

# MiniVac

Dairy Vacuum Meter

## USER MANUAL

Part No. DR51-0054-06

innovAg



## FCC Compliance Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

## Declaration of Conformity

### Standards to which Conformity is declared:

- EN 61000-4-2
- EN 61000-4-3
- EN 61000-6-1
- EN 61000-6-2
- EN 61000-6-4
- IEC 61326-1:2005
- EU Directive 2002/95/EC
- EU Directive 2004/108/EC
- China RoHS (See following page)

**Manufacturer's Name:** InnovAg Pty. Ltd.

**Manufacturer's Address:** 37/328 Reserve Road, Cheltenham  
Victoria 3192, Australia

**Type of Equipment:** Vacuum Gauge

**Brand Name:** MiniVac

**Model Number:** DR40-0153

| 零件项目(名称)<br>(Component Name)                   | 有毒有害物质或元素(Hazardous Substances or Elements) |                      |                      |  |   |   |
|--|---|----------------------|----------------------|--|---|---|
|  | 铅<br>Lead<br>(Pb)                           | 汞<br>Mercury<br>(Hg) | 镉<br>Cadmium<br>(Cd) | 六价铬<br>Chromium<br>VI<br>Compounds<br>(Cr6+) | 多溴联苯<br>Poly-<br>brominated<br>Biphenyls<br>(PBB) | 多溴二苯醚<br>Poly-brominated<br>Diphenyl Ethers<br>(PBDE) |
| 印制电路主要配件<br>(Main Printed Circuit<br>Assembly) | ○   | ○                    | ○                    | ○  | ○   | ○   |
| Enclosure                                      | ○   | ○                    | ○                    | ○  | ○   | ○   |
| LCD  | ○   | ○                    | ○                    | ○  | ○   | ○   |
| Silicone tubing                                | ○   | ○                    | ○                    | ○  | ○   | ○   |
| Metal fittings                                 | ○   | ○                    | ○                    | ○  | ○   | ○   |
| Front panel label                              | ○   | ○                    | ○                    | ○  | ○   | ○   |
| Rating labels                                  | ○   | ○                    | ○                    | ○  | ○   | ○   |

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006标准规定的限量要求以下。

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.



Braham Bassar  
Director  
InnovAg Pty. Ltd

Date: 30 July 2014



# Contents

|  |    |
|--|----|
| 1. What is MiniVac?                        | 6  |
| 2. Safety Precautions                      | 6  |
| 3. Turning On/Off                          | 6  |
| 4. Maintenance and Calibration             | 6  |
| 5. Operation                               | 6  |
| 6. Software version, Zero & Changing Units | 8  |
| 7. Auto Power Off                          | 8  |
| 8. Replacing the batteries                 | 9  |
| 9. Maintenance and Calibration             | 10 |
| 10. Troubleshooting your MiniVac           | 11 |
| 11. Specifications                         | 11 |
| 12. Warranty                               | 12 |

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## 1. What is MiniVac?

MiniVac is a handheld instrument for testing vacuum supplies in dairies. Its excellent accuracy, long-term repeatability and features make it the ideal addition to any dairy testing kit.

Within Australia we have a Freecall help line which is available if you have any concerns (1800 061 167). International users are to call their local distributor or contact us via phone +613 9583 2832 or email [info@innovag.com](mailto:info@innovag.com).

## 2. Safety Precautions

If using MiniVac in wet tests, always keep the unit above the test point to prevent fluid entry.

**Damage to the unit from fluid entering the sensor is not covered under the warranty.**

## 3. Turning On/Off.

If MiniVac is off, a short press of the button will turn it on. To turn off, press and hold the button until the screen goes off.

## 4. Operation

The picture below shows the front panel indicators and controls.



There are two main types of vacuum measurement in dairies. MiniVac accommodates both with two operation modes.

