

# Welcome to Speedotron

Thank you for purchasing Speedotron Black Line equipment. The name Speedotron is synonymous with professional workmanship and the finest electronic flash equipment available. Backed by years of experience, our engineers have developed the Black Line system to take the rigors of daily professional use with consistently outstanding results.

For more than 60 years, Speedotron's reputation has grown without much fanfare or advertising. Over the years, we have found that a satisfied user is our best salesman. We are determined to serve you well and offer the most efficient, competent and courteous service anywhere.

If this is your first Speedotron purchase, this guide will help you get the most out of your new equipment. If you've purchased and used our equipment before, much of this information will be familiar. In either case, we advise going over this manual thoroughly. It contains vital information on the care and proper use of all (including the latest) Speedotron products.

This manual is not a photographic handbook; only information pertinent to basic operation is given. If you have questions about how to handle a particular lighting situation or other application that is not discussed, please contact us and we'll answer your questions as best we can.

The equipment you have purchased is heavy-duty, durable equipment that will stand up to continuous use either on location or in the studio. However, there are certain operating procedures that should be adhered to insure maximum performance. Treated with a reasonable care, your Black Line system will provide you with dependable, consistent, long lasting service.

Please help us to get to know you and fulfill our obligations to you. Return the enclosed warranty registration card (found in the center of this manual) to us immediately. Sending in this card will validate your warranty and put your name on our mailing list.

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we  
love  
you

2-year u.s. limited warranty

## Speedotron's 2-Year U.S. Limited Warranty

Speedotron guarantees to repair or replace, free of charge, any part or parts found by factory inspection to be defective due to faulty material or workmanship, provided the equipment is returned to our factory prepaid. The period of warranty is two years from the date of original purchase, except for flash tubes and modeling lamps, which are covered by the manufacturers' warranties, not by Speedotron. Flash tubes, are covered for a period of one year only, and the length of manufacturer's warranties on modeling lamps varies. The Speedotron two-year warranty does not apply to equipment which has been abused, cracked or broken in shipping, resold or rented (without written permission from Speedotron Corporation), which has the serial number removed or defaced, which has been modified or repaired by an unauthorized person, or which has been purchased from any source other than an authorized Speedotron dealer. A copy of the original sales receipt from an authorized Speedotron dealer is required at the time of warranty service.

The seller shall not be liable for any injury, loss or damage, direct or consequential, arising from the use or inability to use the product. Prior to use, the purchaser shall determine the suitability of the product for the intended use and assume all risks and liabilities.

The obligation of Speedotron Corporation is limited to repair or replacement only, and no one is authorized to assume any obligation not in accordance with the above.

Do not attempt to make repairs to your Speedotron equipment. All electronic flash systems operate on high voltage and high power. There is a high risk of severe electrical shock when opening a power supply or light unit. Leave service to qualified and authorized electrical service personnel. Authorized service personnel are familiar with the procedure to fully discharge a live unit (flashing the unit is not enough to drain stored power even when the unit is unplugged). Repairs by unauthorized service personnel or by the user will void the warranty.

Although we do have several service stations, we encourage you to send all repairs, under warranty or otherwise, to our factory to ensure the best possible service. Not only will your unit be properly repaired, but it will be given a routine updating of all circuitry that has been revised since your unit was manufactured.

Should service be necessary under this warranty, return the item to us prepaid (we do not accept collect shipments). We, in turn, will expedite repairs and return the item to you prepaid, via whatever means of transportation you used to ship it to us (applies to continental U.S.A. only).

This warranty is not valid unless you fill out and return your warranty registration card. Equipment should be registered within 10 days of purchase.

**Note:** The warranties covering flash tubes and modeling lamps are original manufacturer warranties, and do not cover damage which occurs in shipping. All flash tubes are checked over before being shipped to ensure that they are in good condition. Please inspect all flash tubes and modeling lamps upon their arrival, and if they are cracked or broken, **contact the shipping company immediately for a damage claim.** Only flash tubes or modeling lamps that are defective, **not those that are cracked or broken**, are covered and will be replaced by the manufacturer's warranty.

**The Speedotron 2-year U.S. warranty applies only to Speedotron equipment purchased from authorized Speedotron dealers.**

FOR YOUR RECORDS:

Dealer \_\_\_\_\_

Purchase Date \_\_\_\_\_

Equipment Type \_\_\_\_\_

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

## General Instructions and Information

*Although Speedotron Black Line power supplies vary in power and features, they all operate under the same principles. The following instructions apply to the entire Black Line series. For maximum equipment life and for safe, dependable operation of power supplies, we advise you to follow these general rules.*

