

Wildlife Engineering

Infrared Lighting for Nocturnal Observation

Instructions for Operating the IR Lamp

Thank you for purchasing the IR Lamp Illuminator! Operation of the lamp is fairly straightforward, but please take a moment and look over these instructions for tips that may make things go more smoothly. With proper care, this unit should give you many years of trouble-free operation.

The unit consists of three components: the Illuminator, the Battery, and the Battery Charger (the Battery and Charger are optional and not needed if you are providing your own power source).

The Illuminator

To activate the illuminator, plug its power cord into a 12 Volt source capable of 500 milliamps continuous. The illuminator comes with a 2.5 millimeter coaxial power plug. The center conductor of the plug is positive. There is no power switch, which eliminates one common source of field failures. There is a small amount of visible red light emitted from the illuminator when it is operating. When you look at the front of the operating illuminator, you will be able to see the individual light emitting devices within the housing. You will note that these devices are not evenly distributed within the illuminator. This arrangement has no effect on the beam projected. To verify all emitters are functioning, you should be able to count 40 individual points of red light. If there are fewer, the illuminator should be returned to the factory for repair.

The bottom of the illuminator has a standard ¼-20 threaded mounting hole. This thread matches standard tripod mounts. It can be directly mounted to a tripod, or to the optional multiple-light bar.

Note that during operation, the illuminator will get warm, and even hot to the touch, depending on the ambient temperature. This is normal, as the light emitting devices themselves generate heat as well as infrared light. During operation, do not cover the heat-dissipating fins, as this will cause the unit to overheat.

If you have any problems operating the illuminator, or questions about a particular application, please feel free to contact us for advice. This unit is the product of many years of experience in nocturnal videography. Only the highest quality components have been used in the construction of this device to provide you with a rugged, field-worthy piece of equipment. If you have suggestions for improvements you would like to see, please contact us, as we are always striving to improve our products.

The Battery (optional)

If you are using the optional 12V, 5 AH battery, you will see two objects on the battery bracket. The first is the plug for the illuminator power cord. Simply plug the illuminator into this socket, and the illuminator should light. You will get about 8 hours of full brightness from a fully-charged battery. After that, the illuminator will gradually grow dimmer. This is so the light doesn't suddenly turn off at the end of charge, but will provide reduced light for some additional time. If you continue to operate the illuminator, the circuit will eventually shut the light off at a point where further operation would damage the battery.

The second object on the battery bracket is the fuse holder. Under normal operation, you should never need to do anything with this holder. However, if a defect should occur in the illuminator or its power cord, the fuse in the holder may blow. In this case, determine the cause of the failure, replace the fuse, and continue operation.

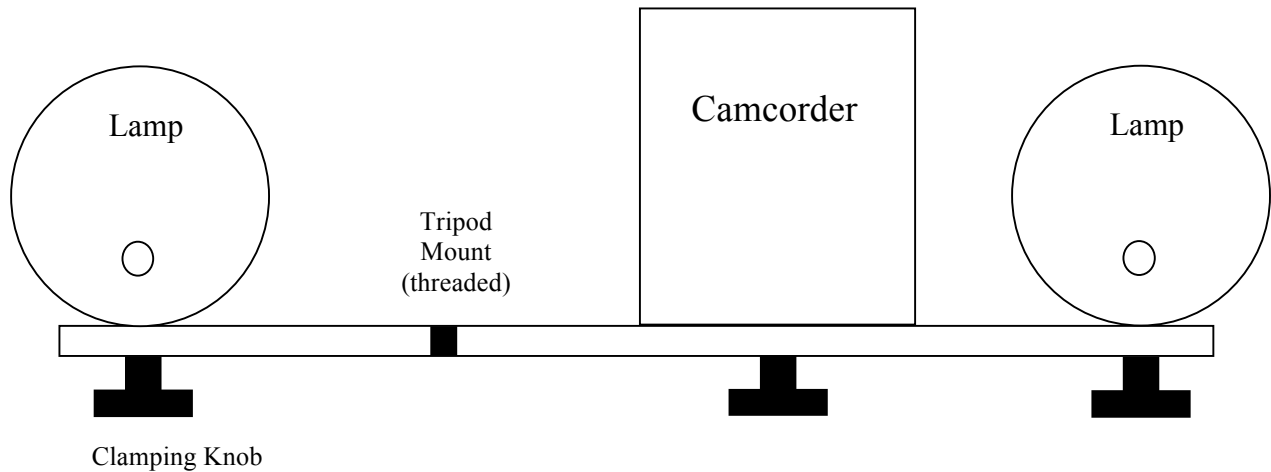
The Charger (optional)

