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(6 months for pH probe)

Probe cable lengths:
2 meters / 6.5 feet





Features

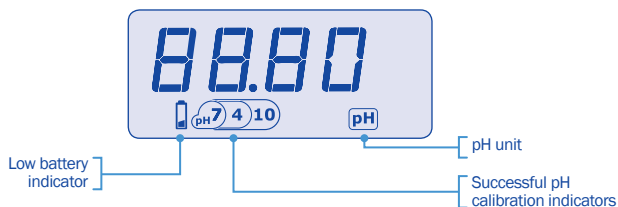
Lightweight and portable	Successful pH calibration indicator
Large easy to read display	2 x AAA alkaline batteries included
Simple push button pH calibration	Auto off function
Replaceable soil pH probe included	Low battery indicator
Over range and under range indicators	

Bluelab Soil pH Meter



Soil pH probe storage cap

The soil pH probe tip must not be allowed to dry out. Always place the storage cap back onto the soil pH probe after each use. Ensure the cap contains enough Bluelab pH Probe KCl Storage Solution to cover the probe tip.



Keep your soil pH probe tip wet
at all times to avoid permanent damage



1.0 Introduction

The *Bluelab Soil pH Meter* has two press buttons; 'calibrate' and power. The power button requires a short press; release in about one second. The 'calibrate' button requires a long press; hold for at least three seconds and release when the display starts flashing.

Turning the soil pH meter on and off

- 1 A short press of the power button will turn the soil pH meter on. The soil pH meter automatically turns off after approximately four minutes if no buttons are pressed. If the soil pH meter turns off before the reading is taken, short press the power button to turn the soil pH meter on again.

2.0 Preparing for use

The following tasks must be performed before the *Bluelab pH Meter* is used for the first time.

1 Insert batteries.

See section 8.0.

2 Connect soil pH probe

Connect the soil pH probe to the soil pH meter by lining up the lugs of the BNC fittings. Fasten securely by pushing the pH probe connector on and twisting one quarter turn.

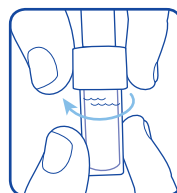


Inserting Twisting Attached

Attaching the Bluelab Soil pH Probe to the Meter

3 Remove the storage cap

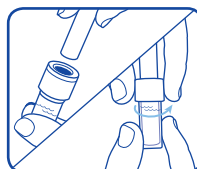
Remove the pH probe storage cap by gripping the top of the cap and gently twisting the base one rotation clockwise to loosen slightly. Next slowly slide the cap off the pH probe. **DO NOT** completely remove the base of the cap from the top of the cap.



Removing soil pH
probe storage cap

*CAUTION: When the soil pH probe is not in use, add enough *Bluelab pH Probe KCl Storage Solution* to the storage cap so the probe tip is covered. Then replace the cap and store in a secure place.*

DO NOT use RO (Reverse Osmosis), Distilled or De-ionized water. Pure water changes the chemistry in the reference, causing the probe to die.



Ensure probe tip is covered by
the KCl storage solution in cap

4 Calibrate the pH

Calibrate the soil pH meter by following the instructions in section 3.0 of this manual.

This must be done before the soil pH meter is used for the first time.

See section 3.0
for calibration
steps



3.0 Calibration

pH calibration is required before first use and then monthly to ensure readings are accurate.

For accurate pH readings the soil pH probe is cleaned and recalibrated when:

- The reading is different to what you were expecting.
- The batteries have been removed or changed.
- The soil pH probe is replaced with a new one or is disconnected from the soil pH Meter.
- The pH calibration indicators have disappeared.

When calibrating the pH after first use the soil pH probe needs to be cleaned. See soil pH probe cleaning in section 8.0. The soil pH probe does not need to be cleaned for initial calibration.

For best pH calibration

pH reading accuracy is dependant on the accuracy and age of the calibration solutions used, and use and cleanliness of the soil pH probe tip.

- Ensure the soil pH probe has been cleaned and rinse the soil pH probe tip with clean water between calibration solutions to reduce contamination of the pH solutions.
- Only fresh uncontaminated solutions should be used.
- Calibrate the pH at the same temperature as the solution to be measured.
- ALWAYS calibrate the soil pH probe with pH 7.0 then pH 4.0 or pH 10.0.