- **Information contained in this manual is applicable to New Speedotron Equipment** at the time of writing. Some information may not be applicable to older Speedotron equipment.
- Before doing anything with the power supply make sure that the **Model** and **Power** switches are in the off position and the **Reset** button (circuit breaker) is fully depressed into its socket.
- Connect light cable(s) to the **Light Unit Outlet(s)** on the power supply (with the 103, 202VF and 206VF lights, connect the light unit cable to the light unit before connecting to power supply), selecting the appropriate outlets for the desired power level. (Refer to the diagrams on the side of the power supply.)
- To insert, align the light unit plug with the power supply outlet and apply even pressure while pushing. Make sure that all light unit cables are firmly seated and you hear or feel the quick release ring **click** into place or the locking of 206 light units is fully threaded.
- Make sure cables are out of pathways or are taped to the floor to prevent accidentally disconnecting cables from power supply.
- **Never** connect or disconnect a light unit while the power supply is turned on. **Never** insert or remove flash tubes while the light unit is connected to the power supply. Be sure flash tubes are fully seated into light unit sockets. (Read instructions in the Light Units section of this manual for more information on light unit assembly and operation.)
- Always make sure your **Model** and **Power** switches are off when disconnecting or connecting light units. Speedotron power supplies are equipped with arc-protected outlets. However, as with any electrical equipment, arc-over (an electrical discharge between two physically disconnected electrical terminals) is a possibility. When light cables, flash tubes or power cords are improperly seated, arc-over may occur. Also, if your light unit or power supply malfunctions, or the power cord or the internal wiring in the studio is improperly terminated or defective, there is a chance of arc-over. Severe power supply damage and operator injury may result if arc-over occurs.
- Plug sync extension into **Sync** socket and connect other end to PC cord for camera. These sync extensions have a 1/4" international (phone jack) plug.
- Insure that protective flashtube covers are removed from light units before turning on model lamps or flashing.
- A slave tripper (Speedotron #23510) may be installed in the **Sync** socket to fire the power supply. The 1005 features a built-in slave trigger for added convenience.
- Connect AC power cord into **Power Input** on power supply. Always use a three-wire ground power cord and a properly grounded wall outlet with all

Speedotron power supplies. Failure to do so may cause the power supply to intermittently misfire. Do not use a three prong-to-two prong "ground eliminator" adapter.

- Once the light units are properly assembled and installed, the power cord is installed and the sync extension is connected, turn the **Power** switch on. **Do not immediately fire the unit on the first use or when the unit has been idle for periods over 3 weeks. Allow several minutes for the power supply's capacitors to form. Once this procedure has been followed at these times, subsequent use of the power supply requires no waiting period.**
- **Ready/Push to Flash** button may be depressed to verify proper system operation.
- When Power is on, be sure **Ready/Push to Flash** indicator is illuminated before switching **Power, Combine/Isolate, or Fast/Slow\*** controls. **Do not** move these switches while the unit is recycling.
- Each Black Line power supply's unique features are fully explained in the next section of this manual.

**Never attempt to make repairs to your Speedotron equipment. All electronic flash systems operate on high voltage and power. It is very dangerous to open a power supply.**

**To summarize, set-up should go as follows:**

- Make sure power supply is off (both **Model** and **Power** switches in the off position) and unplugged.
- Connect light units to power supply. Inspect all connections, flash tubes and modeling lights. Set desired ratio.
- Connect sync cable to power supply and camera
- Connect power supply to AC. Turn on power supply and wait for it to reach full charge.
- Test to see that all light units are flashing and slave triggers (if any) are functioning.

## Power Ratios

Black Line equipment is capable of symmetrical (all light units receiving the same amount of light) or asymmetrical (ratioed) power distribution. Controlling distribution is as easy as flipping a switch.

Each power supply is divided into three channels with different levels of power, except for the 405 (which has two). These channels may be joined for even (symmetrical) output to all outlets or separated for unequal (asymmetrical) output to a set of outlets in one or more channels. Power distribution charts are provided in the next section of this manual and on the side of each power supply.

When we refer to ratioing, we are describing the levels of power output from the power supply to the light units only. These power output ratios do not mean that the light falling on the subject will be at that same ratio. This will only occur if the light units are the same and have the same flash tube, reflector, cable length, light control accessories, are at the same distance to the subject, and there is no overlap of lighting on the subject, etc. Power output ratios are only offered as a guide to help you determine your lighting arrangements.

\*Not available on 405 power supplies.

# Explorer 1500 Digital

The Explorer 1500 Digital is unique in the Speedotron Black Line lighting system. It can travel throughout the world using batteries that can be recharged on the local power mains. The full line of Black Line lights and accessories can now be used on location without the need to haul bulky gas powered generators.

The Explorer 1500 Digital is among the fastest, most powerful battery powered flash systems in the world. But this is professional equipment and therefore it requires some care on the part of the operator. All reasonable care and precautions should be followed. The Explorer CAN overheat and be damaged if it is abused. You can check this by simply placing your hand against the end of the case; if it's too hot to hold your hand there, turn it off and give it a rest. Charge the batteries while it rests if power is available. Proper battery maintenance is important for longest life, so read and follow the suggestions in the **Explorer 1500 Digital Appendix**.



## Battery & Charger Module (The Juice Box)

The Battery and Charger module, referred to as **The Juice Box**, contains two batteries and an off-line battery charger. The Juice Box must be attached to the Power Pack at all times during operation. The Power Pack receives all its power from the battery even when the Explorer is plugged into the wall.



A plastic strip is placed between one end of the Juice Box and the Power Pack to prevent the system from being turned on and running down the battery if it encounters rough handling during shipping.

**Remove this plastic strip between the Juice Box and the Power Pack! The Explorer will not operate until this plastic strip is removed!**

**Attach the Juice Box to the Power Pack. The POWER [1] Switch on the Power Pack must be in the OFF position.** The plug on the Juice Box connects to the plug on the bottom of the power pack. Insure that these plugs connect and then latch the four fasteners at the ends of the units.

