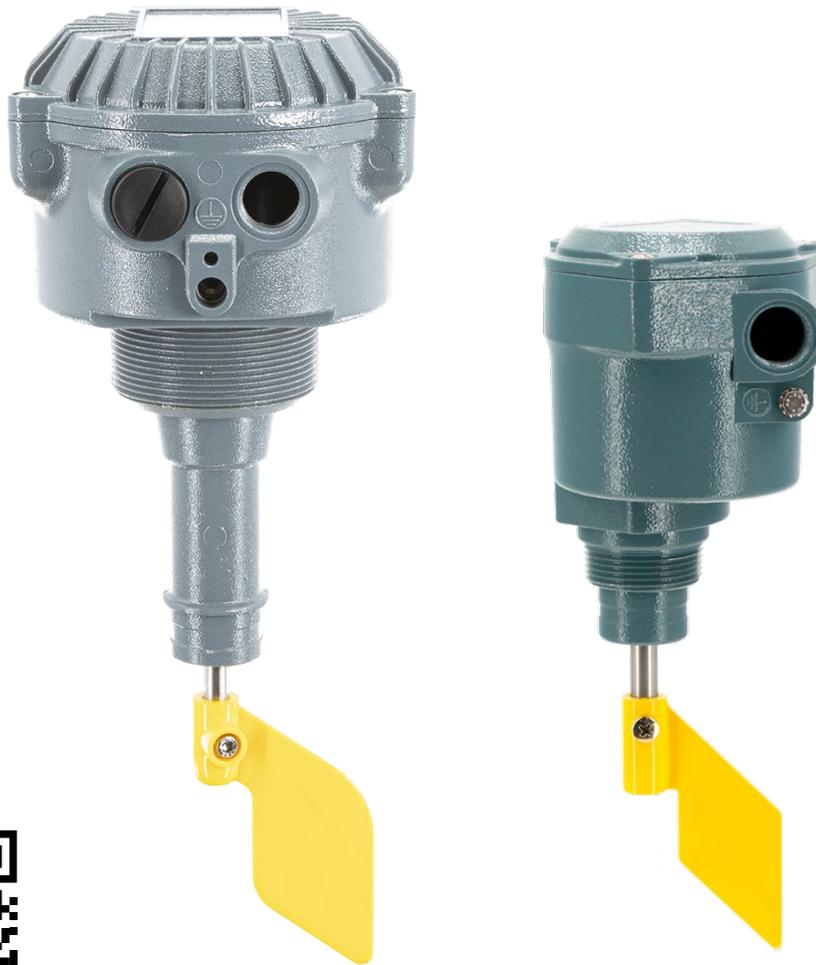


# INSTRUCTION MANUAL



EN - FR - CN - RU

## **RG SERIES**

*Rotary Level Indicator*

Part No's RGxV56A-x, RGxV4A-x

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# CUSTOMER SAFETY RESPONSIBILITIES

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Dear 4B Customer:

Congratulations on your purchase. 4B appreciates your business and is pleased you have chosen our products to meet your needs.

Please read in its entirety and understand the literature accompanying the product before you place the product into service. Please read the safety precautions carefully before operating the product. With each product you purchase from 4B, there are some basic but important safety considerations you must follow to be sure your purchase is permitted to perform its design function and operate properly and safely, giving you many years of reliable service. Please read and understand the Customer Safety Responsibilities listed below. Failure to follow this safety directive and the Operation Manuals and other material furnished or referenced, may result in serious injury or death.

## **SAFETY NOTICE TO OUR CUSTOMERS**

- A. In order to maximize efficiency and safety, selecting the right equipment for each operation is vital. The proper installation of the equipment, and regular maintenance and inspection is equally important in continuing the proper operation and safety of the product. The proper installation and maintenance of all our products is the responsibility of the user unless you have asked 4B to perform these tasks.
- B. All installation and wiring must be in accordance with Local and National Electrical Codes and other standards applicable to your industry. The installation of the wiring should be undertaken by an experienced and qualified professional electrician. Failure to correctly wire any product and/or machinery can result in the product or machine failing to operate as intended, and can defeat its design function.
- C. Periodic inspection by a qualified person will help assure your 4B product is performing properly. 4B recommends a documented inspection at least annually and more frequently under high use conditions.
- D. Please see the last page of this manual for all warranty information regarding this product.

