

DVG LH

Dairy Vacuum Gauge USER MANUAL

Part No. DR51-0044-14

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

Manufacturer's Name: InnovAg Pty. Ltd.

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

Type of Equipment: Vacuum Gauge

Brand Name: DVG

Model Number: DR40-0080

零件项目(名称) (Component Name)	有毒有害物质或元素(Hazardous Substances or Elements)					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Chromium VI Compounds (Cr6+)	多溴联苯 Poly- brominated Biphenyls (PBB)	多溴二苯醚 Poly-brominated Diphenyl Ethers (PBDE)
印制电路主要配件 (Main Printed Circuit 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

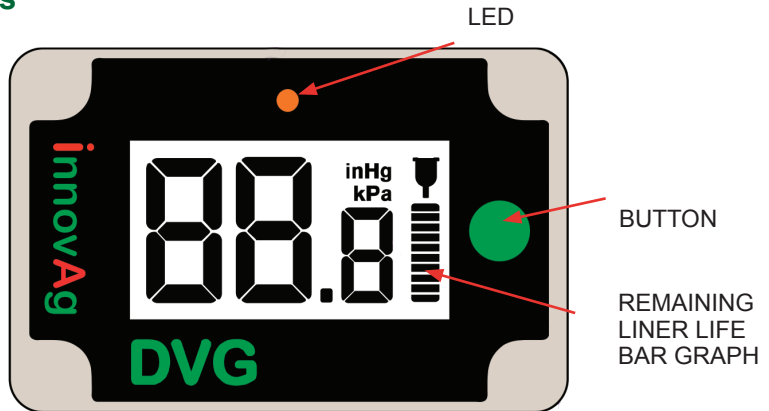
Date: 30 July 2010

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1. Features



Accurate display of dairy vacuum:

- Damped to prevent display instability common with other digital gauges.
- Fast mode (low damping) for technician use during testing.
- Auto zero adjustment.
- Manual zero adjustment.
- Display in either inHg or kPa units.
- Liner wear monitoring:
 - Continuous bar-graph display of remaining liner life.
 - Display of remaining liner life in %.
 - Manual reset of liner life remaining, i.e. liners have been replaced

2. Installation

- Mount DVG as required.
- Connect to a power source 10 – 32VDC, 9 to 24VAC.
- Power wires can be connected in either polarity.
- The display will first show a test screen, then 0.0



The round black sticker on the side of the DVG is an expensive waterproof air vent that allows the case to 'breathe'. It should NOT be removed or covered.

3. Initial Setup

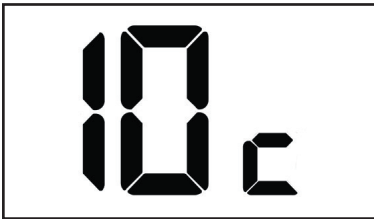
With the power off press and hold the button and turn the power on. The button must remain pressed to stay in setup mode.



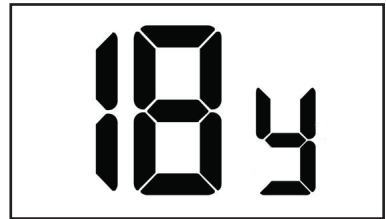
The software version is shown eg. v5.0



Calibration month eg. October



Calibration year eg. 2018



Manual Zero

Keep holding the button down after the calibration year is shown in setup mode to initiate Manual-zero.

Make sure there is no vacuum on the port.



The display will flash 0.0 five times before the zero starts. When it stops flashing Manual-zero is completed.



Changing Vacuum Units and Liner Milkings

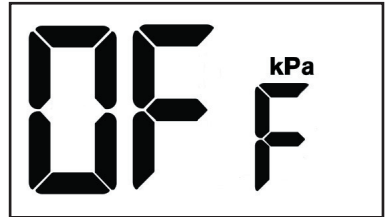
Keep holding the button down after the Manual-zero is completed to enter unit and liner setup mode. The screen will cycle through all combinations continuously.

Release the button when the desired setting combination is shown as described below.

Units = inHg.
Liner milkings = 2500



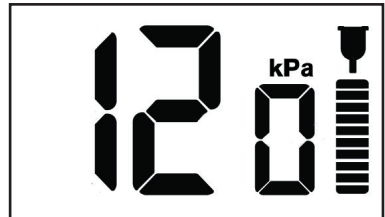
Units = kPa.
Liner milkings = disabled



Units = inHg.
Liner milkings = 1200



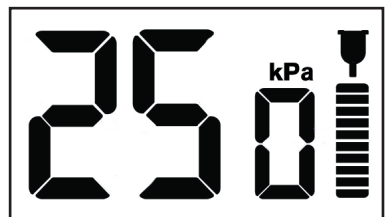
Units = kPa.
Liner milkings = 1200



Units = inHg.
Liner milkings = disabled



Units = kPa.
Liner milkings = 2500



4. Normal Operation

Display Liner Life in %.



