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EAGLE PERFORMANCE SERIES

PRO Charging Systems

PN: 70365
Rev: 070721

Safety, Installation, and Operating Instructions

Instructions importantes concernant la sécurité

PROVolt™ Intuitive Charging Technology

DUAL PRO® Pro Quality Pro Performance

PROView™ LINK

Manufactured in America Since 1989

PRO CHARGING SYSTEMS, LLC
1551 Heil Quaker Boulevard
LaVergne, TN 37086-3539
For additional information, please call our Technical Support Group at 615.471.5300
Or email us at tech@pcsdv.com

FOR THE FULL EAGLE PERFORMANCE SERIES MANUAL PLEASE SCAN QR CODE BELOW:

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IMPORTANT SAFETY INSTRUCTIONS:

PLEASE REVIEW ALL SAFETY AND INSTALLATION INSTRUCTIONS ON PAGE (10-14)

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INSTRUCTIONS FOR THE FOLLOWING BATTERY CHARGER MODELS:

AND ANY OF THE FOLLOWING MODELS WITH ADDITIONAL LETTERS SUCH AS RM, LIFT, OB, etc.
UNLESS OTHERWISE SPECIFIED, ALL MODELS REQUIRE AC INPUT OF 120V @ 60Hz
UNIVERSAL MODELS ARE ABLE TO ACCEPT AC INPUT OF 100/115/230V @ 50/60Hz
MODELS DESIGNATED AS 230V OR EUROPEAN REQUIRE AC INPUT OF 230V @ 60Hz

Model	DC OUTPUT	BATTERY SYSTEM	BATTERY CAPACITY (20hr Rating)
I1225	25 Amps @ 12V	12 Volt	150-350 Ah
I1250	50 Amps @ 12V	12 Volt	150-500 Ah
I2420	20 Amps @ 24V	24 Volt	150-350 Ah
I2425	25 Amps @ 24V	24 Volt	150-350 Ah
I2440	40 Amps @ 24V	24 Volt	150-500 Ah
I2450	50 Amps @ 24V	24 Volt	150-500 Ah
I2825	25 Amps @ 28V	28 Volt	150-350 Ah
I3220	20 Amps @ 32V	32 Volt	150-350 Ah
I3240	40 Amps @ 32V	32 Volt	150-500 Ah
I3620	20 Amps @ 36V	36 Volt	150-350 Ah
I3625	25 Amps @ 36V	36 Volt	150-350 Ah
I3640	40 Amps @ 36V	36 Volt	150-500 Ah
I3650	50 Amps @ 36V	36 Volt	150-500 Ah
I36154815	15 Amps @ 36V or 48V	36 Volt or 48 Volt	75-250 Ah
I4815	15 Amps @ 48V	48 Volt	75-250 Ah
I4818	18 Amps @ 48V	48 Volt	150-350 Ah
I4836	36 Amps @ 48V	48 Volt	150-350 Ah
I4850	50 Amps @ 48V	48 Volt	150-500 Ah
I4875	75 Amps @ 48V	48 Volt	150-500 Ah
I6013	13 Amps @ 60V	60 Volt	75-250 Ah
I6414	14 Amps @ 64V	64 Volt	75-250 Ah
I7212	12 Amps @ 72V	72 Volt	75-250 Ah
I7224	24 Amps @ 72V	72 Volt	150-350 Ah

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CHARGING INDICATOR

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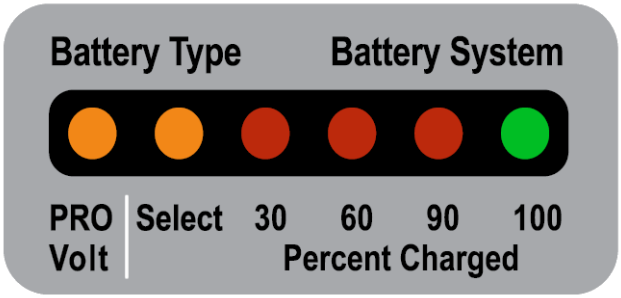
When your battery charging system is activated, the battery status indicator provides charging information utilizing two (2) Amber LED indicators, three (3) Red LED indicators, and one (1) Green LED indicator.

Battery Type Indicators:
Two **Amber** LED indicators are provided in order to display what type of battery the charger has been programmed to charge.



Battery System Percent Charged Indicators:
Four LED indicators are provided in order to display the progress of the charge cycle in percentage of charge.

