

# Orion® Dew Zapper™ Pro

#3517

*Congratulations on your purchase of the Dew Zapper Pro system.* The Dew Zapper Pro efficiently prevents dew from forming on the exposed optical surfaces of your telescope and its accessories. This system enables you to continue using your telescope, regardless of damp conditions on a clear night.

A telescope with a lens exposed on the front of its optical tube, such as a Schmidt-Cassegrain, Maksutov-Cassegrain, or refractor, is susceptible to dew formation (water condensation) on the lens surface. The exposed lens rapidly radiates its heat into the air and can cool down below the dew point. As a result, moisture in the air condenses on the lens.

Dew shields are available for Schmidt-Cassegrain and similar telescopes (catadioptrics), and are usually built into refractors. However, dew shields can only insulate the air around the lens to delay the dew from forming. The Dew Zapper Pro uses a heating band that keeps the telescope's glass just above the dew point, keeping the dew away for as long as the heat is applied. The amount of heat applied to the glass is not intrusive to your telescope's optics, and it should not create tube currents. Using the Dew Zapper Pro with a dew shield provides the most efficient and effective way to keep dew from your telescope. The exposed lenses of your finder scope and eyepieces are also susceptible to dew. The Dew Zapper Pro has different sized bands to fit your finder scope and eyepieces to keep dew away from your entire telescope system. There are several different sizes of heating bands available for the Dew Zapper Pro:

Heating Band Length	Fit
4"	Standard 1.25" eyepieces and 30mm finder scopes
6"	Standard 2" eyepieces and 50mm finder scopes
15"	3" - 5" (80mm-127mm) refractor and catadioptric telescopes
27"	6" - 8" (150mm-203mm) catadioptric telescopes
37"	9.25" - 11" (235mm-280mm) catadioptric telescopes

*Note: The heating bands have an elastic strap which may accommodate a slightly larger or smaller circumference. Since each heating band was made to fit a variety of different circumferences, some may fit with an overlap or slight gap. This does not effect the performance of the Dew Zapper Pro.*

## Getting Started

The Dew Zapper Pro can operate up to four heating bands at once. The control box has four output jacks for heating bands, and one auxiliary output jack for an optional 12-volt DC accessory. Each of the four heating band outputs are controlled by a knob, variable to anywhere between OFF, MED, and HI (**Figure 1**).



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**Figure 1.** The Dew Zapper Pro control box.

## Power Requirements

The Dew Zapper Pro is designed for 12-volt DC operation. The control box's plug fits any standard car lighter receptacle, or can be hooked up directly to a 12-volt DC power source. For field use, a portable battery with a power storage capacity of at least 10 amp-hours or more is recommended. A 10 amp fuse is installed in the control box's plug. (See "Specifications" for a list of power consumption for each heating band.)

**Warning: If replacing the fuse is necessary, do not use a fuse rated higher than 10 amps.**

## Installation

The Dew Zapper Pro should be installed on your telescope or accessory before you begin observing.

Wrap the Dew Zapper Pro's heating band around the lens cell of your telescope or finder scope. The power cord should extend away from the lens (**Figure 2**). Secure the heating band to itself with the nylon hook-and-loop fastener. If you are using the Dew Zapper Pro with a dew shield, position the heating element on the telescope tube just behind the lens cell. For the best heat conduction, be sure the heating element makes complete contact with the lens cell; avoid screws or bumps. For fork-mounted Schmidt-Cassegrains, route the cable over one fork arm to avoid tangling the cord as the telescope is moved. The cord length of the heating band is 6 feet.

When using the smaller 4" and 6" heating bands on eyepieces, the heating band should be wrapped around the body of the eyepiece. The power cord should face downward away from the eyepiece lens.