## **CUSTOMER SAFETY RESPONSIBILITIES**

### **1. READ ALL LITERATURE PROVIDED WITH YOUR PRODUCT**

Please read all user, instruction and safety manuals to ensure that you understand your product operation and are able to safely and effectively use this product.

### **2. YOU BEST UNDERSTAND YOUR NEEDS**

Every customer and operation is unique, and only you best know the specific needs and capabilities of your operation. Please go to [www.go4b.com](http://www.go4b.com) or call the 24-hour hotline at +1-309-698-5611 for assistance with any questions about the performance of products purchased from 4B. 4B is happy to discuss product performance with you at any time.

### **3. SELECT A QUALIFIED AND COMPETENT INSTALLER**

Correct installation of the product is important for safety and performance. If you have not asked 4B to perform the installation of the unit on your behalf, it is critical for the safety of your operation and those who may perform work on your operation that you select a qualified and competent electrical installer to undertake the installation. The product must be installed properly to perform its designed functions. The installer should be qualified, trained, and competent to perform the installation in accordance with local and national electrical codes, all relevant regulations, as well as any of your own standards and preventive maintenance requirements, and other product installation information supplied with the product. You should be prepared to provide the installer with all necessary installation information to assist in the installation.

### **4. ESTABLISH AND FOLLOW A REGULAR MAINTENANCE AND INSPECTION SCHEDULE FOR YOUR 4B PRODUCTS**

You should develop a proper maintenance and inspection program to confirm that your system is in good working order at all times. You will be in the best position to determine the appropriate frequency for inspection. Many different factors known to the user will assist you in deciding the frequency of inspection. These factors may include but are not limited to weather conditions; construction work at the facility; hours of operation; animal or insect infestation; and the real-world experience of knowing how your employees perform their jobs. The personnel or person you select to install, operate, maintain, inspect or perform any work whatsoever, should be trained and qualified to perform these important functions. Complete and accurate records of the maintenance and inspection process should be created and retained by you at all times.

### **5. RETAIN AND REFER TO THE OPERATION MANUAL FOR 4B'S SUGGESTED MAINTENANCE AND INSPECTION RECOMMENDATIONS**

As all operations are different, please understand that your specific operation may require additional adjustments in the maintenance and inspection process essential to permit the monitoring device to perform its intended function. Retain the Operation Manual and other important maintenance and service documents provided by 4B and have them readily available for people servicing your 4B equipment. Should you have any questions, please call go to [www.go4b.com](http://www.go4b.com) or call the 24-hour hotline at +1-309-698-5611.

### **6. SERVICE REQUEST**

If you have questions or comments about the operation of your unit or require the unit to be serviced please contact the 4B location who supplied the product or send your request go to [www.go4b.com](http://www.go4b.com) or call the 24-hour hotline at +1-309-698-5611. Please have available product part numbers, serial numbers, and approximate date of installation. In order to assist you, after the product has been placed into service, complete the online product registration section which is accessed via our website [www.go4b.com](http://www.go4b.com).

