

Distributed Signal Conditioning and I/O Modules

6B Series (Legacy)

- RS-232 and RS-485-compatible modules for remote, distributed I/O
- 1.2 km (4,000 ft) maximum range
- 256 modules maximum per serial port
- Completely software configurable and calibrated
- Application software drivers included
- Analog modules
 - Single-channel modules
 - Thermocouples(TC)
 - Millivolt (mV), and volt (V)
 - 0-20 mA, 4-20 mA inputs
 - RTDs
 - 0-20 mA, 4-20 mA outputs
 - 16-bit integrating ADC
- Linearized outputs in engineering units or percent of full scale
- Modules isolated to 1,500 V_{rms}, input to output
- 1, 4, and 16-channel backplanes
- Digital I/O module (6B50)
 - 24 channels of TTL-compatible I/O
 - Industry-standard 50-pin connector
 - Cables directly to SSR backplanes and SC-205x accessories

Recommended Software

- LabVIEW
- LabWindows/CVI
- Measurement Studio



Overview

The 6B Series consists of digitizing and signal conditioning I/O modules for building a complete, distributed monitoring and control application. The analog input modules of the 6B Series condition and digitize inputs from thermocouples, RTDs, mV, V, and current sources, current output modules, and 24-channel digital I/O boards.

The 6B Series modules and backplanes communicate via an RS-485 serial bus using a simple ASCII command/response protocol. Modules plug into a 1, 4, or 16-channel backplane, which includes an RS-485 interface plus an optional RS-232 interface. The RS-232 interface connects directly to the standard serial port of your host computer.

Analog I/O Modules

Each module performs signal conditioning, isolation, amplification, 16-bit A/D or D/A conversion, linearization, scaling to engineering units, and digital communication. You can reconfigure the modules for different sensor types and input ranges.

Digital I/O

The 6B50 Series of 24-channel digital I/O boards operates on a serial bus network of 6B Series modules and backplanes. You can

use each of the 24 I/O lines of a 6B50 board as input or output. Each I/O line of a 6B50 board is an open collector with 47 k Ω pull ups to +5 V. Similar to the 6B Series backplanes, the 6B50 board is available with an RS-485 interface (6B50-01) or with both RS-485 and RS-232 interfaces (6B50-02). The I/O connector of a 6B50 board is a 50-pin male ribbon cable connector. The pinout is compatible with National Instruments DIO-24 boards. For digital signal conditioning, you can cable a 6B50 board directly to the SSR Series 8, 16, or 24-channel backplane or to the SC-2051 cable adapter for use with the SC-2060 and SC2061. Alternatively, you can use the CB-50 for direct access to the TTL-level I/O lines of the 6B50.

INFO CODES

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6b

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Module Backplanes

The 6B Series analog I/O modules mount into backplanes with 1, 4, or 16-channel capacity. Each backplane incorporates screw terminals for field wiring connections and cold-junction compensation for thermocouple applications.

Drivers

The documentation and software kit includes instrument drivers for LabVIEW, LabWindows/CVI, and Measurement Studio. The documentation and software kit also includes source code for the drivers.

Module	Range
6B11	Thermocouples: J, K, T, E, R, S, and B Voltage inputs: ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 5 V Current inputs: ± 20 mA* (0-20 mA and 4-20 mA are subset of this)
6B12	Voltage inputs: ± 50 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, ± 50 V Current inputs: ± 20 mA* (0-20 mA and 4-20 mA are subset of this)
6B13	RTDs: Pt 100 Ω ($\alpha = 0.003916$ or 0.00385), Ni 120 Ω , Cu 10 Ω (0 Ω or 10 Ω at 25 $^{\circ}$ C)
6B21	Current outputs: 0-20 mA, 4-20 mA

Table 1. 6B Series Analog I/O Modules

SSR Module	Signal Range
Inputs	
SSR-IAC-5	120 VAC
SSR-IAC-5A	240 VAC
SSR-IDC-5	3 to 32 VDC
Outputs	
SSR-OAC-5	120 VAC
SSR-OAC-5A	240 VAC
SSR-ODC-5	3 to 60 VDC

Table 2. SSR Conditioning Modules