**To change to a spare battery, turn off the POWER [1] Switch**, open the four fasteners as shown in the drawing, (below) then lift the Power Pack off the Juice Box, then attach the spare Juice Box.

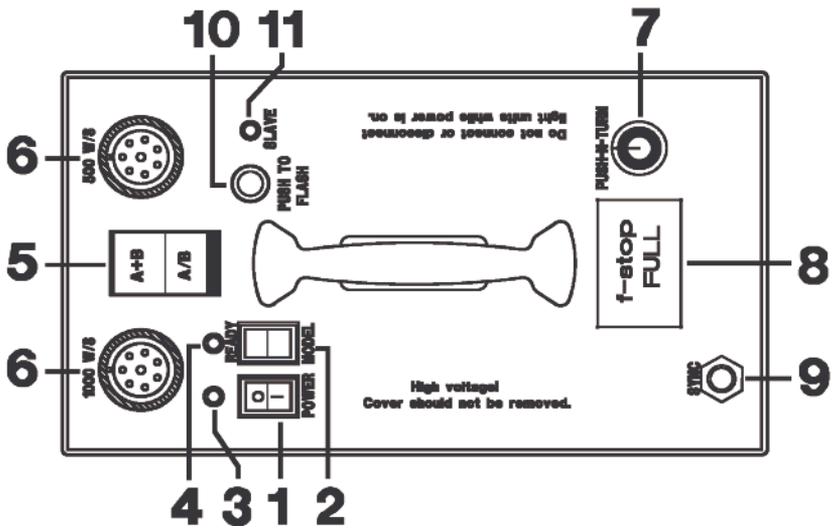
Battery life is estimated to be about 5 years if kept charged & not deeply cycled. Battery life is reduced by deep cycling - the battery is limited to 300 to 500 full charge-discharge cycles. Reduced depth of discharge will give more cycles. It's OK to charge batteries while using the unit. This will insure the batteries are kept in top condition.

It's OK to separate or mate the Flash Pack while the batteries are on charge.

**DO NOT separate or connect the Power Pack to the battery while the POWER [1] switch is turned on.**

**DO NOT store batteries in a discharged condition.** When on location, the batteries may be recharged from an automobile's accessory socket by using an inverter such as the **11255 Explorer Power Inverter**.

Explorer 1500 • power supply



## Explorer 1500 Description of Controls

- 1) **POWER** — Turns power supply on and off.
- 2) **MODEL** — Turns Model lamps on for 10 seconds. Pressing this switch while model lamps are on will not add to the ten seconds. **Caution – Do not use model lamps larger than 150 watts. Doing so may overload the power circuits.**
- 3) **Power On LED** — Red LED indicates power is turned on.
- 4) **READY Light** — Green LED Lights when the power supply reaches 100% ready
- 5) **Ratio - A+B or A/B** — Combines or Isolates the two Light Unit Outlets [6]. When in Isolate, [A/B], the left **Light Unit Outlet** provides 1000w/s and the right **Light Unit Outlet** provides 500w/s when dialed to full power. When in Combine, [A+B], both outlets are connected together to evenly distribute power when two light units are used, or full [1500w/s] power if one light unit is used.
- 6) **Light Unit Outlets** — Sockets for connecting one or two light units to power supply.
- 7) **PUSH-N-TURN** — Controls overall power level in 1/10 f-stop increments and selects among three control and option menus. See **Explorer 1500 Digital Operating Instructions**.
- 8) **Display** — Displays the current selection made by the **PUSH-N-TURN** [7] control.
- 9) **Sync** — ¼" Phone Jack; accepts ¼" international sync cords. Low voltage socket to connect camera or radio trigger to power supply. Also turns off photocell slave when sync cord is inserted and turns photocell slave on when sync cord is removed.
- 10) **PUSH TO FLASH** — Pushing the button manually triggers the flash for testing or open flash applications.
- 11) **Slave** — Photocell Slave Tripper Allows remote operation by sensing light of another flash. Photocell slave is turned off when sync cord is inserted and turned on when sync cord is removed.

# Explorer 1500 Digital Operating Instructions

In addition to the general instructions on page 4, the following information & techniques are crucial for the proper use & care of the Explorer 1500.

**Check that the plastic strip between the Juice Box & Power Pack has been removed. The Explorer will not operate until this plastic strip is removed!**

Connect the **Juice Box** to a wall outlet to charge the battery. A red LED on the side of the **Juice Box** will light & turn to green after the battery reaches a nearly full charge. The charging time will vary from a few minutes to over night if the battery charge is low. The Explorer 1500 can be used while the battery is charging.

Turn on the **POWER [1]** switch. The **Explorer** will undergo a turn-on routine while displaying the current menu settings in the **LCD Display Window [8]**. When the routine is finished, the **LCD Display Window** will indicate the present power level. Power can now be dialed up or down with the **PUSH-N-TURN [7]** knob.

Press the **MODEL [2]** lamp switch. Model lamps light for 10 seconds. This permits checking lighting setups while conserving battery power & maintaining safe operating temperatures in the light units. With this arrangement, fans in the light units are not needed & therefore are not operated. It is strongly suggested that model lamp usage is to be kept to a minimum since each 10 second operation of two 150 watt model lamps uses as much battery power as two 1500 w/s flashes.

