



LAPIERRE 0-45 DEGREE IN-LINE BRIX METER



USER MANUAL
February 2024 | Version 01

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Naturally innovative

A leader in equipment and products for the maple syrup industry, LAPIERRE EQUIPMENT distinguishes itself by its ability to innovate and develop high-performance solutions. This is what enables it to make significant changes in production techniques and processes in order to increase crop yield of high quality syrup.

LAPIERRE EQUIPMENT has a wealth of experience accumulated over three generations of maple syrup producers. These are also people driven by passion and a deep desire to help the industry evolve with the utmost respect for nature.

Honoured to serve your customers

LAPIERRE EQUIPMENT is honoured to actively assist maple syrup producers during the sugar season.

Today you have made a wise choice for at least two good reasons: the superior quality of our products and the exceptional quality of all our expert advisers in the region.

We sincerely appreciate your trust. And we will be happy to serve you again in your future equipment purchases, regardless of the size of your sugar bush.

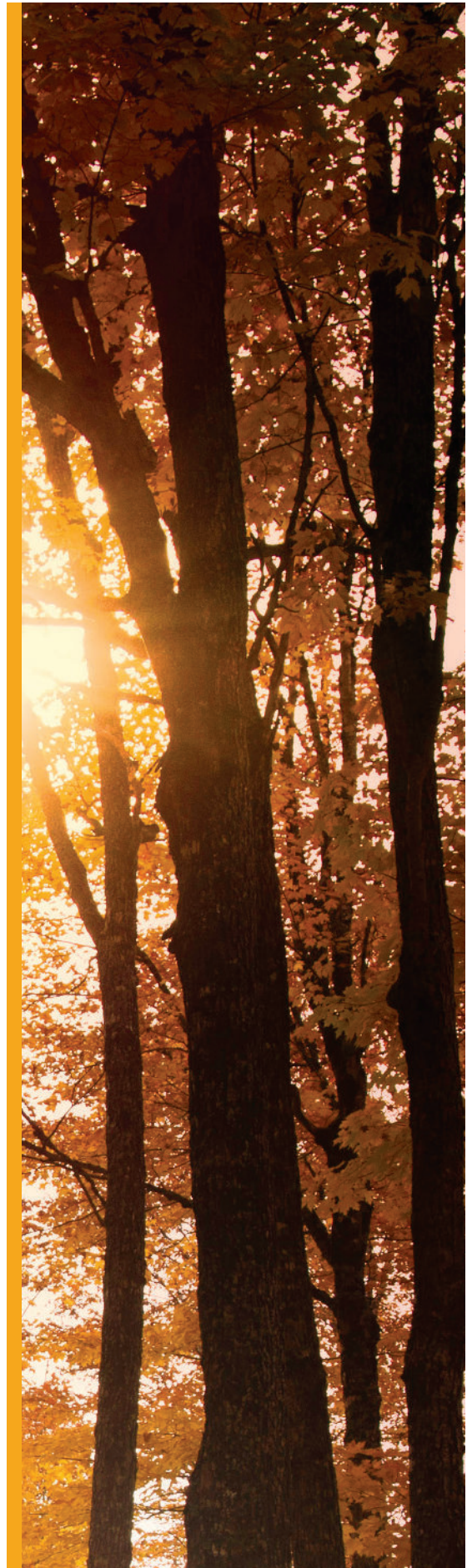
Thank you!

Lapierre Equipment Inc.

99 Rue de l'Escale, Saint-Ludger (QC) Canada G0M 1W0

819 548.5454 | 1 833 548.5454 | info@elapierre.com

www.elapierre.com





LAPIERRE 0-45 DEGREE IN-LINE BRIX METER

Please note the information required below when dealing with customer service professionals. You can easily find this information on your **In-Line Brix Meter** as well as on **your invoice**.

The serial number is printed on a white sticker on the casing of your In-Line Brix Meter. It begins with the letters "LB" followed by a series of 5 digits.

You can also refer to *Section 1* of this manual for additional information.



The model shown may differ from your model.



IMPORTANT INFORMATION ABOUT YOUR IN-LINE BRIX METER

Customer service: 819 548.5454 | 1 833 548.5454 | info@elapierre.com

Serial number: **LB** _____

Date of purchase: _____

Invoice number: _____

We will be pleased to answer any of your questions, please do not hesitate to contact us.

0-45 DEGREE IN-LINE BRIX METER



LATEST VERSION OF THIS USER'S MANUAL: Please refer to our website for the latest version of this user's manual.

