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Agilent Technologies

Varian 801 Thermocouple Gauge Control

INSTRUCTION MANUAL

Manual No. 699908000

Revision C

January 2002

Varian 801 Thermocouple Gauge Control

Warranty

Products manufactured by Seller are warranted against defects in materials and workmanship for twelve (12) months from date of shipment thereof to Customer, and Seller's liability under valid warranty claims is limited, at the option of Seller, to repair, replace, or refund an equitable portion of the purchase price of the Product. Items expendable in normal use are not covered by this warranty. All warranty replacement or repair of parts shall be limited to equipment malfunctions which, in the sole opinion of Seller, are due or traceable to defects in original materials or workmanship. All obligations of Seller under this warranty shall cease in the event of abuse, accident, alteration, misuse, or neglect of the equipment. In-warranty repaired or replaced parts are warranted only for the remaining unexpired portion of the original warranty period applicable to the repaired or replaced parts. After expiration of the applicable warranty period, Customer shall be charged at the then current prices for parts, labor, and transportation.

Reasonable care must be used to avoid hazards. Seller expressly disclaims responsibility for loss or damage caused by use of its Products other than in accordance with proper operating procedures.

Except as stated herein, Seller makes no warranty, express or implied (either in fact or by operation of law), statutory or otherwise; and, except as stated herein, Seller shall have no liability under any warranty, express or implied (either in fact or by operation of law), statutory or otherwise. Statements made by any person, including representatives of Seller, which are inconsistent or in conflict with the terms of this warranty shall not be binding upon Seller unless reduced to writing and approved by an officer of Seller.

Warranty Replacement and Adjustment

All claims under warranty must be made promptly after occurrence of circumstances giving rise thereto, and must be received within the applicable warranty period by Seller or its authorized representative. Such claims should include the Product serial number, the date of shipment, and a full description of the circumstances giving rise to the claim. Before any Products are returned for repair and/or adjustment, written authorization from Seller or its authorized representative for the return and instructions as to how and where these Products should be returned must be obtained. Any Product returned to Seller for examination shall be prepaid via the means of transportation indicated as acceptable by Seller. Seller reserves the right to reject any warranty claim not promptly reported and any warranty claim on any item that has been altered or has been returned by non-acceptable means of transportation. When any Product is returned for examination and inspection, or for any other reason, Customer shall be responsible for all damage resulting from improper packing or handling, and for loss in transit, notwithstanding any defect or non-conformity in the Product. In all cases, Seller has the sole responsibility for determining the cause and nature of failure, and Seller's determination with regard thereto shall be final.

If it is found that Seller's Product has been returned without cause and is still serviceable, Customer will be notified and the Product returned at Customer's expense; in addition, a charge for testing and examination may be made on Products so returned.

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Preface

Hazard and Safety Information

This product must only be operated and maintained by trained personnel.

This manual uses the following standard safety protocols:

WARNING



Warnings indicate a particular procedure or practice, which if not followed correctly, could lead to serious injury.

CAUTION



Cautions indicate a particular procedure or practice, which if not followed, could cause damage to the equipment.

NOTE



Notes contain important information.

Before operating or servicing equipment, read and thoroughly understand all operation/maintenance manuals provided by Varian. Be aware of the hazards associated with this equipment, know how to recognize potentially hazardous conditions, and how to avoid them. Read carefully and strictly observe all cautions and warnings. The consequences of unskilled, improper, or careless operation of the equipment can be serious.

In addition, consult local, state, and national agencies regarding specific requirements and regulations. Address any safety, operation, and/or maintenance questions to your nearest Varian office.

Contacting Varian

See the back cover of this manual for a listing of our sales and service offices.

Please contact Varian Customer Care for assistance:

In North America:

Toll-Free: 1-800-882-7426
Hours: 8:00 AM to 7:00 PM Eastern
U. S. time
Fax: 1-781-860-5405
vtl.customer.service@varianinc.com
vtl.technical.support@varianinc.com
Language: English

Product Return Authorizations

vtl.ra@varianinc.com

In Japan:

Toll-Free: 0120 655 040
Fax: (81) 3 5232 1263
Hours: 08:00 to 18:00 Japan Standard
time
vtj.customer.service@varianinc.com
vtj.technical.support@varianinc.com
Languages: Japanese, English

In Taiwan:

Toll-Free: 0 (800) 051 342
Fax: (886) 2 2698 9678
Hours: 08:00 to 18:00 Chinese Standard
time
vtw.customer.service@varianinc.com
vtw.technical.support@varianinc.com
Languages: Chinese, English

In Europe and other countries:

