

Lickometer Counter with Digital Display User's Manual



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Description

The Lickometer Counter Model 86063 is used to monitor the number of animal licks in conjunction with the Triple Lickometer Chamber Model 80380. Special circuitry and firmware is used for the detection of animal licks. The 22 Mega Ohm input is sensitive to subject resistances up to 30 Mega Ohms with subject currents less than half of that produced by other contact lickometers. The specifications of the Lick circuit are provided in the System Specifications below.

For data collection from the Lickometer Counter Model 86063 to a computer, the Animal Wheel Monitor (AWM) USB Interface Model 86056A must be used along with the AWM Software Model 86065. Up to (15) Lickometer Counters Model 86063 may be connected to the Animal Wheel Monitor USB Interface Model 86056 and up to 120 total counters may be connected to the same computer. For large numbers of lickometer chambers, the Counter Model 86062 for computer output only is recommended.

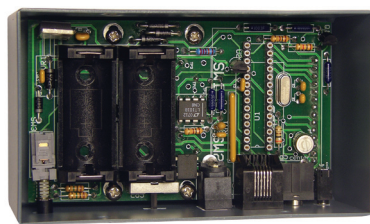
The Lickometer Counter Model 86063 provides standalone operation with a 12V power pack with battery backup and an LCD display. When battery backup power is used, battery life is two days.

System Specifications

Power:	Provided through USB Interface Model 86056A
Total Lick Counts:	Unlimited - counter rollover value at 9,999,999
External Interface:	USB 2.0 via 86056A Interface
Dimensions:	2.5" x 4.3" x 1.5"
Weight:	9.6 ounces
Input Resistance:	22 mega-ohms
Subject Resistance:	30 mega-ohms (maximum)
Auto Increment:	8 Hz
Debounce Filter:	10 ms ON and OFF (eliminates false readings or "ringing")

Battery Installation, Replacement, & Removal

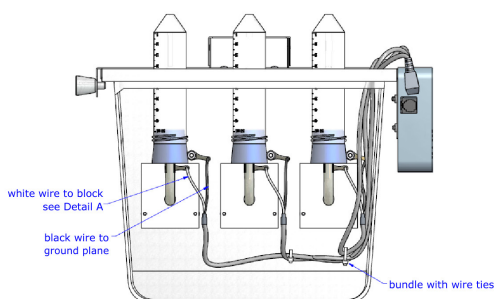
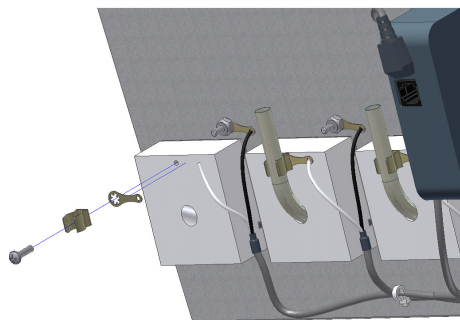
1. Turn power off and unplug 3.5mm phone plug from side of counter.
2. Remove the counter from side mounts on chamber.
3. Remove the four screws holding the back cover on the counter.
4. Remove the back cover, if replacing, remove old batteries before proceeding.
5. If new batteries are needed, insert the new batteries into the battery holders with the correct polarity. The new batteries should be any DL123A or compatible 3-volt lithium battery.
6. Replace the back cover and screws.



Installation Instructions

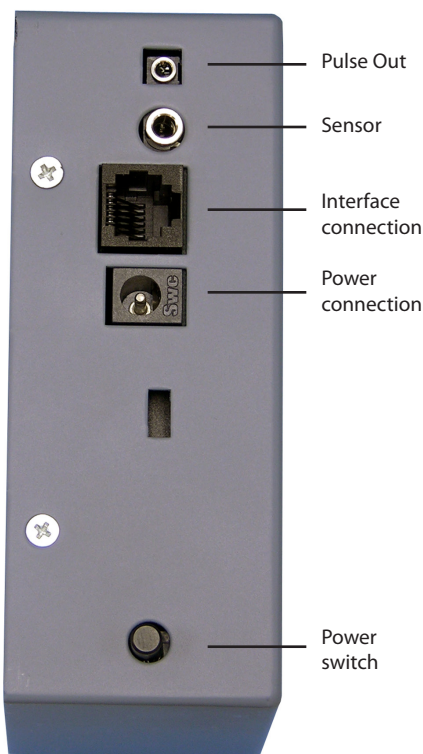
The Lickometer Counter Model 86063 comes with a 3.5mm connector jack which must be attached to the water bottle in the chamber before use with the counter. In order to do this, you will need a Phillips screwdriver and a 5/16" wrench.

