(a) - R (-b)</b> S.No.		
IECEX DEK 13.0028X <small>Ex db eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>		$U_N = \text{*****}$ <small>****</small> mm <sup>2</sup> T. amb. -20°C / *** Year of construction:
<b>WARNING - DO NOT OPEN WHEN ENERGIZED</b>		

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#### ATEX and IECEx

		Veersteeg 15 4212 LR Spijk Netherlands	CE 0344 IP 65
<b>Series TB-(a) - R (-b)</b> S.No.			
IECEx DEK 13.0028X <small>Ex db eb · IIC T<sup>+</sup> Gb Ex tb · IIC T<sup>+</sup> Db</small>	U <sub>n</sub> = ***** ***** mm <sup>2</sup>	T. amb. -20°C / *** Year of construction:	
DEKRA 12ATEX 0500X <small>II 2G Ex db eb · IIC T<sup>+</sup> Gb II 2D Ex tb · IIC T<sup>+</sup> Db</small>	<b>WARNING - DO NOT OPEN WHEN ENERGIZED</b>		

Type name: TB - (a) – R (- b)

- (a) = JB or JBP (for junction box)  
or CS ( for control station)  
or JB/CS or JBP/CS ( for a combination)
- (b) = any letters/numbers (or nothing) not relevant for Ex

Warning is applicable when intrinsic safe components with non intrinsic safe components are installed.

- \* When intrinsic safe components installed: [ia Ga] or [ia] or [ia Gc] or [ib] or [ib Gc] or [ic Gc] (only for terminals)  
When pilot light are also inside then coding will be db eb mb in stead of db eb (Control stations)  
When EJB type D is installed in the TB-JB-R812 or the TB-JBP-R812 the gasgroup will be IIB instead of IIC
- \*\* 100°C or 80°C
- \*\*\* 5/6
- \*\*\*\* connection information (example: 6 pieces 2.5mm<sup>2</sup> 6A/ each)  
\*\*\*\*\* depends on installed components  
( max ambient temperature:  
Only junctionbox (JB or JBP): -40°C / 50°C for T5/T100°C and -40°C / 40°C for T6/T80°C  
With control station (CS): -20°C / 50°C for T5/T100°C and -20°C / 40°C for T6/T80°C  
With EJB D in control station (CS): only T5/T100°C
- \*\*\*\*\* Voltage AC ..Hz or DC


## 2. Standards:

This equipment is made in accordance with the IECEx scheme, the ATEX Directive 2014/34/EU and the following standards:

- IEC 60079-0	:2011	-	EN 60079-0	:2012+A1:2013
- IEC 60079-1	:2014	-	EN 60079-1	:2014
- IEC 60079-7	:2015+A1:2017	-	EN 60079-7	:2015+A1:2018
- IEC 60079-11	:2011	-	EN 60079-11	:2012
- IEC 60079-31	:2013	-	EN 60079-31	:2014

## 3. General Installation and Safety Instructions:

The installation must be realised in accordance with IEC/EN 60079-14 and/or in accordance with the national requirements. This equipment must be installed and used only by qualified personnel, having knowledge concerning electrical equipment for use in potentially explosive areas containing gas and/or dust. Qualified personnel must have knowledge regarding the types of explosion protection.

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The control and distribution boxes are equipment that is intended to be used in zone 1, 2, 21 and 22 for groups IIC and IIIC with temperature class T5/T6 or T85/100°C. It is necessary to control if this equipment is in accordance with the atmosphere where it is installed. The devices are intended only for fixed mounting.

When an EJB D enclosure is installed in the TB-JB\*\*, the box is intended for use in zone 1,2,21 and 22 for group IIB and IIIC, with a temperature class of T5.

The devices must only be used for the intended purpose. Modifications to the device influencing the integrity of the explosion protection is not permitted. Use the equipment only when undamaged and clean.

This equipment can be used in the following ranges of ambient temperature -40°C to 50°C for terminal boxes and -20°C to 50°C for control stations.

Verify that the voltage marked on label is correct before powering up.

