



BP-CAL-KIT

Sphygmomanometer Calibration Kit

INSTRUCTION MANUAL



Netech Corporation
110 Toledo St, Farmingdale, NY 11735,
<http://www.NetechCorp.us>
<http://www.PressureMeter.com>

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Warranty

Netech warrants the BP-CAL-KIT against defects in materials and workmanship for one year from the date of original purchase. The standard warranty is extended for a second year if the instrument is returned to Netech for its recommended yearly recalibration.

During the warranty period, we will repair or, at our option, replace at no charge a product that proves to be defective, provided you return the product shipping prepaid to Netech Corporation. Only serialized products are covered under this warranty.

This warranty does not apply if the product has been damaged by accident or misuse or as the result of service or modification by other than Netech Corporation, or if its serial number is defaced or removed.

Netech reserves the right to discontinue the BP-CAL-KIT at any time, and change its specifications, price, or design without notice and without incurring any obligation. Netech guarantees availability of service parts for 5 years after the manufacture of the unit is discontinued.

The warranty is void if you elect to have the unit serviced and / or calibrated by someone other than Netech Corporation.

The warranty covering your product becomes void when the tamper-resistant Quality Seal is removed or broken without proper factory authorization.

We strongly recommend, therefore, that you send your instrument to Netech Corporation for factory service and calibration, especially during the original warranty period.

The purchaser assumes all liability for any damages or bodily injury, which may result from the use or misuse of the unit by the purchaser, his employees, agents, or customers.

In no event shall Netech Corporation be liable for consequential damages

Warranty Registration

Please register to receive special offers, free software updates, and more. Plus, you'll qualify for exclusive complimentary benefits that vary by region. Any failure to complete and submit this registration will not diminish your rights found in the limited warranty that accompanied your product at purchase.

Notices

Patents / Copyright

Copyright © 2012 by Netech Corporation. All rights reserved. No part of this publication may be reproduced or transmitted in any form other than for the purchaser's personal use without written permission from Netech Corporation.

Trademarks

Netech and DIGIMANO are trademarks of Netech Corporation. Any other trademark names used in this manual are only for editorial purposes and the benefit of the respective trademark owner with no intention of improperly using that trademark.

Quality Assurance

Netech is ISO 9001-2015 Certified. This instrument was thoroughly tested and inspected according to Netech's ISO 9001-2015 quality standards and test procedures and found to meet those specifications when it was shipped from the factory.

Calibration

BP-CAL-KIT is calibrated using standards traceable to National Institute of Standards and Technology (NIST) and the unit is shipped with a calibration certificate.

Safety Considerations

This manual contains operating and safety instructions for the safe operation and to maintain the equipment in a safe condition. The safety instructions are either warnings or cautions to protect the user and the equipment from injury or damage. Do not use this equipment for any other purpose than stated.



Returns and Credits

Please note that only serialized products and their accessory items (i.e., products and items bearing a distinct serial number tag) are eligible for partial refund and/or credit. Non-serialized parts and accessory items (e.g., cables, carrying cases, auxiliary modules, etc.) are not eligible for return or refund. Only products returned within 60 days from the date of original purchase are eligible for refund/credit.

In order to receive a partial refund/credit of a product purchase price on a serialized product, the product must not have been damaged by the customer or by the carrier chosen by the customer to return the goods, and the product must be returned complete (meaning with all manuals, cables, accessories, etc.) and in “as new” and resalable condition.

Products not returned within 60 days of purchase, or products, which are not in “as new”, and resalable condition, are not eligible for credit return and will be returned to the customer. The Return Procedure (see below) must be followed to assure prompt refund / credit.

Restocking Charges

Products returned within 30 days of original purchase are subject to a minimum restocking fee of 15 %. Products returned in excess of 30 days after purchase, but prior to 60 days, are subject to a minimum restocking fee of 20 %. Additional charges for damage and / or missing parts and accessories will be applied to all returns.