**DO NOT use model lamps larger than 150 watts.**

## Menu Description

Three menus displayed on a two line Digital Display window & selected by a single **PUSH-N-TURN [7]** knob control the operation of the Explorer 1500. Three menus are:

**Normal:** indicates power level from Full to -5 f-stops

**Setup:** controls several performance options

**System:** monitors readiness of the power supply by showing battery level & number of flashes.

There is a flashing cursor at the beginning of one of the two lines in the Digital Display window. Pushing down on the **PUSH-N-TURN [7]** knob moves the cursor to the other line. Turning the knob selects an option on the line with the flashing cursor.

When power is turned on, the Explorer goes through a series of internal power-up checks while the status of the stored options is shown on the display. After going through these checks, the display will show the **Normal** menu & the flashing cursor will show the power level that has been previously selected. The default power level is the power that the Explorer was at when it was last turned off. An option on the **Setup** menu allows the Explorer to start at its lowest level [-5 f-stops] to conserve battery power.

## Changing a menu option

An example of changing a menu option is disabling the beeper. The flashing cursor is normally on the lower line of the display ready for a power level change.

Push down on the **PUSH-N-TURN** knob. The cursor is now on the upper line of the display. Turn the knob & the words **MENU & NORMAL** appear. Push the knob & the cursor moves to the bottom line by the word **NORMAL**. Turn the knob until **SETUP** appears next to the cursor. Press down on the knob so that the cursor is on the top line next to **MENU**. You are now in the **SETUP** menu. Turn the knob through the various options until the Beeper appears. If the word on the lower line is **Enabled**, then pressing the knob will change it to **Disabled**. Press again & the beeper will be **Enabled**. Turn the knob until you return to **MENU & SETUP** appears below it. Press the knob & the cursor moves down to **SETUP** & turn it until **NORMAL** appears at the cursor. Push the knob & it moves up by **MENU** & turn it until the cursor is flashing next to f-stop. Press the knob & the cursor is on the lower line ready to change power levels. The new option will be retained until it is changed again.

**Alarms** - If an unsatisfactory condition should occur, an alarm will sound. Warning conditions & Explorer responses are as follows.

**Low Battery** - If an unsatisfactory condition should occur, an alarm will sound.

Warning conditions and Explorer responses are as follows.

**Battery Alarm** - No Beeps, displays "Low Batt", "Shutdown" & unit shuts down after continued operation in a low battery condition.

**Under Exposed** - Any time the Explorer is more than 0.3 f-stops below its setting when a flash occurs, the unit beeps twice & displays "underExp", "X.Y stops" where X,Y equal the number of f-stops and tenths of stops underexposed.

**Charge Rate or Discharge Rate too long** - Displays "CHARGER", "ERROR" & shuts down. This may indicate an internal component failure if it takes too long to recycle.

**Alarm conditions may occasionally be cleared by simply turning off the Explorer and restarting.**

## Appendix --- Battery and Charger Details

### Background - Chemistry of Lead

A lead-acid battery wants to be kept charged to keep its chemical system in equilibrium. For longest life, it should be kept at a constant voltage (the "float" voltage) when not in use. If it stands uncharged, it will self-discharge over a period of about one year at room temperature. The discharged state causes degradation of the materials in the cells. Lead-acid batteries should be kept in the charged state whenever possible. The **11255 Explorer Power Inverter** may be used on location to prevent leaving batteries in a discharged condition.

### 3-Stage Charger

The best way to charge a multi-cell lead-acid battery is to slightly overcharge it to equalize the charge state on all the cells. The overcharge cannot be continued indefinitely because it eventually would dry out the cells through electrolysis of the water in the electrolyte. A 3-stage charger is the best design to accomplish this. The charger operates in three modes:

#### Fast Charge Mode

A constant current in a reasonable range is fed to the battery to convert the active materials to the charged state in a reasonable time. On the low end, the charge rate must be high enough to keep recharge time in a reasonable range. Most sealed lead-acid batteries want between 0.2 & 0.3 times the battery capacity in amp-hours for the maximum charge current. A 9 amp-hour battery wants between  $0.2 \times 9 \text{ AH} = 1.8 \text{ amps}$  &  $0.3 \times 9 \text{ AH} = 2.7 \text{ amps}$  for best life. The battery can accept more current when at a low state of charge. Fortunately, a low state of charge means the cell voltage is lower, so the charger can deliver a higher current until the voltage rises to some limit.

#### Slow Charge Mode

**Slow Charge Mode** limits the voltage to a range around 14.4 volts at room temperature, until all the cells become charged & the current falls to a lower level.

#### Trickle Charge Mode

When charge current at the **Slow Charge Mode** voltage falls to about 1/4 of the **Fast Charge Mode** current, all the cells in the battery are nearing full charge. The voltage can then be reduced to the **Trickle Charge Mode** voltage, around 13.6 volts at room temperature. At this point the battery is between 90% & 95% charged. It will complete charging to 98% capacity over the next 3 to 5 hours & reach 100% capacity overnight. The battery should be left on **Trickle Charge Mode** when not in use for maximum life.

### Indicator LED

The indicator LED changes color from red to green when the charger switches to **Trickle Charge Mode**. It may blink during the transition from **Slow Charge Mode** to **Trickle Charge Mode**.

### Temperature Compensation

The charging voltage limits are adjusted for temperature to avoid overcharge at high temperatures & undercharge at low temperatures.

