

RLC-1LV

Manual for use and maintenance



RLC-1LV

Light Dimmer

Ag/MIS/UmGb-2586-05/18 Rev 1.0
P/N: 116099

 **Munters**

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Product Software: N/A

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

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Munters reserves the right to effect modifications to the apparatus in accordance with technical and legal developments.

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1 Introduction

1.1 Disclaimer

Munters reserves the right to make alterations to specifications, quantities, dimensions etc. for production or other reasons, subsequent to publication. The information contained herein has been prepared by qualified experts within Munters. While we believe the information is accurate and complete, we make no warranty or representation for any particular purposes. The information is offered in good faith and with the understanding that any use of the units or accessories in breach of the directions and warnings in this document is at the sole discretion and risk of the user.

1.2 Introduction

Congratulations on your excellent choice of purchasing an Hanging Bird Scale!
In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the fan, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters Controllers.

1.3 Notes

Date of release: July 2010

Munters cannot guarantee to inform users about the changes or to distribute new manuals to them.

NOTE All rights reserved. No part of this manual may be reproduced in any manner whatsoever without the expressed written permission of Munters. The contents of this manual are subject to change without notice.

2 Precautions

2.1 Grounding

- Always connect temperature and sensor shields to earth ground. Avoid mixing high voltage wiring with sensor and low voltage wiring.
- Keep the controller as far as possible from heavy contactor boxes and other sources of electrical interference.
- Do not connect communication wire shields, which go from one house to another at both ends. Connect them at one end only. Connection at both ends can cause ground loop currents to flow, which reduce reliability.
- The COM connection for communications is not the shield wire. The COM, RX and TX wires must connect to each other at all controllers.

2.2 Filtering

- If this installation includes a power inverter to drive variable speed fans, install an EMI filter in front of the inverter, according to the specifications provided by the inverter manufacturer. Refer to the inverter documentation.

2.3 Checking the Battery Level

- Check the battery once a year. The output must be 2.7 volts (minimum). Authorized personnel only must replace the battery if the output is below the minimum required level or every five years.

3 Introduction to the RLC-1LV

The Light Control enables the user to determine the light intensity for every growth day and change them as many times as needed. The RLC-1 LV controls:

- a light dimmer
- ON/OFF operations

3.1 Main Display

Day	Light	Time
028	48.6%	12:02

This display shows the present growth's day actual light intensity by percentage and the actual time.

3.2 Setting Mode

- To set the different options available, use the menu.
- Press Select and the main menu appears.
- Press the Up arrow to display the next menu item and the Down arrow to display the previous item.
- To return to the main display, press Select continuously for a couple of seconds.

* MENU *
1.- LIGHT TABLE

3.3 Menu

RLC-1LV has the following functions:

- Light Table
- Growth Day
- Auto/Manual Mode
- Time Update
- Main Display

3.3.1 Light Table

Every growth day has a "Light Cycle", which is composed of one or more programming lines day.

The RLC-1LV Light Table offers up to 99 programming lines. Each program line is composed of four events:

- Day

- Time
- -%-
- Min.

Program each event individually by pressing **Select** until the cursor is below the column of the event to be programmed.

3.3.1.1 Light Table-Example

The Light Table lists the different settings for each growth day.

# #	Day	Time	-%-	Min
1	1	8:10	80	20
2	1	10:20	100	10
3	1	13:10	60	40
4	1	18:00	0	50
5	7	7:50	70	18
6	7	9:50	99	11
7	7	14:20	78	22
8	7	17:50	8	13
9	...	...	...	...
10	...	...	...	...
11	...	...	...	...
12	...	...	...	...
13	42	7:00	70	40
14	42	9:00	95	15
15	42	14:00	65	50
16	42	17:00	0	60
...
99	...	...	...	...

In the above example:

- The first light cycle is composed of four programming lines from 1 to 4, and is valid from Day 1 to Day 6.
- The second light cycle is also composed of 4 programming lines from 5 to 8, and is valid from Day 7 to Day 42.

NOTE The time frame for each program can be set with 10 minutes resolution only.