Illuminated LED Indicators / LED Indicator Sequence	Indicator Meaning
1st **AMBER** LED	Configured for PROVolt™ Algorithm
2nd **AMBER** LED	Configured for "Other"
1st **RED** LED	Charging—Initial Charging
1st & 2nd **RED** LEDs	Charging—60% Complete
1st, 2nd, and 3rd **RED** LEDs	Charging—90% Complete
BLINKING **GREEN** LED	Finishing Stage
STEADY **GREEN** LED	Charge Complete—Float/Maintenance Mode

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LED FAULT CODE INDICATORS

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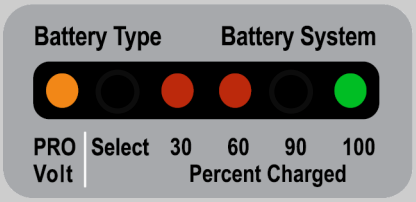
The microprocessor is constantly monitoring the charger circuitry and will both detect and display *blinking* LED indications if a fault is detected.

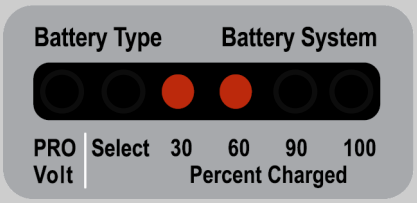
DEFAULT ALGO:

Please contact PCS technical support.

(615.470.5300)

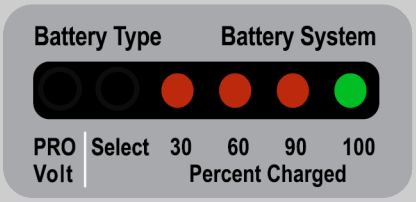


FORMING STAGE TIMEOUT:



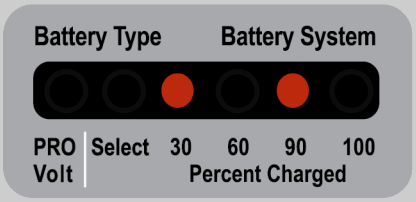
This indication occurs if the battery voltage has not risen above 1.75 volts/cell within the first 3 hours of charging. This indicates that a possible battery problem exists and the charge cycle has been terminated.

OVERALL TIMER:



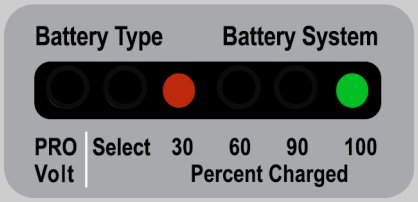
This indication occurs if the charger has not completed the charge cycle within the allowable factory set time period. This indicates that a possible battery problem exists and the charge cycle has been terminated.

INTERNAL OVER-TEMP SHUTDOWN:



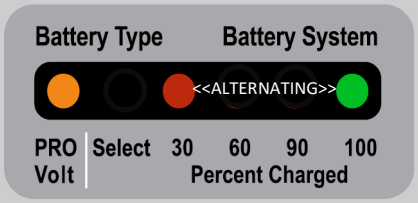
This indication occurs if the charger circuitry has detected operating temperatures inside the charger enclosure that are above factory specified levels. This could indicate that a possible charger problem exists and the charge cycle has been terminated.

BULK STAGE SHUTDOWN:



This indication occurs if the battery voltage does not rise properly during the Bulk Stage. This indicates that a possible battery problem exists and that the charge cycle has been terminated.

NO BATTERY DETECTED:



This is the NORMAL indication when the charger is plugged into AC but not connected to a battery pack. This can also be considered the **NO BATTERY DETECTED** fault code.

NOTE:

- When power is first connected to the charger, the LEDs will flash the charger's ID code (this is for PCS internal use only). This configuration will remain until AC is detected and a charge cycle is in progress.
- If the AC line and neutral wires are reversed, the unit will wait (2) minutes before starting a charge. This 2 minute wait period will also be a factor if the charger is being powered by anything other than normal grid AC such as a conventional generator, inverter, etc.
- If AC is disconnected while charging, the unit will go through an automatic reset. The user may hear some clicking noise, but should not be alarmed. This is the Powered by Battery/DOE functionality checking for AC connection.

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OTHER LED INDICATORS

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Sequence: **LED indicators scrolling from first RED LED up to the GREEN LED, then the sequence repeats.**
Meaning: **Special fault code. Call PCS Technical Support (615.471.5300)**

Sequence: **LED indicators scrolling back and forth. First RED LED to GREEN LED—then from GREEN LED back down to first RED LED, then the sequence repeats.**
Meaning: **This indicates the unit is connected through Bluetooth.**

- The GREEN LED is solid whenever the charge cycle has terminated and the internal circuitry has determined the batteries to be fully charged.
- The GREEN LED will blink during the finishing stage of the charge cycle. After the completion of the charge cycle, the GREEN LED will remain steady during the float-maintenance stage.