Pressing the button will display the remaining liner life as percentage, eg. 75.3%.



Holding the button down will display the software version, calibration month and calibration year.



The software version is shown eg. v5.0



Calibration month eg. October

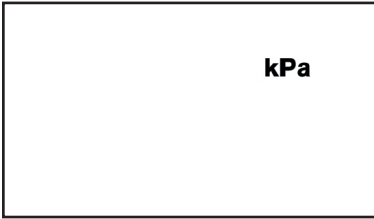


Calibration year eg. 2018



Fast (Technician) Mode

Keep holding down the button after showing the calibration year to toggle FAST mode on or off. For example, if it was off it will turn on before entry.



Slow response to vacuum changes can be inconvenient when performing an equipment test.

FAST Mode temporarily makes the unit respond faster to vacuum changes.

FAST mode automatically cancels after 20 minutes

Reset Remaining Liner Life

When new liners have been fitted the Remaining Liner Life counter should be reset to 100% (99.9%).

Keep holding the Button down after FAST mode to initiate Liner reset mode.



The display will flash 10 times before resetting.

Continue holding the button down until the display stops flashing and shows 99.9%

5. Display Indications

MEANING	DIGITS	LED	UNITS	LINER ICON	LINER LIFE BAR GRAPH
IDLE	0.0	off	on	on	life
MILKING	vacuum	flashing	on	on	life
REMAINING LINER LIFE LOW	vacuum	flashing	on	flashing	one bar
REMAINING LINER LIFE ZERO	flashing vacuum	flashing	flashing	flashing	empty
FAST MODE	vacuum	as above	flashing	on	life
REMAINING LINER LIFE % DISPLAY	life in %	as above	both on	on	life

Milking - Vacuum has been higher than 20kPa (5.9inHg) for at least 20 mins.

Liner Life – Remaining life based on 1200 or 2500 milkings of 15 min each.

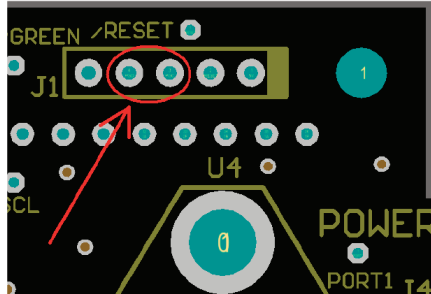
Unstable Vacuum Indicator

DVG will detect if the vacuum is unstable (drops by more than 4kPa from the average) and will flash the decimal point for 5s each time a drop is detected. The displayed reading is not affected by the drop. The Unstable indicator is not shown in Fast Mode.

6. Demonstration Mode

If pins 3 and 4 of J1 are shorted when DVG is powered on it will go into Demonstration

Mode, indicated by the Liner icon flashing continuously.



This mode is useful to show how the DVG works without waiting the long times normally required for events to occur. The following times change:

ITEM	NORMAL	DEMO
Wait for vacuum to stabilise at start of milking	20 min	1 min
Liner wear bars drop one by one at 1200	30h	10.8s
Liner wear bars drop one by one at 2500	62.5h	22.5s

Exit Demonstration Mode by removing the short and power cycling DVG.

7. Maintenance & Calibration

DVG requires little maintenance for years of accurate operation. If the vacuum readings appear to be incorrect replace the small dust filter in the silicone tube connected to the vacuum sensor.

DVG is factory-calibrated with a traceable Swiss reference vacuum gauge ($\pm 0.05\text{kPa}$). To ensure highest accuracy the calibration should be checked every two years. Many vacuum gauges (both dial AND digital) can have an error of 2kPa or more. Even a wellmaintained mercury manometer can easily have an error of $\pm 0.5\text{kPa}$. If checking DVG be careful that the other meter you are using is reliably accurate and the vacuum is perfectly stable.

DVG can be returned to InnovAg for recalibration. Contact InnovAg or your local distributor for the latest calibration prices.

8. Specifications

Input Voltage:	10V to 32V DC, 9V to 24V AC
Pressure Range:	0 to 80 kPa Vacuum
Accuracy:	± 0.3 kPa typical, ± 0.6 kPa max
Repeatability:	± 0.3 kPa
Resolution:	0.1 kPa
Response time:	30s (Normal), 3s (Fast)
Operating Temperature:	-5 to 40°C
Storage Temperature:	-20 to 80°C
Liner Replace Limit:	1200 or 2500 milkings of 15min each.

*Specifications are subject to change without notice.

14. Warranty

InnovAg Pty. Ltd. provides the following limited two-year Warranty to the original purchaser of the 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.

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.

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