## PRODUCT OVERVIEW

The RG series instruments are rotary level indicators for granular solids. The identification of the device is accomplished by the specific label outside the casing, whose characteristics are shown below:

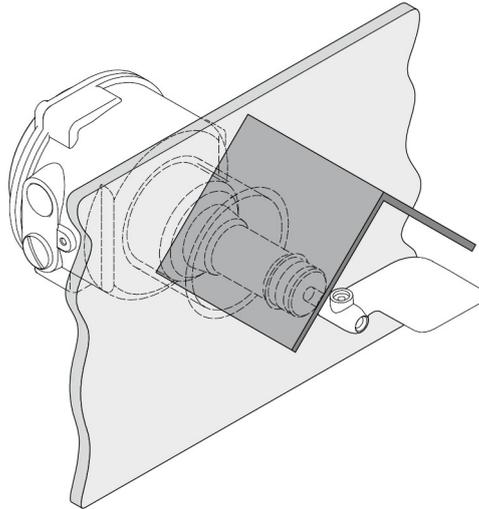
## SPECIFICATIONS

Power Supply -	RGxV56A-x: 110/240 VAC, RGxV4A-x: 24 VDC
Operating Temp. -	Standard -20°C to +70°C & High Temperature version for RG4 -20°C to +200°C
Output -	Change over relay 10 A at 250 VAC.
Mounting -	RG2 = Ø 1 1/4" NPT, RG3 = Ø 2"1/2 BSPT / Gas, RG4 = Ø 1"1/2 BSPT / Gas
Paddle -	Standard NYLON propeller, available on request in stainless steel or other materials and versions with 1, 2, 3 or 4 blades.
Conduit Entry -	RG2 & RG4 = 1 x Ø M20 x 1.5, RG3 = 2 x Ø M20 x 1.5
Enclosure -	Die-cast aluminium casing.
Protection -	IP65
Approvals -	<p>ATEX/IECEX Zone 20 / Zone 21</p> <p> <b>TÜV IT 22 ATEX 026 X</b>            II 1/2 D Ex ta/tb IIIC T85°C IP65 Da/Db            II 1/2 D Ex ta/tb IIIC T200°C IP65 Da/Db</p> <p><b>IECEX TPS 21.0038X</b>            Ex ta/tb IIIC T85°C Da/Db</p>

## INSTALLATION

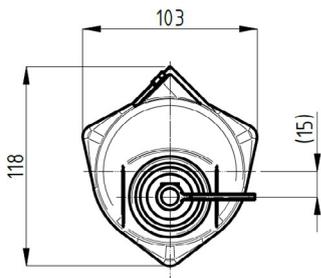
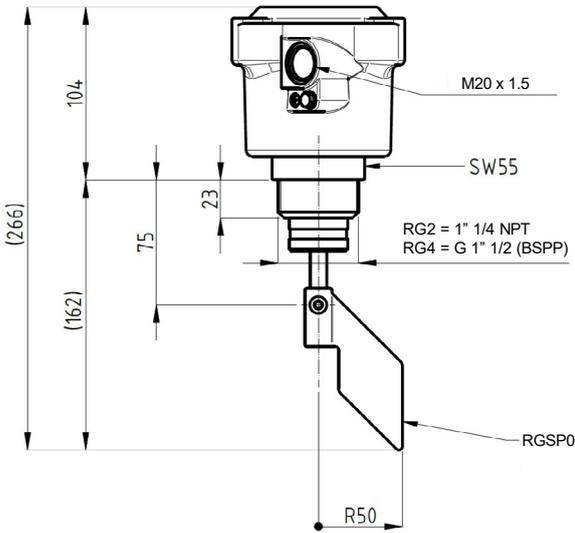
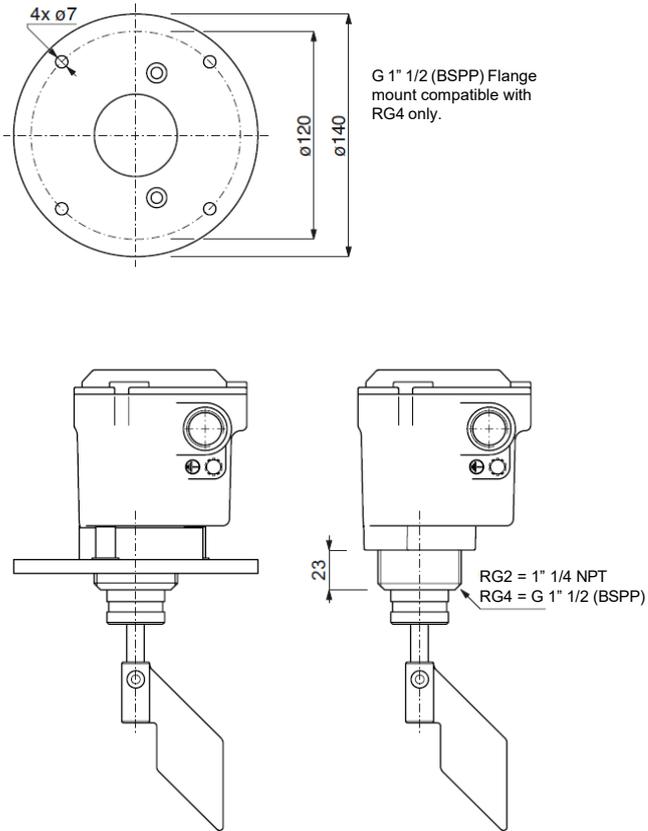
The device can be installed in any position. In case of a horizontal or titled installation, mount the device with the cable entrance on the right side for RG3 models, or lower side for RG2 or RG4 models. The coupling of the instrument with the wall of the container (silos) can be either threaded or flanged; images 2 and 3 show the standard couplings. Always refer to the technical drawings supplied by the Manufacturer together with this manual.