The pH calibration involves cleaning the soil pH probe tip and then calibrating in TWO SOLUTIONS.

If a reading below pH 7.0 is expected, use pH 7.0 and pH 4.0 calibration solutions. If a reading above pH 7.0 is expected, use pH 7.0 and pH 10.0 calibration solutions. Follow the steps below for soil pH meter calibration.

Storage and use of calibration solutions

- Always place the lid back onto the bottle after use or evaporation will occur rendering the solution useless.
- Store in a cool place.
- DO NOT measure directly into the bottle. Tip a small amount into a clean container and discard after use.
- Never add water to solutions.

pH reading accuracy is dependant on the accuracy and age of the calibration solutions used, and use and cleanliness of the soil pH probe tip.



3.0 Calibration cont.

To calibrate the pH

1 Clean soil pH probe tip.

See section 8.0 (the soil pH probe does not require cleaning before the first use).



2 pH 7.0 calibration

a) Turn meter on. Rinse pH probe tip in fresh water, shake off excess water and place in a pH 7.0 calibration solution. Long press until display flashes. Leave probe in solution while the display is flashing. If Calibration is successful pH7 will be displayed.

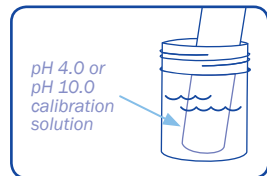
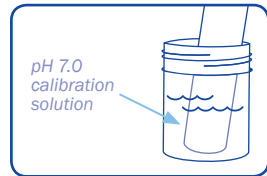
pH 7

The pH4 indicator will now flash indicating pH 4.0 or pH 10.0 calibration is now required.

pH 4

b) If Err appears during the calibration process see Section 11.0.

d) The Soil pH meter must be calibrated to two points. If after an hour the soil pH meter has not been calibrated with a second calibration point the calibration indicators disappear and the combo meter reverts to an uncalibrated state. Calibration is required.



3 pH 4.0 / 10.0 calibration

a) Rinse the pH probe tip in fresh water, shake off excess water and place the pH probe tip in either pH 4.0 or pH 10.0 calibration solution.
b) Long press until display flashes. Leave probe in solution while the display is flashing. If Calibration is successful pH 4.0 or pH 10.0 will be displayed.

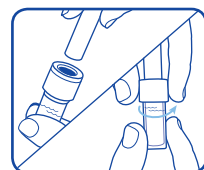
pH 7 / pH 4 is displayed **pH 4**

or pH 7 / pH 10 is displayed **pH 10**

c) The Soil meter is now calibrated and ready for use.

d) After 30 days, the calibration indicators disappear to let you know calibration is required.

Successful pH 7 and pH 4 calibration



Ensure probe tip is covered by the KCl storage solution in cap

4 Store the soil pH probe

Add enough BlueLab pH Probe KCl Storage Solution into the probe storage cap to fully submerge the soil pH probe tip. Place storage cap on probe.



4.0 Information about measuring the pH of soils/media cont.

Taking pH measurements of soils with an electronic meter is indicative rather than absolute.

The following factors are outside the control of any soil pH meter, so to minimise their effect on the accuracy of the pH measurement you should consider the following precautions:

Moisture level/raw water

If the sample you are wishing to measure is dry, add RO water or distilled water to moisten. Ideally wait 24 hours before you take a measurement.

NOTE: If you add tap water, you will influence the soil pH reading based on the pH of the tap water.

Calibration of the soil pH meter and cleanliness of the soil pH probe tip

Calibrating the soil pH meter at least monthly will ensure accurate readings. Cleaning the soil residue from the probe tip and storing the soil pH meter in a clean moist state will provide reliable readings as well as prolonging the probes life.

Sample selection

For field testing, remove the top 5 - 10 cm / 2 - 4" of the top of the soil. Samples are taken approximately 15 - 20 cm / 6 - 8" down into the substrate and from various areas, then an average of the readings is used.

For container grown plants, it is recommended to check the pH level of the substrate prior to planting.

Factors affecting pH in the soil or media:

Soil type

Soils formed under high rainfall conditions (e.g. Eastern USA) are more acidic than those formed under dry conditions (e.g. Western USA).