1. Remove lid and water bottle holder assembly from the polycarbonate tub.
2. Remove the water bottle you wish to monitor from the holder on the assembly.
3. Use the screwdriver and wrench to remove the nut located just above the upper right corner of the isolation block (see diagram below) on the desired water bottle.
4. Place the lug of the black wire coming from the 3.5mm phone plug over the screw. The lug should be on the same side as the white isolation block.
5. Replace the earlier removed lug and tighten back into place.
6. Remove the screw holding the fuse clip onto the isolation block (see diagram below).
7. Place lug nut attached to the white wire of the phone plug in between the fuse clip and the isolation block and reinsert the screw (see diagram below) and tighten into place.
8. Reattach water bottle in its original holder and replace assembly into the polycarbonate tub.



Interface Power Instructions

1. If data will be collected through a computer, connect the Lickometer Counter Model 86063 to the Animal Wheel Monitor USB Interface Model 86056A using the 6 pin modular cable. It is recommended to connect the counters in sequential jacks beginning with one. In this scenario, power will be delivered through the interface. The power On/Off switch on the Lickometer Counter Model 86063 should be switched to the "On" position.
2. Make sure the USB cable from the Animal Wheel Monitor USB Interface Model 86056A is connected to the computer.
3. If you are using the Animal Wheel Monitor USB Interface Model 86056A, turn power on at the interface and use the software program provided to download the information from the counter. Refer to the software instructions for the Activity Wheel Monitor System for operation.
4. Connect the 12VDC power pack if using a Counter 86063 as a standalone device without interface. Do not use the 12VDC power pack with the Lickometer Counter Model 86063 when connected to an interface.
5. If the LCD contrast needs adjustment, refer to LCD Contrast adjustment (pg. 7).
6. When an interface provides power to the Lickometer Counter Model 86063, the display may remain on.
7. With interface power, the reset button and store button can be used. Refer to the Power Pack/Battery Power Instructions (below) for the reset button operation.



Power Pack/Battery Power Instructions

1. When using battery backup power, max battery life is 2 days continuous operation.
2. The power On/Off switch on the Lickometer Counter Model 86063 should be switched to the "On" position.
3. Total licks will be displayed on the LCD. If the LCD seems faint, the LCD contrast needs adjustment, refer to LCD Contrast adjustment.
4. The reset button will reset the total licks to 0.
 - a) To reset: Press the reset button until the LCD reads 0 counts.
 - b) If "Reset ?" is displayed and the licks do not want to be reset, do not press the reset button. Wait 3 seconds for the counts to be displayed again.
5. The store button will store the current total lick count.
 - a) To store: Press the store button when the message "STORE ?" is displayed, the current value of the lick count will be stored.
 - b) If "STORE ?" is displayed and the current value does not want to be stored, do not press the store button. Wait 3 seconds for the count to be displayed again.

- c) If a value has been stored in the counter, and power to the counter is turned off. The value stored will be displayed when power is turned on, and counting will resume at the stored value. If the value stored has not been reset to 0 and stored at 0, the previous stored value will be displayed when the 86063 is turned on.
6. Low battery indication is given by an "!" . If it is displayed, refer to battery installation, replacement, and removal.
7. If the water bottle has not been licked, or the user has not pressed either button within 6 seconds, the display will shut off to conserve power.
8. To see the counts on the display, press either button, and the total lick counts will be displayed.
9. If the Lickometer Counter Model 86063 is not in use, make sure the power is turned off.

Pulse Output Instructions

The 86063 pulse output function is a 20ms active low pulse that is given for every lick of the water bottle. The open collector output can be connected to any monitored input and data is captured through the supplied 2.5mm stereo cable. Use the following to configure your output.