Protect the device from falling material or excessive weight, using protective detectors. For cable entries, 1 (one) or 2 (two) G 1/2 threaded holes (BSPP) are available. Seal the cable entries with cable glands or sealing caps suitable for the operating range shown on the label. The protective caps supplied with the device are only for protection during transport and storage, they are not suitable for the use of the instrument and it is responsibility of the installer to replace them.

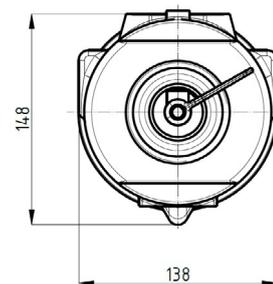
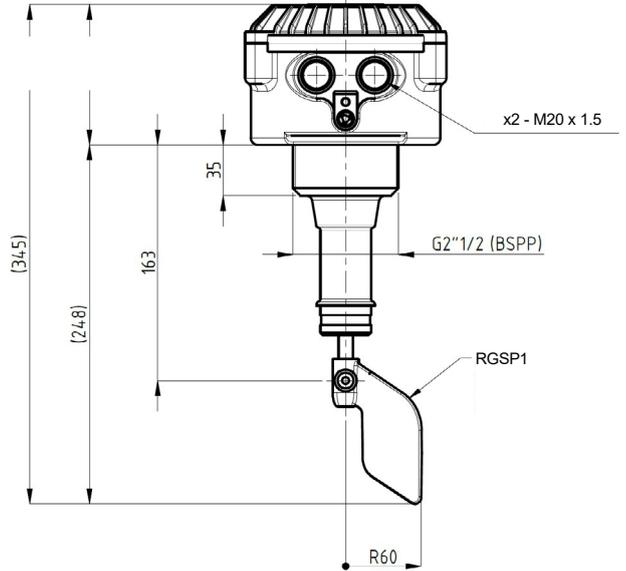
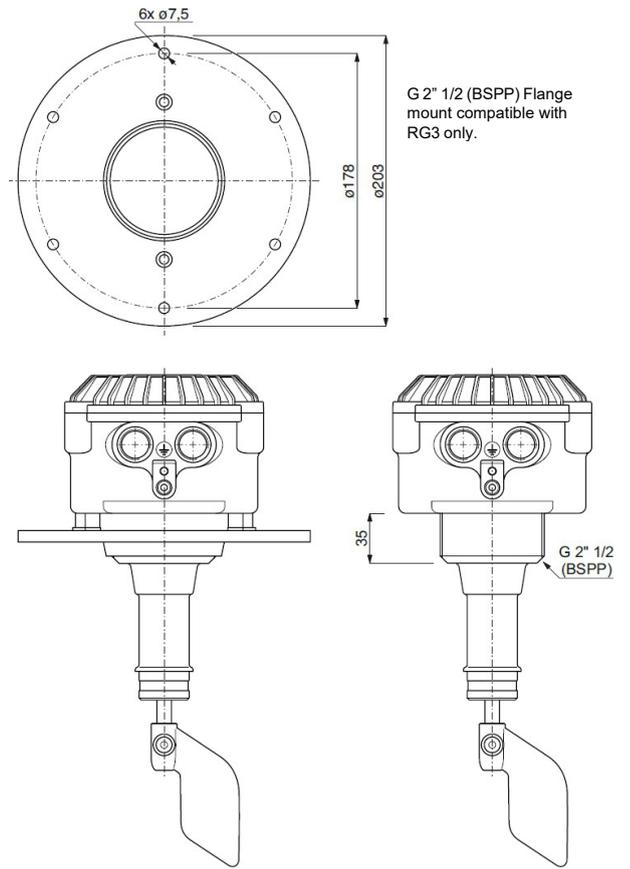