The battery can be used over a temperature range of  $-10^{\circ}\text{C}$  ( $14^{\circ}\text{F}$ ) to  $45^{\circ}\text{C}$  ( $113^{\circ}\text{F}$ ). Battery performance drops off rapidly below  $-10^{\circ}\text{C}$ .

Do not charge the battery if the battery temperature is above  $45^{\circ}\text{C}$ .

**Power cord** - Unit is supplied with a US cord. This can be replaced by any GROUNDING 3-conductor power cord to fit local receptacles. Universal input 85-265VAC, 47-63Hz. The unit will work anywhere in the world.

**Charge state LED**

**Red - Fast Charge**

This indicates the Fastest charge period.

The charger operates at a higher rate & constant power is delivered until the battery is 70-80% charged. After this period the charging rate slows to complete the charge.

**Green - Long term maintenance**

The charger is operating in the **Trickle Charge Mode**.

Leave the battery ON CHARGE for longest life.

It takes a few seconds for the charger to start. When the LED lights (red or green) the charger is operating. During the transition from **Fast Charge** to **Trickle Charge**, the LED will blink green for up to a minute while the battery voltage falls to the **Trickle Charge** level.

**Temperature compensated charge voltage** insures full charge at any temperature without overcharge. See the specs for temperature range.

Battery life is estimated at least 5 years. Battery life is reduced by deep cycling - the battery is limited to 300 to 500 full charge-discharge cycles.

Reduced depth of discharge will give more cycles. **Deeply discharged batteries must be recharged as soon as possible; failure to do so will result in permanent premature failure!**

**Specifications**

<b>Maximum Flash Power</b> .....	1500 WS
<b>Minimum Flash Power</b> .....	15.6 WS
<b>Flash Duration w/ 103 Light Unit</b>	
@ 1500 WS .....	1/825 seconds
@ 1000 WS .....	1/1100 seconds
@ 500 WS .....	1/1700 seconds
<b>Recycle Time at 1500 WS</b> .....	3.5 seconds
<b>Minimum Power Recycle</b> .....	1/4 second
<b>Modeling Light Capacity</b> .....	300W total, 10 second bursts
<b>Power Range in Stops</b> .....	7+
<b>Light Unit Outlets</b> .....	2
<b>Ratio Between Outlets</b> .....	2:1 or 1:1
<b>Modeling Lamp</b> .....	yes
<b>Full Power Flashes Per Charge</b> .....	up to 225
<b>Lowest Power</b> .....	2500 plus
<b>Battery Recharging Voltage</b> .....	85 to 265 volts (AC input)
<b>Battery Recharge Time</b> .....	5 to 10 hours to 95% charge from fully discharged. Overnight for full charge Batteries remain full if unit is plugged in & flashed at full power every 45 seconds
<b>Battery Type &amp; Capacity</b> .....	two 12 volt 9 A-H high rate lead-acid
<b>Photo Slave Cell</b> .....	Built-in
<b>Battery Charge Indicator LED</b> .....	Green indicates at least 95% charged
<b>Low Battery Warning Light</b> .....	Yes
<b>Size</b> .....	9.5" x 5.4" x 11.7"
<b>Weight</b> .....	24.8 lbs

## General Instructions and Information

- Unpack and examine all equipment carefully.
- Should you notice any breakage or defect, notify your dealer (and carrier if it was shipped to you) immediately. The flash tube(s) and model lamp(s) are packed in their original cartons. This affords sufficient protection and reduces the incidence of breakage during shipping. Make sure all packing materials are removed before using. This includes pipe cleaners (used as packing material) inside flash tubes.
- Install model lamp and flash tubes. Always handle lamps and flash tubes with care. Because they can break if put under stress, handle cautiously.
- Don't touch glass surfaces with your bare hands. When removing or replacing lamps and tubes, always disconnect light units from power supply.
- Allow lamps to cool before handling or installing protective tube covers.
- Flash tubes must be inserted into the sockets all the way. A slight rocking motion may be necessary when installing the larger flash tubes. New flash tubes and sockets fit very tightly. Be sure all flash tubes and model lamps are fully seated into light unit sockets.
- All Speedotron Black Line flash tubes are designed to accept a minimum of 2400Ws.
- Connect light cable(s) to the Light Unit Outlet(s) on the power supply. (For the 202VF/206VF, connect the light unit cable to the light unit before connecting to power supply).
- Never connect or disconnect light units while power is on. Do not insert or remove flash tubes or model lamps while power is on.
- Speedotron power supplies are equipped with arc-protected outlets. However, as with any electrical equipment, arc-over (an electrical discharge between two physically disconnected electrical terminals) is a possibility. When light cables or flash tubes are improperly seated, arc-over may occur. Also, if your light unit or power supply malfunctions, or the power cord or internal wiring in the studio is improperly terminated or defective, there is a possibility of arc-over when connecting or disconnecting the light units. Severe power supply damage and operator injury may result if arc-over occurs. That is why in spite of the arc-protection feature of Speedotron units, you should always make sure power is off when connecting or disconnecting light units.
- Light units come with a 5/8" light stand mount. The umbrella bracket is drilled to accept 3/8" diameter umbrella shafts - 5/16" on 202 and 206 (must be used with 7" reflector). The umbrella bracket may be moved to a position closer to the light unit body to accept special umbrellas and accessories. When using this alternate position the reflector will have to be custom drilled to accept the umbrella shaft.

