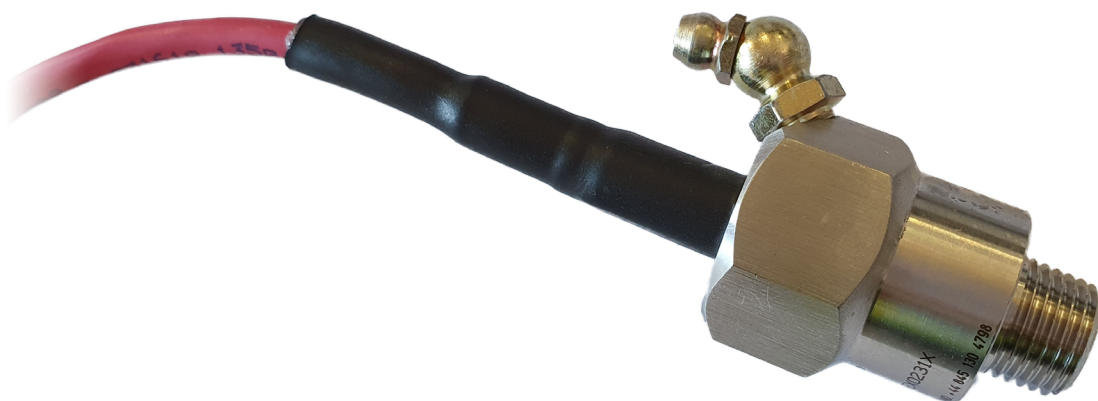




WDB81 Series

BEARING TEMPERATURE SENSORS



EN - FR - CN - RU



INSTALLATION INSTRUCTIONS

OPERATION MANUAL

Part No.'s - WDB81xxxx

www.go4b.com

THIS PAGE IS INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

CUSTOMER SAFETY RESPONSIBILITIES	Page 4 - 5
PRODUCT OVERVIEW	Page 6
PRODUCT SELECTION	Page 6
SPECIFICATIONS	Page 7
SPECIAL CONDITIONS FOR SAFE USE	Page 8
DIMENSIONS	Page 8
STANDARD WIRING DIAGRAM	Page 9
APPROVALS	Page 10
INSTALLATION	Page 11
PRODUCT WARRANTY	Page 12

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 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 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 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.

PRODUCT OVERVIEW

The WDB81 series is a range of bearing sensors manufactured to screw directly into a bearing housing. Each sensor is fitted with a grease nipple to allow lubrication of the bearing without the need for removal of the sensor. The sensor is fitted with a permanently attached 3 meter cable.

The WDB810 (NTC) sensor and the WDB812 to WDB817 (PTC) sensor and the WDB819 (Pt100) sensor cable has two cores and the table below shows the connections. The connections are not polarity sensitive therefore special connection requirements are eliminated.

It is advisable however to connect all sensors in an identical manner, this will reduce the risk of shorting. Please refer to the relevant device manual for detailed connection information.

PRODUCT SELECTION

WDB X X X V3AI/X/Dx/SS

SENSOR TYPE	FIXING THREAD	BODY TYPE	SENSOR TYPE	VERSION + CETIFICATION
WDB = Wired Sensor	8 = 1/4" BSPT	1 = Cable Entry	0 = NTC 2 = PTC 60°C 3 = PTC 70°C 4 = PTC 80°C 5 = PTC 90°C 9 = PT100	V3AI = <ul style="list-style-type: none">• ATEX• IECEX• EACEX• CCC• UKEX

Additional Options

WDB X X X V3AI/X

CABLE LENGTH

X = Length in Meters

SPECIFICATIONS

WDB810* - NTC Sensors

Resistance at 25° C -	10,000 Ohms
Resistance at 60° C -	3,043 Ohms
Resistance at 90° C -	1,264 Ohms
Sensing Voltage -	5 to 24 VDC
Current Draw -	1 mA (Max. Recommended)
Maximum Power -	120 mW at 25° C (77° F)
Body Housing / Lug -	Stainless Steel
Fixing Thread-	1/4" BSPT
Cable -	PVC , 3 meters, 2 core – Black / Brown (not polarity sensitive).
Operating Temperature -	Minimum: -40° C (-22° F) Maximum: 105° C (220° F)
Weight -	0.2kg

WDB812*, WDB813*, WDB814*, WDB815*- PTC Sensors

Resistance at 25° C -	250 Ohms (Max)
Resistance at -5° C -	From trip temperature - 550 Ohms (Max)
Resistance at +5° C -	From trip temperature - 1300 Ohms (Min)
Body Housing / Lug -	Stainless Steel
Fixing -	1/4" BSPT
Cable -	PVC , 3 meters, 2 core – Black / Brown (not polarity sensitive).
Operating Temperature -	Maximum continuous cable temperature is 105°C.
Weight -	0.2kg