# DIMENSIONS

## RG2 & RG4



## RG3



Drawings not to scale  
All dimensions in mm

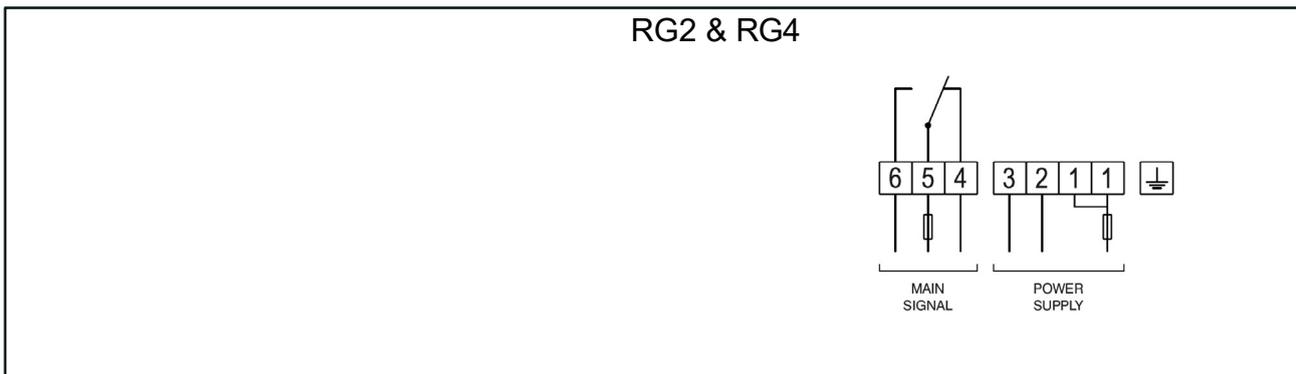
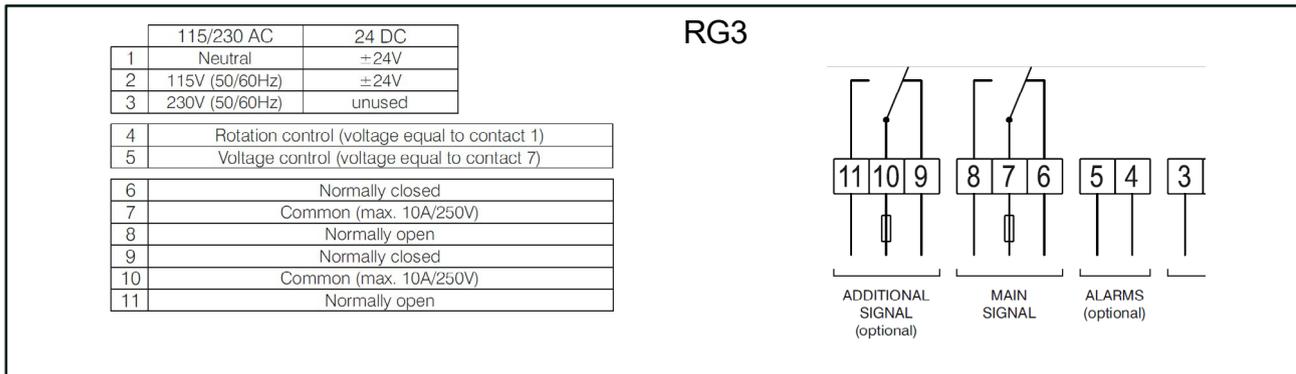
# ELECTRICAL CONNECTION

