

LICKOMETER COUNTER 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.

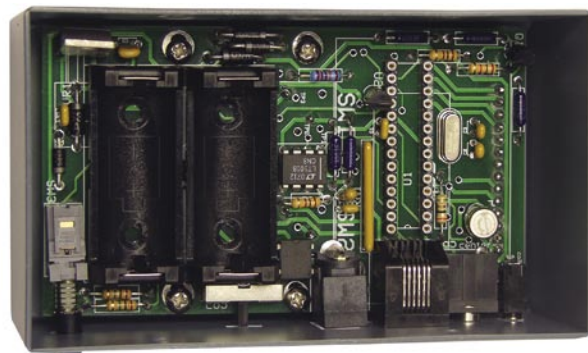
The Lickometer Counter Model 86063 provides standalone operation with a 12V power pack with battery backup and an LCD display. When battery backup power is used, battery life is two days.

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.

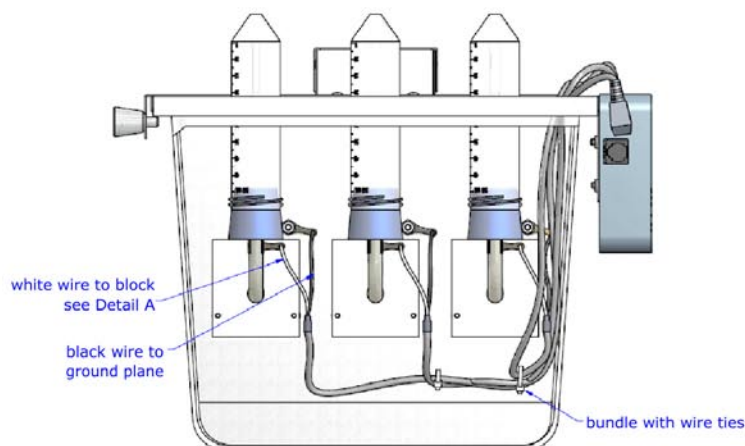
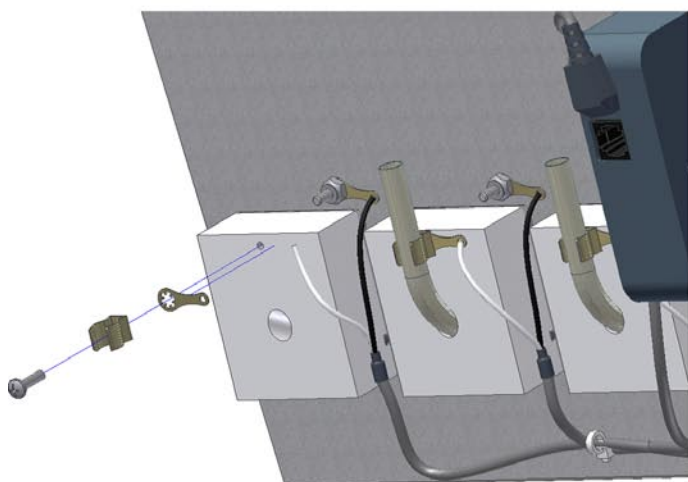


Installation Instructions:

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 the following:

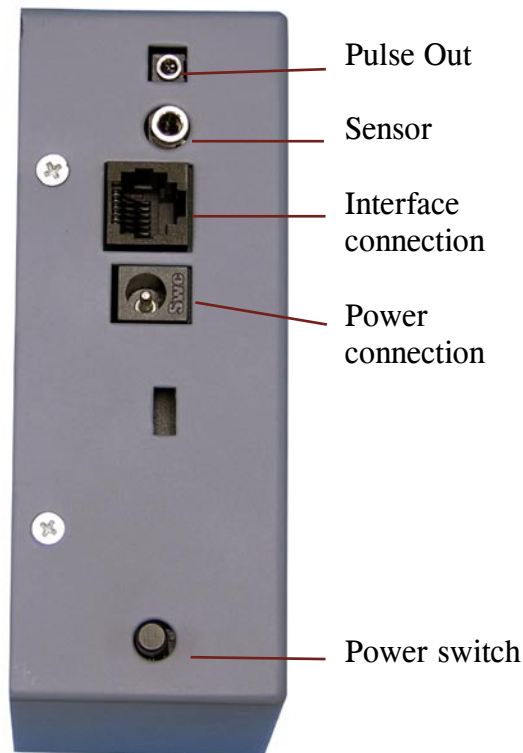
- Phillips screwdriver
- Wrench 5/16"

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.