Toll-Free: 00 800 234 234 00
Fax: (39) 011 997 9 350
Hours: 08:00 to 18:00 Central European
time
vtt.customer.service@varianinc.com
vtt.technical.support@varianinc.com
Languages: French, German, Italian,
English

In Korea:

Toll-Free: 080 222 2452
Fax: (82) 2 3452 2451
Hours: 08:00 to 18:00 Korea Standard
time
vtk.customer.support@varianinc.com
vtk.technical.support@varianinc.com
Languages: Korean, English

In China:

Toll-free: 800 820 6556
Fax: (86) 10 6310 0141
Hours: 08:00 to 18:00 Chinese Standard
time
vtc.technical.support@varianinc.com
Languages: Chinese, English

801 Thermocouple Gauge Control

Introduction

This manual is for Varian P/N#s

- ❑ F2739-301 - 115 V, Torr Scale
- ❑ F2739-302 - 220 V, Torr Scale
- ❑ F2739-305 - 220 V, Millibar Scale

The Varian 801 Thermocouple gauge Control is a compact, self-contained instrument designed primarily for panel mounting. It is supplied with a 6' line cord and a 10' thermocouple gauge cable. The instrument is line voltage-regulated, and a temperature-thermocouple gauge socket. The indicator dial, which covers the pressure range from 1 to 200 milliTor (1 milliTor is 1/1000 of 1 mm of mercury, or 1/1000 of Torr), is calibrated for a Varian 531 thermocouple gauge in dry air. The mechanical zero adjustment is located on the cover (Figures 1a and 1d). The meter voltage (0 to 11. mV) is available at two solder terminals at the rear for operating remote indicators whose input resistance should be 200 Ohms or more.

Installation

A panel cutout (Figure 1-1 part a) is required for the installation of the Varian 801 Thermocouples Gauge Control. The instrument is mounted from the front and secured with three nuts supplied (Figure 1-1 part b and c).

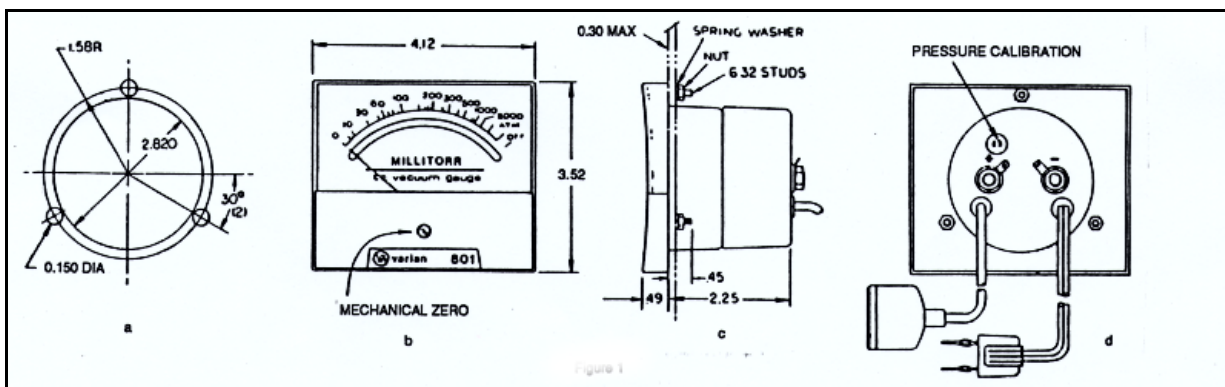


Figure 1-1 Installation Drawings

Varian 801 Thermocouple Gauge Control

Calibration

1. With the line power disconnected, adjust the mechanical meter zero until the needle reads OFF.
2. Connect a Varian 531 Thermocouple gauge to vacuum system capable of maintaining a pressure of less than 1.0 micron.
3. Pump down the system to less than 1.0 micron.
4. Connect the thermocouple cable of the Varian 801 Control to the Varian 531 Thermocouple Gauge.
5. Plug the line cord into a 115 V, 50/60 Hz supply (Varian P/N# F2739-301 only).
6. Plug the line cord into a 220 V, 50/60 Hz supply (Varian P/N# F2739-302 and -305 only).
7. Turn the calibration control in the rear of the instrument until the meter registers zero milliTorr.
8. Allow the system to stabilize for approximately 15 minutes, and readjust the zero, if necessary.

NOTE



The gauge can be calibrated against a McLeod gauge.

Maintenance

Due to aging and/or contamination of the thermocouple gauge, recalibration may be necessary from time to time. Use the preceding Calibration procedure.

Because the temperature compensation for the TC gauge is built into the TC cord socket, do not cut the plug off the TC cord to shorten the cord. If the cable is too long, coil it.