The entire connection of the device must take place while the device is de-energized. The earthing connection (by means of an M5x8 screw and a notched stainless-steel washer) must take place before any other connection is established.

On the device there are two terminals for the protective earth connection, marked by the relative symbols (IEC 60417): one inside the casing and one outside, in proximity of the cable entry. The cross-sectional area of the 2 protective earth (PE) conductor must be the same as that of the phase conductor (S), with a maximum of 16mm. Connect both earthing terminals to the equipotential line.

Before putting the device into service, make sure that the power supply voltage corresponds to the voltage indicated on the plate. Protect the power and signal carrying cables with an overload protection element (rated current  $\leq 10A$ ).

A disconnect switch must be present near the device, to cut off the power supply in the event of a fault. Utilize cables suitable for use up to 90°C. The wiring diagram is located inside the lid.



## WARNING

The installation, maintenance and diagnostics of the device must be carried out only by authorized personnel informed about the regulations in force. Before starting work, specialized personnel must have read and understood the instructions. When using electrically operated equipment, it is necessary to take the appropriate safety precautions, required by current regulations, to reduce the risk of fire, electric shock, and injury to people.

Before installing the device, check its perfect integrity making sure that it has not been damaged during transport.

The removal/replacement/modification of any part of the device entails the loss of validity of the certifications of the products itself. The earthing connection is mandatory and the sole responsibility of the installer.

Level indicators must be used within the range of ambient temperatures indicated on the plate. The **RG3..T** models are suitable for use in low temperatures un to  $-40^{\circ}C$ , thanks to the internal self-regulating heater, which guarantees a service temperature inside the casing, necessary to its proper operation. When an internal temperature of  $20^{\circ}C$  is reached, the heater switches off autonomously.

## SPECIFIC CONDITION FOR USE

In accordance with Directive 1992/92/EC, it is the responsibility of the user to ensure that the equipment, used in areas where an explosive atmosphere might be present, is maintained in such a way as to reduce the risk of explosion. Installation must be carried out in compliance with IEC 60079-14 standard.

Install the device in compliance with the Ex-zones indicated in image 4 (all parts can be installed in zone 21; only the mechanical part - paddle, shaft, support - below the connection to process can be installed in zone 20).

Seal the cable entries with cable glands or sealing caps certified in compliance with the Directive 2014/34/EU for the tb protection method, provided with a gasket for the interface with the device casing, able to guarantee a minimum ingress protection (IP) of 65.