To recharge a battery, plug the charger into a standard 115VAC wall outlet, and plug the charger's cord into the battery's power socket. The charger has a status indicator. The indicator will illuminate yellow while the battery is charging, and will change to green out when fully charged. If the indicator illuminates red, there is a fault in the system. The battery may be left on the charger after reaching full charge without damage.

Multiple-light Bar Kit (optional)

If more light is required, an optional 2-, 3-, or 4-light bar kit is available. These bars allow the convenient mounting of 2 – 4 lights, along with a camcorder, to a single tripod. The $\frac{1}{4}$ - 20 threaded hole in the light bar is used to attach the bar to the tripod mounting screw. The other holes are used to mount the lights and camcorder, using the included clamping knobs. See the diagram below for a typical configuration.

Light Bar Configuration

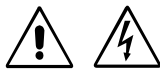
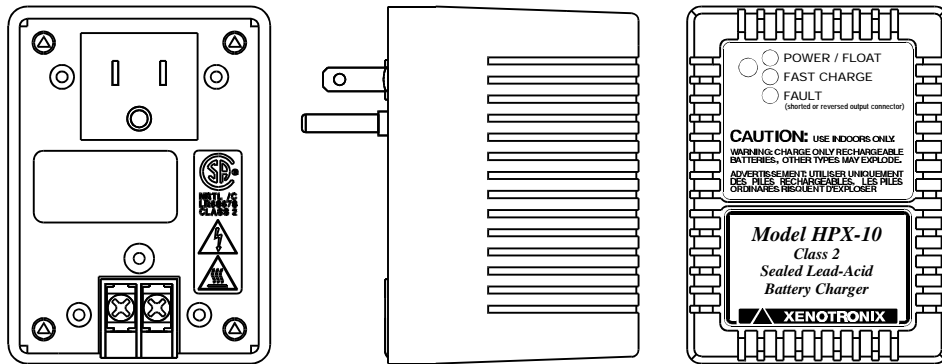




Automatic Battery Charger for Sealed or Valve Regulated Lead-Acid Batteries

Model HPX-10 Series

Operating Instructions



**WARNING CONCERNING THE REMOVAL
OF COVER:**

**CAUTION: TO PREVENT THE RISK OF
ELECTRIC SHOCK, DO NOT REMOVE
COVER. NO USER SERVICEABLE PARTS
INSIDE. REFER SERVICE TO QUALIFIED
SERVICE PERSONNEL.**

**CAUTION: TO PREVENT FIRE OR SHOCK
HAZARD, DO NOT EXPOSE UNIT TO RAIN
OR MOISTURE.**

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS - This manual contains important safety and operating instructions for Model HPX-10 Battery Chargers. Before using the battery charger, please read all instructions and cautionary markings on the battery charger, the battery, and the product using the battery.

CAUTION - To reduce the risk of electric shock:

- C Do not expose unit to rain or moisture.
- C Do not remove cover. There are no user serviceable parts inside. Refer service to qualified service personnel.
- C Connect the battery charger directly to a grounding receptacle. An adaptor should not be used with this unit. This unit is equipped with a power plug having an equipment grounding conductor (3-prong). The unit must be plugged into an outlet that has been properly installed and grounded in accordance with all local and national codes and ordinances.
- C Disconnect charger from AC power before attempting any maintenance or cleaning. Turning off controls may not reduce this risk.

