Radio Cab Charging Station
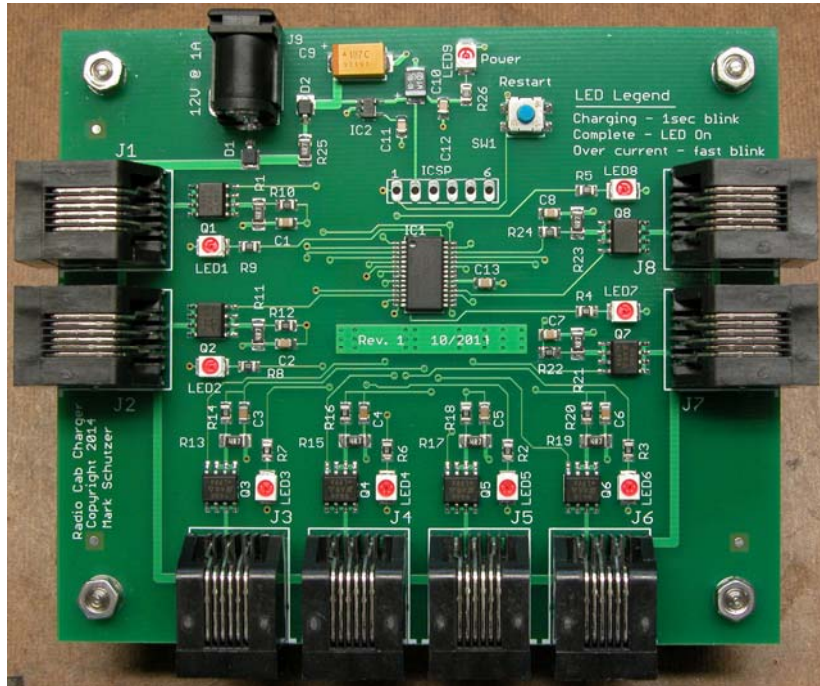
Introduction:

The charging station provides a convenient way to recharge the batteries in "charger equipped" radio cabs. The charging station can charge up to eight cabs at a time while providing feedback of the charging state. A built in timer will turn off each charger port after 24 hours of continuous charging.

The charging station allows radio cabs to be recharged without having your layout and cab bus powered up.

IMPORTANT NOTE:

In order to use the charging station a separate "charger" must be installed into each radio cab. The charger resides inside the cab and provides a 50 mA trickle charge to the batteries whenever the cab is plugged into a live cab bus jack. Radio ProCab's, PowerCab's, and Cab 04/05's must have a separate charger board installed inside the cab. Radio Cab06's are setup for the internal charger but the optional charger components need to be stuffed on the board. See the separate write up concerning the charger installation in the cabs. If a non charger equipped cab is plugged into the charging station the cab will power up, but no charging will take place.

Charging Station Operation:

The charging station provides a connection between the 12 volt power source and each of the eight charging jacks. An on board microprocessor controls, times, and monitors the power connection to each of the charging jacks. Visual feedback of the charging status is provided by an LED next to each jack.

Upon power up the charging station LED's will cycle through a sequenced pattern for the first 4 seconds of operation. After completing the start up sequence power is applied to each charging jack and the associated cab will power up and charge. The LED's will reflect the state of the current flowing to each charging jack.

When there is no current flowing (nothing plugged into a jack) the associated LED will be off. When a cab is charging and the current is in the normal range (70 mA to 160 mA) the associated LED will blink on and off at a one second rate. If an over current condition is detected (> 160 mA) for more than 20ms the power to the specific charging jack will be turned off and the LED will flash at a fast blink rate (¼ second on, ¼ second off). If you ever see a fast blinking LED unplug the cab and check the cab cord for a broken connector or shorted wires. In normal operation you should never see an over current condition. **If a charging jack has been turned off due to an over current condition you must press the "Restart" button to re-enable it.**

When the charge current is in the normal range a 24 hour timer is started. After 24 hours of continuous charging the power to the charging jack will be turned off and the associated LED will turn on solid to indicate that the charge cycle is complete. **Once complete you need to press the "Restart" button to start a new charge cycle.**

If a cab is unplugged prior to completing the full 24 hour cycle the associated LED will turn off and the internal 24 hour timer will be reset back to zero. Each of the charging jacks are monitored and timed independently.

Charging Jack Status	LED State	Power State on Charging Jack
Nothing plugged in	Off	On
Normal charge current	Blinking, 1 sec on / 1 sec off	On
24 hour charge complete	LED on solid	Off (Press Restart to restart)
Over Current (>20ms)	Fast Blink, ¼ sec on / ¼ sec off	Off (Press Restart to restart)

Cab Type	Approximate Charge current (Cab draw plus 50mA charge current)
Cab04PR	83 mA
Cab06PR	102 mA
ProCabR	100 to 120 mA (Depending on vintage)
PowerCab (Radio Equipped)	141 mA (Powers up in PowerCab mode when connected to charging station)

Power Requirements:

The charging station requires a 10 - 13 volt, 1 amp external supply that supplies power to the 5.5 x 2.5 mm power jack. The PowerCab wall wart supply can be used as can any 12 volt supply with a 5.5 x 2.5mm power jack.