- Install the desired reflector onto the light unit. Align the round notches on the reflector with the nylon buttons on the light unit, then twist firmly clockwise, (viewed from front and insuring that reflector assembly is bottomed on mounting socket) approximately 1/4 of a turn. This should securely mount the reflector into the light unit housing.
- Turn on power supply, wait for **Ready** light, then press **Push to Flash** button to verify proper operation. At this time, if you have a fan cooled unit (all except the 103), the fan should be operating. The model lamp is controlled by the **Model** switch at the power supply. Some light units also have a **Model** switch on the top or side of the light unit.
- For maximum performance and tube life, the model lamp should be used only when necessary and turned off after initial set-up or focusing is done. Although the forced air cooling is more than ample for normal usage, turning off the model lamp will eliminate heat and enable the light to run cooler, extending the life of all components.
- After extended use, inspect flash tubes for cracks and any unusual darkening (arc-over) around the plugs. This is particularly important for multi-tube flash lights. If cracks or darkening are noted the flash tube is, most likely, near the end of its duty cycle. Cracked tubes will probably misfire. The normal life expectancy is 100,000 flashes for the majority of Speedotron Black Line flash tubes.
- Be sure replacement flash tubes are designed for the watt-second output requirements of Speedotron light units. Never subject a flash tube to more watt-seconds than it is designed to handle. Applying too much power severely shortens the life of flash tubes, may cause fine cracks to develop in the tube that may cause tube failure or, in the most extreme case, may cause a tube to shatter. For this reason, we suggest you always use Speedotron flash tubes and model lamps to insure safe and dependable operation.
- Trigger voltage - New 1005, 1205CX LV, 2405CX LV, 2403CX LV, 4803CX LV and all Explorer 1500 Power Supplies have Trigger Circuits of 6 volts or less and should be safe for operation with all digital cameras. See your camera's instruction manual for specific voltage requirements.  
**Model 405 Power Supplies have a trigger voltage higher than 6 volts and may require a low voltage sync adapter with some cameras.**

## General Maintenance and Care

***All Speedotron Black Line equipment is ruggedly built. Nevertheless, it should be treated with the same care given to other pieces of quality photographic equipment. To protect the user, all Speedotron equipment is designed to be safe when used in accordance with instructions. To assure the maximum in safe, dependable service, the following guidelines should be carefully observed.***

- Avoid kinking or pulling cables. Disconnect cables by pulling on the quick release only, except for the 206 light unit which has a threaded ring. Never pull plugs out by the cable. Light cables as well as sync cords and AC power cords should be occasionally checked for wear, cracks, separation between cable and plug, and for indications of arc-over.
- Do not wrap the light unit cables around the light units. Coiling cables tightly stresses the internal wires and may lead to premature cable failure. If possible, keep the coil diameter at least 10 inches.
- If a cable becomes frayed, the insulation damaged, or the connectors bent or broken, have them repaired immediately.
- Keep all connectors, plugs and sockets free of dust, moisture and corrosion.
- Do not connect or disconnect light units or insert or remove flash tubes while the power supply is on.
- When using your equipment, be sure all cable, sync, power and flash tube connections are completely and properly installed.
- Do not attempt to make repairs to your Speedotron equipment yourself. It is very dangerous, and will void your warranty. Consult your dealer regarding authorized service in your area, or return the equipment to Speedotron. When you are not using your equipment, it is recommended that you store it in a dry place. Equipment should be charged up and flashed a few times at least once a month. This will keep your equipment in top working condition for many years.
- With your light unit disconnected, occasionally remove the reflector and clean the interior surface with a light solvent or soap and water. Carefully remove the flash tube, and clean the glass cover. Only in this way will you conserve a consistent color temperature and light output. Dirt and dust deposits on the tube and reflector act like a filter to alter color.
- To extend the life of the model lamp, it should be turned off after set-up and focusing.

## Trouble-shooting

### **System will not work at all; no flash.**

Check that sync cable, AC power cord and light unit cables are firmly and properly attached. Check that the flash tube is firmly seated. Check that **Power** switch is on.

### **Occasional failure of all light units to flash.**

Check sync cable and light unit cable connections. Make sure that the **Ready** indicator is illuminated before attempting to fire unit.

### **Occasional failure of one light unit only.**

Check light unit cable connection. Inspect the cable. Check flash tube. Make sure that the **Ready** indicator is illuminated before attempting to fire unit.

### **Reduced light output.**

Check to see if Ratio or Variable Power Control switch is in right position. Check flash tube; check power supply by comparing to similar pack with same light units if possible.

### **Flash tube glows after a flash (afterglow) and will not flash again until glow is gone.**

If confined to one light unit, check flash tube by substitution. If it continues or all lights afterglow, power supply is at fault. If this is the case, turn power supply off immediately! Power supply needs repair.

### **Ratio or Variable Power Control switch has no effect on recycle time or light output.**

Power supply needs repair.

### **Circuit breaker on power supply pops.**

Check that all cables on power supply and light units are properly connected. Also check for afterglow. If a circuit breaker blows, it is an indication that something is wrong. Normal operation will not blow circuit breakers.

### **Circuit breaker or fuse in studio blows.**

Use slow setting on **Recycle** rate switch.

### **Model lamp fails to light on one light unit.**

Check that the model lamp switch on that light unit is in the "ON" position.