TABLE OF CONTENTS

LAPIERRE naturally innovative C2

Important information about your In-Line Brix Meter 1

SECTIONS

1 Where to find information about your equipment 4

2 Safety instructions 5

 2.1 Instructions 5

 2.2 Warning 5

 - General 5

 - Electricity 5

 - Liquids 5

 - Other 5

 2.3 Repairs and maintenance 6

3 Start-up and operating procedures 7

 3.1 Parts description 7

 3.2 In-Line Brix Meter initialization: sequence of displays 8

 3.3 Select unit of measurement for temperature 9

 3.4 In-Line Brix Meter calibration 9

 3.4.1 Calibration conditions for In-Line Brix Meter 9

 3.4.2 Calibration procedure for In-Line Brix Meter 9

 3.4.3 Calibration In-Line Brix Meter failure 10

 3.5 Read the Brix degree of concentrate 10

 3.6 Apply a correction value to the actual value read by the In-Line Brix Meter 10

 3.6.1 Procedure for applying a correction value 11

4	In-Line Brix Meter maintenance and cleaning	12
4.1	Prism cleaning	12
4.2	Start of and during the season	13
4.3	End of season.	13
5	Troubleshooting kit.	14
5.1	In-Line Brix Meter and refractometer readings do not match	14
5.2	Brix degree reading is incorrect or inconsistent	14
5.3	In-Line Brix Meter displays "H H H" code	14
6	Technical specifications.	15
7	Our warranty	16

TABLE OF ILLUSTRATIONS

ILLUSTRATION 1		In-Line Brix Meter front panel	7
ILLUSTRATION 2		In-Line Brix Meter back panel	7
ILLUSTRATION 3		Screen No. 1: Les Équipements Lapierre (Lapierre Equipment)	8
ILLUSTRATION 4		Screen No. 2: Software version.	8
ILLUSTRATION 5		Screen No. 3: Temperature measurement unit	8
ILLUSTRATION 6		Screen No. 4: Last display of the In-Line Brix Meter initialization sequence	8
ILLUSTRATION 7		Current reading of Brix degree and concentrate temperature	8
ILLUSTRATION 8		Zero in progress	9
ILLUSTRATION 9		Calibration completed to zero	10
ILLUSTRATION 10		Failure to zero	10
ILLUSTRATION 11		Reading the Brix level of concentrate	10
ILLUSTRATION 12		Correction value	11



TABLE OF WARNINGS

Important information about your In-Line Brix Meter	1
Keep your purchase invoice	16

SECTION 1 WHERE TO FIND INFORMATION ABOUT YOUR EQUIPMENT

When you contact our customer service professionals, it's important to have certain information about your equipment on hand as you will be asked for it.

You can easily find this information on **your invoice**. The serial number is printed on a white sticker on the casing of your In-Line Brix Meter. It begins with the letters "LB" followed by a series of 5 digits.

Information about the equipment	White self-adhesive label (affixed to your equipment)	Invoice
Serial number	✓	✓
Purchase date	-	✓
Invoice number	-	✓

2.1 INSTRUCTIONS

- It is important to read, understand and follow the instructions and warnings contained in this user manual.
- This manual must be stored in a known place and accessible at all times by staff.
- All product operators must be familiar with the contents of this manual.

2.2 WARNING

General

- Usage:
 - interior only,
 - at temperatures ranging from 5 to 40 °C (41 to 104 °F).
- Avoid temporarily moving the In-Line Brix Meter so that it is subjected to sudden and severe temperature variations.
- Avoid installing the meter:
 - in direct sunlight,
 - near a major heat source,
 - in a place where it is subject to sudden and severe temperature variations,
 - where it is subject to strong vibrations,
 - in a damp place.

Electricity

- Never plug in or unplug the In-Line Brix Meter when your hands are wet.
- Never connect the electrical cords to overloaded electrical circuits.
- Never use extension cords that are longer than necessary or of low gauge.
- Make sure that the electrical cords are in good working order, that they are not pinched or stripped, and that they are not altered in any way that could affect their safe use.
- Never touch a stripped wire or a wire that has been pulled out of its electrical outlet when it is live. Turn the meter off and repair it before turning it back on and using it.
- Always unplug the power cord from the equipment when it is not going to be used for a long period of time.

Liquids

- Never expose the In-Line Brix Meter to rain or excessive condensation.
- Never bring liquids into contact with the meter's electronic components.

