ADB Sensor Tester
ADJUSTABLE DEPTH BEARING SENSOR TEMPERATURE TESTER

OPERATION MANUAL
Part No. ADBT3

www.go4b.com/usa
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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. (Please see the article “Hazard Monitoring Equipment Selection, Installation and Maintenance” at www.go4b.com.) 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 call the 24-hour hotline at 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 OSHA 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 the free 24-hour hotline number (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 via fax (309-698-5615) or call us via our 24-hour hotline number in the USA (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/usa.
The ADB Sensor Tester (ADBT) has been designed to test 4B adjustable depth bearing (ADB) style temperature sensors in the field. During planned maintenance or periodic testing, the ADBT can be used as a diagnostic tool to verify the alarm and shutdown sequences of the control unit are functioning as expected. The unit operates in two testing modes, direct (heated) and indirect (simulated).

In direct mode, an integrated heating block within the ADBT heats the ADB sensor probe to the desired trip point, and allows quick and easy real life testing of the sensor and temperature monitoring system. Using indirect mode allows simulated testing of NTC type sensors within the network of 4B’s T500 Hotbus control unit. By connecting the ADBT to a TN4 node, testing of the node and the network is accomplished by simulating the temperature above the sensor’s trip point and monitoring the response of the control unit.

WARNING

- Do NOT use when hazardous dust is present
- Only use ADB Tester with 4B ADB bearing temperature sensors for direct (heated) testing
- Only use 4B HOTBUS-TN4 temperature nodes for indirect (simulated) testing
## SPECIFICATIONS

<table>
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<th>Spec</th>
<th>Description</th>
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<tr>
<td>Power Supply</td>
<td>Four - AA Batteries (Rechargeable NiMH Recommended)</td>
</tr>
<tr>
<td>Temperature Control Range</td>
<td>Direct Testing Mode: 140°F to 190°F (60°C to 85°C)</td>
</tr>
<tr>
<td></td>
<td>Indirect Testing Mode: 77°F to 220°F (25°C to 105°C)</td>
</tr>
<tr>
<td>Temperature Set Control</td>
<td>Adjustable by 10°F or 5°C Increments</td>
</tr>
<tr>
<td>Display</td>
<td>Yellow OLED Showing Testing Set Temperature</td>
</tr>
<tr>
<td>Power On / Off</td>
<td>Top Mounted Switch</td>
</tr>
</tbody>
</table>

## DIMENSIONS

**ALL DIMENSIONS IN INCHES**

Front View:

- Height: 8-1/4"
- Width: 4-3/4"

Side View:

- Width: 2"

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The ADB tester uses four AA batteries (not included). In order to get the longest use, rechargeable NiMH batteries are recommended. Alkaline batteries can also be used.

The OLED Display will show “BATTERY” instead of “HEATING” or “COOLING” if the voltage of the battery is low

To access the AA battery compartment on the bottom of the unit, remove the two central screws holding it in place. Insert the four AA batteries (Image A), be sure to match up the + and – indications on the batteries with the + and – indications on the battery compartment. Then replace the battery compartment lid and the two screws.

**NOTE:** Do not use an old battery with a new one, or mix different types of batteries together.

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**NOTE**

Batteries are not included with the ADBT. 4B recommends using rechargeable NiMH batteries.

The ADBT must be powered by batteries to perform direct (heated) testing. However, indirect (simulated) testing does not require batteries as power will be drawn from the node.

When using the direct testing mode to test multiple bearing sensors within a short time span, 4B recommends not turning off the power to the ADB tester since the heating block can take some time to reach the target temperature (around five minutes for 140° for example). Leaving the ADB tester on will maintain the set target temperature, which will speed up the testing process.
ADB bearing temperature sensors are designed to report real-time bearing temperatures to a control unit (PLC, 4B Hazard Monitor, etc.). The control unit should be able to alarm and shut down machinery when a hazardous operating temperature has been detected by any ADB sensor.

The ADB Sensor Tester verifies that the ADB sensor is functioning properly, and that the complete system (control unit / PLC) are installed and operating correctly. During planned maintenance or periodic testing, the ADB Sensor Tester can be used as a diagnostic tool to verify the alarm and shutdown sequences of the control unit are functioning as expected.