Growth stage of the plant

Uptake and requirements of particular elements change as the plant progresses through it's growing cycle. Recording pH level data to create a history is valuable.

Applications and types of fertilizers

Applications and types of fertilizers can alter the pH level significantly. The time at which you take the reading is important. Evaluate the brand of fertilizer to see if it is altering the pH in the wrong direction.

Applications of sprays

As sprays can soak into the soil/media, a change to the pH level could result.

Soil/media temperature

High temperature soils may have a high concentration of CO₂. The higher the concentration of carbon dioxide pressure results in more carbonic acid which lowers pH.

pH range for soil crops

The recommended pH range for soil crops is 6.2 - 7.2, but this is plant specific.



5.0 Measuring the pH value

Once the *Bluelab Soil pH Meter* has been set up and calibrated, using it to measure a pH value involves using the *Bluelab Soil pH Probe*, the green dibber/auger, a soil/media sample and button functions. **NOTE:** The soil pH probe tip must not have dried out. If it has dried, soak the soil pH probe in tap water for one hour prior to taking a measurement.

- 1 Remove the top 5 cm / 2 in. from the surface of the sample area.
- 2 Insert the dibber/auger into the sample to a depth of about 20 cm / 8 in. and remove.
- 3 If the soil/media is dry, moisten with a small amount of distilled water.
- 4 Remove the storage cap and insert the soil pH probe to the same depth ensuring the probe end makes proper contact with the soil.
- 5 Turn the soil pH meter on.
- 6 Wait for the reading displayed on the soil pH meter to stabilize to a constant value. This can take up to four minutes. Record the reading.
- 7 Remove the soil pH probe from the soil/media and wash the soil pH probe tip under fresh running water (not distilled) to remove any remaining soil residue.
- 8 Repeat the procedure in different locations and take the average of the measured data as the pH level is representative of the sample area.
- 9 If the soil pH meter turns off while taking a measurement, simply press the power button to turn the soil pH meter back on and continue with your measurement.
- 10 Store the soil pH probe between measurements. See section 10.0.

6.0 Measuring soil solution pH value

The greatest source of error in soil analysis comes during sample collection. An effort should be made to ensure each sample properly represents the area being sampled.

- The readings taken with this method could be higher than those taken by other methods
- Consistency of the method used is important to be able to compare sets of results
- The accuracy of this method cannot be guaranteed because of the variables involved
- The results should be viewed as 'indicative' rather than 'absolute'

Collection of sample

- 1 Sample in a zig-zag pattern across the required area.
- 2 Remove 15 mm / 5/8 in. of top soil before sampling at a depth of 150 mm / 6 in.
- 3 Mix all collected samples together thoroughly.
- 4 Allow to dry in the air or in an oven at 40 °C / 104 °F.
- 5 Weigh out 20 g / 0.7 oz of the collected soil into a 150 ml / 5 fl oz plastic sample jar.

Sample preparation

- 1 Add 100 ml / 3 fl oz of distilled or deionised water, screw lid on tightly.
- 2 Shake continuously for 5 minutes. Leave overnight and shake again the next morning.
- 3 Allow to settle for 15 minutes after shaking and strain sample into clean measuring cup.

Take pH readings as follows:

- 1 Remove the storage cap and insert the soil pH probe tip into the soil solution sample.
- 2 Turn the soil pH meter on.
- 3 Wait for the reading displayed on the soil pH meter to stabilize to a constant value. This can take up to four minutes. Record the reading.
- 4 Remove the soil pH probe from the soil solution and wash the soil pH probe tip under fresh running water (not distilled) to remove any possible soil residue.
- 5 If the soil pH meter turns off while taking a measurement, simply press the power button to turn the soil pH meter back on and continue with your measurement.

Store soil pH probe between measurements

- 1 See section 10.0.



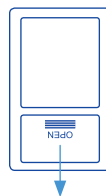
7.0 Battery replacement



Batteries are replaced in the *Bluelab Soil pH Meter* when the low battery indicator appears on screen. The low battery indicator remains on and the *Bluelab Soil pH Meter* continues to operate until the batteries die or are replaced.