Other

- Never place heavy objects on the In-Line Brix Meter, as their weight could damage it.

2.3 REPAIRS AND MAINTENANCE

- Unplug and stop using the In-Line Brix Meter immediately if it malfunctions, overheats, emits an unusual scent or smoke. A malfunction or fire may occur if you continue to use the meter. In this case, contact your LAPIERRE distributor for an inspection of the meter.
- Only LAPIERRE EQUIPMENT authorized personnel may carry out inspections and repairs on this equipment.
- Never attempt to modify, repair or disassemble the meter. Such actions may result in dangerous operating conditions for the meter, leading to fire, electric shock or burns of varying degrees.
- Always disconnect the power supply before performing any maintenance or repairs.
- It is recommended that equipment inspections and maintenance be carried out diligently to ensure optimal operational integrity. Refer to *Section 4: In-Line Brix Meter maintenance and cleaning* for more information.
- If the meter is dropped or suffers a severe shock, contact your LAPIERRE distributor for an inspection.

SECTION 3 START-UP AND OPERATING PROCEDURES

IMPORTANT NOTE | LAPIERRE ÉQUIPMENTS cannot be held responsible if the use of the In-Line Brix Meter has an undesirable effect on liquids that have undergone a Brix reading.

The In-Line Brix Meter provides a continuous reading of the Brix degree at the concentrator outlet. By monitoring this reading, the operator can manually stabilize the Brix level. The reading range is from 0 to 45 Brix degrees.

3.1 PARTS DESCRIPTION

ILLUSTRATION 1 | In-Line Brix Meter front panel

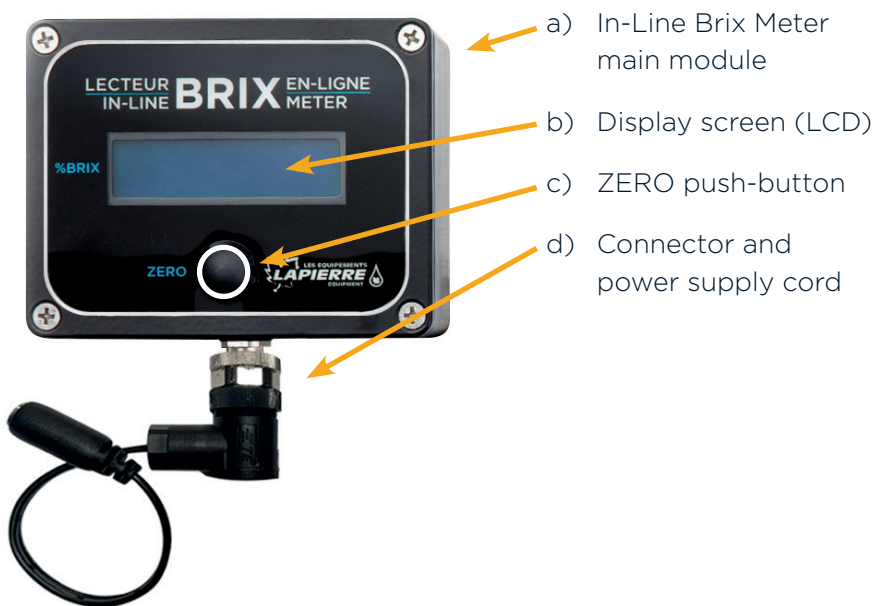
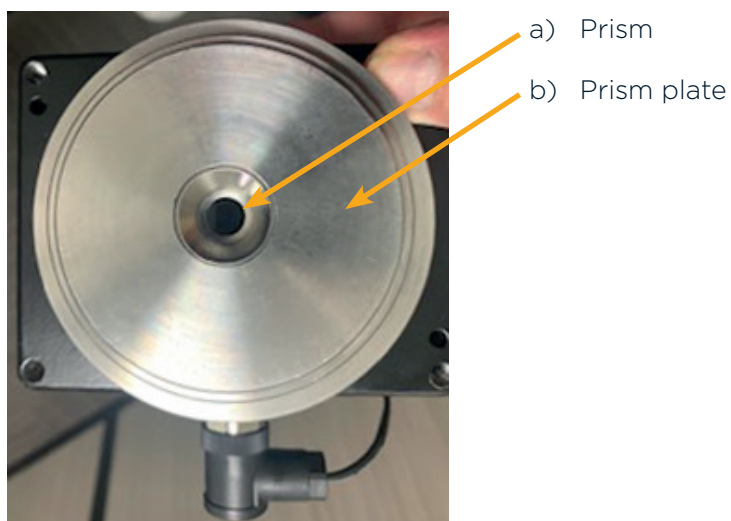


ILLUSTRATION 2 | In-Line Brix Meter back panel



3.2 IN-LINE BRIX METER INITIALIZATION: SEQUENCE OF DISPLAYS

Here is the sequence of displays, in order, when the In-Line Brix Meter is initialized.

