



User's Manual Meade Astro-Cube Dew Annihilator (Models Meade MDA)



User's Manual
for the
Astro-Smart
Astro-Cube Dew Annihilator
(Models Meade MDA)

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MEADE MDA Family

A. Overview

The **Meade MDA Family Dew Controllers** can be setup with your telescope *As-is*. A typical connection diagram is shown below with choice of 4 or 2 channels of heat control and upto 240Watts of power distribution. Options for temperature and humidity sensor optic channel monitoring is also available.

The **Meade Astro-Cube Dew Annihilator (Meade MDA Family)** is designed to be used to fit into the Meade fork arm telescope being offered at a fraction of the cost. The **(Meade MDA Family)** integrates dew control into the fork arm of the very telescope you are using. Most users of the LX200 GPS/R/ACF; RCX400; and LX600 don't use, let alone rely on, the battery compartment to run their telescope. Astro-Smart's unique approach offers the clean and efficient use of this space to minimize loading and wire clustering and to provide a complete replacement solution to the existing battery compartment and cover currently offered for Meade 7"-14" LX200GPS/R/ACF, 8"-14" RCX400 ACF, and 10"-14" LX600 telescopes. In addition, the scope can be brought back to its original condition without alteration in the event you need to send your scope back to the manufacturer or want to sell in the future. The **Meade MDA Family** will solve your dew problems automatically while informing you every step of the way.

The **Meade Astro-Cube Dew Annihilator (Meade MDA Family)** systems incorporates a heater capability controlling upto 4 heat channels controlled using dial knobs with a visual indicator LED to display the PWM intensity rate applied to the heat channels. The **MDA-2 Family** has 2 knobs while the **MDA-1 Family** has 1 knob for PWM control. If you want to be in control of the dew controller using 2 channels and don't require automated decision making, the **Meade MDA** simplistic operation is the product for you. But, if you want 4 channel duplex control, then the **Meade MDA-2** doubles your capability with 4 channels duplex control. The **Meade MDA family using 2 ports** is rated for **15 Amps(Meade MDA-1A)** using 12VDC supply. The **Meade MDA2 family using 4 ports** is rated for **15 Amps(Meade MDA-2A)** using 12VDC supply. For instance, one channel CH1 heater may be used for the main imaging telescopes secondary corrector plate for dew control while CH2 heater can be used for the primary mirror, another mounted imaging scope, guider or finder scope or your eyepieces. The 4 Channel **MDA-2 Family** can be used for even more channels for CH1, CH2, CH3 and CH4.



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In the following picture you can see **Meade Astro-Cube Dew Annihilator (Meade MDA-2, MDA)** system with upto 4 heat duplexed channels, PWM LED intensity indicators on CH12 for **MDA** and CH12, CH34 for **MDA-2**. In Figure 1 below you can see the normal LX200 GPS/R/ACF, RCX400 ACF, and LX600 battery compartment, the installed 2 port controller ([Meade M-DA](#)), and the circuit board with its 2 heat channels and dial PWM power control 0-100% . This easily could be the **MDA-2** which has 4 duplexed heat channels. Installation is simple, just replace your battery compartment lid with the supplied MDA-2 or MDA circuit and provided battery compartment lid.



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B. Features

Since the inception of this unique product at Astro-Smart, the **Meade MDA Family** was many years in the making, over long periods in astronomy using existing products on the market to control dew, identifying their weaknesses and limitations making the product you see before you. The **Meade MDA Family** is finally here!!! The Astro-Smart **Meade Astro-Cube Dew Annihilator** (**Meade MDA Family** is designed to be user friendly, serviceable, elegant and reliable and include the following features shown below:



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Features		Meade MDA-1A	Meade MDA-2A
1	LED Flash Indicators For Heat PWM Output Ports.	X	X
2	Duplexed Heat Output Control	2CH, 15Amps	4CH, 15Amps
3	Number of Individual Channel Duplexed Control	1	2
4	Power in Watts using 12VDC power source.	180W	360W
5	Variable Power Control Duty Cycle 0-100%, 300 Hz max.	X	X
6	Temperature and Humidity Optics Sensor Monitoring Option	X	X
7	High quality design employs multi-layer PCB form factor and only the best quality components conformal coatings for outdoor use.	X	X
8	Over Voltage, Under Voltage, Over Current Circuit Protection .	X	X
9	Worry Free Warranty Program For Life Of Product Sale.	X	X
10	Void of RFI(Radio Frequency Interference) protected to enhance Astro-Imaging .	X	X
11	Price point set below development cost for such a system while providing more features.	X	X

Dimensions(4.9" L x 2.3" W x 1" H)



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C. Contents of Box

1. Meade MDA Family Dew Controller Module.
2. 12 Volt fused cigarette adapter harness.

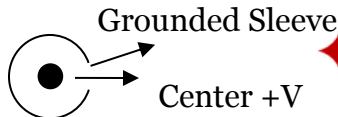
D. Input / Output Power Specifications

The Meade **Meade MDA Family** requires the following:

- At a minimum of 12 Volts DC at 3.3 amps a 2.5mm or 2.1mm(Default 2.1mm unless user specified) DC power connector on your AC/DC supply.