The ADB Sensor Tester functions in two testing modes:

**DIRECT TESTING MODE -**
Direct mode uses the integrated heating block within the ADBT to heat the ADB probe. The OLED display of the ADB Sensor Tester shows the set heater block temperature in degrees Fahrenheit or Celsius. When the tester is turned on, it will display the last selected temperature unit on the OLED display. To change the temperature unit, press the “-” button for °F or press “+” for °C within two seconds of turning on the ADBT. If no button is pressed, the last selected temperature unit will be used by default.

To test, remove the ADB bearing sensor probe from the housing and insert it into the ADB probe input (Image C). The heater block target temperature should be set above the control unit's alarm operating temperature. To set the target temperature press the “+” or “-” buttons to increase or decrease the target temperature by 10°F or 5°C increments. The OLED display will flash between the target temperature and the heating blocks current state (heating or cooling). When the target temperature is reached, the display will stop flashing and show the target temperature.

When the heater block reaches the alarm temperature, the ADB sensor will relay this data to the control unit; allowing you to verify that the alarm and shutdown trip points of the system perform as expected.

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**NOTE**

The temperature simulation control knob and output cable are not used during direct testing mode.
INDIRECT TESTING MODE -
Indirect mode simulates temperatures of NTC type sensors within the network of 4B’s T500 Hotbus control unit. To test, connect the supplied output cable into the “Simulation Mode Output” plug on the top of the ADBT (Image D). Then connect the three way female plug (Image E) into a TN4 input node by first disconnecting the existing NTC sensor connection. Since the ADBT will be drawing power from the node, battery power is not required for indirect mode testing. Once all connections have been made (Image F), the user can now rotate the black temperature simulation control knob on the top of the ADBT to simulate the following conditions:

1. NTC Sensor Open Circuit (No Sensor Installed / Plugged In)
2. NTC Sensor Temperature Range 77°F to 220°F (25°C to 105°C)
3. NTC Sensor Short Circuit (Sensor Wiring Issue)

To test for an open circuit, with the front of the ADBT facing toward you, turn the knob all the way counter clockwise until it clicks (Image G). For temperature range testing, start in the open circuit position and then slowly turn the knob clockwise until you hear a “click”. The “click” sets the temperature to a simulated 77°F (25°C), as you continue to turn the knob clockwise the simulated temperature increases until it reaches 220°F (105°C). To test for a short circuit, turn the knob completely clockwise.

NOTE
The OLED display and the Set “+ / - “ buttons are not used during indirect testing mode.

WARNING
After successful direct testing, ensure that the ADB Sensor is re-installed into the bearing housing as outlined in the ADB Sensor installation instructions.

After successful indirect testing, ensure that the NTC sensor connection is re-installed on the TN4 node as outlined in the node/system installation instructions.
**IMAGE F**
Indirect Testing Mode:
Output Cable Plugged Into TN4 Node

**IMAGE G**
Indirect Testing Mode:
Temperature Simulation Control Knob
<table>
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<th>FAULT</th>
<th>REMEDY</th>
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<td>OLED Display not Functioning</td>
<td>Replace AA batteries.</td>
</tr>
<tr>
<td>Testing Temperature Set Buttons not Working</td>
<td>Turn ADBT off and try again, if buttons are still not functioning</td>
</tr>
<tr>
<td></td>
<td>replace AA batteries.</td>
</tr>
<tr>
<td>Heater Block not Warming</td>
<td>Replace AA batteries.</td>
</tr>
<tr>
<td>ADB Sensor not Responding as Expected to Testing</td>
<td>1. Make sure the ADB sensor probe is securely inserted all the way into the tester’s heater block.</td>
</tr>
<tr>
<td></td>
<td>2. Check alarm and shut down settings on control unit.</td>
</tr>
<tr>
<td></td>
<td>3. Replace ADB sensor and re-test. If sensor is still not responding as expected, contact 4B.</td>
</tr>
<tr>
<td>OLED Display Shows “ERR OC” or “ERR SC”</td>
<td>Contact 4B</td>
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1. EXCLUSIVE WRITTEN LIMITED WARRANTY

ALL PRODUCTS SOLD ARE WARRANTED BY THE COMPANY (4B COMPONENTS LIMITED, (4B) BRAIME ELEVATOR COMPONENTS LIMITED, AND (4B) S.E.T.E.M. Sarl 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.

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3. NO WARRANTY “BY SAMPLE OR EXAMPLE”

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