3.3.1.2 Programming a Light Cycle

To program an RLC-1LV:

1. In the main display, press **Select**.

The screen displays:

* MENU *
1.- LIGHT TABLE

2. Press **Select**.

The screen displays:

# #	Day	Time	-%-	Min
5	22	11:20	80	10
5	22	17:20	0	50

- **# #**: The program line
- **Day**: The growth day number
 - Minimum 0; Maximum 255
- **Time**: The dimming starting time
 - Hour: Minimum 00, Maximum 23
 - Minutes: Minimum 00, Maximum 50
- **-%-**: The light intensity target
 - Minimum 0, Maximum 100
- **Min**: Represents the time interval (in minutes) during which the light intensity changes from the actual setting to the target setting.
 - Minimum 0, Maximum 255

In the example above:

- When the light turns on, it takes 10 minutes to get to 80% intensity.
- When the light turns off, it takes 5 minutes to go down to 0%.

NOTE Lights turn ON at the scheduled time, increasing to the intensity target during the time interval. Lights begin to turn OFF before the scheduled time. In the example above:

*Lights begin to turn on at 11:20 and reach the target intensity at 11:30.
Lights begin to turn off at 17:15 and reach the target intensity at 17:20.*

3.3.1.3 Relay

When there is 0% output the relay activates. The relay is normally open and normally closed.

NOTE When the RLC-1LV reaches the last programmed line, it continues working in that last light cycle. It does not automatically return to programming line number 1.

3.3.2 Growth Day

* MENU
2. GROWTH DAY

With this option, the light intensity can be modified according to a desired program line.

1. From the main display, press **Select**.
2. Press the **Up** or **Down** arrow; the growth day option is displayed.

GROWTH DAY UPDATE
ENTER GROWTH DAY: 32

3. Press **Select**.

4. The cursor is now under the actual growth day.
5. To set the desired growth day, press the **Up** or **Down** arrows.
6. To return to the main display, press **Select**.

3.3.3 Auto/Manual Mode

This function enables manually modifying the light intensity. The results are seen immediately. When the RLC-1LV is reset to auto, it resumes working as programmed.

1. From the main display press **Select**.
2. Press the **Up** or **Down** arrow until the display shows:

MENU *
3. AUTO/MANUAL MODE

3. Press **Select**. The display shows:

AUTO/MANUAL MODE
SELECT (/):AUTO

4. Using the **Up** or **Down** arrows, select **Manual**.
5. Press **Select** to return to the main display.
6. Use the **Up** or **Down** arrow key to adjust the light intensity.

3.3.4 Time Update

With this option, you can update the RLC-1LV internal real time clock.

1. From the main display press **Select**.
2. Press the **Up** or **Down** arrows until the display shows:

* MENU *
4. TIME UPDATE

3. Press **Select**; the display shows

* TIME UPDATE *
ENTER TIME..... 13:50

The cursor is under the “hours”.

4. Set the hour with the **Up** or **Down** arrows.
 5. Press **Select**.
- Now the cursor is under the “minutes”.
6. Set the minutes with the **Up** or **Down** arrows.
 7. Press **Select**, to return to the main display.

3.3.5 Main Display

Day	Light	Time
028	48.6%	12:02

NOTE In case of a power failure or if the RLC-1LV is accidentally unplugged, the RLC-1LV is equipped with a battery, ensuring that the program is not erased.

4 Installation

WARNING! The RLC-1LV must be installed by an authorized electrician. Disconnect the power to avoid electrical shock and damage.

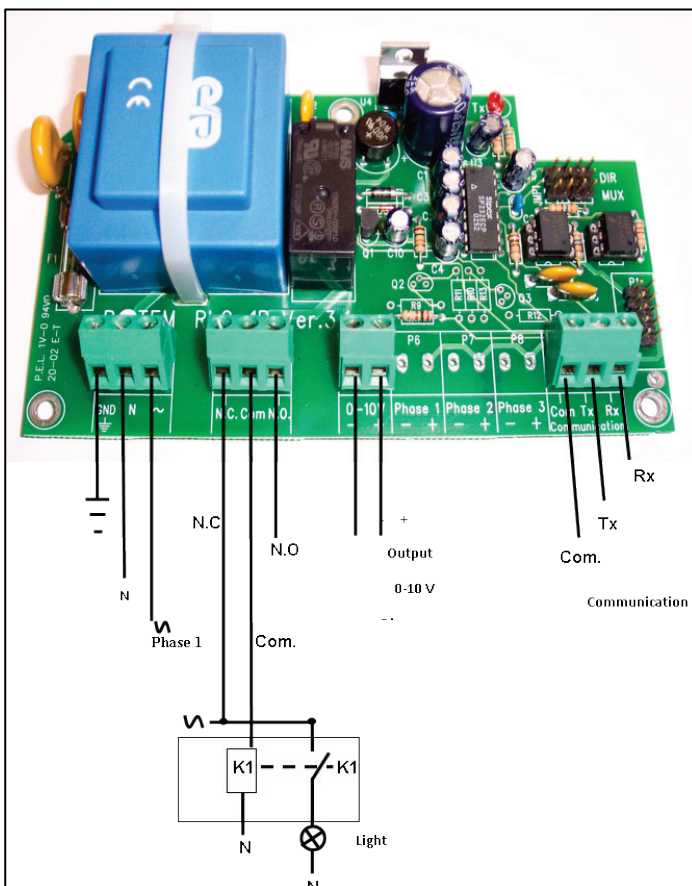
1. Mount the RLC-1LV on the wall, using the four supplied screws and plates, through the mounting holes.



