

Comparison - Superseder III vs. RF80K

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The following are similarities, advantages, and disadvantages of the Superseder III battery charger analyzer versus the RF80K Reflex® battery charger analyzer.

Both

- Operate on a range of 187 to 265 volts AC, single phase input power.
- *(With very low line voltages the Superseder will charge properly one battery but it may not be able to charge two batteries at full current)*
- Provide constant current or constant voltage (constant potential) charging.
- Use digital panel displays for meters and timers
- Provide constant current discharge with either, time and/or voltage termination, and a fail light indicator.
- Have standard Elcon type quick disconnects on battery cables
- Utilize current limiters for machine over-current protection.
- Use a configuration of power transistors for discharging.
- Have external test leads for cell probing.
- Have programmable timers.
- Employ dual breakers on power input.
- Both chargers have been used in the field for many years and have an established track record.

Superseder Advantages

- Lower purchase price (always – since introduction).
- Can operate on 115V input (limited to 20 A on charge).
- Can charge two 20 (or 22) cell batteries or four 11 cell batteries simultaneously.
- Can be programmed for any number of cells from 1 to 99 (within 85 volt max.) for all charge modes; CC, CP, and discharge. The RF80K is limited to cells numbering 11, 19, 20 and 22 on CC charge/discharge and 2, 6, 12 and 14 on CP charge.
- Has charge termination through a battery temperature monitoring plate in case of battery overheating.
- Has Fault Annunciation for capacity failure, malfunctions, and end-of-cycle.
- Has user controlled two step charging rate for Main/Topping currents and times (with automatic transfer).
- Can charge any number of individual cells and comes with single cell adaptor. The RF80K only charges 1 to 24 cells and has no single cell adaptor included.
- Easier access (Superseder top panel flips open, the RF80K top panel has 16 screws)
- Fault annunciation (Superseder indicates voltage, current, temperature or open limiter fault).
- Has user selectable, voltage defined switch to select Constant Current (CC), Constant Voltage (CV) and Peak Modes Charging Modes.
- Has a switch to select the number of cells in CC (for overvoltage) or the nominal battery voltage in CV.
- Has a peak mode for charge termination or transfer from Main to Topping.
- The peak mode is important also for Lead-Acid batteries (it is a better indicator of end-of-charge)
- Easier to calibrate and maintain
- Does not require specialized or heavy duty equipment for verification of performance or calibration.
- All boards are easily replaceable (most are plug-in)
- Easily upgraded (at the factory).
- Computer control via the C-Scan in the BTAS-16 system
- Designed and built as a precision instrument
- Has an internal rechargeable battery for protection of the Timer and Control Registers in case of a power (mains) failure. Will resume operation automatically when power is restored. (The RF80K must be reset and re-started).
- Fast turn-around for replacement parts and for repairs and upgrades.

Superseder (apparent) Disadvantages

- Will not Reflex® charge? Note that battery manufacturers call for constant current charging in their manuals (Is Reflex® really good for the battery anyhow?).
- No automatic multi-cycle feature (charge-discharge-charge; not a reliable process anyway)
- No negative slope sensing feature. (negative slope could be due to temperature and/or due to overcharge – by itself not a reliable indicator).

RF80K Disadvantages

- Single battery charging only (The Superseder can charge two)
- Abusive treatment of older batteries in the Reflex® mode (constant current is gentler on the battery).
- The Reflex® mode will often mask internal battery problems that can only be perceived while charging in the Constant Current mode.
- The Reflex® mode will often heat batteries (particularly older ones, with a higher internal resistance).
- Turning the power ON without a battery connected can result in a catastrophic damage of the output capacitor (per SIL#3-121630-0709). Note that this problem exists in the Christie Chargers since the earliest models. The Superseder has no such limitation, it can sense if the charge cycle is initiated and there is no battery connected. If so, it simply shuts off the charge and indicates a fault.
- No audible indicators
- No battery temperature feedback
- No power-fail protection. Must re-start the test in case of a power failure. The Superseder is fully protected against power (mains) failures.
- Complex to calibrate and maintain.
- Lengthy wait for factory service (older units are no longer supported).

Comparison Summary

- The Superseder is a faster device. It will charge two batteries in 6 hours versus one battery in 5 hours for the Christie (assuming that the obligatory 4 hours of Topping Charge is not omitted). Note also that if the Reflex® B mode is chosen for higher impedance cells, the time for charge is extended (more than one hour), thus nullifying the so called rapid charge advantage of the Reflex® mode.
- The Superseder is fully protected against external and internal faults (safer for the operator, the battery and the charger).
- The Superseder is more universal and more intuitive to operate.
- The Superseder allows batteries to be tested exactly as specified by the battery manufacturers.
- The Superseder is gentler on all types of batteries.
- It must be noted that both chargers employ different methods to determine when separator breakdown in a cell is present. The Superseder measures the heat normally associated with this failure while the RF80K measures an overall battery voltage drop while on charge.
- It must be emphasize that the purpose of the equipment is not simply to charge the battery but to test it. Therefore, the charger must do so in such a manner that the individual cells can show if they are in good condition. The Superseder does it by design, the Christie does not in the Reflex® mode and it becomes very inefficient (one battery only) if used exclusively in the Constant Current mode.