
Alber Training and Education Product Tutorial

BDS-40

Battery Diagnostic System





Tutorial Topics

- What is a BDS-40?
- How Does a BDS-40 Work?
- BDS-40 Application
- BDS-40 Base Unit
- BDS-40 Plus Unit
- Battery Connection Wiring Method
- Optional Hardware
- Before and After Illustrations

What is a BDS-40?

- The Alber BDS-40 is a complete battery diagnostic system that is optimized for monitoring UPS battery systems employing 12 volt multi-cell units installed cabinets
- The BDS-40 can measure and store the following data
 - Cell voltage
 - Battery voltage
 - Cell resistance
 - Ambient and electrolyte temperature
 - Discharge current
 - Float current
 - Battery discharge data

How Does the BDS-40 Work?

- The BDS-40 is permanently connected to a battery via sense lead wiring described later in this tutorial
- The BDS-40 continuously scans key operating parameters for unacceptable deviations from defined limits
- When a threshold is exceeded, the BDS-40 can be programmed to alert the user with a number of reporting methods

BDS-40 Application

- Optimized monitor system for cabinet installed 12 volt VRLA UPS batteries
- All-in-one enclosure – easy installation
- Pre-manufactured sense and load module cables
- A fully configured BDS-40 system can manage up to 6 strings of 40, 12 v jars
- The strings do not have to be on the same UPS system or battery bus
- 480 VDC nominal maximum – 40 units, 240 cells

BDS-40 Installation Example



Hardware

- A BDS-40 system requires at least one unit called a *Base Unit* which can monitor up to 1 string of 40, 12 volt jars



BDS-40 Base Unit

Base Unit

- There are three ports to communicate to system computers
 - Front Local Port
 - RS232
 - Removed and replaced with USB on XL series
 - Rear Telco Port
 - If modem installed
 - Rear Network Port
 - RJ45 for embedded card

Base Unit

- The Base Unit contains 3 pieces of equipment installed in stacked configuration inside a common enclosure
 - Controller
 - Data Collection Module (DCM)
 - Load resistors (Load Module)

Base Unit

- Controller
- The “brain” that controls the system
 - Microprocessor based
 - Collects and stores data from other system components
 - Provides interface to computer and/or network
 - Connected to the remaining system components explained later
 - DCM
 - Load resistors

Base Unit

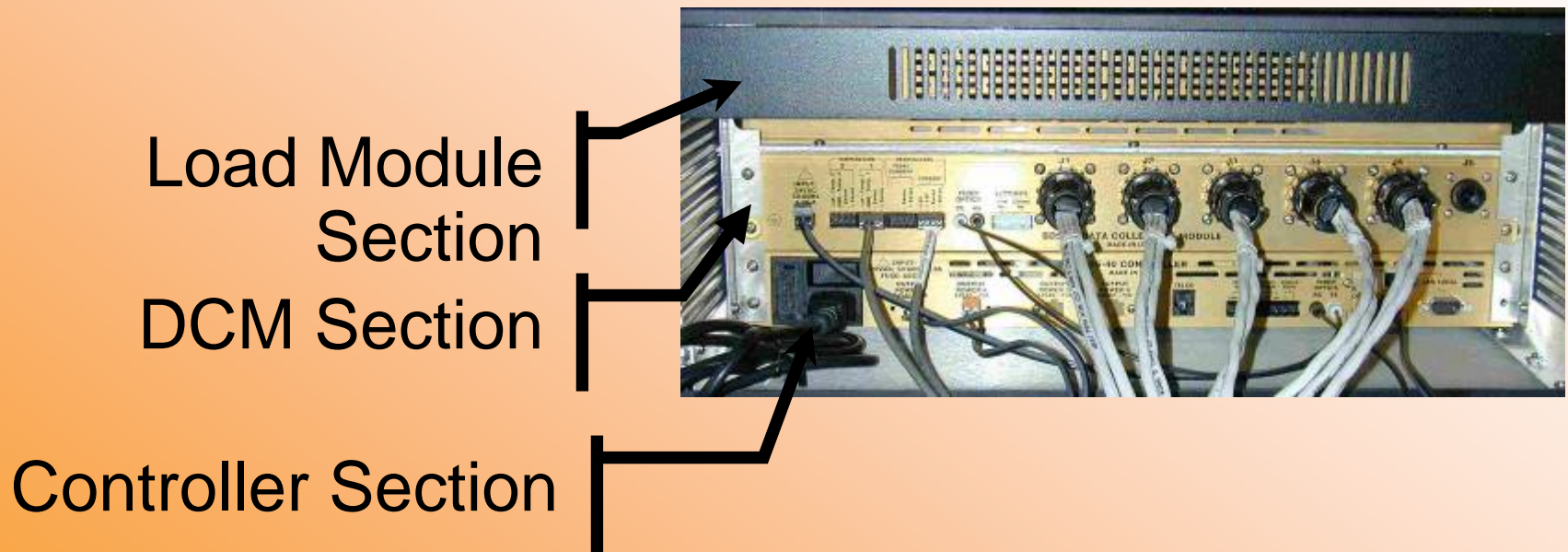
- Data Collection Module (DCM)
- The DCM acquires all readings from the battery
 - Up to 40 cell voltages
 - Up to 40 cell resistances
 - Up to 2 temperatures
 - 1 discharge current
 - 1 float current
 - Up to 10 intertier connections

Base Unit

- Load Resistor (Load Module)
- Supports proactive DC internal resistance tests
- Applies a 30 amp load in a pre-determined number of “steps” across several jars at a time to make internal resistance measurements
- The load step does not shorten battery life or harm it in any way

Base Unit

- A Base Units consists of three sections



Plus Unit

- A Plus Unit is used when the battery to be monitored consists of more than one string
- A fully configured BDS-40 system requires 5 Plus Units in addition to the Base Unit
- Each Plus Unit consists of one DCM and one Load Module



BDS-40 Plus Unit

Plus Unit

- A Plus Unit is made up of two sections

Load Module Section

DCM Section



Plus Unit

- The Plus Unit connects to a Base Unit via a visible light, non-laser fiber optic cable loop
- All Plus Units are powered from 24 VAC sourced at the controller in the Base Unit



Cables and Wiring

- Prefabricated cables contain voltage/resistance and load step wiring
- Cables provided are based on battery configuration data
- Standard cables cut to length and labeled.
- Generic cables without labels and connectors are provided for odd battery configurations.