- 1 Open battery compartment by sliding the back cover down and insert 2 x AAA batteries as shown on the battery holder. Slide cover back on. NOTE: Alkaline batteries are recommended.

- 2 **IMPORTANT: Check the batteries at least once every six months for signs of deterioration, rusting or swelling.**
If signs of deterioration are found, clean battery holder contacts and replace batteries.



Battery cover

8.0 Cleaning the Bluelab Soil pH Probe

To ensure accurate readings the soil pH probe tip needs to be rinsed in water after each use and cleaned prior to calibration using the following instructions.

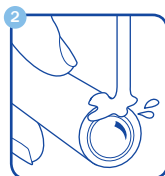
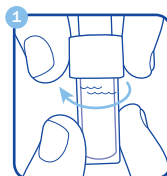
The storage cap must always be put back on after cleaning. Always ensure it contains enough *Bluelab pH Probe KCl Storage Solution* to cover the probe tip.

- 1 **Remove storage cap from soil pH probe.**

Hold the top of the storage cap, twist the cap to loosen then remove.

- 2 **Rinse soil pH probe tip under fresh tap water.**

Never use RO (Reverse Osmosis), Distilled or De-ionized water.



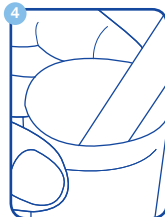
- 3 **Fill a small plastic container with clean tap water.**

Add a small amount of *Bluelab pH Probe Cleaner* or mild detergent (dishwashing liquid).

- 4 **Gently stir the probe tip in the mixture.**

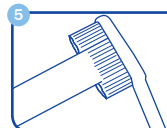
Ensure that you do not 'knock' the soil pH probe on the side of the container as this may cause damage to the probe.

Rinse well under fresh running water to remove all traces of the detergent mixture.



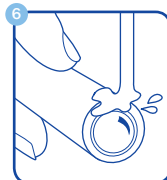
- 5 **If the probe tip requires removal of heavy contamination:**

Gently brush around the glassware with a few drops of *Bluelab pH Probe Cleaner* or mild detergent (dishwashing liquid) and a soft toothbrush.



- 6 **Rinse well under fresh running tap water to remove all traces of the detergent mixture.**

- 7 **Calibrate soil pH probe after cleaning, see section 3.0** After calibration, store soil pH probe in the storage cap, ensuring there is enough *KCl Storage Solution* to cover the probe tip.





9.0 Hydrating the soil pH probe

Hydrate the soil pH probe in **Bluelab pH Probe KCl Storage Solution** when:

- the probe tip has not always been stored in KCl storage solution, to improve the reading response speed.
- the probe tip has been accidentally allowed to dry out

Never use RO (Reverse Osmosis), De-ionized or Distilled water.

Pure water changes the chemistry in the reference, causing the probe to die.

- 1 Loosen, then remove the storage cap.**
Place the soil pH probe upright in a plastic container.



- 2 Clean the soil pH probe tip.**
Ensure the probe tip is cleaned before hydrating. See section 8.0 for instructions.



- 3 Add enough Bluelab pH Probe KCl Storage Solution to a plastic container to submerge the soil pH probe tip.**



Bluelab pH Probe KCl Storage Solution

- 4 Leave to soak for at least 24 hours.**
After hydration, always calibrate the soil pH probe to ensure accuracy, see section 3.0.

10.0 Storing the Bluelab Soil pH Meter

- 1 Store the soil pH meter in a cool, dry and clean place when not in use.**
- 2 Keep out of direct sunlight.**
Keep soil pH meter out of direct sunlight to prevent irreparable damage to the LCD reading display.
- 3 The soil pH meter is not waterproof but will withstand occasional water splashes.**
If the soil pH meter is splashed, wipe dry as soon as possible.
- 4 Remove batteries if the pH Meter is to be stored for a prolonged period.**
- 5 Remove pH probe if storing the pH Meter without use for longer than two to three weeks and check regularly that the pH probe tip has not dried out.**

When storing the soil pH probe, the soil pH probe tip must be kept moist.