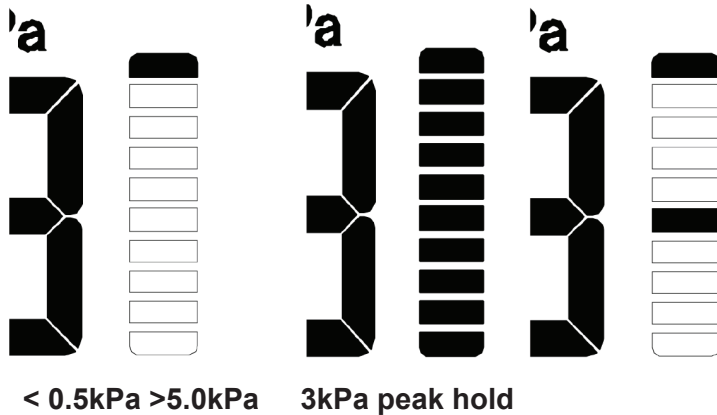
## Slow

Slow mode is the most commonly used and has a slower sample rate to reduce battery power consumption. MiniVac starts in Slow mode. Samples are taken each 125ms and the screen updates each 0.5 seconds.

## Fast

A short press of the button puts MiniVac in Fast mode. Another short press returns to Slow mode. In Fast mode samples are taken at 15ms intervals and short-term fluctuations are recorded. The screen updates each 0.5 seconds. The top segment of the Stability Indicator on the right-hand side of the screen is always on.

For each 0.5kPa vacuum drop a bar will turn on from the top down. Below are examples of vacuum fluctuations:



In the right-hand example vacuum drops of between 2.5kPa and 3kPa were detected and captured by the lower bar. The captured level will slowly clear after 10 seconds.

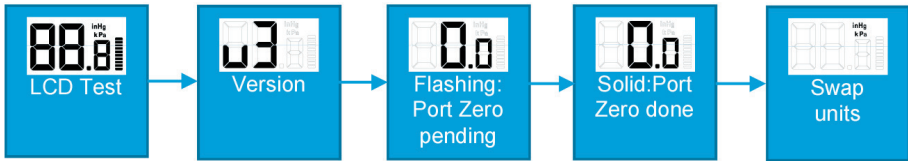
## Low-Battery Indication

If the remaining battery capacity is getting low the units (**kPa** or **inHg**) symbol will flash. Replace/recharge the batteries.

## 5. Software Version, Zero & Changing Units

**Make sure there is no vacuum on the port before using this function.**

Setup mode has several functions that appear in sequence:



To enter Setup Mode make sure the unit is turned off then press and hold the green button. On entry to Setup Mode the software version number will be briefly displayed, e.g. *U3*

The display will then flash *0.0* indicating the **Manual Zero** function is **about** to start. If the button is released while the digits are flashing, Setup Mode is aborted.

If the button is not released the digits will stop, flash after 4 seconds indicating that Manual Zero is underway.

Continuing to hold down the button will allow the units to be changed. The display will flash between the **inHg** and **kPa** symbols. Release the button when the required units are shown.

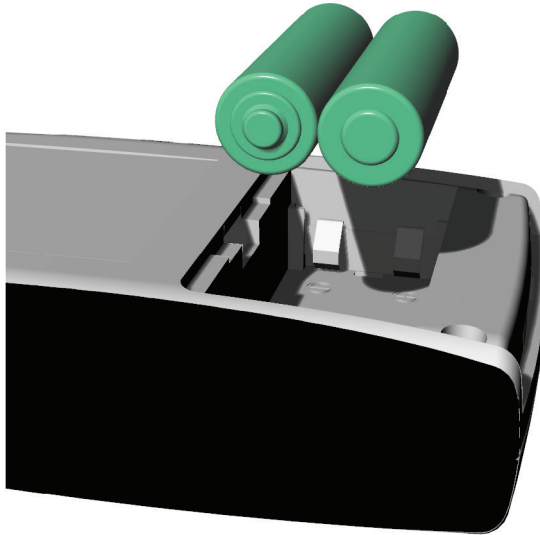
## 6.Auto Power Off

If the unit has been left unused (button not pressed) for more than 10 minutes, and the vacuum on the port is less than 20kPa, MiniVac will automatically power off.



## 7. Replacing the batteries

When it's time to replace MiniVac's batteries, the units (**kPa** or **inHg**) symbol will start to flash. We recommend the batteries be replaced as soon as possible once the low battery indicator starts to prevent unreliable readings or operation.



Batteries should not be left in the unit for extended periods in case of leakage. Use quality Alkaline or NiMH 'AA' rechargeable cells.

## 8. Maintenance and Calibration

### Maintenance

Clean the MiniVac with a moist cloth. Do not use cleaning agents.

MiniVac performs a self-test when powered up, turning on all segments of the LCD. If an error message is displayed (*E-1* for example), or you suspect the unit is damaged, contact InnovAg or your local distributor for further information.

