

# POWERSTAR<sup>®</sup>

SCR Industrial Battery Chargers



## ***Setting the industry standard for maximum performance***

**AVAILABLE IN 100%, OR 80% RATED MODELS**

- ***A choice of interchangeable controls for added flexibility***
- ***Fail-safe design protects batteries***
- ***100% rated to recharge fully discharged batteries in 8 hours or less. Also available in 80% rated models***
- ***Adapts to all battery types with user-selectable charge curve options***
- ***Compensates for battery operating temperatures automatically; from 32° F to 132° F with optional BID module***
- ***DataLink<sup>2</sup> compatible***
- ***cUL listed***

 **PRESTOLITE  
POWER<sup>™</sup>**



### **Designed for maximum performance**

The PowerStar sets the industry standard for accuracy, efficiency, flexibility and reliability. Designed to recharge any 100% discharged lead-acid battery in its ampere-hour rating within 8 hours, the PowerStar is engineered to provide the maximum in charging performance. Also available in 80% rated models. The charger uses SCR power conversion circuitry, which is virtually maintenance-free, to provide years of dependable service. With the PowerStar, the battery determines its own charge cycle rate with its state of discharge. The PowerStar provides a constant current-constant voltage-constant current (I-E-I) charge curve to eliminate the possibility of overcharge, even with line voltage variations, and it completes the charge at the proper current regardless of battery age or specific gravity.

### **Control options**

Depending on your charging requirements, the PowerStar can be controlled by one of the following controls: SCR1000 or SCR2000.

### **Output curve monitoring**

The PowerStar's unique curve monitoring feature protects the battery from over or undercharging caused by charger component failure.

The control calculates a window for each of the four sections of the output charge curve. If, during the charge cycle, the output curve is measured to be outside any of the four windows, a charge curve error is generated and the charge cycle is terminated. If the output is temperature compensated, the windows will be adjusted accordingly.

### **Regulation**

The PowerStar is designed to hold the finish voltage rate to within  $\pm 1\%$  and the finish current rate to within  $\pm 2\%$  over a wide range of line voltage variations.

### **Rating**

The standard model PowerStar is rated to recharge a 100% discharged battery in its ampere-hour rating within 8 hours. Also available in 80% rated models. When used with a BID, the PowerStar can recharge batteries in 8 hours even with extreme battery temperatures.

### **Easy to change AC input voltage**

AC input voltage change-overs take just minutes because of conveniently located taps and quick-connect jumpers.

### **Adjustable DC output**

In rare instances where changes to the DC output might be required, necessary adjustments are made easy with user accessible control programming.

### **Warranty/10-3-1**

For the original purchaser, repair costs are minimized through a ten-year warranty on power transformers, diodes and silicon controlled rectifiers, plus three years on electronic PC boards and one year on other components.

### **Convection cooled, quiet**

The PowerStar uses no fans to draw in dirty air and has low sound levels for quiet operation.

### **Automatic operation**

After the battery is connected, the PowerStar will automatically start the charging operation. It will continue to charge the battery until the battery is fully charged at which time the PowerStar will automatically terminate the operation.

### **Interchangeable control design**

The PowerStar is designed to allow the quick and easy installation or removal of the controls. Unmatched in the industry, this design allows controls to be interchanged in minutes for greater control, flexibility and automation of any battery charging operation.

### **Functional cabinet design**

The cabinet is constructed with heavy-gauge sheet metal and finished with a durable, long-lasting powdered polyester baked finish. The cabinet is designed to provide direct access to the AC power connection points and conveniently facilitates any required service.

### **Flexible cabinet mounting**

All case styles can be wall, bench or floor mounted and the Y and Z cases are stackable to save floor space.

### **Efficient, low cost operation**

The copper-wound, isolation transformer design of the PowerStar is extremely efficient, converting AC input power to usable DC output power.

### **Quality-built for years of trouble-free service**

Quality is the driving force behind the PowerStar. Its design allows it to meet the many challenges associated with charging batteries. Unmatched in construction, reliability and value, each PowerStar is subject to intensive quality control and test procedures to ensure many years of trouble-free service.

### **Programmable recharge grade**

Both PowerStar controls can be easily programmed to most effectively operate in three, two or single shift operations. This feature allows cost effective solutions for medium and light duty applications.

### **Ideal for many environments**

PowerStar is ideal for a wide variety of environments because it is capable of using various inputs, such as battery temperature, type, and size, to automatically adjust the output charge characteristics within the limits of its own power circuit, providing an optimum charge.

Great for harsh environments – like those found in textile and carpet mills, trucking, foundry and cold storage warehousing – PowerStar can be used to meet special battery charging practices brought forth by workplace regulations as mandated by the Air Quality Act, OSHA and EPA in requiring electric trucks for applications historically served by internal combustion trucks.

