Master Functional Block Diagram

1. Connect Data Source and Check Line Conditions
2. Connect Roving Tester and Check Line Conditions
3. Roving Tester Checks LED Board DC Supply Voltage
4. Roving Tester checks RS-485 Data Signals by running Data Test Sequence
5. Display Results

Repeat for each node
Roving Tester Functional Block Diagram

Start

Check for Overvoltages

$>15\text{ V}$

Warn User

Wait for User Correction

$<15\text{ V}$

Check Line Conditions

Failure

Success

Determine Signal Voltage Levels

Establish Bidirectional Communication

Run Test Sequence

Display Results

*Repeat for each node.
Test Sequence Functional Block Diagram

1. Establish Bidirectional Communication
2. Send signal to have Data Source start test
3. Receive data and Check for Validity
4. More tests?
   - Yes: Go back to step 2
   - No: Go to next step
5. Compare Data
6. Display Results
Select Input if applicable → Set to High Voltage State → Check Voltage Level → Report Voltage and High State → Set to Low Voltage Test → Check Voltage Level → Report Voltage and Low Test
Transmit Block Diagram

Transceiver Connected to Bus?

Yes: Send requested data

No: Get bus voltages

Bus Voltages OK?

No: Error

Yes: Couple bus

Send data