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The attached documents are being provided to Switching Power Magazine for information purposes. This magazine is writing a feature article on the International Space Station Electrical Power System, focusing on the switching power processors. These units include the DC-DC Converter Unit (DDCU), the Bi-directional Charge/Discharge Unit (BCDU) and the Sequential Shunt Unit (SSU).

These diagrams are high-level schematics/block diagrams depicting the overall functionality of each unit.

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Figure 1 - BCDU Simplified Block Diagram

- Remote Bus Isolator (RBI)
- Battery Power
- Control Bus Out
- (Last Updated - July)

- Dual 1553 Bus Address Data to All Signals Shown for Battery 'A'
- BSCCM are Replicated for Battery 'B'
- 6 Bits & Rtns
- Drain Off 'A'
- Drain On 'A'
- Heater On - Battery 'A'
- Battery Monitor Input 'A'

- Interface (LDI)
- RT Address Data (5 Bits, Parity & Rtns)

- Local Data Interface
- Commands

- Battery 'A', Battery 'B', Battery Monitor Input 'A', Battery Monitor Input 'B', Battery C, Battery D, Battery E, Battery F, Battery G, Battery H, Battery I, Battery J

- 300.0 Vdc & Rtn
- +5.0 Vdc & Rtn
- +15.0 Vdc & Rtn
- Power Supply (A)

- Fault Isolator (FI)
- (R - Active)
- 300.0 Vdc & Rtn

- Remote Bus Isolator (RBI)
- 0.15 Ohms

- (Last Updated - July)
Diagram/Schematic

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**Cells Diagram/Schematic**

- Diagram of a low voltage battery charger (LVBC) with various points and connections labeled.

- Symbols and notations indicating different signals and components:
  - Commands and TLM
  - LV Power (+30.0, +15.0, -15.0, and 5.0 Vdc)
  - Current Transformer Measurement - Over Current Protection

- Component labels include:
  - Power Supply
  - Isolation Converter
  - DC/DC Converter
  - Heater Switch 'A'
  - Heater Switch 'B'

- Connections and signal paths are indicated with arrows and labels for clarity.

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**Legend**

- Symbols and notations for various components and signals are explained in a legend section.

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**Analog TLM**

- Status
- O/V Trip Status
- P/S Output Status
- Control Pwr Status
- P Status

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**Power Supply**

- 85.0 uF

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**Isolation Converter**

- 12.0 uH
- 0.16 Ohm
- 100.0 uF

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**Power Measurements**

- Voltage Measurements:
  - V: Battery Bus Voltage (J4-66/46)
  - V: F1/Converter Voltage (J4-65/43)
  - V: Primary Power Input/Output Voltage (J4-65/45)
  - V: RBI Output Voltage (J4-61/41)
BCDU Error Signal Control and Interaction