Return Procedure

All items being returned (including all warranty-claim shipments) must be sent freight-prepaid to our factory location. When you return an instrument to Netech Corporation, we recommend using United Parcel Service, Federal Express, DHL or Air Parcel Post. We also recommend that you insure your shipment for its actual replacement cost. Netech Corporation will not be responsible for lost shipments or instruments that are received in damaged condition due to improper packaging or handling. Use the original carton and packaging material for shipment.

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Returns for Refund / Credit



A Return Material Authorization (RMA) number must be obtained from our service or customer service dept, before a product is returned for refund or credit. The RMA number should be clearly marked on the package along with a statement indicating the reason for return.

Repair and Calibration

Products returned for repair or recalibration must obtain a RMA (Return Material Authorization) from our service department after completing a service request form our website <http://www.netechcorporation.com/repair.php> or contact:

Netech Corporation
Service Dept.
110 Toledo Street
New York, 11735
Email: Service@NetechCorp.

Models and Part Numbers

Part Number / Description	Standard Accessories	Picture
BP-CAL-KIT (DigiMano 1000, 200-2000PS KIT)	204 (Syringe Pressure Applicator) BP-CAL-KIT TUBING (Silicon tubing with Three-way Plastic TEE Connector) B120-080-030 (Hard Carrying Case)	
BP-CAL-KIT-1 (DigiMano 1000, 200-2000IN KIT)	204 (Syringe Pressure Applicator) BP-CAL-KIT TUBING (Silicon tubing with Three-way Plastic TEE Connector) B120-080-030 (Hard Carrying Case)	
BP-CAL-KIT-2 (DigiMano 1000, 200-2000PS Kit)	ADAPT-Q (Disconnect Tubing Adapter) ADAPT-B (Bulb Adapter) B120-080-030 (Hard Carrying Case)	

General Overview

Introduction

The heart of the Blood Pressure Calibration Kit is a DigiMano 1000 series Pressure Meter. The DigiMano 1000 is a portable digital instrument designed to measure the pressure and vacuum of non-corrosive fluids and gases. The versatile instrument presents its measurement results in one of two engineering units on a large 3 _ digit LCD display.

The Blood Pressure Calibration Kit contains the 200-2000IN or 200-2000PS with Carrying case, Syringe pump and tubing / luer lock connectors.

The DigiMano 1000 has an accuracy of 0.25% full scale. Seven models with different engineering units and pressure ranges are available. To provide superior performance, the DigiMano 1000 incorporates one of the latest semiconductor pressure sensors. It is powered by one 9-Volt alkaline battery.

Optionally, an AC adapter may be used. The DigiMano 1000 is CE marked and is shipped with a Certificate of Calibration traceable to the NIST. The DigiMano 1000 is a rugged instrument that performs its measurements quickly, accurately, and with ease.

Specifications

Display: 3-1/2 Digit 0.5 in LCD

Polarity Display: The negative sign (-) is displayed for Vacuum reading

Accuracy: 0.25% full range, +/- 1 count (Pressure Only).

Operating Temperature: 0 degree C to 40 degree C

Media Compatibility: Non-corrosive fluids and gases.

Maximum Pressure: Double the rated Pressure.

Power: One 9 volt alkaline battery or optional AC adapter.

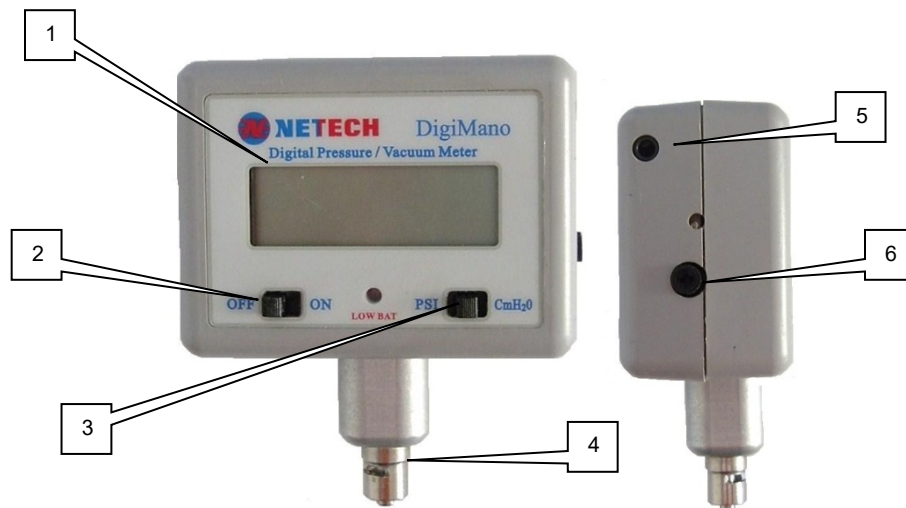
Low Battery Indicator: LED on if battery voltage is \leq 6.8 volts.

