# SCR2000

## Programmable Charger Control
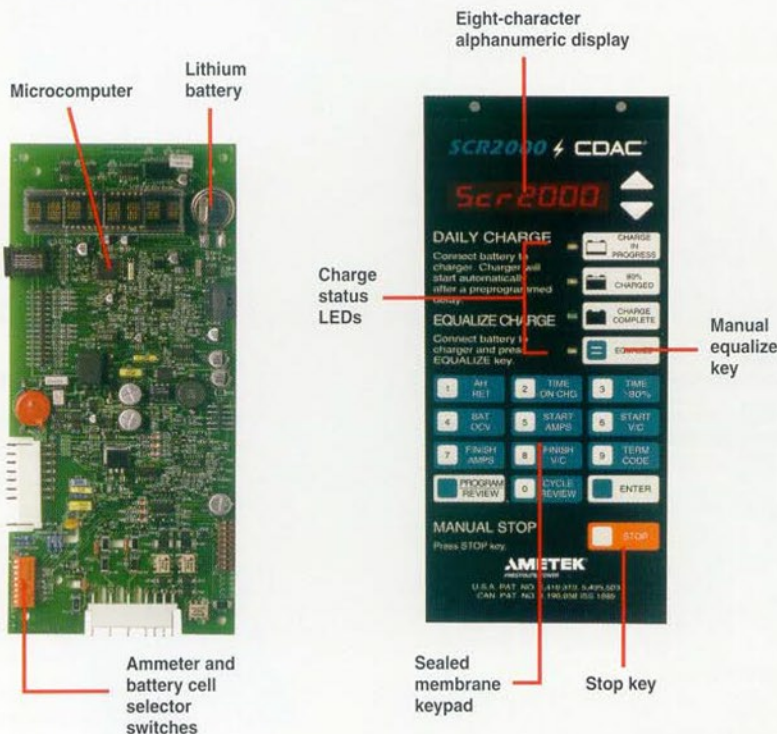
SCR2000 ⚡ CDAC®

Scr 2000

**DAILY CHARGE**

Connect battery to charger. Charger will start automatically after a preprogrammed delay.

**EQUALIZE CHARGE**

Connect battery to charger and press EQUALIZE key.

CHARGE IN PROGRESS

80% CHARGED

CHARGE COMPLETE

EQUALIZE

| 1 AH RET | 2 TIME ON CHG | 3 TIME >80% |
| 4 BAT OCV | 5 START AMPS | 6 START V/C |
| 7 FINISH AMPS | 8 FINISH V/C | 9 TERM CODE |
| PROGRAM REVIEW | 0 CYCLE REVIEW | ENTER |

**MANUAL STOP**

Press STOP key.

STOP

**AMETEK**
PRESTOLITE POWER

U.S.A. PAT. NO. 4,418,310, 5,495,503
CAN. PAT. NO. 1,196,058 ISS 1985

*Feature-rich control provides valuable options and insight to charge information like no other!*

- ⚡ *Interchangeable with SCR1000 control*
- ⚡ *37 programming functions*
- ⚡ *Store up to 22 items of cycle information for the last 99 cycles of charge operation*
- ⚡ *Access cycle information without interrupting the charging operation*
- ⚡ *4 different start modes*
- ⚡ *Provides refresh charge, cool down and energy-saving options*
- ⚡ *Prevents thermal runaway*
- ⚡ *Adapts to all battery types with user selectable curve options*
- ⚡ *Data-Mate and CDAC compatible*
- ⚡ *Compensates for battery operating temperatures automatically with a BID*

**AMETEK®**
PRESTOLITE POWER

Microcomputer

Lithium battery

Eight-character alphanumeric display

Charge status LEDs

Manual equalize key

Ammeter and battery cell selector switches

Sealed membrane keypad

Stop key

Unparalleled in the industry, the SCR2000 control offers many 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 is automatically stored for retrieval. Plus, the control allows review of current cycle data anytime without affecting the charging operation. Offering four different start modes and exciting new features such as refresh charge, extended run time, high-current shutdown and much more, the SCR2000 is the industry's choice for efficient and effective charge control.

## ⚡ Interchangeability ease

The SCR2000 control is easily interchangeable with the SCR1000 control and requires no tools. Just position the control and push in two rivets for a secure fit. To replace the control, simply push on the plungers located on the rear side of rivets and remove.

## ⚡ One-touch keypad

Resistant to moisture and mechanical shock, the SCR2000's sealed-membrane keypad allows programming, review and retrieval of charge cycle information. Keys numbered 0-9 provide instant access to charge information. Program/Review, Enter, Up and Down Arrow and combinations of keys allow for easy customization of the charging process. When conditions warrant a manual stop,

pressing the Stop key brings the charging operation to a halt safely without damaging batteries.

## ⚡ Alphanumeric display

The SCR2000 features an eight-character alphanumeric LED dot matrix display that brightly illuminates messages and numbers that are distinguishable from over ten feet away. Through easy to understand messages, the alphanumeric display allows viewing of charge status; archive, programming or review information; fault condition and operating status.