In intrinsically safe circuits only insulated cables and conductors with a test voltage of at least 500Vac with a minimum quality H05 can be used.

In case of "Ex i to earth" the minimum insulation voltage is 500V.

In case of "Ex i to NON Ex i" the minimum insulation voltage is 1500V.

## 4. Connections :

### Electrical parameters:

Maximum supply voltage	: 690 V Voltage to GHG max 500V
Maximum current	: 500A Current to GHG max 10A
Conductor cross section	: 1,5 – 240 mm <sup>2</sup>
Degree of protection	: IP 66 to IEC/EN 60529 for TB-JB... and TB-JBRP... IP 65 to IEC/EN 60529 for TB-CS... and TB-JB/CS... and TB-JBP/CS...

This equipment can be used with different voltage and power, the nominal parameters are specified on the label.

### Cable glands:

The cable entry must be made in order not to alter the specific properties of the Ex e, Ex i, or Ex tb enclosure, as indicated in the IEC/EN 60079-7, IEC/EN 60079-11 and IEC/EN 60079-31 standard and with a minimum degree of protection IP66 in accordance with EN 60529 standard.


The connection to the external circuits must be realized by cable glands covered by a separate certificate in accordance ATEX/IECEx and in particular in accordance with IEC/EN 60079-14.

If a cable gland is not used the entry must be closed by a stopping plug covered by a separate certificate in accordance ATEX/IECEx.

The cable gland entry is for cylindrical ISO x 1.5.

### Electrical connections:

1. connect the conductors carefully by using the components mounting/operating instructions.
2. use suitable cables and install them in a way that the maximum permitted conductor temperature and surface temperature is not exceeded.
3. the permitted ambient temperature at the installed devices and components may not be exceeded.

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### Earthing connection:

In addition to the internal earth connection, this equipment is also provided by an external secondary earth connection. Both must be connected. For the internal earth the section must be equal to the active conductors. The external earth connection can receive a wire of 4 mm<sup>2</sup>.

The user/installer must connect the internal and external earthing before powering up.

### Before putting into service:

- make sure that the enclosure and its devices are not damaged
- verify that the installation is done according to the schematic drawings given/approved by TechNed Benelux.
- Follow the components mounting instructions/operating instructions
- remove foreign objects from the enclosure
- close all protection covers and partitions of live parts where applicable

## 5. Assembly and Dismantling

All repairs of explosion-proof equipment must be made according the specified criteria of IEC/EN 60079-19 by qualified personnel, having knowledge concerning electrical equipment for potentially explosive areas containing gas and/or dust. Qualified personnel must have knowledge regarding the types of explosion protection.

## 6. Maintenance:

The maintenance must be realised in accordance with IEC/EN 60079-17 and/or in accordance with the national requirements. This equipment must be installed and used only by qualified personnel, having knowledge concerning electrical equipment for use in potentially explosive areas containing gas and/or dust. Qualified personnel must have knowledge regarding the types of explosion protection.

When re-installing the covers, verify that the sealing is in correct shape to grant the IP protection.

## 7. Specific conditions of use

<b>This part needs to be considered for every control station (CS) or Junctionbox in combination with control station (JB/CS or JBP/CS). This applies for every serialnumber (product)</b>	
<u>Specific condition:</u>	<u>Applicable or <b>NOT</b> applicable</u>
For details regarding the flameproof joints of the Ex d EJB enclosure contact the manufacturer.	Only applicable when an Ex d EJB is placed inside the Control station
The control station provided with control units type ZBW4B... or ZBW5... is only suitable for applications with low risk of mechanical impact.	This is applicable for every control unit which is mounted on the cover of the Control station
The control station provided with control units type ZBW5AJ..., ZBW5AD..., ZBW5AG..., ZBW4BA, ZBW4BPS... or ZBW5APS has to be protected from ultraviolet light.	This is <b>NOT</b> applicable for the control station of TechNed. TechNed will not use these control units in their control stations
The control station provided with heads type ZB4BP..., ZB4BH..., ZB4BV... or ZB5AV... is only suitable for applications with low risk of mechanical impact.	This is applicable for every signal light which is mounted on the cover of the Control station