### **Optional battery identification module**

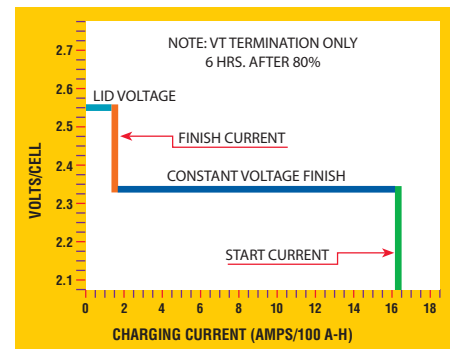
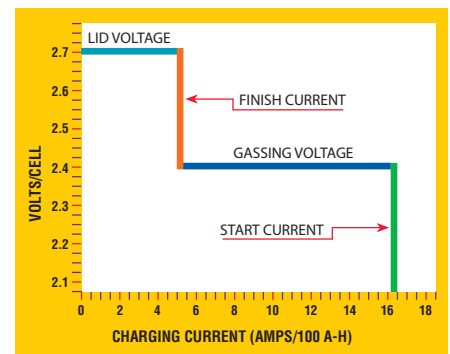


With a Battery Identification (BID) module connected to the battery, PowerStar can automatically adjust its output to match the electrolyte temperature of the battery, compensating for temperatures ranging from 32° F to 132° F. Once the battery is connected to the charger, PowerStar reads the BID information which identifies the battery along with its ampere-hour rating, voltage, construction, and electrolyte temperature. PowerStar then regulates its output curve based on this information. During the charge cycle, PowerStar continuously monitors the battery's temperature, via the BID module, and adjusts its output throughout the charge cycle to match the charging battery's temperature. For more stable environments, the battery temperature can also be manually programmed into the PowerStar when equipped with the SCR2000 control.

### **User-selectable output profiles**

To accommodate the charging of lead-acid batteries of various manufacturers and types, the PowerStar is preprogrammed with several user-selectable output profiles: sealed gel electrolyte, absorbed glass mat, flooded and custom. The custom profile is user-programmable, ideal for unusual application requirements, charging preferences or future technologies. The charger is factory-set to customer battery requirements. Selection of a different profile is easily accomplished through control programming.

The following charts show the charging characteristics of a flooded output profile and a sealed gel output profile.



### **PowerStar easily accommodates interchangeable control design**

**No tools required! Change controls in minutes through two rivets that allow easy removal and installation of any control. This flexibility is unmatched in the industry!**



#### **SCR2000**

Unparalleled in the industry, SCR2000 control offers outstanding features and options to take you into the 21st century. The SCR2000 utilizes the latest engineering and electronic technology to provide the ultimate in charge cycle information. Up to 99 cycles of charge information are automatically stored for retrieval. Plus, the control allows the review of charge cycle data anytime without affecting the charging operation. The SCR2000 offers maintenance free battery profiles, Data Mate

compatibility, 99 cycle archives and many features including a sealed-membrane keypad, refresh charge, extended run time, high-current shutdown, battery/charger mismatch discrimination, new battery recognition after AC fail, automatic or manual equalize operation, and cool down. It uses a DV/DT charge termination technique to ensure that the rate of change of battery voltage always provides an efficient and accurate termination of charge.



#### **SCR1000**

The SCR1000 is an automatic start/stop control utilizing the patented DV/DT charge termination technique, or rate of change of battery voltage with respect to time. This proprietary technique used in conjunction with the I-E-I curve of the charger ensures that the battery is precisely charged, never over or under charged. The SCR1000 stores 9 items of information for the most recent charge cycle that can be reviewed at the touch of a single button. Other features include maintenance free battery profiles, Data Mate

compatibility, 30 cycle archives, digital display, battery/charger mismatch protection, dual back-up timers, delayed start, cool down, refresh charge, forming cycles, extended run time, auto equalize and selectable VT termination. The SCR1000 uses the combination of the digital ammeter and 4 status LED's to indicate V/C, Amps and charge status of the charge cycle. See data sheet 1330 for more information.

### **PowerStar options let you tailor a system to your exact requirements**

#### **001 extra length charging cable:**

Permits the charger to be installed up to 20 ft. from the battery location. See data sheet 1311.

#### **002 parallel charging cable with SBX connector:**

For the simultaneous charging of two batteries, identical in cell size but having different depths of discharge, with one charger.

#### **003 series charging cable:**

For the simultaneous charging of two batteries, identical in cell size, ampere-hour rating, and depth of discharge, with one charger.

#### **010 wall mounting bracket:**

For Y and Z case chargers.

#### **192356-1 remote charger display:**

Allows the charger to be controlled at locations up to 20 ft. from the charger, i.e., mezzanine or wall mounted. Note: Available only when the charger is equipped with the SCR2000 control.

#### **500 flange mounted fusible disconnect switch:**

Disconnects power to the charger before door can be opened. For Y and Z case chargers and 480 volt operation only. Mounted beside door.

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