1. "Les Équipements Lapierre".

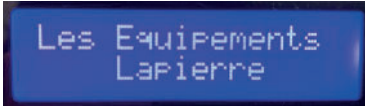


Illustration 3 | Screen No. 1: Les Équipements Lapierre (Lapierre Equipment)

2. The software version, "Version 3.01" in our example.

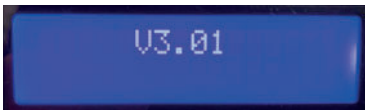


Illustration 4 | Screen No. 2: Software version

3. The unit of measurement for the selected temperature, i.e. degrees Celsius "°C" in our example.

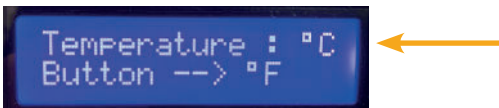


Illustration 5 | Screen No. 3: Temperature measurement unit

4. End of In-Line Brix Meter initialization.



Illustration 6 | Screen No. 4: Last display of the In-Line Brix Meter initialization sequence

Following the sequence of 4 successive initialization screens, the In-Line Brix Meter starts reading the Brix degree and concentrate temperature at the concentrator outlet. It then displays the following reading screen (fictitious data).



Illustration 7 | Current reading of Brix degree and concentrate temperature

3.3 SELECT UNIT OF MEASUREMENT FOR TEMPERATURE

In *Section 3.2 No. 3* above, the unit of measurement selected for temperature is Celsius (°C). This selection appears at the end of the first line. To change the unit of measurement, DURING this display:

- successively press and release the ZERO push-button (*Illustration 1-c*) until the desired unit of measure appears at the end of the first line,
 - this action switches the units of measurement between degrees Celsius (°C) and Fahrenheit (°F),
- when the desired unit of measure appears at the end of the first line, release the button without pressing it again,
- after a few seconds of inactivity, the In-Line Brix Meter automatically saves your selection. No further action is required on your part to save your choice.

Reset | To RESET the temperature unit selection, simply switch the meter off and on again. To do this, disconnect and reconnect the meter's power cord. When the temperature display appears (refer to *Section 3.2 No. 3*), proceed to select the unit of measurement as described at the beginning of this section.

3.4 IN-LINE BRIX METER CALIBRATION

In-Line Brix Meter calibration is performed to CALIBRATE TO ZERO the meter's reading when it receives a sample of liquid expected to be at zero degrees BRUX, such as filtrate or pure water.

Why perform a calibration | A calibration can compensate for a falsified reading that may occur, for example, when the meter has been subjected to a shock, a sudden major temperature change, or significant temperature variations over several consecutive days.

3.4.1 Calibration conditions for In-Line Brix Meter

Here are all the conditions required to calibrate the In-Line Brix Meter.

1. Calibration is required at the start of the season, and every 10 days of operation.
2. After cleaning and rinsing the concentrator.
3. After cleaning the meter's prism and plate (*Illustration 2*).
4. With filtrate or pure water at a temperature between 1 and 8 °C (34 and 46 °F).
5. When the concentrator is switched on.

It is advisable to compare and validate your readings with a refractometer (not supplied). These refractometers are available from your LAPIERRE ÉQUIPMENT distributor.

3.4.2 Calibration procedure for In-Line Brix Meter

- Press and release the ZERO push-button (*Illustration 1-c*),
 - after a few seconds, the display shows "Zero in progress",

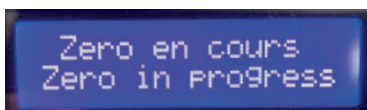


Illustration 8 | Zero in progress

SECTION 3 Start-up and operating procedures (continued)

- calibration is then carried out and ends when playback is at ZERO CONTINUOUSLY.



Illustration 9 | Calibration completed to zero

3.4.3 Calibration In-Line Brix Meter failure

If calibration fails, the display shows "Failure to zero".