Your system provides an equalization stage every *30 days* while plugged in.

- If the charger is normally disconnected from A/C after completing charge, equalization can be accomplished by plugging back into A/C whenever this stage is desired. Battery manufacturers recommend that equalization is done once a month in order to further reduce sulfation on the lead plates of a battery, which helps promote longer battery life.
- Note: During this process the LEDs will go through their normal routine (RED LEDs counting up for % of charge along with the illuminated AMBER LED Battery Type) and then the GREEN LED and AMBER Battery Type LED will blink until the unit returns to the maintenance mode and a steady GREEN LED and steady AMBER Battery Type LED.

QUESTION: ***No LED indicators illuminated on battery status indicator.***

Solution Sequence:

1. Confirm that current is being delivered to the charger. Use a meter or test light to check the AC power supply from its source through all connecting points up to the charger.
2. The charger may be a powered by battery unit.
    - Use a meter to check that the battery pack is >= 8V DC.
    - Ensure a solid connection between the battery terminals and the DC charge leads.
    - If the charger has ring terminals, ensure the red (or white) terminal is connected to Positive(+) and the Black is connected to Negative(-).
    - Please ensure no damage has been done to the DC charge leads.
3. Call technical support for further assistance. (615.471.5300)

QUESTION: ***The charge status indicator changes rapidly back and forth from red to green or the green LED will not illuminate after excessive charging time (24 hours or more).***

Solution Sequence:

1. Disconnect AC power from the charging system. This indication may signify a possible battery problem.
2. Call technical support for further assistance. (615.471.5300)

QUESTION: ***A green LED was illuminated before disconnecting the power from the charger, but upon reconnection the red LEDs appear and remain on.***

Solution Sequence:

1. This is normal operating procedure for the system. It indicates that a reanalysis of the battery status was initiated and after a series of steps, the green LED will illuminate.

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AUTO VOLTAGE DETECTION

PRO Charging Systems

AUTO VOLTAGE DETECTION

*Please check the next page for the interchangeable charge cables that are available for the Auto Voltage Detect Eagle Performance Series.

The Pro Charging Systems' new **Auto Voltage Detection Eagle Performance Series** Charger has the ability to charge both **36 volt** and **48 volt** battery packs.

There are no extra settings or configurations needed — just attach the Auto Voltage Detection Charger to the battery pack and it will automatically begin to charge to the correct voltage.

PLEASE NOTE

If the Auto Voltage Detection Charger is attached to a very discharged or low voltage 48V battery pack, the charger may assume it is on a 36V battery pack. In this circumstance, once the battery voltage reaches what would be considered fully charged for a 36V pack, the charger will shut off. At this point the charger's AC power should be cycled. This allows the Auto-Detect to realize it is attached to a 48V pack and charge as it should.

EAGLE PERFROMANCE SERIES CHARGE CABLE ASSEMBLIES

Compatible with your Eagle Performance Series Auto Voltage Detection

602RXV EZ-GO RVX POWERWISE STYLE

ANDERSON GREY SB50

602619 YAMAHA MAC 2-PIN NABSON STYLE

602611 EZ-GO 36V TXT D-PLUG POWERWISE STYLE

602STAR STAR CAR 3-PIN

602618 CLUB CAR ROUND 3-PIN POWERDRIVE STYLE

602607 CLUB CAR/E-Z-GO/YAMAHA CROWSFOOT 2-BLADE STYLE

602YAM YAMAHA DRIVE 3-PIN CLOVER STYLE

602TXTN EZ-GO 48V TXT POWERWISE STYLE (WITH NOTCH)

OTHER CABLES UPON REQUEST

IMPORTANT SAFETY INSTRUCTIONS:

INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITÉ :

SAVE THESE INSTRUCTIONS. This manual contains important safety and operating instructions for future reference.

CONCERVER CES INSTRUCTIONS. CE MANUEL CONTIENT DES INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITÉ ET LE FONCTIONNEMENT.

Understand and relate the Hazard Levels and Signal Words utilized in this manual with the following definitions:

This symbol means: Hazards or unsafe practices, which could result in severe personal injury or death.

This symbol means: Immediate hazards, which will result in severe personal injury or death.

This symbol means: Hazards or unsafe practices, which may result in minor personal injury, product, or property damage.

This symbol means: **BE ALERT!** Your safety, or the safety of others, is involved.