WDB819* - PT100 / RTD Sensors

Resistance at 25° C -	109.73 Ohms
Resistance at 60° C -	123.24 Ohms
Resistance at 90° C -	134.71 Ohms
Temp. Coefficient -	3850 ppm/K
Sensing Voltage -	5 to 24 VDC
Current Draw -	1 mA (Max. Recommended)
Body Housing / Lug -	Stainless Steel
Fixing -	1/4" BSPT
Cable -	3m; 2 conductors; custom length available on request
Operating Temperature -	Maximum continuous cable temperature is 105°C.
Weight -	0.2kg

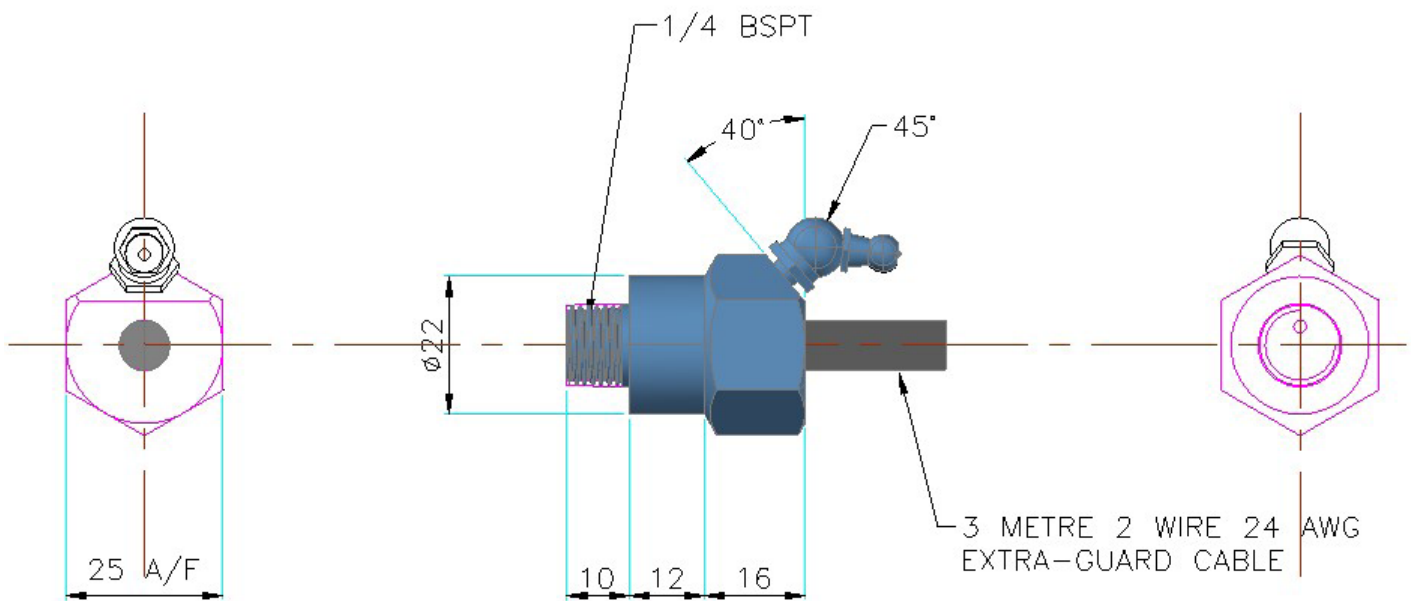
SPECIAL CONDITIONS FOR SAFE USE

If not used with the ATEX approved 4B temperature monitors the power supply to the sensor shall be rated for a prospective short circuit current of 10 KA.

The supply to the equipment MUST NOT exceed +24 VDC.

If the supply leads are terminated in a hazardous area, the termination arrangement must comply with the Zone/Category/EPL of the hazardous area that it is to be installed.