Physical Dimensions: Size: 3 x 2 x 1.4 in (7.6 X 5 X 3.6 cm)

Weight: 6.5 oz (.18 kg)

General Operation

1. Display Screen
2. ON/OFF Switch
3. mmHG/PSI Switch
4. Luer Lock Fitting (Female)
5. DC Proportional Output
6. Zero Adjustment
7. Lead Screw Release
8. Precision Adjust
9. Luer Lock Fitting (Female)
10. Barb Fitting
11. Zero Square



DigiMano Pressure Meter

Figure 1



Sphygmomanometer Syringe Pressure Applicator
Figure 2

Typical Calibration Setup:

Place the cuff in a rigid enclosure such as a tin can. Using the inflation bulb, pump unit to 200 mmHG and hold. Pressure should remain steady. If it does not stay steady go to Section 3 and use the same technique to determine where the system is leaking. The bulb, cuff and connecting hose can all leak and may require removal.

Remove any hoses from your sphygmomanometer (Unit under Test (UUT)) and inspect them for cracks. If cracks are present replace hose.

Inspect the Unit under Test (UUT) for indications of impact or physical damage.

If the UUT is an aneroid style, Sphygmomanometer, ensure that the needle is with the rectangular zero indicators (11), see Figure 2. If not the unit requires repair prior to proceeding.

Turn your digital pressure meter on and insure that the display (1) reads zero, if it does not adjust to zero by using the zero adjustment. See Figure 1.

Adjust the plunger on the Pressure Applicator Syringe to to its mid point by pushing or pulling the plunger (8) while pressing in the lead screw release button (7), see Figure 2.

Connect the silicon tubing to both the UUT and the Pressure Meter as shown in Figure 3.

Ensure both the UUT and the Pressure Meter read zero, and then carefully attach the Pressure Applicator Syringe, while ensuring that both the UUT and the Pressure Meter remain at zero.

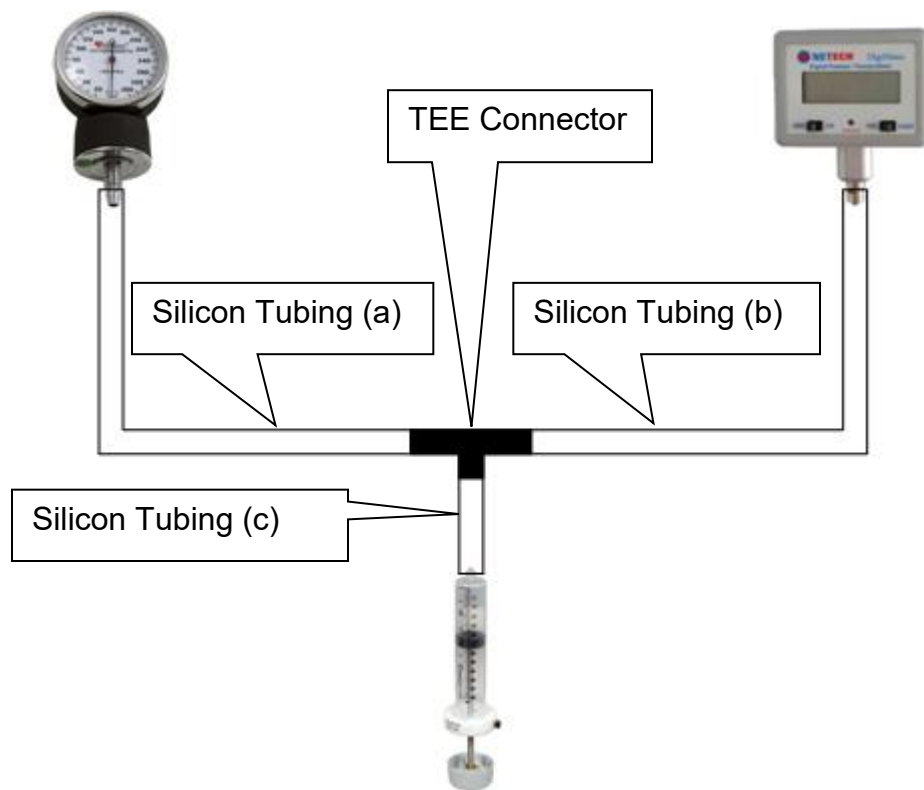
During the remainder of the tests ensure the needle on an aneroid sphygmomanometer travels smoothly at all times.