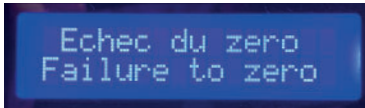


Illustration 10 | Failure to zero

In this case, repeat the procedure for calibrating the In-Line Brix Meter, refer to *Section 3.4.2: Calibration procedure for In-Line Brix Meter*.

If the problem persists, contact your LAPIERRE distributor.

3.5 READ THE BRUX DEGREE OF CONCENTRATE

When the concentrator is switched on, the In-Line Brix Meter displays a Brix degree reading by default.



Illustration 11 | Reading the Brix level of concentrate

3.6 APPLY A CORRECTION VALUE TO THE ACTUAL VALUE READ BY THE IN-LINE BRUX METER

This function is useful, during operation, for correcting the actual value read by the In-Line Brix Meter.

The range of possible correction values is from -1.0 to +1.0 Brix degrees, in 0.1 degree increments.

How to determine the value | The correction value can be determined using a refractometer (not supplied). The difference between the refractometer value and the In-Line Brix Meter value becomes the correction value to be applied to the meter.

Why apply a correction value | This correction can compensate for a distorted reading during operation.

SECTION 3 Start-up and operating procedures (continued)

3.6.1 Procedure for applying a correction value

To subtract or add a correction value to the actual value read by the In-Line Brix Meter, proceed as follows.

The concentrator must be in operation.

- Press the ZERO push-button (*Illustration 1-c*) continuously for a few seconds,
 - the display shows "BRIX TUNING + the last value selected by the operator (*+0.1 in our example*)",

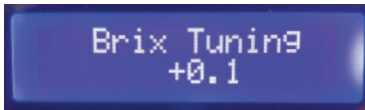


Illustration 12 | Correction value

- successively press and release the button,
 - successively press and release the button to increase the correction value by 0.1 degree at a time,
 - note that it is not possible to go backwards. To return to a previous value, press and release the button successively until the desired correction value reappears in the increasing loop of proposed values,
- when the desired value appears on the display, press the button again for a few seconds,
- release the button when the display shows "TUNING COMPLETED".

Note that if you do not press the button for 30 seconds, you will return to the Brix reading screen.

4.1 PRISM CLEANING (*Illustration 2-a*)

The prism of the In-Line Brix Meter is made of corrosion-resistant optical glass with a polished surface to reflect light.

WHAT YOU NEED TO PREPARE | To clean the prism, you'll need:

- a clean, soft cloth,
- hot water,
- ethyl alcohol (ethanol), as required,
- a stable, clean surface,
 - the weight and shape of the In-Line Brix Meter may make it difficult to handle during cleaning. The meter must not be dropped or subjected to strong shocks.

IMPORTANT | Never clean the prism with an abrasive solution or cloth. Grooves on the prism will result in an erroneous Brix reading.

To do this, proceed as follows:

- unplug the power cord (*Illustration 1-d*) from the In-Line Brix Meter,
- loosen the clamp connecting the plate (*Illustration 2-b*) to the concentrator pipe,
- place the meter on a stable, clean surface,
- clean the plate thoroughly with a clean, soft cloth dampened with warm water,
- CAREFULLY clean the PRISM with a clean, soft cloth dampened with warm water,
 - NEVER touch the prism with your fingers. A fingerprint on the prism can cause material build-up and result in an incorrect Brix reading,
 - use ethyl alcohol (ethanol) if the prism is contaminated with dirt that cannot be removed with hot water. Ethyl alcohol is available from hardware stores.

IMPORTANT | A prism must be impeccably clean, otherwise the Brix reading will be incorrect.

- Secure the plate to the concentrator piping using the clamp, without excessive pressure.

4.2 START OF AND DURING THE SEASON

At the beginning of and during the season, we recommend calibrating the In-Line Brix Meter and cleaning the prism.

In-Line Brix Meter calibration

Calibration should be carried out at the start of the season, and every 10 days of operation. Refer to *Sections 3.4.1 and 3.4.2*.

Cleaning the In-Line Brix Meter prism

The In-Line Brix Meter prism should be cleaned at the start of the season, and every 10 days of operation. Refer to *Section 4.1: Prism cleaning*.

4.3 END OF SEASON

It is recommended to uninstall the In-Line Brix Meter from the concentrator pipework at the end of the season and clean it thoroughly before storing it.

WHAT YOU NEED TO PREPARE | To clean the prism at the end of the season, you'll need:

- a clean, soft cloth,
- hot water,
- ethyl alcohol (ethanol), as required,
- a clean, new, good-quality resealable bag large enough to hold the In-Line Brix Meter,
- a stable, clean surface,
 - the weight and shape of the meter may make it difficult to handle during cleaning. The meter must not be dropped or subjected to strong shocks.

