



• BTO2000-D

Variable Temperature System
User Manual

Version 001



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This manual was written by

Christian Ebi

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Fällanden, Switzerland

P/N: Z130978

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For further technical assistance on the BTO2000-D, please do not hesitate to contact your nearest BRUKER dealer or contact us directly at:

BRUKER BioSpin AG
Industriestrasse 26
CH-8117 Fällanden
Germany

Phone: + 41 44 825 9111
FAX: + 41 44 825 9696
E-mail: service@bruker.ch
Internet: www.bruker.com

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Contact

Manufacturer:

Bruker BioSpin AG
Industriestrasse 26
CH-8117 Fällanden
Switzerland
Phone: +41 44 825 9111
<http://www.bruker-biospin.com>

NMR Hotlines

Contact our NMR service centers.

Bruker BioSpin NMR provide dedicated hotlines and service centers, so that our specialists can respond as quickly as possible to all your service requests, applications questions, software or technical needs.

Please select the NMR service center or hotline you wish to contact from our list available at:

http://www.bruker-biospin.com/hotlines_nmr.html



1 About

1.1 This Manual

This manual is intended to be a reference guide for operators and service technicians. It provides detailed information about the user level maintenance and service and overall use of the Bruker device.

The figures shown in this manual are designed to be general and informative and may not represent the specific Bruker model, component or software/firmware version you are working with. Options and accessories may or may not be illustrated in each figure.

Carefully read all relevant chapters before working on the device!

This manual describes parts and procedures relevant to the device version it is delivered with. For older hardware, please refer to the manual supplied at the time.

1.2 Policy Statement

It is the policy of Bruker to improve products as new techniques and components become available. Bruker reserves the right to change specifications at any time.

Every effort has been made to avoid errors in text and figure presentation in this publication. In order to produce useful and appropriate documentation, we welcome your comments on this publication. Support engineers are advised to regularly check with Bruker for updated information.

Bruker is committed to providing customers with inventive, high quality products and services that are environmentally sound.

2 Introduction

This manual is intended to be used by trained device users. It contains information about the device: operation, safety, maintenance, etc..

2.1 Limitation of Liability

All specifications and instructions in this manual have been compiled taking account of applicable standards and regulations, the current state of technology and the experience and insights we have gained over the years.

The manufacturer accepts no liability for damage due to:

- Failure to observe this manual
- Improper use
- Deployment of untrained personnel
- Unauthorized modifications
- Technical modifications
- Use of unauthorized spare parts

The actual scope of supply may differ from the explanations and depictions in this manual in the case of special designs, take-up of additional ordering options, or as a result of the latest technical modifications.

The undertakings agreed in the supply contract as well as the manufacturer's Terms and Conditions and Terms of Delivery and the legal regulations applicable at the time of conclusion of the contract shall apply.

2.2 Before You Begin

This user manual contains information and safety information that are necessary for the safe operation of the device.

Any user maintenance and repairs are to be accomplished using the information in this manual.

Consider all safety references!

Information for ordering spare parts is available in the spare parts section for from the Bruker Service Center (see contacts).

2.3 The Bruker Service

Our customer service division is available to provide technical information. See "[Contact](#)" on page 5 for contact details.

In addition, our employees are always interested in acquiring new information and experience gained from practical application; such information and experience may help improve our products.

2.4 Transport to Manufacturer

When the BTO2000-D must be returned to the manufacturer for a major repair, use the original packaging for transportation.

Include a good description of the problem.

3 Transport, Packaging and Storage

3.1 Symbols on the Packaging

The following symbols are affixed to the packaging material. Always observe the symbols during transport and handling.

Component Sensitive to Electrostatic Charge



The packaging contains components which are sensitive to an electrostatic charge.
Only allow packaging to be opened by trained personnel.
Establish potential equalisation before opening.

3.2 Inspection at Delivery

Upon receipt, immediately inspect the delivery for completeness and transport damage.

Proceed as follows in the event of externally apparent transport damage:

- Do not accept the delivery, or only accept it subject to reservation.
- Note the extent of the damage on the transport documentation or the shipper's delivery note.
- Initiate complaint procedures.

i Issue a complaint in respect to each defect immediately following detection. Damage compensation claims can only be asserted within the applicable complaint deadlines.

3.3 Packaging

About Packaging

The individual packages are packaged in accordance with anticipated transport conditions. Only environmentally friendly materials have been used in the packaging.

The packaging is intended to protect the individual components from transport damage, corrosion and other damage prior to assembly. Therefore do not destroy the packaging and only remove it shortly before assembly.

Handling Packaging Materials

Dispose of packaging material in accordance with the relevant applicable legal requirements and local regulations.

3.4 Storage

Storage of the Packages

Store the packages under the following conditions:

- Do not store outdoors.
- Store in dry and dust-free conditions.
- Do not expose to aggressive media.
- Protect against direct sunlight.
- Avoid mechanical shocks.
- Storage temperature: 15 to 35 °C.
- Relative humidity: max. 60%.

If stored for longer than 3 months, regularly check the general condition of all parts and the packaging. If necessary, top-up or replace preservatives.

4 Getting started

4.1 Introduction

Z123594 BSMS/2 VTA BTO2000-D is an adaption device between Bruker room-temperature probes with thermocouple (TC) type T regulation sensor and Bruker BVT3x00 family of VT units.