## ⚡ Easy to program

37 functions allow you to program the SCR2000 with ease. Before beginning the charging operation, press the PROGRAM/REVIEW key to scroll through the menu and select PROGRAM. Simply key in the function number and press ENTER or use the arrow keys to scroll to the desired programming function and key in the desired settings.

## ⚡ Archive charge cycle data

The SCR2000 automatically archives up to 22 items of charge cycle information for the last 99 cycles of charge operation. Upon connection of a new battery, the most recent charge cycle is labeled #1 and all previous archive data is shifted to the next archive location (1 to 2, 2 to 3, etc.).

## ⚡ Charge cycle review

The SCR2000 can retrieve and display up to 19 items of charge cycle data. The Cycle Review key provides access to specific charge information at any point during the charge cycle without interrupting the cycle. With the touch of a button, the following charge information is displayed for review:

1. Ampere-hours returned to the battery
2. Total time on charge (in hours and minutes)
3. 80% to charge complete (in hours and minutes)
4. Battery open circuit voltage
5. Start current
6. Start voltage (per cell)
7. Finish current
8. Finish voltage (per cell)
9. Charge termination code

## ⚡ Time-of-day start

Program the SCR2000 to start the charge cycle at a predetermined time of day. Time-of-day start enhances charging schedules plus helps to reduce utility rates when programmed to begin the charging operation during off-peak hours.

## ⚡ Delayed start

Program the SCR2000 to delay the start of charge for up to 24 hours. With the selection of delayed start and upon connection of a battery, the delay time appears on the digital display and counts down, in one minute intervals, until it reaches zero at which time charging will start. Use delayed start for battery cool-down before recharging to increase battery efficiency and extend battery life. Program different delay times to stagger-start charging of batteries to ease high-peak energy demands.

## ⚡ Time-of-day blockout

The SCR2000 can be programmed to blockout a predetermined time period during the course of the day. The charger will turn off at the beginning of blockout and resume charging at the end of the blockout period. Use time-of-day blockout to efficiently save on energy costs, prevent unnecessary charging that may inadvertently result due to operator lunch or break periods, or for battery cool-down.

## ⚡ Automatic start operation

Five seconds after the battery is connected, the SCR2000 will automatically begin the charging operation, eliminating the need for timers or dials to be set. This delay provides time to check for proper battery connection before the charge cycle begins.

Manual start is also available. The display will read "PSH STRT" and not start the charge operation until the ENTER key is pressed.

## ⚡ Charge status at a glance

Bright LEDs illuminate when a charge is in progress, the battery is 80% charged, the charging operation is complete when the battery is on an equalize cycle. At a glance, know exactly which phase of the charging operation is taking place. Fault conditions are easily detected through the simultaneous flashing of LEDs, plus the SCR2000 will display a message to indicate the fault condition.

## ⚡ Automatic or manual equalize operation

An equalize charge of three hours beyond a normal DV/DT charge termination can be selected manually or automatically. Automatic equalization can be programmed by day of week or by number of charge cycles from 0-30. When the automatic equalize function is selected, the manual push-button is disabled to prevent unnecessary equalize charges.

## ⚡ New battery recognition after AC fail

After an AC fail during the battery charging process, charging will resume provided there has not been a battery change. If a change occurred, the SCR2000 will recognize the presence of a "new" battery and begin a new charge operation.

## ⚡ Program and data retention

The SCR2000 will retain all programming and archive data for a minimum of ten years, even in the event of loss of AC power. A lithium battery and a microcomputer chip combine to ensure proper program maintenance, eliminating the need to reprogram when power is resumed.

## ⚡ High-current shutdown

By monitoring both the output current and voltage after the 80% point, the SCR2000 will recognize a battery in thermal runaway and shut down the charger, preventing damage to the battery.

## ⚡ Cool down option

The SCR2000 can be programmed to delay illumination of the "Charge Complete" LED until after a specified cool down time has elapsed. Adjustable from 0-8 hours, this efficient feature helps to prevent battery overheating and extend battery life.

## ⚡ Refresh charge

Featuring an adjustable 8-99 hour refresh charge timer, the SCR2000 can be used to provide a refresh charge to stored batteries to replace normal losses associated with storage. Similarly, in situations where it is anticipated that the battery and charger will be left connected for a period of time after charging – for instance, in the event of a long weekend or a week-long company shutdown – the SCR2000 can be programmed to automatically provide a refresh charge to ensure a fully charged battery when you need it.

