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Find the *National Instruments FP-TB-1* at our website: ***Click HERE***

Dual-Channel I/O Modules for FieldPoint

Dual-Channel I/O Modules for FieldPoint

Analog I/O Modules
- 2 single-ended or 1 differential channels per module
- 12-bit resolution
- V, mV, A, mA inputs and outputs
- RTD inputs
- Thermocouple inputs

Digital I/O Modules
- 2-channel
- Variety of AC/DC inputs and outputs
- Channel-to-channel isolation
- Fused outputs

FP-TB-10 Terminal Base
- Accommodates up to 6 dual-channel modules
- Any combination of I/O types

Common Features
- HotPNP (plug and play) operation
- DIN rail mounting
- -40 to 70 °C operating range
- 2,300 V_{rms} transient overvoltage protection



Overview

National Instruments offers a series of dual-channel modules for flexibility in configuring a FieldPoint I/O systems. You can mount up to six dual-channel modules on FP-TB-10 terminal base. You can use dual-channel modules in the same bank with standard 8 and 16-channel modules. You can configure FieldPoint system to closely match specific I/O needs. The dual-channel modules also provide a flexible solution for applications requiring channel-to-channel isolation. All the modules include onboard diagnostics to ensure trouble-free installation and maintenance.

Analog I/O Modules

Dual-channel I/O modules are designed for mA, voltage, millivolt, thermocouple, and RTD signals. Each module includes two single-ended inputs, signal conditioning, 12-bit ADC or DAC, and module-to-module optical isolation. You can use one channel per module for applications requiring differential inputs or channel-to-channel isolation. The 3 and 4-wire dual-channel RTD input module includes a top-mounted pluggable screw terminal connector and the TC modules feature a minithermocouple jack.

Digital I/O Modules

Dual-channel digital I/O modules are designed for a variety of AC/DC inputs and outputs. Each module includes two channels, which provide channel-to-channel optical isolation from each other, the power supply, and the backplane. Two LEDs located on the module indicate the instantaneous on/off state of each input or output.

Digital output modules can switch AC and DC loads, such as solenoids, motors, or lamps. Each output channel is individually optically isolated to 2,300 V_{rms} and includes a replaceable glass fuse. AC output modules feature zero-crossing turn-on and RC snubber networks for inductive loads. Digital input modules can sense either AC or DC loads. These FieldPoint modules have channel-to-channel isolation.

FP-TB-10 Terminal Base for Dual-Channel Modules

Dual-channel I/O modules mount on the FP-TB-10 terminal base, which holds up to six in any combination. The FP-TB-10, like other FieldPoint terminal bases, plugs into adjacent terminal bases to form the local backplane bus that provides power and communications from the network interface module. You can use up to nine FP-TB-10, FP-TB-1, FP-TB-2, or FP-TB-3 bases with a single network interface module. The FP-TB-10 provides screw terminals for field wiring connections to the dual-channel modules. The 3 and 4-wire RTD input modules and the TC modules include top-mounted sensor connectors.

Power

Using the FP-TB-10 and dual-channel modules can limit the number of I/O modules that you can connect to a single network interface module. Controllers and network interface modules supply up to 9 W to power I/O modules. Refer to the specifications that follow for the power requirements of the FP-TB-10 and dual-channel modules.

Visit ni.com for part number and pricing information.

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Dual-Channel I/O Modules for FieldPoint