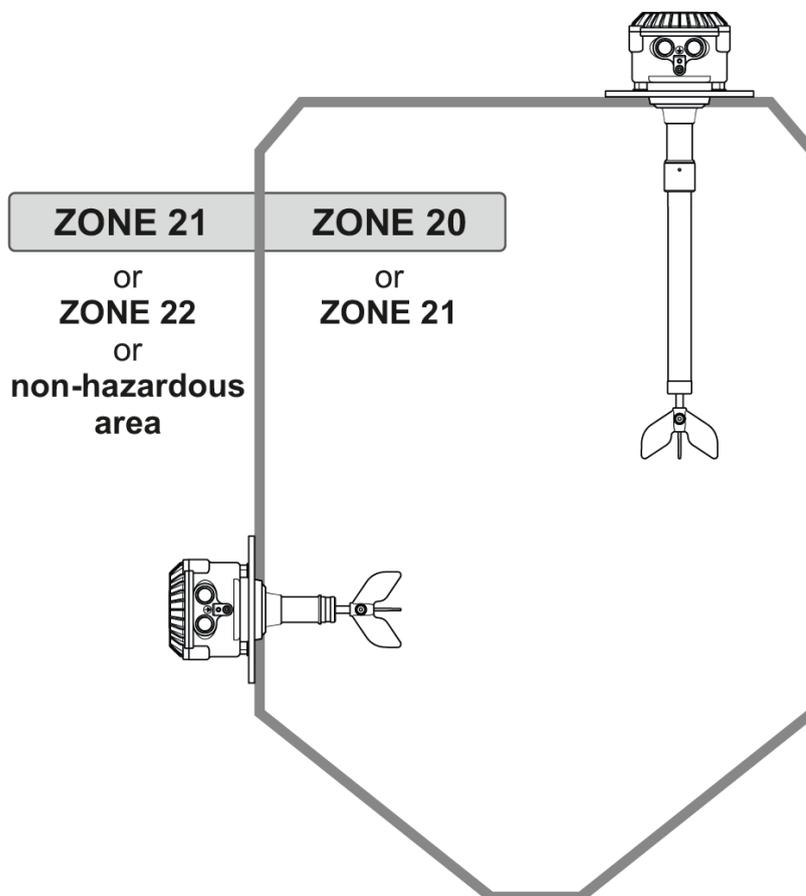
The plastic protective caps supplied with the level indicator are not suitable for use in explosive atmospheres and it is responsibility of the installer to replace them. The device is not explosion-proof when the casing is open. Close the cover minding the correct orientation.

After installing, check that you have completely tightened the cover screws and that you have tightened the cable and any sealing caps correctly, before starting the device. Avoid the onset of electrostatic charges on plastic parts (do not rub dry).

In the case of the version with lamp **RG3..L**, protect the plastic parts from direct exposure to solar radiation. In the case of models for high temperature applications **RG3.../AT**, use cables suitable for temperatures  $\geq 100^{\circ}\text{C}$ .

For all RG2 and RG4 versions, the equipment should be installed in such a way that the risk of mechanical danger is low (the aluminium case must be protected against impact).

The maximum surface temperature is calculated taking into account a safety margin, but without considering a possible dust deposit on the equipment. During installation, use and maintenance, any electrostatic charging should be avoided, for example by: protection from direct air flow, cleaning with wet clothes, earthing connection of the housing perfectly grounded.



# MAINTENANCE

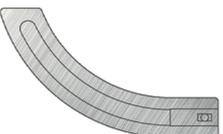
Maintenance must be carried out in compliance with IEC 60079-17 standards.

4B level indicators need no routine maintenance, however it is advisable to carry out the following checks: at each opening of the cover or removal of the instrument, visually check the sealing gaskets present.

In case there is evidence of damage or excessive tearing of the gaskets on the cover or other parts of the device, contact manufacturer 4B for the replacement with suitable materials.

The screws on the cover must be fully tightened and the cable glands and/or sealing caps must be properly tightened; make sure that the power and grounding terminals are correctly connected and in good condition.