Disassembly

If repairs are necessary, to disassemble:

1. Unplug the line cord.
2. Remove the two screws that hold the rear cover and terminals.
3. Remove the plastic cover.
4. Remove the printed circuit board from the meter.

NOTE



If, after assembly, the meter runs backwards, turn the printed circuit board one-half turn.

Varian 801 Thermocouple Gauge Control

Table 1-1 Component Part Numbers

Description	Varian Part Number
Transformer, T1	0881 -6581 -00-125
Thermistor	0881 -6542-08-005
Meter	0881 -6522-08-275
TC Board	0881-F2737-301 (used on P/N F2739-301 only) 0881-F2737-302 (used on P/N F2739-302 and -305 only) TC Gauge Tube 053-F0472-301
TC Gauge Tube	053-F0472-301

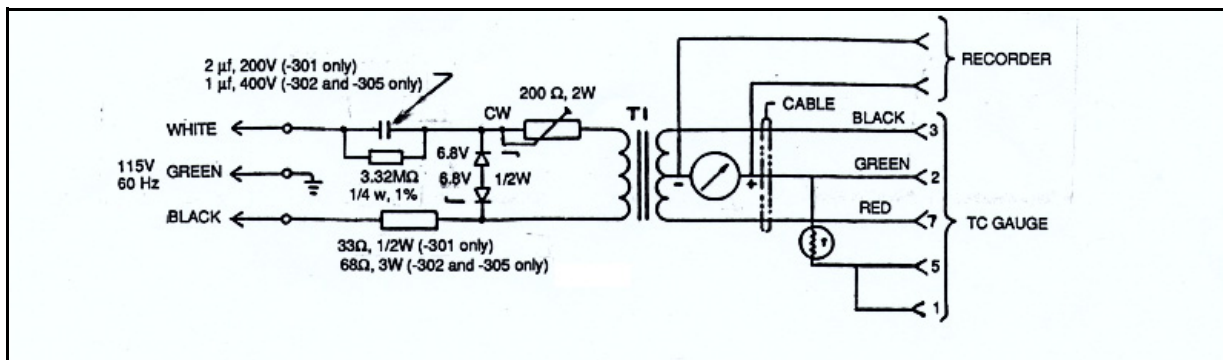


Figure 1-2 Unit Schematic

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IMPORTANT Instructions for returning products

Dear Customer,

Please follow these instructions whenever one of our products needs to be returned:

1. Complete the *Request for Return* form on our website (www.varianinc.com) and send it to Varian (see below), taking particular care to identify all products that have pumped or been exposed to any toxic or hazardous materials.
2. After evaluating the information, Varian will provide you with a Return Authorization (RA) number via email or fax, as requested.

Note: Depending on the type of return, a Purchase Order may be required at the time the Request for Return is submitted. We will quote any necessary services (evaluation, repair, special cleaning, e.g.).

3. **Important steps for the shipment of returning product:**

- ☐ Remove all accessories from the core product (e.g. inlet screens, vent valves).
- ☐ Prior to shipment, drain any oils or other liquids, purge or flush all gasses, and wipe off any excess residue.
- ☐ If ordering an Advance Exchange product, **use the packaging from the Advance Exchange to return the defective product.**
- ☐ Seal the product in a plastic bag, and package the product carefully to avoid damage in transit. You are responsible for loss or damage in transit.
- ☐ Varian, Inc. is not responsible for returning customer provided packaging or containers.
- ☐ **Clearly label package with the RA number.** Using the shipping label provided ensures the proper address and RA number are on the package. Packages shipped to Varian without an RA clearly written on the outside cannot be accepted and will be returned.

4. Return only products for which the RA was issued.
5. **Product being returned under an RA must be received within 15 business days.**
6. **Ship to the location specified on the printable label, which will be sent, along with the RA number, as soon as we have received all of the required information.** Customer is responsible for freight charges on returning product.
7. Return shipments must comply with all applicable **Shipping Regulations** (IATA, DOT, etc.) and carrier requirements.

Return the completed request for return form to your nearest location:

North America:

FAX: 1-781-860-9252

Toll Free: 800-8VARIAN

(800-882-7426

vtl.ra@varianinc.com

Europe:

FAX: 00 39-011-9979125

Fax Free: 00 800 345 345 00

Toll Free: 00 800 234 234 00

vtt.ra@varianinc.com

Pacific Rim:

Please visit our website for individual office information.

[http://www.varianinc.com/
vacuum](http://www.varianinc.com/vacuum)

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vtl.technical.support@varianinc.com

Japan

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vtj.technical.support@varianinc.com

Korea

Tel (82) 2 3452 2452 (dedicated line)
vtk.technical.support@varianinc.com

Taiwan

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