**Figure 2.** The installed heating band should have its power cord extending away from the lens.

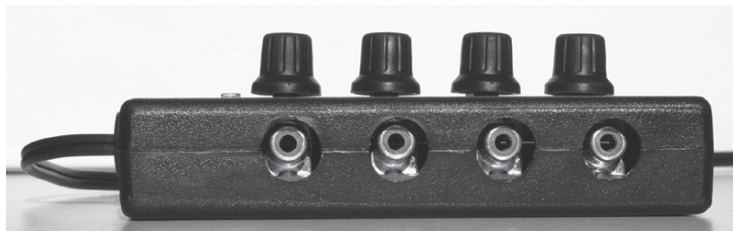
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## Using the Dew Zapper Pro

The Dew Zapper Pro will prevent dew from forming on your optics for as long as it is in use. You should use the Dew Zapper Pro before dew forms on your telescope or accessory lens. If dew is already present, the Dew Zapper Pro may be capable of gradually removing the dew; this depends upon the conditions.

### Operating the Control Box

The Dew Zapper Pro's control box allows the amount of heat provided to the heating element bands to be adjusted. It features microprocessor controlled circuitry which adapts to changing temperature and humidity. This allows for precise temperature control. Up to four heating bands can be controlled at once.



**Figure 3.** Each of the four the control knobs controls the jack aligned with it.

Plug the control box's power cord into your power source. A red LED on the plug and green LED on the control box will indicate the Dew Zapper Pro is properly powered on.

Remove the jack covers from the control box as needed. Plug a heating band into one of the jacks. Each of the control knobs controls the jack aligned with it (**Figure 3**). Turn the control knob clockwise and the channel's red LED will light up to indicate the channel is active.

Under normal use, you only need to set the control knob to about 25% power (with the control knob at the 9 o'clock position). If the dew conditions become severe, you can increase the power to **MED**/50%. If dew is has formed on your lens, turn the control knob to **HI**/100%. Return the setting to about 25% once the dew is gone.

### Battery Saver

The Dew Zapper Pro features a battery saver to protect the life of your battery. If the input voltage drops to 11.25 volts, the green **POWER** LED will flash. To preserve your battery, the Dew Zapper Pro will automatically power itself off approximately 30-60 minutes after the **POWER** LED begins flashing. This is useful if you are using a car battery or sharing your battery with other devices, like a motor drive for your telescope mount.

The battery saver can be disabled if you are using a dedicated power source. To disable the battery saver, move **Switch 1** (located inside the small square hole on the left side of the control box) to the down position (**Figure 4**). The down position is actually labeled "ON", which disables the battery saver. **Switch 2** is not used.



**Figure 4.** Move Switch 1 to the down position to disable the battery saver. Switch 2 is not used.

### Auxiliary Output Jack

The Dew Zapper Pro has a 12-volt DC auxiliary port located on the right side of the control box next to the power cord. The auxiliary port can be used with an optional 12-volt DC accessory equipped with a standard RCA-type plug. The accessory should not draw more than 10 amps.

## Specifications

Power requirement:	12V DC, "cigarette lighter" receptacle
Fuse:	10 A
Heating band controls:	Variable output, up to 4 heating bands can be independently controlled
LEDs:	Green power LED, 1 red heating band control LED per channel, 1 red power plug LED
Battery saver:	Power LED warning at 11.25V, power shut off at 11.1V, disable switch
Auxiliary output:	12V DC, 10 A max
Control box cord length:	12'
Heating band cord length:	6'

Band Length	Max Input Current (Amps)	Max Heat Output (Watts)
4"	0.0167	0.2
6"	0.375	4.5
15"	0.940	11.3
27"	1.688	20.3
37"	2.31	27.7

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*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

*Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

*Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

*Reorient or relocate the receiving antenna.*

*Increase the separation between the equipment and receiver.*

*Connect the equipment into an output on a circuit different from that to which the receiver is connected.*

*Consult the dealer or an experienced radio/TV technician for help.*

*A shielded cable must be used when connecting a peripheral to the serial ports.*

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## One-Year Limited Warranty

This Orion product is warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid. Proof of purchase (such as a copy of the original receipt) is required. This warranty is only valid in the country of purchase.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mishandled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights. It is not intended to remove or restrict your other legal rights under applicable local consumer law; your state or national statutory consumer rights governing the sale of consumer goods remain fully applicable.

For further warranty information, please visit [www.OrionTelescopes.com/warranty](http://www.OrionTelescopes.com/warranty).



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