LAFAYETTE INSTRUMENT LICKOMETER COUNTER

Power Pack/Battery Power Instructions (continued):

- 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.

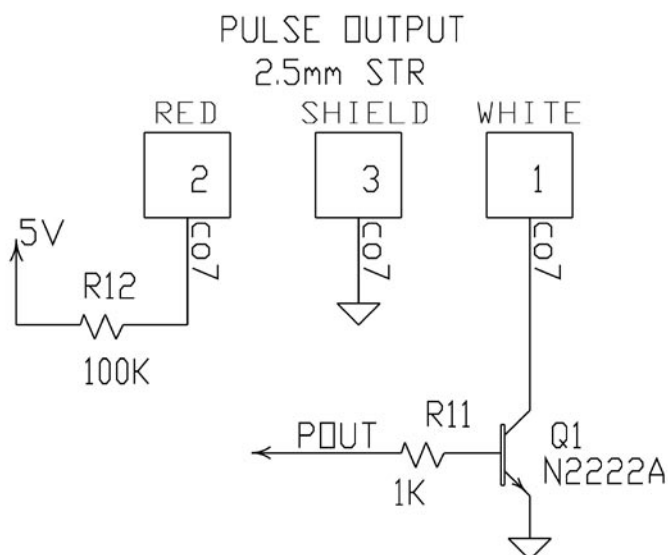
Red = 5v through 100k pull-up

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 the web
- **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.**

LAFAYETTE INSTRUMENT LICKOMETER COUNTER

Ordering Information:

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

- 1) Complete billing and shipping addresses
- 2) Name and department of end user
- 3) Model number and description of desired item(s)
- 4) Quantity of each item desired
- 5) Purchase order number or method of payment
- 6) Telephone number

DOMESTIC TERMS

There is a \$50 minimum order. Open accounts can be extended to most recognized educational institutions, hospitals and government agencies. Net amount due 30 days from the date of shipment. Enclose payment with the order; charge with VISA, MasterCard; or pay COD. We must have a hard copy of your order by mail or fax. Students, individuals and private companies may call for a credit application.

INTERNATIONAL PAYMENT INFORMATION

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

RETURNS

Equipment may not be returned without first receiving a Return Goods Authorization Number (RGA).

When returning equipment 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, U.S.A. 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.

Please also state the name of the Lafayette Instrument representative authorizing the return. 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.

WARRANTY

Lafayette Instrument guarantees its equipment against all defects in materials and workmanship to the ORIGINAL PURCHASER for a period of one (1) year from the date of shipment, unless otherwise stated. During this period, Lafayette Instrument will repair or replace, at its option, any equipment found to be defective in materials or workmanship. If a problem arises, please contact our office for prior authorization before returning the item. This warranty does not extend to damaged equipment resulting from alteration, misuse, negligence or abuse, normal wear or accident. In no event shall Lafayette Instrument be liable for incidental or consequential damages. There are no implied warranties or merchantability of fitness for a particular use, or of any other nature. Warranty period for repairs or used equipment purchased from Lafayette Instrument is 90 days.

DAMAGED GOODS

Damaged equipment should not be returned to Lafayette Instrument prior to thorough inspection.

When 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. When damage is not detected at the time of delivery, contact the carrier and request an inspection within 10 days of the original delivery. Please call the Lafayette Instrument Customer Service Department for a return authorization for repair or replacement of the damaged merchandise.



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