The device includes a novel digital cold-junction compensation and driver circuit that can be connected to the B-TO2000 interface on BVT3x000 VT units.

With this unit the performance and temperature stability of standard room-temperature probes in conjunction with BVT3x00 systems can be significantly enhanced.

4.2 Compatibility

The Z123594 BSMS/2 VTA BTO2000-D is fully compatible with the following VT units

- W1101264 BSMS/2 BVT3200 TEMP UNIT
- W1101558 BSMS/2 BVT3200A TEMP UNIT
- W1101095 BVT3000 PERFORMANCE UNIT
- W1101456 BVT3000 MAS
- W1101266 BVT3000 BEST

4.3 Installation

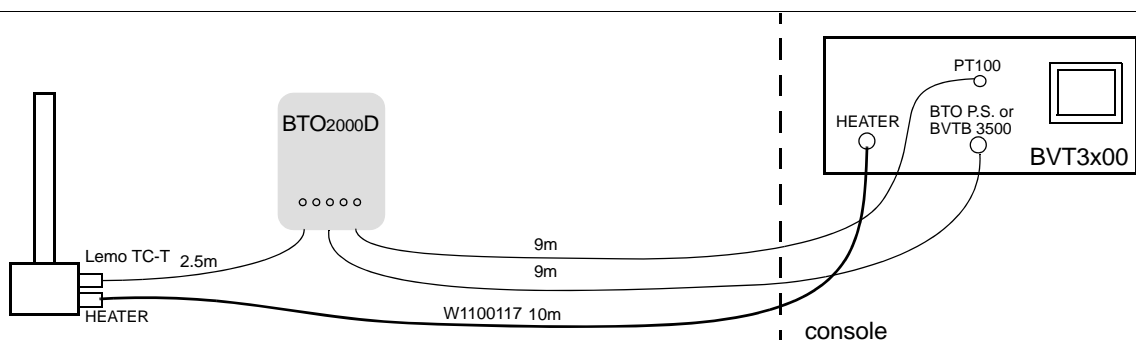


Figure 4.1 Installation

There is no software or firmware installation necessary.

The device is factory calibrated.

A green LED indicates that the device is operable and ready.

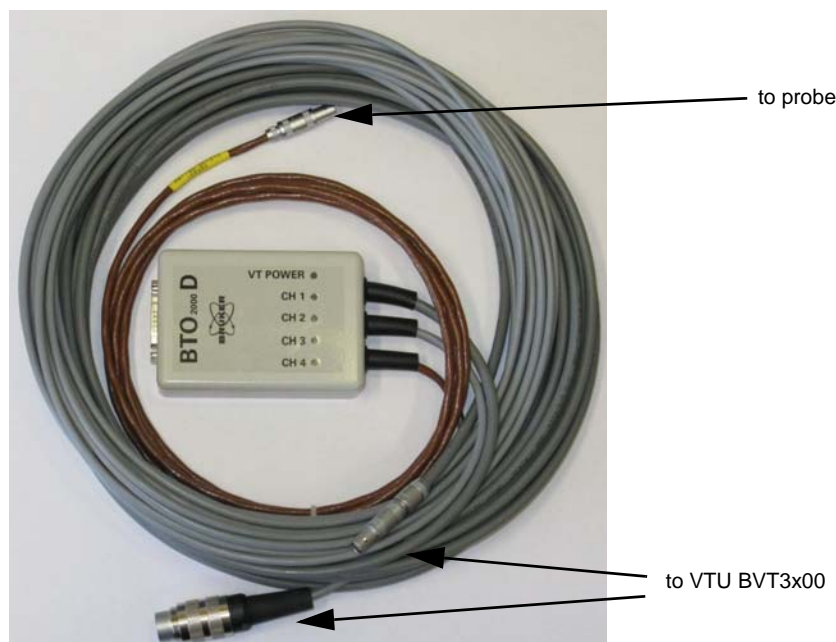


Figure 4.2 Connectors

NOTICE

Do not remove the protective cover of the D-SUB15 connector and do not connect any cables to it. This connector is used for production purpose only.

4.4 Service and maintenance

There are no serviceable parts.

4.5 Troubleshooting

If a failure occurs during operation, the system interrupts the current procedure.

On the Topspin screen an error message, i. e. a code number with a corresponding text, is displayed. Take down the code number and complete error message. Furthermore have ready the following information:

- Part number and ECL (Engineering change level) of the unit
- Spectrometer type and order number.
- Probe type, part number and ECL

With this information contact the customer service. See ["Contact"](#) on page 5 for contact details.



Bruker, your solution partner

Bruker provides a world class, market leading range of analytical solutions for your molecular and material research needs. Our solution-oriented approach enables us to work closely with you to identify your specific needs and determine the best solution package for you from our comprehensive range. Furthermore, we offer you the opportunity to collaborate with us on new developments.

Our ongoing efforts and substantial investment in research and development demonstrate our long term commitment to technological innovation on behalf of our customers. With 50 years of experience in meeting the needs of the scientific community across a range of specialist disciplines, Bruker has built a sound rapport with professionals from the community through understanding specific requirements.

This cooperative relationship with our customers allows us to provide them with effective solutions and a service of unmatched quality.



info@bruker.com
www.bruker.com