



OWNER'S MANUAL FOR DIGITAL VACUUM GAUGE MODEL 1520 & 1525



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SECTION 01 - INTRODUCTION

1.10 Introduction

Welch's Digital Vacuum Gauges provide fast, accurate vacuum level readings throughout a vacuum system. Portable and easy to use, these gauges enable system diagnostics for the purpose of verifying and improving vacuum applications.

1.20 Principle of operation – 1520 gauge (1 to 760 Torr).

The 1520 gauge utilizes an internal piezoelectric sensor that produces a linear response signal which is interpreted and displayed on the gauge. Vacuum application connection is accomplished with a vacuum hose connection to the back of the gauge. The 1520 gauge is initially calibrated in the factory and can also be field calibrated.

An adjustable auto-shut off feature conserves the unit battery. Operates on 9V battery or using an AC/DC adapter. Display units: Torr, mBar, or hPa.

1.30 Principle of Operation – 1525 gauge (0.1 to 1999 millitorr)

The 1525 gauge uses the thermocouple probe that produces response changes based on ability to dissipate heat – a function of the quantity of surrounding gas molecules. The non-linear response of the probe is interpreted by gauge electronics and displayed. The probe screws into a 1/8" pipe fitting and connects to the gauge utilizing a precision resistance coiled cable. The 1525 is factory calibrated and can not be field calibrated; the probe should be evaluated periodically or upon suspicion that vapor may have affected the probe. A replacement probe, 1525A, is available.

An adjustable auto-shut off feature conserves the unit battery. Operates on 9V battery or using an AC/DC adapter. Display units: milliTor, mBar, or hPa.

SECTION 02 - DISPLAY

2.10 Welch vacuum gauges display vacuum level readings with units, operation mode status, Out-of-range status, and instrument power status.

2.21 Units, 1520 gauge: Torr (default), mBar, or hPa.

2.22 Units, 1525 gauge: Torr x 10⁻³(default), mBar x 10⁻³, hPa x 10⁻³

2.30 Operation mode status

2.31 Calibrate – see Section 04 (model 1520 only)

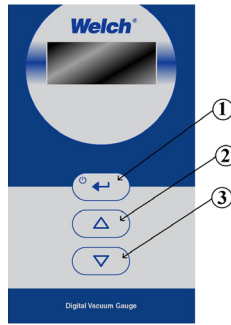
2.32 Auto-off – time setting to conserve battery strength
– See Section 3. Only for battery operation.

2.40 Under – vacuum level is below display range. For 1520 gauge, this is <1 Torr; for 1525, this is <0.1 millitorr.

2.50 Lo-Bat – displays when battery should be replaced.



SECTION 03 - KEY PAD and OPERATION MODES



3.00 Key Functions

3.01 Power/Enter (#1)

The Power/Enter button is used to turn the unit On and Off and is used as the enter button to set the calibration values during and the AUTO OFF time during AUTO OFF time programming and to set the unit of measure during units setting

3.02 Up arrow (#2)

In CALIBRATION mode (for Model 1520 only) this button is used to increment the high-end calibration point. In units setting it is used to scroll the setting up. In AUTO OFF time programming it is used to increment the setting.

3.03 Down arrow (#3)

In CALIBRATION mode (for Model 1520 only) this button is used to decrement the high-end calibration point. In units setting it is used to scroll the setting down. In AUTO OFF time programming it is used to decrement the setting.

3.10 Operation Modes

3.11 AUTO OFF mode

To change the Auto-Off setting press and hold the power button through start up and the predefined AUTO OFF setting will begin to flash in the display. Use the up and down arrows to scroll through the predefined AUTO OFF setting. The range is 15-seconds to 120-seconds in 15 second increments. Use the ENTER button to save the setting.

3.12 Unit Select mode

The default unit setting is Torr. To change it to mbar or hPa you must hold the down button before and during the start up cycle. When this is done the current unit of measure will flash. Use the up and down arrows to scroll through the three units of measurements (torr/mbar/hPa). Use the ENTER button to save the desired setting.

3.13 Calibration – See Section 4

SECTION 04 – CALIBRATION

4.00 Calibration overview

Welch handheld vacuum gauges are analytical instruments used to understand vacuum system performance and diagnose vacuum system problems. Welch certifies that the Model 1520 and 1525 vacuum gauges are calibrated in accordance with ISO 9000-compliant procedures.

4.10 Calibration Procedure - Model 1520

The 1520 gauge uses a two point calibration procedure to set readings accurate typically to +/- 1 Torr. Factory calibration is performed using comparison to a reference gauge at 1). Atmospheric pressure and 2). at 3 Torr.

4.11 Field Calibration procedure – Model 1520

Field calibration of the 1520 gauge should typically be 1). For compliance with Customer protocol, 2). the user has reason to suspect the calibration could have been compromised, or if either the calibration error appears in the screen. The calibration error appears as follows (- - 1)

During the power up cycle press and hold the up arrow. When you do this CALIBRATE will be displayed in the upper left hand corner of the screen. Set atmospheric pressure versus a reliable reference using the up and down arrows to increase and decrease the setting. When you have the atmosphere set to the desired value press the power/enter button to record the value.

Once the atmospheric pressure has been entered and recorded the display will request (- - L) the below 1 torr value. To complete the calibration procedure the gauge must be attached to a vacuum pump that is able to reach below 1 torr. When a vacuum level <1 Torr is achieved, press the enter button to set the low end pressure. The CALIBRATE in the upper left hand corner of the display will disappear and the gauge is calibrated.

4.20 Model 1525 is factory calibrated. Replacement of the probe (order 1525A) will restore meter accuracy.

SECTION 05 - WARRANTY

This Gardner Denver Welch Vacuum Technologies, Inc. product is warranted to be free from defects in material and workmanship. The liability of Gardner Denver Welch Vacuum Technologies, Inc. under this warranty is limited to servicing, adjusting, repairing or replacing any unit or component part which in the judgment of Gardner Denver Welch Vacuum Technologies, Inc. has not been misused, abused or altered in any way causing impaired performance or rendering it inoperative. No other warranties are expressed or implied. The method of executing this warranty: servicing, adjusting, repairing or replacing shall be at the discretion of Gardner Denver Welch Vacuum Technologies, Inc. Products that have been used for any period, however short, will be repaired under this warranty rather than replaced.

The warranty is effective for one year from the date of original purchase when:

1. The warranty card has been completed and returned.
2. The product is returned to the factory or other designated service centers, freight prepaid.
3. The product in our judgment is defective through no action or fault of the user.

If the product has become defective through misuse, abuse, or alteration, repairs will be billed regardless of the age of the product. In this event, an estimate of the repair costs will be submitted and authorization of these charges will be required before the product is repaired and returned.

To reduce additional charges and delays either within or outside of the warranty period, contact Gardner Denver Welch Vacuum Technologies, Inc. at 847-676-8800 for a return authorization number. Products without a return authorization number will be refused by our receiving department. Before shipping, properly pack the product, insure it against loss or damage, and on the outside of the product packaging and the packing slip write in the return authorization number.

Products damaged due to improper packaging are the customer's responsibility.

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