PERSONAL SAFETY PRECAUTIONS:
(If Applicable to Device Being Operated)

Always read all instructions before using your PCS product!

1. ***Wear complete eye protection and clothing protection.*** Avoid touching eyes while working near battery. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, eyes, or other surfaces. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and seek medical attention promptly.

CONTINUED.....

PERSONAL SAFETY PRECAUTIONS:

2. Dress properly. Wear protective, electrically nonconductive clothes, and nonskid footwear. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn. Wear restrictive hair covering to contain long hair.

3. Avoid Working Alone. Be sure someone is within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

4. Stay Alert. Watch what you are doing and use common sense. Do Not operate any PCS product when you are tired.

5. Keep Children Away. Children must never be allowed in the work area. Do not let them handle machines, tools, battery chargers, or extension cords.

6. Keep Work Area Clean. Cluttered areas invite injuries.

7. Observe Work Area Conditions. NEVER smoke or allow a spark or flame in the vicinity of a battery or engine. Don't expose to rain. Keep work area well lit.

8. Do Not Overreach. Keep proper footing and balance at all times. Do not reach over or across electrical cables or frames.

9. Avoid Electrical Shock. To reduce risk of electrical shock, unplug charger from outlet before attempting any maintenance or cleaning.

10. Do Not Operate PCS Product With Damaged Electrical Cord or Plug. To reduce risk of damage to the electrical plug and cord, pull by plug rather than by the cord when disconnecting charger. If damaged, replace the electrical cord or plug immediately.

11. Store Idle Equipment. When not in use, store equipment in a dry location to inhibit rust. Always lock up tools and equipment and keep out of reach of children.

12. Maintain PCS Product Care. Inspect periodically and, if it has received a sharp blow, been dropped, or otherwise damaged in any way, have it repaired by an authorized technician. Do not disassemble charger; contact PCS technical support when service or repair is required (800.742.2740). Incorrect reassembly may result in risk of electrical shock or fire.

13. Check for Damaged Parts. Before using any PCS product, carefully check any part that appears damaged to determine that it will operate properly and perform its intended function. Check for broken parts and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the charger if any part does not operate properly.

14. Replacement Parts and Accessories. When maintaining, only use accessories intended for use with this PCS product. Approved accessories are available from Pro Charging Systems (800.742.2740).

15. CAUTION: To reduce the risk of fire, use only on circuits provided with 15 amperes branch circuit protection at 100 VAC and 115 VAC and 10 amperes branch circuit protection at 230 VAC in accordance with the national electrical code, ANSI/NFPA 70

ATTENTION: Pour réduire le risque d'incendie, utilisez uniquement sur les circuits munis d'une protection de circuit 15 ampères de branche à 100 VAC et 115 VAC et protection de circuit 10 ampères de branche à 230 VAC en conformité avec le Code canadien de l'électricité CEC Partie

INSTALLATION AND PREPERATION:

Important Note: *If the PCS charger has a model number containing the letters OB, it is not intended to be used as a stationary device.*

WARNING **To reduce risk of battery explosion, follow these instructions, those published by the battery manufacturer, and by the manufacturer of any equipment that you intend to use in the vicinity of battery. Review all cautionary markings on these products and on the engine.**

Pour réduire le risque d'explosion, lire ces instructions et celles qui figurent sur la batterie.

If it is necessary to relocate the battery for charging, first remove the grounded terminal from the battery. Then make sure all aessories are off, so as not to cause battery arcing.

WARNING **RISK OF EXPLOSIVE GASES: WORKING IN THE VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS.** Batteries generate explosive gases during normal battery operation. For this reason, it is of utmost importance that prior to each use of your charger, you read this manual and follow the instructions exactly. *Il est dangereux de travailler a proximité d'une batterie au plomb. Les batteries produisent des gaz explosifs en service normal. Il est aussi important de toujours relire les instructions avant d'utiliser le chargeur et de les suivre à la lettre.*

Do not operate charger in a closed-in area or restrict ventilation in any way.

Ne pas faire fonctionner le chargeur dans un espace close et/ou ne pas gener la ventilation.

Clean battery terminals. Be careful to keep corrosion from coming into contact with eyes.

Add distilled water to each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions. Study all battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

When using an extension cord, make sure:

- that pins on plug of extension cord are the same number, size, and shape as those of the charger's plug;
- that extension cord meets UL (Underwriters Laboratories, Inc.) acceptance;
- that wire size is large enough for AC ampere rating of charger.