## PARTS AND ACCESSORIES

	Part Number	Description	Size	Compatible	Min Hole $\phi$	Recommended Density	Material Weight
	RGSP0 (supplied as standard)	1 x Nylon6 blade	50 x 100 mm	RG2 RG3 RG4	39mm	1.0 kg/dm <sup>3</sup>	
	RGSP1	1 x Nylon6 blade	60 x 100 mm	RG2* RG3 RG4*	65mm	0.5 kg/dm <sup>3</sup>	
	RGSP3	3 x Nylon6 blades	120 x 65 mm	RG2* RG3* RG4*	* Install with flange of from within silo	0.3 kg/dm <sup>3</sup>	
	RGSP0-SS	1 x 304 Stainless Steel blade	50 x 100 mm	RG2 RG3 RG4	39mm	1.0 kg/dm <sup>3</sup>	
	RGSP1-SS	1 x 304 Stainless Steel blade	60 x 100 mm	RG2* RG3 RG4*	65mm	0.5 kg/dm <sup>3</sup>	
	RGSP4-SS	4 x 304 Stainless Steel blades	100 x 60 Mm	RG2* RG3* RG4*	* Install with flange of from within silo	0.3 kg/dm <sup>3</sup>	
	RGSP4-SS-L	4 x 304 Stainless Steel blades	138 x 50 mm	RG2* RG3* RG4*	* Install with flange of from within silo	0.2 kg/dm <sup>3</sup>	
	RGSPV-SS	1 x 304 Stainless Steel blade	160 x 95 mm	RG2 RG3 RG4	30mm	0.4 kg/dm <sup>3</sup>	

## **1. EXCLUSIVE WRITTEN LIMITED WARRANTY**

ALL PRODUCTS SOLD ARE WARRANTED BY THE COMPANY 4B COMPONENTS LIMITED AND 4B BRAIME COMPONENTS LIMITED HEREIN AFTER REFERRED TO AS 4B TO THE ORIGINAL PURCHASER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE (1) YEAR AFTER DATE OF PURCHASE FROM 4B. ANY PRODUCT DETERMINED BY 4B AT ITS SOLE DISCRETION TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO A 4B BRANCH OR AUTHORIZED SERVICE LOCATION, AS 4B DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT 4B'S OPTION.

## **2. DISCLAIMER OF IMPLIED WARRANTY**

NO WARRANTY OR AFFIRMATION OF FACT, EXPRESSED OR IMPLIED, OTHER THAN AS SET FORTH IN THE EXCLUSIVE WRITTEN LIMITED WARRANTY STATEMENT ABOVE IS MADE OR AUTHORIZED BY 4B. 4B SPECIFICALLY DISCLAIMS ANY LIABILITY FOR PRODUCT DEFECT CLAIMS THAT ARE DUE TO PRODUCT MISUSE, ABUSE OR MISAPPLICATIONS, AS AUTHORIZED BY LAW, 4B SPECIFICALLY DISCLAIMS ALL WARRANTIES THAT THE PRODUCT IS FIT OR MERCHANTABLE FOR A PARTICULAR PURPOSE.

## **3. NO WARRANTY "BY SAMPLE OR EXAMPLE"**

ALTHOUGH 4B HAS USED REASONABLE EFFORTS TO ACCURATELY ILLUSTRATE AND DESCRIBE THE PRODUCTS IN ITS CATALOGS, LITERATURE, AND WEBSITES, SUCH ILLUSTRATIONS AND DESCRIPTIONS ARE FOR THE SOLE PURPOSE OF PRODUCT IDENTIFICATION AND DO NOT EXPRESS OR IMPLY A WARRANTY AFFIRMATION OF FACT, OF ANY KIND OR A WARRANTY OR AFFIRMATION OF FACT THAT THE PRODUCTS WILL CONFORM TO THEIR RESPECTIVE ILLUSTRATIONS OR DESCRIPTIONS. 4B EXPRESSLY DISCLAIMS ANY WARRANTY OR AFFIRMATION OF FACT, EXPRESSED OR IMPLIED, OTHER THAN AS SET FORTH IN THE EXCLUSIVE WRITTEN LIMITED WARRANTY STATEMENT ABOVE, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## **4. LIMITATION OF DAMAGES**

ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES, OR FOR LOSS OF PROFIT WHETHER DIRECT OR INDIRECT, IS EXPRESSLY DISCLAIMED.

4B is the worldwide leading manufacturer of high-quality, technologically advanced material handling and electronic components.



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