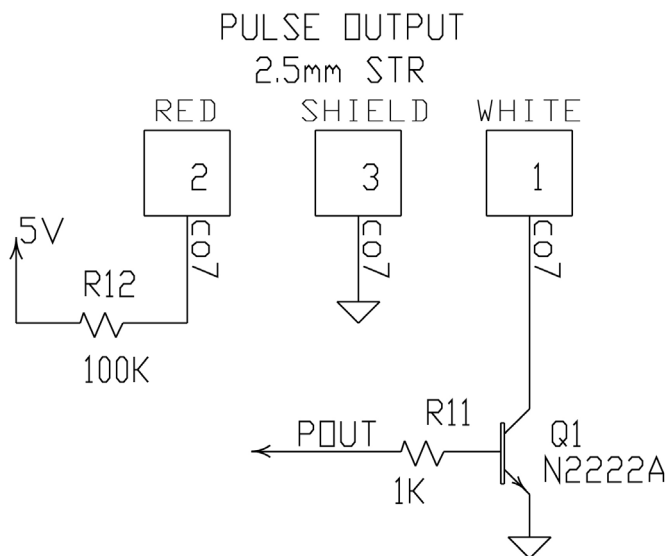
Red = 5v through 100k pull-up

White = open collector output, no pull-up

Shield = ground

Pulse output applications using the supplied cable:

1. No external pull-up resistor available:
 - a) Connect the white wire to the red wire and connect to monitored input.
 - b) Connect the shield to the ground.
2. External pull-up resistor available:
 - a) Connect the white wire to external pull-up and connect to monitored input.
 - b) Connect the shield to ground



LCD Contrast Adjustment

The contrast may need adjustment if the LCD has become faint. When the LCD contrast has been turned up to its' maximum, it is a good indication that your batteries are running low and will need to be replaced. The low battery indicator "!" may appear.

1. Remove the counter from the mounts.
2. Remove the four screws holding the back cover on the counter.
3. Remove the back cover and slowly adjust the potentiometer until the LCD contrast is satisfactory.
4. Replace the back cover and screws.

Wheel/Cage Cleaning

Make sure the 6 pin modular cable and the 3.5mm plug with sensor clip have been disconnected from the counter Model 86063. Remove the Lickometer Counter Model 86063 from it's mounting, and clean the cage accordingly. If the cage will be sent through a washer, please remove the water bottles from the cage before washing.

Software Notes

The lickometer package requires the full featured AWM Software application. The following tips may be helpful in adjusting the AWM software for a Lickometer Counter 86062/86063. Feel free to contact Lafayette Instrument Co if you have any questions during the development of this product.

- Use Appendix A (from the AWM Software Manual) for Software Installation Tips
- Setting up the Lickometer Counters is similar to Creating a New Experiment for Voluntary Running Wheels beginning on page 6 of the AWM Manual
- Additional copies of the manual may be downloaded from our website: www.lafayetteneuroscience.com

Note: the raw data for the Lickometer will include Interval Counts and Total Counts only. Data in Excel format with the Data Management tool active will still have tabs for speed, distance, speed chart, and distance chart are still present however they will not contain any data. New software updates may fix the nomenclature within the data.

Notes

Enter any users notes here for your convenience.

Terms and Conditions

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All orders need to be accompanied by a hard copy of your purchase order. All orders must include the following information:

- Quantity
- Part Number
- Description
- Your purchase order number or method of pre-payment
- Your tax status (include tax-exempt numbers)
- Shipping address for this order
- Billing address for the invoice we'll mail when this order is shipped
- Signature and typed name of person authorized to order these products
- Your telephone number
- Your email address
- Your FAX number

Domestic Terms

There is a \$50 minimum order. Open accounts can be extended to most recognized businesses. Net amount due 30 days from the date of shipment unless otherwise specified by us. Enclose payment with the order; charge with VISA, MasterCard, American Express, or pay COD. We must have a hard copy of your purchase order by mail, E-mail or fax. Students, individuals and private companies may call for a credit application.

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There is a \$50 minimum order. Payment must be made in advance by: draft drawn on a major US bank; wire transfers to our account; charge with VISA, MasterCard, American Express, or confirmed irrevocable letter of credit. Proforma invoices will be provided upon request.