Options

Temperature Measurement



Ambient Temperature
Sensor

Battery Discharge/Recharge Current Measurement



Current Transducer and
Connecting Cable

Float Current Measurement

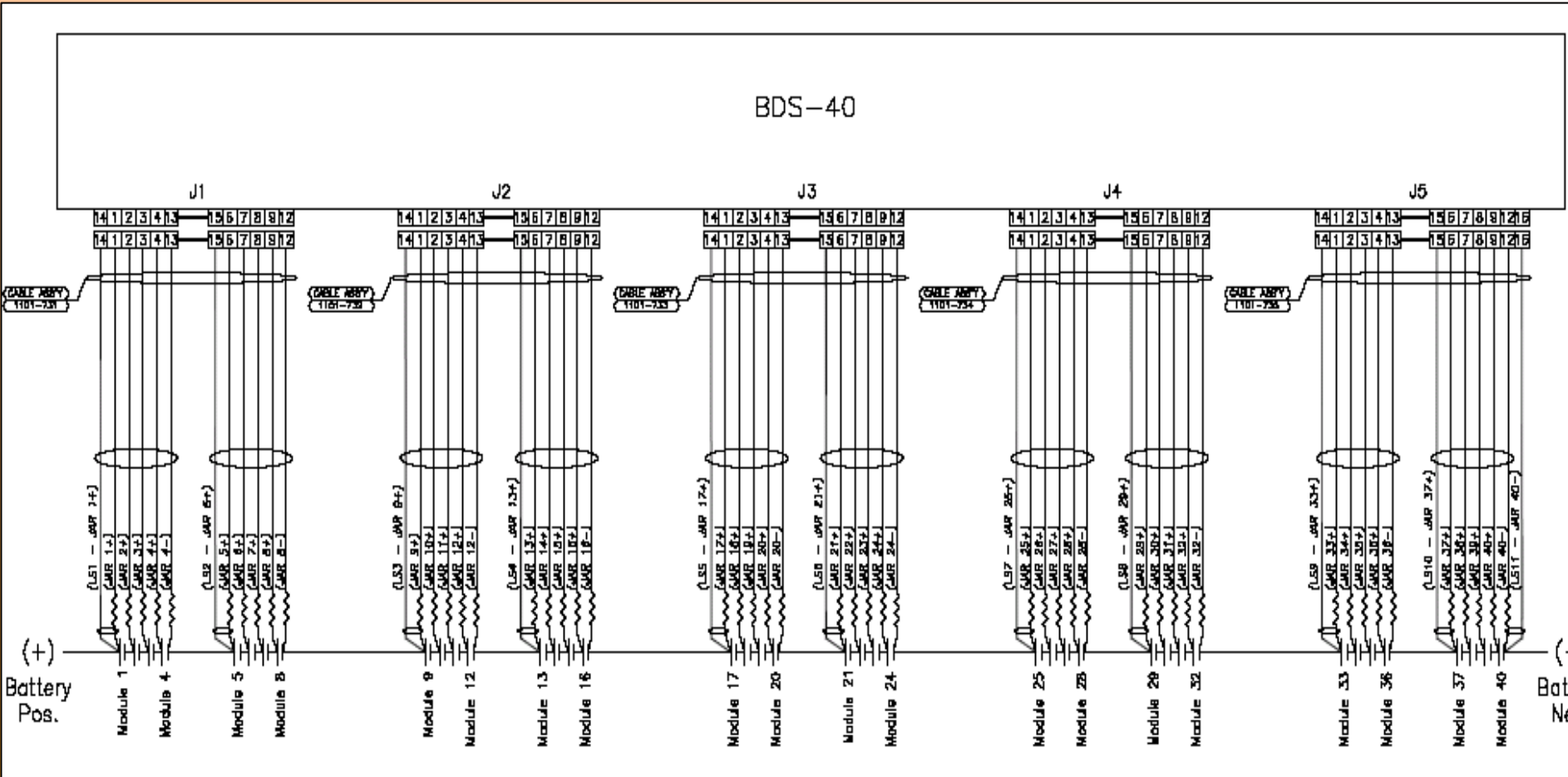


Float Current Probe



Float Current Probe Interface

BDS-40 Connection Schematic



Before a BDS-40 Installation



After a BDS-40 Installation



Technical Assistance

- Product support is available Monday-Friday, 8:00a.m.-5:00p.m. ET
- Main Phone – 954-623-6660
- Email support – support@alber.com
- Web – www.alber.com
 - Downloads
 - User manuals
 - Installation instructions
 - Product literature and more
 - Service Bulletins

Sales Assistance

- Alber Sales Team

3103 N. Andrews Ave. Extension

Pompano Beach , FL 33064

Phone – 954-623-6660 or 800-851-4632

Email – sales@alber.com



More Tutorials from Alber

- Please visit our website at www.alber.com/training for additional tutorials about monitoring products and software
 - Battery monitoring theory
 - Monitoring system basics
 - BDS-40 monitor
 - BDS-256 monitor
 - MPM-100 monitor
 - Battery monitor data manager software