2. Place the required cables through the cable holders at the bottom of the unit.
3. Connect the wires according to the wiring diagrams.

NOTE The wires that supply power to the RLC-1LV also supply power to the Light. Ensure that you use the correct wires for the load.


4. To connect the slave wire to the controller, use two conductor #18 #24 gauge cables.
5. Close the RLC-1LV enclosure lid. Use RTV silicon or an equivalent sealant to seal the cable holders.
6. Operate the RLC-1LV and the controller for a few hours and re-check for proper operation.



5 Technical Details

Input Power Voltage	Single phase 110 VAC (USA and Canada)
	Single phase 240 VAC (Outside the US and Canada)
	0.2 Amp, 50 - 60 Hz
Output	0-10 V, 30 mA
Operating Temperature Range	-10° to +50 C° (+14° to +125° F)
Enclosure	Water and dust tight (IP55)
Fuses	Main Fuse: 315 mA

5.1 Environmental Protection

	Recycle raw materials instead of disposing as waste. Sort the controller, accessories and packaging for environmental friendly recycling. The plastic components are labeled for categorized recycling.
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6 Warranty

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseeable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorisation from Munters, or repaired in such a way that, in Munters' judgement, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to RLC-1LV, (for example cables, lights, etc.) is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action, and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer).

Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their despatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent despatch, where the cost of carriage would exceed the value of the parts, Munters may authorise the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorised to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

WARNING: *In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.*

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorised materials;
- inadequate maintenance;

- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer. Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability.

Requests for technical assistance and spare parts can be made directly to the nearest Munters office. A full list of contact details can be found on the back page of this manual.

[Munters Israel](#): 18 HaSivim Street

Petach-Tikva 49517, Israel

Telephone: +972-3-920-6200

Fax: +972-3-924-9834

support@munters.co.il



www.munters.com

Australia Munters Pty Limited, Phone +61 2 8843 1594, **Brazil** Munters Brasil Industria e Comercio Ltda, Phone +55 41 3317 5050, **Canada** Munters Corporation Lansing, Phone +1 517 676 7070, **China** Munters Air Treatment Equipment (Beijing) Co. Ltd, Phone +86 10 80 481 121, **Denmark** Munters A/S, Phone +45 9862 3311, **India** Munters India, Phone +91 20 3052 2520, **Indonesia** Munters, Phone +62 818 739 235, **Israel** Munters Israel Phone +972-3-920-6200, **Italy** Munters Italy S.p.A., Chiusavecchia, Phone +39 0183 52 11, **Japan** Munters K.K., Phone +81 3 5970 0021, **Korea** Munters Korea Co. Ltd., Phone +82 2 761 8701, **Mexico** Munters Mexico, Phone +52 818 262 54 00, **Singapore** Munters Pte Ltd., Phone +65 744 6828, **South Africa and Sub-Sahara Countries** Munters (Pty) Ltd., Phone +27 11 997 2000, **Spain** Munters Spain S.A., Phone +34 91 640 09 02, **Sweden** Munters AB, Phone +46 8 626 63 00, **Thailand** Munters Co. Ltd., Phone +66 2 642 2670, **Turkey** Munters Form Endüstri Sistemleri A.Ş, Phone +90 322 231 1338, **USA** Munters Corporation Lansing, Phone +1 517 676 7070, **Vietnam** Munters Vietnam, Phone +84 8 3825 6838, **Export & Other countries** Munters Italy S.p.A., Chiusavecchia Phone +39 0183 52 11