## ⚡ Extended run time

In severe battery applications such as cold storage, the SCR2000 can be programmed to extend charge time for up to one additional hour past normal termination.
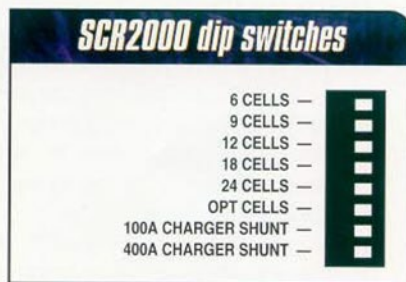
## ⚡ DV/DT charge termination

The SCR2000 utilizes our patented charge termination technique, DV/DT, or rate of change of battery voltage with respect to time. This termination method ensures a precise charge every time, never under or over charging, even on lightly discharged batteries. This technique used in conjunction with the electronically controlled IEI curve of the SCR chargers, ensures that the rate of change for both battery voltage and current always provides an efficient and accurate termination of charge.
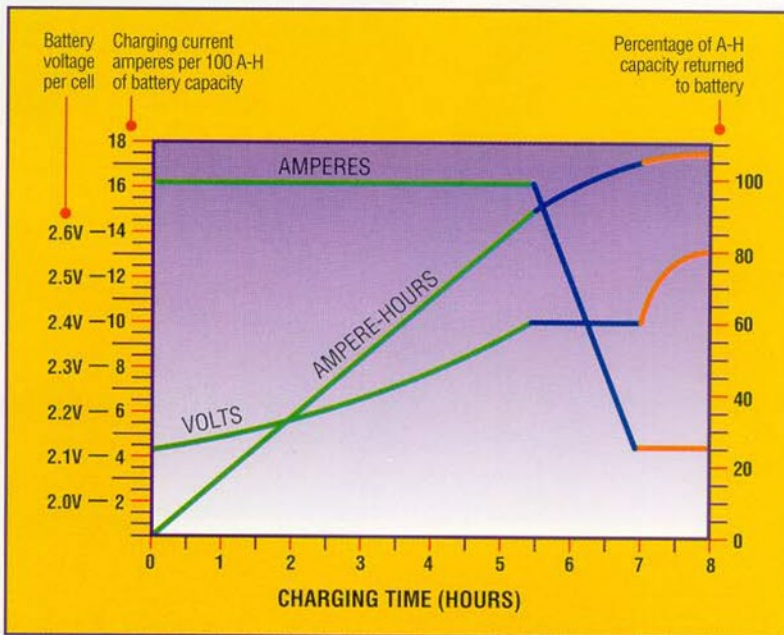
*Note: Should the user prefer a voltage/time charge termination, the SCR2000 can be set for this popular termination method through available programming options.*

## ⚡ One control for 6, 9, 12, 18 or 24 cell batteries with 100, 200, or 400 ampere full-scale digital ammeter

Located on the SCR2000's printed circuit board are 8 dip switches that allow you to customize the charging operation. The SCR2000 can be set to charge 6, 9, 12, 18 or 24 or optional cell size batteries with either a 100A, 200A or 400A full-scale digital ammeter by simply selecting the appropriate cell and ammeter sizes. (Note: on the control, as in the below diagram, there is no dip switch for selection of the 200A ammeter; however, this is easily set by opening both 100A and 400A dip switches.) OPT CELLS allows you to charge batteries of other cell sizes, between 6 and 24, that are not listed.

### SCR2000 dip switches

```
6 CELLS —      ☐
9 CELLS —      ☐
12 CELLS —     ☐
18 CELLS —     ☐
24 CELLS —     ☐
OPT CELLS —    ☐
100A CHARGER SHUNT — ☐
400A CHARGER SHUNT — ☐
```

## Typical I-E-I charging characteristics



Battery voltage per cell | Charging current amperes per 100 A-H of battery capacity | Percentage of A-H capacity returned to battery

AMPERES
AMPERE-HOURS
VOLTS

CHARGING TIME (HOURS)

Quality is the driving force behind our products. Engineered to be the best, our chargers and controls are designed to meet the many challenges associated with charging batteries. We remain strong in our commitment to produce quality chargers and controls that serve to meet customer charging needs as can be evidenced through our impressive line of products. Plus, we design our products to provide operating features that allow the customer to charge effectively and economically. Customers especially benefit from start options that allow charging during off-peak hours to reduce energy costs. All our products are expertly assembled and subject to intensive quality control and test procedures before shipment to the customer to ensure many years of trouble-free and energy-saving service.

## Advanced technology simplifies fleet management

# CDAC®
## CHARGER DATA ACQUISITION AND CONTROL

Turn your fleet of battery chargers into an efficient fleet management system with the SCR2000 control and CDAC, our Charger Data Acquisition and Control system. Through the addition of an optional expansion board, the SCR2000-EXP, the control is able to interface with CDAC to provide system operators with real-time access to battery charging status and warnings whenever abnormal conditions occur. This efficient system allows maximum equipment utilization and extends individual battery life. Available in RS-422 communication format, the SCR2000-EXP can be added to any SCR2000, regardless of date of purchase.

### ⚡ Data Link

View charge information on your computer screen. With our Data Link, you can easily download accumulated charge data from the SCR2000 to your computer. Review information associated with a particular cycle or from the last 99 cycles of charge. Data information can also be converted into a text file for import into a spreadsheet program.

### ⚡ Print Kit

When you simply want to print out charge cycle data, use the Print Kit. It allows you to download charge data from the SCR2000 control to a compatible printer.

*For more information about CDAC, Data Link or Print Kit, ask your local distributor.*

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