WARNING -

- C Charge only sealed or valve regulated, lead-acid, non-automotive, maintenance free rechargeable batteries. Attempting to charge other types of batteries may result in personal injury and battery damage.
- C The enclosure (metal face) may become hot during the charge cycle - **DO NOT TOUCH!**
- C Where hydrogen gas may be present, connect or disconnect the output connectors only when the unit is disconnected from AC power or arcing and burning may result.

DANGER - Never alter power plug blades or ground pin. If it will not fit the outlet, have a proper outlet installed by a qualified electrician. Improper connection will result in the risk of an electric shock or fire.

Make sure cords are located so that they will not be stepped on, tripped over, or otherwise subjected to damage or stress. Do not operate this unit with a damaged cord or plug - replace them immediately. To reduce the risk of damage to electric plug, pull by unit body rather than output cord when disconnecting unit.

Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Do not disassemble charger; incorrect reassembly will result in the risk of an electric shock or fire. Refer service to qualified service personnel.

Allow space around unit and adequate air circulation to reduce internal heat buildup.

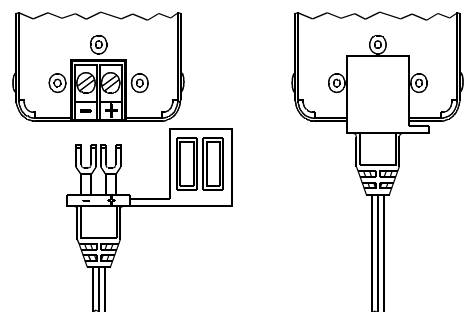
GENERAL DESCRIPTION

This unit is a two stage, constant voltage battery charger with current limiting, current fold back, and automatic temperature compensation of the output voltage. It is protected against shorting the output terminals and reversing the output terminals on a battery. Various output cables are available. There is one indicator light. It lights green to indicate when power is applied and, when a battery is attached, that the charger is in float mode. It lights yellow when the unit is charging the battery. It lights red to indicate a fault condition (shorted/reversed output connector).

This unit is designed to automatically switch into a single stage, float charge mode when the battery is charged. A single stage, parallel charger version is available for keeping a battery fully charged when used with a permanent or intermittent parallel load. This unit is not designed to operate as a standalone power supply.

ASSEMBLY INSTRUCTIONS

Loosen the screws on the charger output terminal strip. Identify the polarity of the terminal strip and the output connector; both the charger housing and the output cable are marked with "+" & "-" symbols. Attach the two spade terminals to the terminal strip and tighten the screws. To prevent accidental shorting, cover the exposed terminals with the molded press-on terminal cover.

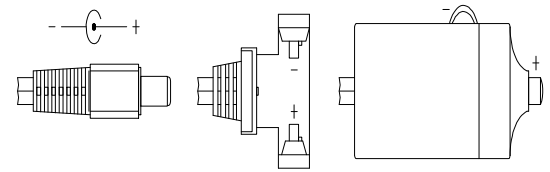


OPERATING INSTRUCTIONS

Before using this battery charger, make sure it is compatible with your battery. Refer to the ratings on the battery charger, the specifications in this manual, and your battery documentation. Charge only sealed or valve regulated, lead-acid, non-automotive, maintenance free rechargeable batteries. Attempting to charge other types of batteries may result in battery damage.

Plug the power cord into a properly grounded outlet which supplies the correct input voltage. The indicator light should now be on indicating that the charger is operating.

Determine the battery polarity. Most batteries identify the positive terminal with a "+" sign or the color red and identify the negative terminal with a "-" sign or the color black. Connect the red insulated output clip to the positive battery terminal and connect the black insulated output clip to the negative battery terminal. If the charger is provided with a polarized connector, make sure your battery plug is wired to match the output connector.



The charger should now be on and charging the battery. The indicator light should be yellow. The yellow charge light will stay on until the battery is about 95% recharged. At this point the indicator will turn green and the battery may be used. The battery should be left connected to the charger for an additional three hours to ensure a 100% recharge. To insure a full charge and to help your battery keep its full capacity, we recommend the battery be left connected to the charger, in float charge mode, until ready to use. The battery may be left connected to the charger indefinitely, in float charge mode, without danger of overcharging.