Turn the fine adjustment knob (8) Figure 2, until the UUT reads 100 mmHg and hold. Ensure that the reading remains steady, if the pressure drops refer to section 3.0 Troubleshooting.

By turning the fine adjustment knob apply three values such as 50, 150 300 plus zero. Ensure that both the sphygmomanometer and digital pressure meter read within 3 mmHG of each other.

Sphygmomanometer

Digital Pressure Meter



Pressure Applicator Syringe
Figure 3

TROUBLESHOOTING THE CALIBRATION SET UP

Maintaining Initial Zero readings

The sphygmomanometer and/or the digital pressure meter read a pressure after connecting all the tubing and devices.

Make sure that you use the male luer lock fitting when connecting either the digital pressure meter or the pressure applicator syringe. Always connect the sphygmomanometer first and the syringe last using care to not induce pressure into the setup.

Do not readjust zero using the zero adjust on the digital meter, zero can only be adjusted when the unit is open to atmosphere.

Maintaining a Steady Pressure Reading

If the sphygmomanometer and the digital pressure meter will not stay steady your calibration set up is leaking.

- Using a clamp or some other tool that will seal off the silicon tubing, clamp tubing segment (c) at the syringe. If the pressure remains steady tighten up the syringe connection.
- If this fails clamp tube segment (c) at the TEE Connector if pressure stays steady tighten up this connection.
- Else clamp segment (b) at the TEE connector. If pressure stays steady tighten up this connection.
- Else clamp segment (b) at the Digital Pressure Meter connection. If pressure stays steady tighten up this connection.
- Else clamp segment (a) at the TEE connector. If pressure stays steady tighten up this connection.
- Else clamp segment (a) at the Sphygmomanometer connection. If pressure stays steady tighten up this connection.



Maintenance and Storage

Calibration / Service

The mechanical assembly of BP-CAL-KIT contains no parts that can be serviced by the user. The unit should be returned to Netech Corporation for repair or calibration. The alignment and adjustment parameters are critical to the robust and efficient performance of the unit and can be performed only at the factory. The unit is factory calibrated with NIST traceable standards and recommended to be calibrated once a year.

Netech maintains a complete repair and recalibration service at a very low cost and fast turnaround. Estimates for repair and recalibration are available upon request.

BP-CAL-KIT contains NO USER SERVICEABLE PARTS and calibration/ service should be performed only by Netech. Attempt to repair / service the unit outside Netech voids the warranty.

Returning the DigiMano for Re-Calibration

Products returned to Netech for repair or recalibration requires a RMA (Return Authorization Number) for speedy processing of the service required.

To obtain a RMA number follow the link <http://www.PressureMeter.com> and fill in the required information, Email service@netechcorporation.com or call 800-547-6557 (US & Canada), International 631-531-0100.

When shipping units to the factory enclose a copy of the RMA and the number should be on used as the reference in the shipping label.

The shipment should be addressed to:-

**Attn: Service Department
Netech Corporation
110 Toledo St.**

Farmingdale, New York 11735. The shipment should be addressed to:-

Netech Corporation
110 Toledo St, Farmingdale, NY 11735,
<http://www.NetechCorp.us>
<http://www.PressureMeter.com>

Appendix

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