DIMENSIONS



WARNING

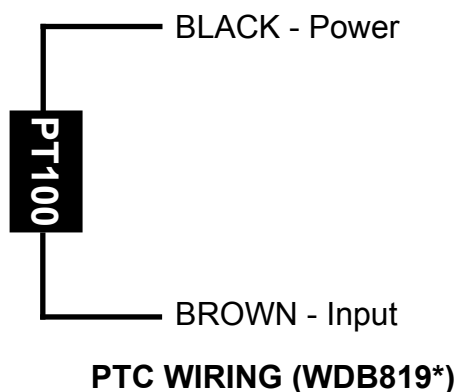
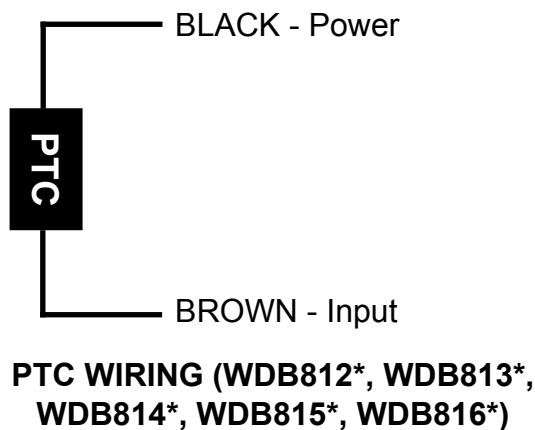
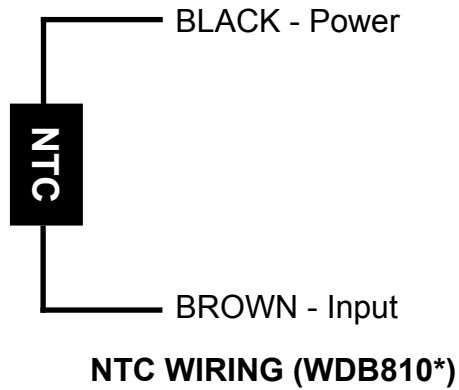
Rotating machinery can cause serious injury or death
Always lockout and tagout the machine prior to installation

STANDARD WIRING DIAGRAM

All wiring must be in accordance with local and national electrical codes and should be undertaken by an experienced and qualified electrician.

Optional connection for dust/liquid tight flexible metal conduit with approved fittings to protect the sensor cables. Note: conduit systems can channel water due to ingress and condensation directly to sensors and sensor connections which over time will adversely affect the performance of the system. As such, the installation of low point conduit drains is recommended for all sensors.




All WDB8 sensors are non-polarity sensitive, however 4B recommends wiring the sensors as outlined below.



WARNING

Do not wire the sensor across the voltage source directly. Always ensure that the sensor is wired into a signal conditioning circuit for the temperature measurement. Please note that if the power applied across the sensor exceeds the specified maximum rated power or current, then the sensor may be damaged beyond repair. When properly wired to 4B controllers, the power rating across the sensors is kept at a safe level.

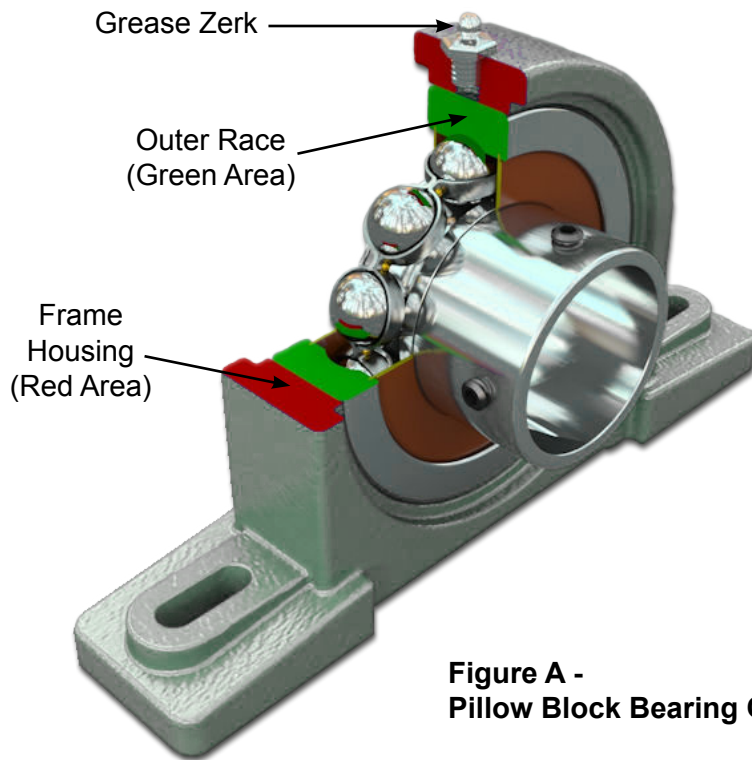
APPROVALS

ATEX	Baseefa09ATEX0231X  II 1D Ex ta IIIC T ₂₀₀ 125°C Da IP65 Tamb -40°C to +60°C*
IECEX	IECEX BAS 09.0111X Ex ta IIIC T ₂₀₀ 125°C IP65 Tamb -40°C to +60°C*
CCC	CQC-2020012315351289 Ex tD A20 IP65 T125°C
EACEx	RU C-GB.Aж58.B.00330/20  Ex ta IIIC T125°C Da X OT -40 до +60 IP65
UKEX	BAS21UKEX0308X  II 1D Ex ta IIIC T ₂₀₀ 125°C Da IP65 Tamb -40°C to +60°C*