CHARGING NOTES AND TIPS

For safer and more efficient charging, batteries should be charged with higher voltages when cold and lower voltages when warm. This unit incorporates automatic temperature compensation of the output voltage. It will increase the charge voltage in cold conditions and decrease charge voltage in warm conditions. For this feature to work properly, the battery and charger should be located in the same environment (allow the battery and charger to stabilize at room temperature before charging). Initially, the charger voltage may read a little high until its internal temperature warms during operation, thereby lowering the voltage.

Make sure that you only charge the proper voltage battery. Trying to charge a lower voltage battery will cause severe overcharging and trying to charge a higher voltage battery may damage the charger.

These battery chargers are designed to ideally charge a battery at the C/10 rate (capacity divided by 10 hours). Therefore, an 8 amp hour battery would require a 800 milliamp charge. Larger or smaller capacity batteries can be charged with these chargers with the following precautions (refer to these charger specifications and your battery documentation for proper switch and charge currents to determine compatibility with this charger):

- C When charging a larger capacity battery, the battery may be overcharged due to the unit not switching into float charge mode. Holding a battery for prolonged times at the high rate charge voltage may damage the battery. Larger capacity batteries really require a larger current charger or a float charger.
- C When charging a smaller capacity battery, the battery may be undercharged because the charger switches into float charge mode too early (relative to capacity). Leave the battery connected to the charger for several hours to finish charging in the float charge mode.

XENOTRONIX can custom make units, or modify our existing units, to exactly match your charging needs. Call our sales department for technical information and pricing. Following are *some* of the modifications we can perform:

- C Reduce charge current to match your battery capacity.
- C Change switch point to match battery and charge rate.
- C Adjust float and charge voltages for special conditions or batteries.
- C Make charger into a parallel charger (for use with loads in parallel with a battery).
- C Provide custom cables and connectors.
- C Private labeling.

TROUBLESHOOTING

NO INDICATOR LIGHT - If the indicator light is dark, check to see if the receptacle is controlled by a light switch or power strip switch. If all else appears normal then the charger probably needs repair or replacement.

NO CHARGE INDICATOR, NOT CHARGING - If the charger will not go into charge mode (yellow indicator) then the battery is probably already charged. Try again with another battery which you know is not charged.

FAULT INDICATOR - If the indicator light is red then either the outputs are hooked up in reverse or shorted together. Make sure of the connection to the battery. Note: A nearly completely dead battery (less than one volt) looks like a short to the charger. If you suspect the battery is dead, leave the charger on the battery to see if it will go into charge mode. The charger will deliver a small amount of current into a dead battery and may eventually go into normal charge mode and recover the battery. If the charger will not go into charge mode within one hour, and then into float mode within 24 hours, the battery is probably damaged beyond recovery.

CHARGER WILL NOT SWITCH INTO FLOAT MODE - If the charger will not switch into the float mode, after 24 hours, then the battery is probably damaged and is not properly accepting the charge. Check the open circuit voltage of the battery to see if it has any shorted cells - there should be about 2.15 V/cell for a properly charged battery (divide the battery voltage by two to get the number of cells). If the battery voltage looks correct then you may be trying to charge a battery which has too large a capacity for the charger (see charging notes and tips).

RATTLE - If you think you hear a rattle inside the charger it is probably only a loose terminal strip screw. Once the output cable is attached the rattle should go away.

MAINTENANCE INSTRUCTIONS

CLEANING - Unplug the charger before attempting any cleaning. If it becomes necessary to clean the enclosure, wipe the exterior of the enclosure with a damp cloth and a mild detergent. Do not use an abrasive cleanser. Do not spray cleaners directly onto the charger or immerse unit in water.