CAUTION **Always make your extension cord connection on the charger side before connecting to a nearby 120VAC GFCI protected (Ground Fault Circuit Interrupt) outlet. Failure to use a GFCI outlet may result in electrical shock. Note: U(Universal) chargers should be connected to a 110, 115 or 230VAC GFCI protected outlet. The DC connection should always be made before connecting or disconnecting the AC side.**

Note: Extension cords should be industrial grade/heavy duty UL approved and grounded. Check extension cord before use for damage, bent prongs and cuts. Replace if damaged.

Connect the extension cord to the charger; then proceed to plug the extension cord to the GFCI protected (Ground Fault Circuit Interrupt) outlet.

Always remove the extension cord from the GFCI protected outlet first when charging is completed, followed by unplugging the charger.

GENERAL OPERATION

WARNING Use charger for charging a LEAD-ACID (lead acid, sealed lead acid, gel cell and AGM) battery only. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home
appliances. These batteries may burst, causing personal injury and damage to property.

Utiliser le chargeur pour charger une batterie au plomb uniquement. Ce chargeur n'est pas concu pour alimenter un réseau électrique très basse tension ni pour charger des piles sèches. Le fait d'utiliser le charger des piles sèchespourait entrainer l'éclatement des piles et causer des blessures ou des dommages.

WARNING **DO NOT attempt to attach a charger to a battery pack if the output of the charger does not match the battery pack voltage. Example: Model i-3625 is a 36 volt output charger and is only usable on 36 volt battery systems. NEVER connect to just one battery (ie. 6V) in the pack. Damage can occur.**

WARNING **Be extra cautious to reduce risk of dropping a metal tool onto battery. It might cause a spark or short-circuit a battery or other electrical part, possibly resulting in an explosion. If damaged, contact PCS (615.471.5300).**

CAUTION **NEVER charge a frozen battery.**

Ne jamais charger une batterie gelée.

Assure that the area around your charger and batteries is properly ventilated. Connect your extension cord, with no AC Power present, to the battery charger and proceed to plug your extension cord into a 120VAC GFCI protected (Ground Fault Circuit Interrupt) outlet.

DANGER **Risk of electrical shock! Do not touch uninsulated parts of the battery charger output connector, battery connector, or battery terminals.**

Once you plug in your PCS battery charging system, the charge cycle will begin automatically. State of charge will be displayed by illumination of the Light Emitting Diodes (LEDS) on the battery status indicator located on the front of the unit.

WARNING **DO NOT connect or disconnect the DC output electrical cord to or from the battery receptacle when the charger is on. Arcing and / or burning of the plug and receptacle could result and could cause the batteries to explode. If the charger must be stopped, first disconnect the AC power supply cord from its outlet, then disconnect the charger DC output plug from the battery receptacle.**

We recommend that you leave your system plugged in. This will reduce sulfation on the lead plates of the batteries and allow your PCS charging system to keep your batteries fully maintained and ready to perform at their best.

CAUTION **To reduce the risk of fire, use only on circuits provided with 15Amperes Branch Circuit Protection in accordance with the National Electrical Code, ANSI/NFPA 70.**

CAUTION **Study all battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.**

Prendre connaissance des measures de précaution spécifiés par le fabricant de la batterie, p. ex., vérifier s'il faut enlever les bouchons des cellules lors du chargement de la batterie, et les taux de chargement recommandés.

Never place the charger directly above or below the battery being charged; gases or fluids from the battery will corrode and damage the charger. Locate the charger as far away from the battery as DC cables permit.

Ne jamais placer le chargeur directment sous la batterie à charger ou audessus de cette dernière. Les gaz ou les fluids qui sèchappent de la batterie peuvent entrainer la corrosion du chargeur ou l'endommager. Placer le chargeur aussi loin de la batterie qui les cables c.c. le permettent.

If it is necessary to remove battery from vehicle to charge it, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off in order to prevent an arc.

S'il est nécessaire de retirer la batterie du véhicule pour la charger, toujours d'ébrancher la borne de mise à la masse en premier. S'assurer que le courant aux accessories du véhicule est coupe afin d'éviter la formation d'un arc.

Never smoke or allow an open spark or flame in the vicinity of the BATTERY the battery or engine.

Ne jamais fumer près de la batterie ou du moteur et éviter toute étincelle ou flamme nue à proximité de ces dernie.

Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal operation. For this reason it is of the utmost importance that prior to each use of your charger, you read and follow the instructions provided exactly.

Il est dangereux de travailler a proximité d'une batterie au plomb. Les batteries produisent des gaz explosifs en service normal. Il est aussi important de toujours relire les instructions avant d'utiliser le chargeur et de les suivre à la lettre.