To prepare the soil pH probe for storage, add enough Bluelab pH Probe KCl Storage Solution to the storage cap so the probe tip is covered. Then replace the cap and store in a secure place. DO NOT use RO (Reverse Osmosis), Distilled or De-ionized water. Pure water changes the chemistry in the reference, causing the probe to die.



11.0 Error messages

An error message will only appear following pH calibration failure.

'Err' will be displayed for a few seconds then the display will show the previous reading. Successful pH calibration indicators will disappear. The BlueLab Soil pH Meter is in an uncalibrated state, therefore recalibration is required. See causes of Error messages below.

Possible causes for an 'Err' message:


- Calibration solutions contaminated
- Wrong solutions used
- pH probe contaminated
- pH probe not properly attached
- pH probe worn out or damaged
- Calibrate to pH 7.0 FIRST then to pH 4.0/10.0

12.0 Technical specifications

	pH
Measurement range	0.0 - 14.0 pH
Resolution	0.1 pH
Accuracy at 25 °C/77 °F	±0.1 pH
Calibration	Two point pH 7.0 and pH 4.0 or pH 10.0
Temperature compensation	Not applicable
Operating environment	0 - 50 °C 32 - 122 °F
Power source	2 x AAA alkaline batteries



13.0 Troubleshooting guide

Trouble	Reason	Correction
pH reading inaccurate	Contaminated soil pH probe / glassware not clean.	Clean soil pH probe (see section 8.0); then calibrate.
	Wick contaminated, blocked or dry.	Hydrate probe in KCl storage solution for 24 hours, see section 9.0. Do not measure proteins or oils with this unit. Replace unit.
	Incorrect pH calibration.	Ensure calibration solutions are accurate. Replace if in doubt. Wait longer for readings to stabilize before calibrating to a constant value.
	pH calibration unreliable.	Calibrate soil pH probe (see section 3.0).
	soil pH probe damaged or old.	Replace soil pH probe.
pH reading does not change from solution to solution	Broken glass bulb, tube or connector.	Check soil pH probe for damage. Replace probe.
 Displays low battery indicator	Insufficient power to take a reliable reading.	Replace the batteries. DO NOT use rechargeable batteries.
No display	Batteries dead or inserted incorrectly.	Check batteries are inserted correctly. Replace if necessary.
Display shows 'Err'	Problem with pH calibration.	See error message descriptions in section 11.0 of this document.
Or Ur While in pH mode	Over range pH. Under range pH.	Solution > 14.0 pH. Solution < 0.0 pH. Check pH probe connection. pH probe could be faulty. pH meter could be wet inside.



Bluelab Soil pH Probe replacement

The Bluelab pH Probe is the only part of the Bluelab Soil pH Meter that requires replacing.

Soil pH probes do not last forever. They age through normal use and will eventually fail.

To ensure you receive a long life from your soil pH probe, please read the instructions provided with it.

When the time comes to replace your Bluelab Soil pH Probe all you have to do is order a replacement from your supplier!



Bluelab Probe Care - pH

The instrument is only as accurate as the probe is clean!

Probe cleaning is one of the most important parts of owning and operating any Bluelab meter, monitor or controller.

If the probe is contaminated (dirty) it affects the accuracy of the reading displayed.



Bluelab Probe Care Kit - pH contains:



- › Probe care instructions
- › 3 x plastic cups
- › 20ml single-use Bluelab Solution Sachets, 2 each of: pH 7.0 & pH 4.0, KCl
- › Bluelab pH Probe Cleaner
- › Toothbrush (pH probe cleaning instrument)

Bluelab pH Probe KCl Storage Solution

The perfect solution to store and hydrate your Bluelab pH products.

Bluelab pH Probe KCl Storage Solution is designed to increase response time and maximize the life of Bluelab pH pens and pH probes.

For best results, use the KCl solution to store the pH pen/ probe after use and hydrate monthly.

Instructions are on the label of the bottle.



Use Bluelab pH Probe KCl Storage Solution with:



- › Bluelab pH Pen
- › Bluelab pH Probes
- › Bluelab Soil pH Pen
- › Bluelab Soil pH Probes

Bluelab® limited warranty

Bluelab® Corporation Limited (Bluelab) provides a warranty on its products (Bluelab® Soil pH Meter) under the following terms and conditions:



How Long Does Coverage Last?