Note: This current drawn through the **Meade MDA Family** is dependent on the resistance of each dew strap being used with the **Meade MDA Family**. The total current for all the dew straps must not exceed the power supply current rating.

Positive (+)
12VDC



The total resistance of all the dew straps used with the iDDHM must follow this equation for SAFE operation:

$$\frac{\text{Current Rating of Power Supply}}{\text{Voltage output of Power Supply}} = \frac{1}{R_{\text{strap 1}}} + \frac{1}{R_{\text{strap 2}}} + \frac{1}{R_{\text{strap 3}}} + \frac{1}{R_{\text{strap 4}}}$$

Astro-Smart assumes no responsibility
if this warning is not heeded.

- Uses dev
- **Note:** A:
and conr

rt and other astronomical vendors.

certified tested power supplies for this product. Users can buy product, but they do so at their own risk.



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E. Meade MDA Family Front Panel And Connector Diagram

- **Astro-Cube Dew Annihilator (Model-Meade MDA)** Configuration . See Figure below.



F. Basic Functionality

The user can watch as the Meade **MDA** adjusts heat and controls dew on your telescope based on user input on rotary dial for simplicity.

Online video demo's of operation can be found on our website at :

http://www.astro-smart.com/index.php?p=1_24



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G. Accessories

Optional Accessories:



Another convenient accessory that Astro-Smart offers for your **Meade MDA Family Controller** is the **Temperature and Humidity option** which has 4 sensors including internal ambient temperature/humidity to unit and an additional 2 probed temperature and humidity sensors for your optics. This economical solution makes your MDA or MDA2 family controller have the capability to monitor readings of your optics with large display and three button controls for Celsius/Fahrenheit degree display, Min/Max sensor reading search and IN/OUT button to read internal vs. probed sensor inputs on your optics. Requires a 1.5V AAA battery for simple operation.



Another convenient accessory that Astro-Smart offers is a right angle heater connector ([RAHC-DM](#)). This allows your heater to be connected to the **Meade MDA Family** at a right angle. This may be convenient for you to alleviate any bending that you have of your heater connector and wire.



.Another convenient accessory for your **Meade MDA Family** that Astro-Smart offers is Two versions of power supplies based on your dew heating needs for 3,6,8 or 10Amp 12 VDC supplies([PS12VXAMP-D](#)).



Another product Astro-Smart offers is our Premium Dew Heater Straps. Astro-Smart is proud to announce the offering of our Premium Dew Controller straps that can be used with the Astro-Smart Dew Controller products and compatible with other vendor dew controllers with RCA jack input to control temperature of your telescope optics, cameras, camera lens, telescope eyepieces and sensitive electronics.

The materials used for these Premium Dew Straps include Industrial Velcro, High Quality Insulating Material to project heat toward the optics and away from the atmosphere, 5 foot power cord with male RCA connector.



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H. Warranty, Policies, Copyright Notice:

Life Time Warranty

All products are guaranteed to the original purchaser to be free from defects in material and workmanship for the life of the product from the date of original purchase. Simply put, once you buy a Astro-Smart product we make sure it works for as long as you keep the product for free upgrades of software and firmware for the product. Warranty coverage excludes normal wear and tear, or damage caused by improper installation, any modification, abuse, misuse, improper maintenance, and unauthorized repairs or modifications to the original product. Shipper is responsible for proper packaging, shipping and insurance on applicable upgrades or repair items. . Upon receipt of returned product, Astro-Smart will assess the item/s to determine if they comply with the conditions of our warranty. Astro-Smart is not responsible for damage caused by the freight carrier, i.e.: USPS, UPS, FED EX, etc., to our product. A claim to repair or replace the product must be initiated by the recipient. In no event shall Astro-Smart be liable for any claim for incidental or consequential damage arising out of or in connection, manufacture, delivery or use of any product offered on this website or by information received by US mail, E-mail, data files or fax.

Return Policy

Merchandise must be returned in new (mint) condition within 30 days of receipt for exchange/refund which may be subject to 20% restocking charge (Shipper is responsible for proper packaging, shipping, and insurance.). We must receive the returned merchandise within 30 days of the date you received it. All items must be in new (mint) condition and fully functional. Returned items cannot show evidence of use or wear, dirt, or blemishes of any kind. Merchandise must be returned in its original packaging and should include all supplied materials, instructions, original accessories, hardware, and any CD software disks provided. Software purchases via email or download since released are non-refundable. Astro-Smart is not responsible for lost or damaged packages. Return shipping costs are the responsibility of the customer. Any returned items must be in "as new" condition. We ask that you open and inspect your order upon receipt. No insurance or damage claims will be accepted more than 3 days after delivery. All customers MUST email Astro-Smart before returning products for warranty or repair to get an RMA#(Return Merchandise_Authorization).



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