*When checking power supplies, light units and cables, be sure that **Power** is off. Look for blackened, discolored or burned pins and sockets. If a **Light Unit Outlet** on the power supply is burned, blackened or discolored, it must be replaced before it is used. It could damage light units that are connected to it. Check that cables are not loose or frayed.*

# technical specifications

## POWER SUPPLIES

MODEL	MAX. POWER (Watt-secs)	GUIDE NO. 35°-90°	RECYCLE (secs)	POWER CHANNELS	RATIO COMB.	DIAL DOWN	TOTAL OUTPUT VARIATIONS	SPECIAL FEATURES	WEIGHT/SIZE
Explorer 1500	1500	540	3.5	2	N/A	continuous to -5 stops	continuous	Battery Power, Ratio, Dial-down power, Slave, Universal Voltage Input	24.9lbs / 9.5x5.4x11.7" **
405	400	290-160	1.3	2	6	9	54	Ratio, Dial-down power	5lbs / 6.5x4.375x7.2" **
1005	1000	408	1.6	3	12	10	120	Ratio, Dial-down power, Slave	7.9lbs / 8.4x3.75x8.5" **
1205cx LV	1200	500-270	0.9	3	21	9	189	Ratio, Dial-down power & model lamp	15lbs / 6.4x8.8x10"
2401sx	2400	710-380	2.0	3	53	N/A	53	Ratio, LV Trigger, Forced air cooling	27lbs / 9x12x14"
2403cx LV	2400	710-380	2.0	3	53	10	530	Ratio, Dial-down power & optional remote	28lbs / 9x12x14"
2405cx LV	2400	710-380	2.0	3	25	9	225	Ratio, Dial-down power & model lamp	23lbs / 6.4x8.8x13"
4803cx LV	4800	1000-540	4.0	3	27	10	270	Ratio, Dial-down power & optional remote	43lbs / 9x14x14"

\*Guide # calculated at ISO 100, in ft. w/202VF Light, 11.5" reflector forward (35°) & back (90°) positions (except 4803, with 206VF light) \*\*including handle

## LIGHT UNITS

MODEL	MAX. POWER (Watt-secs)	FLASH TUBES (qty - regular or color corrected)	SPECIAL CHARACTERISTICS
102	2400	1 - MW80CV or 1 - MW80VC	economical, general purpose
103	2400	1 - MW90CV or 1 - MW90VC	lightweight, compact
202VF	2400	1 - MW200CV or 1 - MW200VC	variable focus, modular construction
206VF	4800	1 - MW400CV or 1 - MW400VC	variable focus, high output
105 (2 cable)	4800	4 - MW24Q or 4 - MW24QC	shortest flash duration
105 (4 cable)	9600	4 - MW24Q or 4 - MW24QC	shortest flash duration, highest output

Note: All Speedtron light units are air-cooled and accept a 250W model lamp (except the low profile 103).

## FLASH DURATION (watt-seconds per light unit)

MODEL	Wait-secs	9600	4800	2400	1200	600	300
102	----	----	----	1/225	1/400	1/670	1/1250
103**	----	----	----	1/450	1/770	1/1300	1/1800
202VF	----	----	----	1/300	1/500	1/900	1/1425
206VF	----	----	----	1/175	1/300	1/500*	1/1425*
105 (2 cable)	----	----	----	1/600	1/1175	1/2000	1/3570
105 (4 cable)	----	1/400	1/600	1/1175	1/2000	----	----

If power is reduced by using the dial-down knob, durations will remain the same. All durations listed in accordance with ANSI FH3.40 Section 2. The time interval from the instant the flash reaches one-half of its peak intensity to the instant it ceases to output.

\*These power levels are reached by the use of the 14202 adapter cable & a standard outlet.  
\*\*Flash duration of 103 light unit using the 405 power supply: 400Ws = 1/500sec., and using the 105 power supply: 800Ws = 1/300sec., 400Ws = 1/500sec.

## The Speedotron Plus•3 Protection Plan

The Speedotron Plus•3 Protection Plan is an extended service contract that lets you add 3 years of factory service coverage to the 2-year limited warranty that comes with Speedotron power supplies and lights plan goes into effect the day your original warranty expires, so you end up with 5 full years of coverage. With the Plus-3 Protection Plan, virtually all your service needs will be taken care of free of charge. All Plus-3 Protection Plan customers get priority service, so you can have the security of knowing that your equipment will be back on the job as quickly as possible. The Speedotron Plus-3 Protection Plan can only be purchased at the time you buy your equipment. Flash tubes, modeling lamps and shipping charges are not covered.