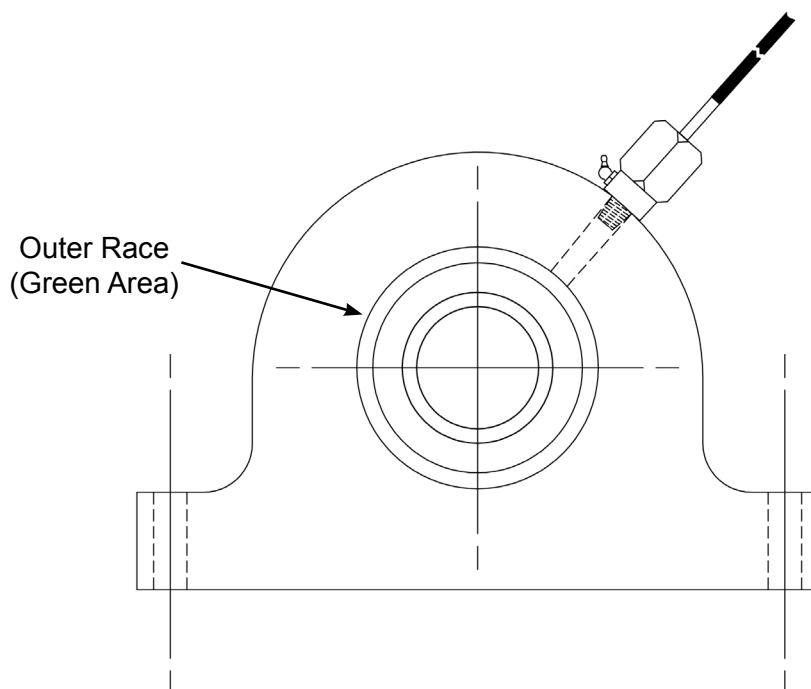
* Dependent on product

INSTALLATION

1. Remove the existing grease zerk from the bearing housing.
2. Drill out and tap to 1/4" BSPP (if required).
3. Screw the WDB81 sensor body in to the 1/4" BSPT in the bearing housing.
4. All WDB81 sensors are non-polarity sensitive, however 4B recommend wiring the sensors in an identical manner.
5. Ensure that the cable does not become twisted, snagged, or damaged during the installation.
6. The diagram shown below has the grease nipple/zerk in a different location to the WDB81 and shows the cable with a conduit fitting (not present on the WDB81). Hazardous Location Installation should conform to IEC/EN 60079-14.



**Figure A -
Pillow Block Bearing Cutaway**



**Figure B -
WDB Sensor Installation**

PRODUCT WARRANTY

1. EXCLUSIVE WRITTEN LIMITED WARRANTY

All products sold are warranted by the company 4B Components Limited, 4B Braime Components Limited, and 4B France 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.

THIS PAGE IS INTENTIONALLY LEFT BLANK

THIS PAGE IS INTENTIONALLY LEFT BLANK

With subsidiaries in North America, Europe, China, Asia, Africa and Australia along with a worldwide network of distributors, 4B can provide practical solutions for all your applications no matter the location.



4B BRAIME COMPONENTS LTD.

Hunslet Road
Leeds
LS10 1JZ
United Kingdom
Tel: +44 (0) 113 246 1800
Email: 4b-uk@go4b.com

4B DEUTSCHLAND

35 Bis Rue Du 8 Mai 1945
80800 Villers, Bretonneux
France
Tel: +49 (0) 700 2242 4091
Email: 4b-deutschland@go4b.com

4B AFRICA

14 Newport Business Park
Mica Drive, Kya Sand
2163 Johannesburg
South Africa
Tel: +27 (0) 11 708 6114
Email: 4b-africa@go4b.com

4B FRANCE

35 Bis Rue Du 8 Mai 1945
80800 Villers, Bretonneux
France
Tel: +33 (0) 3 22 42 32 26
Email: 4b-france@go4b.com

4B COMPONENTS LTD.

625 Erie Avenue
Morton, IL 61550
USA
Tel: 309-698-5611
Fax: 309-698-5615

4B ASIA PACIFIC

Build No. 899/1 Moo 20
Soi Chongsiri, Bangplee-Tam
Ru Road, Tanbon Bangpleeyai,
Amphur Bangplee,
Samutprakarn 10540
Thailand
Tel: +66 (0) 2 173-4339
Email: 4b-asiapacific@go4b.com

4B China

F1, Building 5A,
Jintong Industrial Park,
8 West Lake Road,
Wujin High & New TDZ,
Changzhou, Jiangsu, PRC
Tel: +86-519-88556006
Email: 4b-china@go4b.com

4B AUSTRALIA

Building 1, 41 Bellrick Street
Acacia Ridge
Queensland 4110
Australia
Tel: +61 (0)7 3216 9365
Email: 4b-australia@go4b.com



www.go4b.com