



Cadex Electronics Inc.
22000 Fraserwood Way, Richmond, BC Canada V6W 1J6
Tel: 604 231-7777 Fax: 604 231-7750
Toll-Free: 1 800 565-5228 (USA & Canada)
E-mail: service@cadex.com Web: www.cadex.com

Servicing Intrinsically Safe Batteries

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Intrinsically Safe (I/S) batteries have internal protection circuitry to prevent accidental thermal or electrical release of energy in potentially explosive environments. I/S batteries are clearly marked by the manufacturer with terms like I/S, CENELEC, Ex, etc.

The C7000 and C7000ER Battery Analyzers can service Intrinsically Safe batteries but changes must be made to the default C-code before servicing the battery. If the default C-code is used, several fault codes may appear, notably code 120 (Over Voltage) and Code 121 (Shorted or Reversed). The protection circuitry inside the battery may be designed to prevent high charge rates or reverse load pulses on the load contacts that give rise to these fault codes.

Change the C-code to the following values when servicing Intrinsically Safe Batteries:

Charge Method: DC Charge - not applicable for SLA or Li-Ion batteries
End of Discharge: 0.96V/cell - not applicable for SLA or Li-Ion batteries
CH (Charge Rate): 0.10C
DCH (Discharge Rate): 0.10C

The CH and DCH rates are minimum values. Depending on the battery, the CH and DCH rates can go higher to reduce service time. Consult the manufacturer's battery specifications or the Cadex battery C-code database for the optimum charge and discharge rates. If the CH and DCH rates are unknown, use a trial and error method: start at a setting of 0.10C or at least 400mA and run the battery through a complete service program. If no errors are produced, then raise the CH and DCH setting to 0.20C and run the service cycle again. Repeat the process with higher CH and DCH rates until the battery starts to produce errors. Use the lower settings.

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