SIG CON Signal Conditioners

Power Generation

Acromag THE LEADER IN INDUSTRIAL I/O

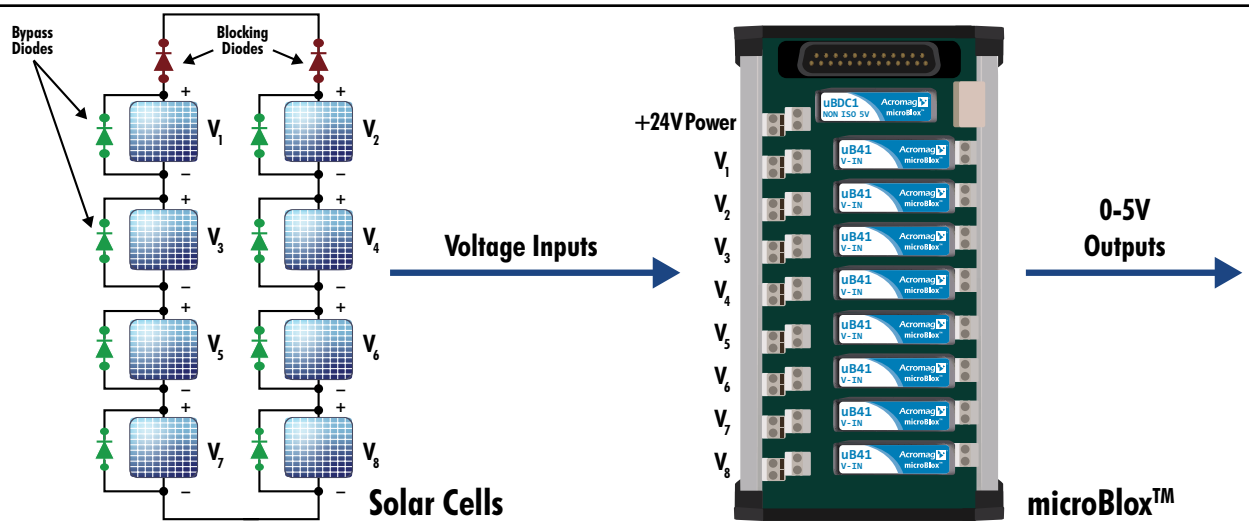
Application Note:
Voltage Measurement of Multiple Cascaded Cells

Defining the Problem:

A proper method is needed to measure each cell voltage within a series of cells and withstand high nominal or open circuit voltages. The maximum series voltage is greater than the common-mode range of the connected instruments. This requires isolated floating inputs to measure each cell voltage. Channel-to-channel isolation will extend the common-mode range to the maximum input/output isolation rating. Typical applications include cascaded solar cells, fuel cells and batteries.

System Requirements:

The Acromag microBlox™ products have a maximum continuous input/output isolation voltage of 350V DC. This would be the limit for the maximum series voltage of the cascaded cells. Each cell voltage can be elevated anywhere within the 0 – 350V DC window. Use shielded wiring and minimize the distance between the cells and the microBlox. This will reduce the chances of developing electrical noise and improve measurement accuracy.



Implementing the Solution:

1. The Bluetooth enabled uB41-B model supports input ranges from ±1 up to ±60V DC with 1KHz bandwidth.
2. Configure each module using the Acromag Agility mobile application for an Android or iOS device.
3. Follow the proper wiring practices as detailed in the user manual. Connect earth ground to the minus lead of the first cell in the series (lowest voltage).
4. Test the system connections using the built-in Polling feature in the mobile app. The app will show a digital reading or display a Trending Graph.

Featured Products:

microBlox,

Agility™ Mobile App for communicating with Android or iOS devices via Bluetooth.

Notes:

Did this App Note help you today? Tell us what you think with these 4 quick questions. Click here to receive Acromag's monthly eNewsletter.

Why Acromag:

The microBlox have CE marking and ATEX, UL, cUL ratings for Class 1 Div 2 hazardous locations. With an over-molded housing, channel-to-channel isolation, wide operating temperature (–40 °C to 80 °C), 4g vibration and 25g shock, the microBlox can be mounted in the most severe installations.

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