Exports

If ordering instrumentation for use outside the USA, please specify the country of ultimate destination, as well as the power requirements (110V/60Hz or 220V/50Hz). Some model numbers for 220V/50Hz will have a "CC" suffix.

Quotations

Quotations are supplied upon request. Written quotations will include the price of goods, cost of shipping and handling, if requested, and estimated delivery time frame. Quotations are good for 30 days, unless otherwise noted. Following that time, prices are subject to change and will be re-quoted at your request.

Cancellations

Orders for custom products, custom assemblies or instruments built to customer specifications will be subject to a cancellation penalty of 100%. Payment for up to 100% of the invoice value of custom products may be required in advance. Cancellation for a standard Lafayette Instrument manufactured product once the product has been shipped will normally be assessed a charge of 25% of the invoice value, plus shipping charges. Resell items, like custom products, will be subject to a cancellation penalty of 100%.

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Please see the cancellation penalty as described above. No item may be returned without prior authorization of Lafayette Instrument Company and a Return Goods Authorization (RGA#) number which must be affixed to the shipping label of the returned goods. The merchandise should be packed well, insured for the full value and returned along with a cover letter explaining the reason for return. Unopened merchandise may be returned prepaid within thirty (30) days after receipt of the item and in the original shipping carton. Collect shipments will not be accepted. Product must be returned in saleable condition, and credit is subject to inspection of the merchandise.

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Instrumentation may not be returned without first receiving a Return Goods Authorization Number (RGA). When returning instrumentation for service,

please call Lafayette Instrument to receive a RGA number. Your RGA number will be good for 30 days. Address the shipment to:

Lafayette Instrument Company

3700 Sagamore Parkway North

Lafayette, IN 47904, USA.

Shipments cannot be received at the PO Box. The items should be packed well, insured for full value, and returned along with a cover letter explaining the malfunction. An estimate of repair will be given prior to completion ONLY if requested in your enclosed cover letter. We must have a hard copy of your purchase order by mail or fax, or repair work cannot commence for non-warranty repairs.

Damaged Goods

Damaged instrumentation should not be returned to Lafayette Instrument prior to a thorough inspection. If a shipment arrives damaged, note damage on delivery bill and have the driver sign it to acknowledge the damage. Contact the delivery service, and they will file an insurance claim. If damage is not detected at the time of delivery, contact the carrier/shipper and request an inspection within 10 days of the original delivery. Please call the Lafayette Instrument Customer Service Department for repair or replacement of the damaged merchandise.

Limited Warranty

Lafayette Instrument Company warrants equipment manufactured by the company to be free of defects in material and workmanship for a period of one year from the date of shipment, except as provided hereinafter. The original manufacturer's warranty will be honored by Lafayette Instrument for items not manufactured by Lafayette Instrument Company, i.e. resell items. This assumes normal usage under commonly accepted operating parameters and excludes consumable products.

Warranty period for repairs or used instrumentation purchased from Lafayette Instrument is 90 days. Lafayette Instrument Company agrees either to repair or replace, at its sole option and free of part charges to the customer, instrumentation which, under proper and normal conditions of use, proves to be defective within the warranty period. Warranty for any parts of such repaired or replaced instrumentation shall be covered under the same limited warranty and shall have a warranty period of 90 days from the date of shipment or the remainder of the original warranty period whichever is greater. This warranty and remedy are given expressly and in lieu of all other warranties, expressed or implied, of merchantability or fitness for a particular purpose and constitutes the only warranty made by Lafayette Instrument Company.

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Limited Obligations Covered by this Warranty

1. In the case of instruments not of Lafayette Instrument Company manufacture, the original manufacturer's warranty applies.
2. Shipping charges under warranty are covered only in one direction. The customer is responsible for shipping charges to the factory if return of the part is required.
3. This warranty does not cover damage to components due to improper installation by the customer.
4. Consumable and/or expendable items, including but not limited to electrodes, lights, batteries, fuses, O-rings, gaskets, and tubing, are excluded from warranty.
7. Failure by the customer to perform normal and reasonable maintenance on instruments will void warranty claims.
8. If the original invoice for the instrument is issued to a company that is not the company of the end user, and not an authorized Lafayette Instrument Company distributor, then all requests for warranty must be processed through the company that sold the product to the end user, and not directly to Lafayette Instrument Company.

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