IMPORTANT | Never clean the prism with an abrasive solution or cloth. Grooves on the prism will result in an erroneous Brix reading.

To do this, proceed as follows:

- unplug the power cord (*Illustration 1-d*) from the In-Line Brix Meter,
- loosen the clamp connecting the plate (*Illustration 2-b*) to the concentrator pipe,
- place the meter on a stable, clean surface,
- clean the meter's power cord,
- clean the meter and its plate thoroughly with a clean, soft cloth dampened with warm water,
- CAREFULLY clean the PRISM with a clean, soft cloth dampened with warm water,
 - NEVER touch the prism with your fingers. A fingerprint on the prism can cause material build-up and result in an incorrect Brix reading,
 - use ethyl alcohol (ethanol) if the prism is contaminated with dirt that cannot be removed with hot water. Ethyl alcohol is available from hardware stores.

IMPORTANT | A prism must be impeccably clean, otherwise the Brix reading will be incorrect.

- Place the meter in a clean, new, good-quality resealable bag,
- store the resealable bag and power cord:
 - in a dry place, away from dust, moisture and vibration,
 - with a constant temperature of between 5 and 40 °C (41 and 104 °F).

5.1 IN-LINE BRIX METER AND REFRACTOMETER READINGS DO NOT MATCH

Possible cause

The refractometer (not supplied) is not calibrated to zero.

Solution

Zero-calibrate your refractometer according to the manufacturer's instructions.

Possible cause

Incorrect calibration of your In-Line Brix Meter.

Solution

Zero-calibrate your In-Line Brix Meter at operating temperature, i.e. when the temperature of the filtrate or pure water is between 1 and 8 °C (34 and 46 °F). Refer to *Sections 3.4.1 and 3.4.2*.

5.2 BRIX DEGREE READING IS INCORRECT OR INCONSISTENT

Possible cause

Matter is present on the prism.

Solution

Clean the prism. Refer to *Section 4.1: Prism cleaning*.

Possible cause

Calibration was carried out with liquid above 8 °C (46 °F).

Solution

Clean the prism. Refer to *Section 4.1: Prism cleaning*.

Then calibrate the In-Line Brix Meter as described in *Sections 3.4.1 and 3.4.2*.

5.3 IN-LINE BRIX METER DISPLAYS "H H H" CODE

Cause

If the In-Line Brix Meter displays the code "H H H", the concentrate leaving the concentrator is above 45 °Brix, the upper reading limit of the device.

Solution

Do not read liquids with a Brix value greater than 45.

Possible cause

You have previously calibrated your In-Line Brix Meter with filtrate or pure water at room temperature (incorrect condition), whereas you are now operating with a cold liquid, i.e. below 9 °C (48 °F).

Solution

Re-calibrate the meter according to the instructions in *Sections 3.4.1 and 3.4.2*, using filtrate or pure water at a temperature between 1 and 8 °C (34 and 46 °F) (appropriate condition).

SECTION 6 TECHNICAL SPECIFICATIONS

- Power supply: 24 VDC, 0.1 A
- Output: 4-20 mA
- Connexions :
 - terminal 1, + (24 V supply)
 - terminal 2, 0 V (4-20 mA)
 - terminal 3, 0 V (24 V supply)
 - terminal 4, signal (4-20 mA),
 - terminal 5, Autobrix detection
- Reading interval: 0 to 45.0 °Brix
- Accuracy: 0.2 °Brix
- Operating temperature: 5 to 40 °C (41 to 104 °F)

Specifications are subject to change without notice.

SECTION 7 OUR WARRANTY



KEEP YOUR PURCHASE INVOICE

It is very important to keep the original invoice for the purchase of your equipment or a legible copy of it. Otherwise, LAPIERRE EQUIPMENT INC. will not accept your warranty claim.

LAPIERRE EQUIPMENT warrants that the LAPIERRE 0-45 In-Line Brix Meter is free from manufacturing, material and workmanship defects. The warranty is valid to the end-user for a period of two years, on parts and shop labor, from the product invoice date.



We sincerely appreciate your trust.

Thank you!



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99 Rue de l'Escale, Saint-Ludger (QC) Canada G0M 1W0
819 548.5454 | 1 833 548.5454 | info@elapierre.com | www.elapierre.com