Bluelab® warrants the Bluelab® Soil pH Meter (Product) for a period of 60-months from date of purchase by original purchaser or consumer. Proof of purchase, to Bluelab's sole satisfaction, is required for the warranty to be effective (store sales receipt for Product showing model number, payment and date of purchase). This warranty is non-transferable and terminates if the original purchaser/consumer sells or transfers the Product a third party.

What is Covered?

Bluelab® warrants the Product against defects in material and workmanship when used in a normal manner, in accordance with Bluelab® instruction manuals. If Bluelab® is provided with valid proof of purchase (as defined above) and determines the Product is defective, Bluelab® may, in its sole discretion either (a) repair the Product with new or refurbished parts, or (b) replace the Product with a new or refurbished Product.

Any part or Product that is replaced by Bluelab® shall become its property. Further, if a replacement part or Product is no longer available or is no longer being manufactured, Bluelab® may at its sole discretion replace it with a functionally-equivalent replacement part or product, as an accommodation in full satisfaction of the warranty.

What is NOT covered?

This warranty does not apply to equipment, component or part that was not manufactured or sold by Bluelab®, and shall be void if any such item is installed on a Product. Further, this warranty does not apply to replacement of items subject to normal use, wear and tear and expressly excludes:

- Cosmetic damage such as stains, scratches and dents
- Damage due to accident, improper use, negligence, neglect and careless operation or handling of Product not in accordance with Bluelab® instruction manuals, or failure to maintain or care for Product as recommended by Bluelab®
- Damage caused by use of parts not assembled/installed as per Bluelab® instructions
- Damage caused by use of parts or accessories not produced or recommended by Bluelab®
- Damage due to transportation or shipment of Product
- Product repaired or altered by parties other than Bluelab® or its authorised agents
- Product with defaced, missing or illegible serial numbers
- Products not purchased from Bluelab® or a Bluelab®-authorised distributor or reseller.

How Do You Get Service?

To begin a warranty claim you must return the Product to the point of purchase with valid proof of purchase (as defined above). In California, you can also return the Product to any Bluelab-authorised distributor or reseller, with valid proof of purchase.

Limitation of Liability & Acknowledgments

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS WARRANTY AND THE REMEDIES SET OUT ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES AND REMEDIES (ORAL OR WRITTEN, EXPRESS OR IMPLIED).

EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, BLUELAB IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGES, OR ANY OTHER LOSS OR DAMAGES RESULTING FROM SALE OR USE OF THE PRODUCT, OR BREACH OF WARRANTY, HOWEVER CAUSED, INCLUDING DAMAGES FOR LOST PROFITS, PERSONAL INJURY OR PROPERTY DAMAGE.

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SOME JURISDICTIONS (STATES OR COUNTRIES) DO NOT ALLOW EXCLUSION OR LIMITATION FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT BE APPLICABLE.

IF ANY PROVISION OF THIS WARRANTY IS JUDGED TO BE ILLEGAL, INVALID OR UNENFORCEABLE, THE REMAINING PROVISIONS OF THE WARRANTY SHALL REMAIN IN FULL FORCE AND EFFECT.

Governing Law; Authority

This warranty is governed by the laws of the state of country where Product is purchased, without regard to its choice of law principles. Except as allowed by law, Bluelab® does not limit or exclude other rights a consumer may have with regard to the Product. No Bluelab® distributor, employee or agent is authorised to modify, extend or otherwise change the terms of this warranty.

Register your guarantee online at bluelab.com



guarantee.

The Bluelab® Soil pH Meter™ comes with a 5 year limited written guarantee. Proof of purchase required.



lets talk.

If you need assistance or advice - we're here to help you.

North America Ph: **909 599 1940** NZ Ph: **+64 7 578 0849**

Fax: **+64 7 578 0847**

Email: **support@bluelab.com**



get online.

Looking for specifications or technical advice?

Visit us online at **bluelab.com** or **facebook.com/getbluelab**



To watch instruction videos, visit our online video library:

vimeo.com/bluelab



post.

Bluelab® Corporation Limited

8 Whiore Avenue, Tauriko Business Estate

Tauranga 3110, New Zealand



Instruction Manual English METSOILPH_V02_220916

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