### **Terms & Conditions**

- 1.** This agreement covers both labor and materials necessary for repairing equipment which is in need of service because of faulty materials or workmanship or breakdowns from normal use, except as hereinafter provided. Damage to equipment or its parts arising out of misuse, abuse, negligence, shipping or causes beyond Speedotron's control are not covered. In addition, this agreement shall become void if the equipment covered is used for rental or is modified, altered, or serviced by persons other than those authorized by Speedotron, or if it is used with parts, accessories, or equipment not intended for use with Speedotron equipment
- 2.** This agreement is between Speedotron Corporation and the person named in the contract. Thus, payment for Plus-3 Protection Plan Coverage should be made directly to Speedotron (not to a dealer) within 30 days of the date the equipment is purchased
- 3.** Service under this agreement will be performed only at the Speedotron factory in Chicago. Service performed at any other service station, including those authorized by Speedotron, is not covered and any service so performed is at the customer's expense. Shipping charges, both to and from the Chicago factory, are also the responsibility of the customer, and are not covered by this agreement. Shipping charges to cover the return of your equipment by what-ever means you choose may be included with requests for service, or equipment can be returned C.O.D. (freight collect).
- 4.** This agreement is valid only for the equipment listed Any other piece of equipment or accessory is not covered under this agreement, even if damaged while in use with the equipment covered Flash tubes and modeling lamps are not covered. In addition, once this agreement is signed by Speedotron, no other equipment may be added to it. Should you purchase additional equipment and wish to have it covered, you must purchase additional Speedotron Plus-3 Protection Plan Service Contracts.
- 5.** The equipment listed in this contract will be covered only while owned by the person named in the contract. THIS AGREEMENT IS NOT TRANSFERABLE.
- 6.** Equipment covered by the Speedotron Plus-3 Protection Plan Service Contract will be given priority service This priority service will be given during the regular warranty period of the equipment as well as when the Plus-3 Plan goes into effect.
- 7.** Other than the obligations set forth herein, Speedotron disclaims all warranties, expressed or implied, including any implied warranties of merchantability, fitness for use, or fitness for a particular purpose. Speedotron shall not be responsible for any direct incidental or consequential damages, including but not limited to damages arising out of the use or performance of the equipment covered, or the loss of use of the equipment covered.
- 8.** This agreement shall be governed by and construed according to the laws of the state of Illinois, in which Speedotron is located. It constitutes the entire agreement between parties and may not be modified except in writing signed by duly authorized officials of Speedotron Corporation and the customer.
- 9.** This agreement shall terminate on the expiration date indicated, and any repairs necessary after that date are solely the responsibility of the customer
- 10.** Due to U.S. Customs Service regulations, this agreement only applies to equipment shipped within the United States (including U.S. territories).

# The Speedotron Plus-3 Protection Plan Service Contract

To apply, fill out this form completely, sign it, and mail it along with a copy of the bill of sale and warranty registration card for each piece of equipment to be covered to:

**Speedotron Corporation**  
**310 South Racine Avenue**  
**Chicago, Illinois 60607**

Once approved, this form will be returned to you and a copy will be kept in Speedotron's files. Please note that if these instructions are not properly followed, your application will be returned to you.

## The Speedotron Plus-3 Protection Plan Price List

For Speedotron Black Line Power Supplies, 4800Ws	\$125.00
For Speedotron Black Line Power Supplies, 2400Ws	95.00
For Speedotron Black Line Power Supplies, 1200Ws or lower	75.00
For Speedotron Force 10 / Force 5	75.00
For Speedotron Brown Line Power Supplies, 800Ws or higher	50.00
For Speedotron Brown Line Power Supplies, 600Ws or lower	30.00
For any Speedotron Black Line or Brown Line Light Unit (not including flash tubes or modeling lamps)	10.00

**NOTE: All pieces of equipment must be covered individually.**

Customer name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone, \_\_\_\_\_ Daytime \_\_\_\_\_ Evenings \_\_\_\_\_

Equipment covered.

Model \_\_\_\_\_ Serial Number \_\_\_\_\_ Plus-3 price \$ \_\_\_\_\_

Model \_\_\_\_\_ Serial Number \_\_\_\_\_ Plus-3 price \$ \_\_\_\_\_

Model \_\_\_\_\_ Serial Number \_\_\_\_\_ Plus-3 price \$ \_\_\_\_\_

Model \_\_\_\_\_ Serial Number \_\_\_\_\_ Plus-3 price \$ \_\_\_\_\_

Total amount due for coverage on equipment listed above \$ \_\_\_\_\_

**Note: A copy of the bill of sale and warranty registration card must be included for each piece of equipment listed above. The copy of the bill of sale must show the authorized dealer's name, invoice number and date purchased. Speedotron Plus-3 Protection Plan coverage must be applied for within 30 days of the date the equipment was purchased.**

I am enclosing a check for \$ \_\_\_\_\_ the total amount due for Speedotron Plus-3 Protection Plan Service Contract for the equipment I have listed. Speedotron agrees to provide repair service for said equipment, should it become necessary, according to the terms and conditions (see back) set forth in this agreement. No terms or conditions, expressed or implied, are authorized unless they appear on the original of this agreement. This agreement is not valid unless signed by both parties.

**Customer acceptance:**

I have read, fully understand, and agree to the terms and conditions of this agreement.

Customer Name \_\_\_\_\_

Signature \_\_\_\_\_

**Speedotron acceptance:**

Speedotron agrees to provide repair service for the equipment listed in this agreement, according to the terms and conditions set forth herein.

Authorized Speedotron Official \_\_\_\_\_

Signature \_\_\_\_\_

The Speedotron Plus-3 protection Plan for the above listed equipment will expire on \_\_\_\_\_

**When returning this Plus-3 Protection Plan application, please include the following:**

1. the completed application form,
2. completed warranty information card
3. a copy of sale invoice with the dealer's name and address,
4. a check for the full amount of coverage for each piece of equipment to be covered

Send to:

**Speedotron Corporation  
310 South Racine Avenue  
Chicago, Illinois 60607**