### Calibration

MiniVac automatically performs a zero calibration when turned on.

**Do not turn on your MiniVac with vacuum connected.**

If the unit reads other than zero on start-up, a manual 'force-zero' feature can be used. See Section 5: Software Version, Zero & Changing Units'.

A complete calibration should be performed with an approved and certified calibration test instrument every 24 months. This can be organised by InnovAg or your local distributor.

## 9.Repairs

The internal tubing can be flushed or replaced by the user. For calibration or other defects, please contact the manufacturer:

InnovAg

Unit 37, 328 Reserve Rd. Cheltenham VIC 3192 Australia

Ph. +613 9583 2832

email: [info@innovag.com](mailto:info@innovag.com)

## 10. Troubleshooting your MiniVac

Before returning your MiniVac for repair, check the following:

- MiniVac does not turn on or won't stay on – replace batteries.
- The 'units' symbol is flashing – batteries are getting low.
- The vacuum reading is low or very slow to change. There is a small, sintered metal filter in the internal silicone vacuum tube that may be partially blocked. The filter can be cleaned by removing the tubing and flushing with methylated spirits or IPA. Dry thoroughly before re-fitting. If the problem remains the filter/tubing assembly should be replaced.
- MiniVac reads vacuum with no vacuum connected – perform a Manual Zero as described in Section 5: Software Version, Zero & Changing Units.
- If you have a question or problem you cannot solve, contact innovAg or your local distributor.

## 11. Specifications

### Pressure:

Range: +10 to -80 kPa at 1 atm.

Accuracy:  $\pm 0.5$  kPa

Repeatability:  $\pm 0.3$  kPa

Resolution: 0.1 kPa

### General:

Operating Temperature: 5 to 45°C

Storage Temperature: 0 to 60°C

Automatic turn-off time: 10 minutes after last key press  
if no vacuum on port.

Batteries: Two 'AA' alkaline or NiCd/NiMH  
rechargeable cells.

\*Specifications are subject to change without notice. 12.Warranty

## 12. Warranty

InnovAg Pty. Ltd. provides the following limited two-year warranty warranty to the original purchaser of MT (“product”). This warranty cannot be assigned or transferred to subsequent purchasers. The registration form must be completed and returned to innovAg in order to be able to claim under this Warranty.

### **WHAT WE WILL DO**

If the product fails under normal use and service because of a manufacturing defect in materials or workmanship within the warranty period, innovAg will, at its option either repair or replace the product with an equivalent product. The repaired or replacement product will be warranted under the terms of this warranty for the remainder of the applicable warranty period. Repair may include the replacement of parts or components with functionally equivalent reconditioned parts or components with functionally equivalent reconditioned parts or components.

### **WARRANTY PERIOD**

The term of this warranty is two (2) years from the date of purchase.

### **WHAT IS NOT COVERED**

This warranty does not cover any failures of equipment not supplied by innovAg, nor does it cover any failures of or damage to the product due to:

- (i) improper handling, misuse, neglect, accident, improper installation , non-compliance with the directions for use;
- (ii) any internal or external alteration or modification of any kind which in the opinion of innovAg will affect the ability to service the product; or
- (iii) repair by anyone other than an authorised innovAg Service Centre.

## **RIGHTS UNDER THE TRADE PRACTICES ACT**

Under applicable State, Territory and Commonwealth law, certain conditions and warranties may be implied in this contract and rights and remedies conferred upon you as user in relation to the product which cannot be excluded, restricted or modified by agreement (“Non-excludable Rights”). Any rights conferred upon you by this warranty are in addition to and do not detract from those Non-excludable Rights.

innovAg disclaims all express or implied conditions and warranties in relation to the product other than the express terms of this warranty and any Non-excludable Rights. With respect to Non-excludable Rights, innovAg’s responsibility to the purchaser, where permitted, is limited to the undertakings as stated in the clause headed ‘WHAT WE WILL DO’.

Subject to the above, in no event shall innovAg be liable (whether before or after discharge of the contract for supply of the product or otherwise) for any loss or damage suffered by you as the user arising from or caused or contributed to by the negligence of innovAg, its servants or agents, nor shall innovAg be liable for special, incidental, indirect or consequential loss or damages suffered by you as user as a result of breach by innovAg of this warranty or otherwise including but not limited to economic or moral loss, loss of profits or revenue or costs arising from the loss of use of the product or the cost of substitute products.

# innovAg



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