MODEL NUMBERING SYSTEM

Base #:	HPX10
Voltage Code:	Two digit number; Ex. 06 = 6 volts, 12 = 12 volts, etc.
Stage Code:	C = dual stage charger (standard); P = single stage, parallel charger (float voltage only).
Current Code:	Three digit number (with decimal point understood to be two digits over from the right); Ex. 100 = 1.00 amp, 080 = 0.80 amp, 005 = 0.05 amp (50 mA), etc.
Battery Mfg. Code:	Letter code for battery manufacturer (optional)
Sequence:	<Base#> - <Voltage Code><Stage Code><Current Code><Battery Mfg. Code>
Example:	HPX10-12C080 is a Model HPX10 dual stage charger, rated at 12 volts and 800 mA

BATTERY CHARGER SPECIFICATIONS

Operating temperature	0 to 40EC (32 to 104EF)
Storage temperature	-40 to 80EC (-40 to 176EF)
Dimensions	H 3.8" (9.65 cm) x W 2.8" (7.1 cm) x D 2.8" (7.1 cm)
Weight	Less than 1.5 lbs (0.68 kg) with standard output cable
Power Requirements	120 V~, 60 Hz, .2 A RMS



OUTPUT RATINGS: @ 25EC

Unit	HPX10-06C100	HPX10-12C080
Charge Amps (I _{max})	1000 mA ± 2%	800 mA ± 2%
Charge Voltage	7.35 ± 0.15	14.70 ± 0.30
Switch Amps (I _{sw})*	133 mA ± 20%	107 mA ± 20%
Float Voltage	6.84 ± 0.06	13.68 ± 0.12

Other Models:

Charge Amps (I _{max})	see marking label
Charge Voltage	2.45 V/Cell
Switch Amps (I _{sw})*	I _{max} /7.5
Float Voltage	2.28 V/Cell

* Dependent upon battery Manufacturer.
Contact Xenotronix Inc. for specifications.

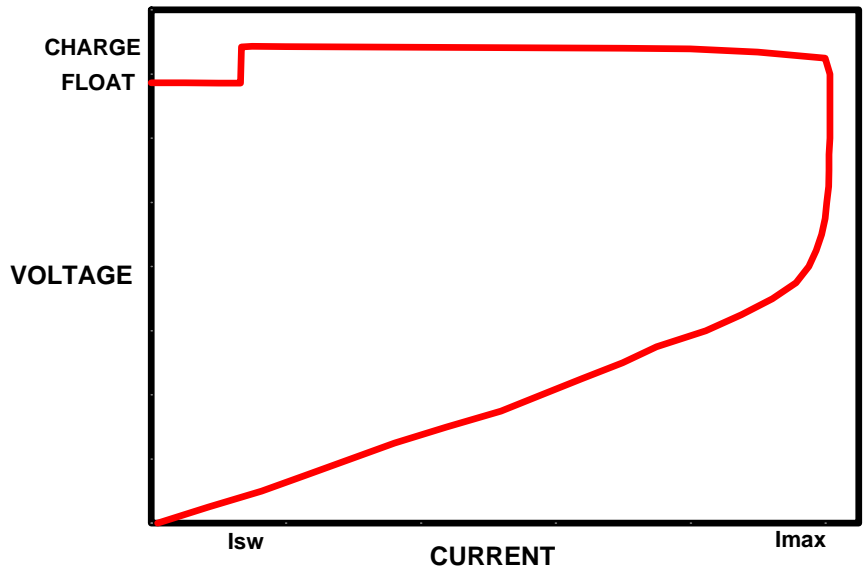
BATTERY RECOMMENDATIONS:

(lead-acid batteries charged @ C/10 rate)

Model	Battery
HPX10-06C100	6 V, 10 AH
HPX10-12C080	12 V, 8 AH

AH = Ampere-hours

Lead-Acid Batteries are nominally rated at 2V per cell (6V = 3 cells and 12V = 6 cells).



CHARGE CURVE (dual stage)

Refer any questions to XENOTRONIX Inc.
Monday-Friday 8:30am to 4:30pm ET
tel. 407-331-4793 fax. 407-331-4708