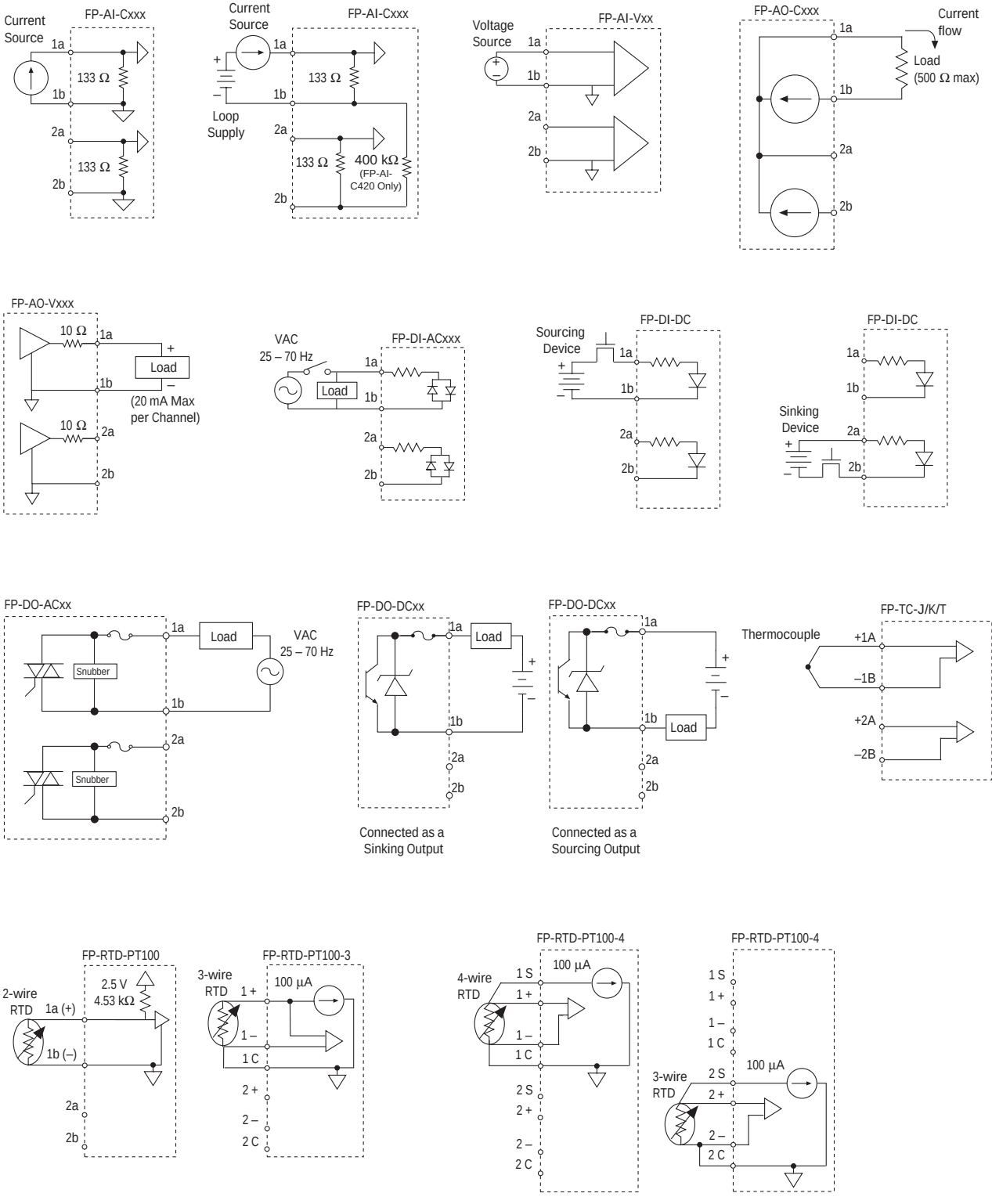


Figure 1. Wiring Schematics for Dual Channel Modules

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Dual-Channel I/O Modules for FieldPoint

Specifications

Typical for -40 to 70 °C unless otherwise noted.

Analog Input Modules

Number of inputs
- Thermocouple modules ..... 2 differential
- Other types ..... 2 single-ended

Measurement resolution ..... 12 bits (1 part in 4,096)

Input impedance
- Voltage inputs ..... 2.2 MΩ
- Current inputs ..... 133 Ω

Excitation current (RTDs)
- Four-wire ..... 100 µA
- Three-wire ..... 100 µA
- Two-wire ..... 550 µA

Measurement bandwidth

Voltage inputs ..... 20 Hz or 2 kHz, programmable
Current inputs ..... 20 Hz or 100 Hz
Thermocouple inputs ..... 20 Hz
RTD inputs ..... 15 Hz

Step response time
- Voltage and current inputs ..... 1.5 ms
- RTD inputs ..... 42 ms
- Thermocouple inputs ..... 100 ms

Input protection
- Current inputs ..... 38 mA
- Voltage inputs ..... ±30 V
- Thermocouple, RTD ..... ±6 V

Analog Output Modules

Number of outputs ..... 2 single-ended
Output resolution ..... 12 bits (1 part in 4,096)
Output impedance (voltage outputs) ..... 10 Ω
Current drive (voltage outputs) ..... 20 mA
Maximum load (current outputs) ..... 500 Ω

Step response time
- Current outputs ..... 500 µs
- Voltage outputs ..... 800 µs

Digital Input Modules

Number of channels ..... 2 isolated inputs

Digital Output Modules

Number of channels ..... 2 isolated outputs
Replaceable fuses ..... (5 x 20 mm, 3.15 A, 250 V, fast-acting)
FP-DO-DC, FP-DO-AC ..... Littelfuse 217315

Power Requirements

FP-TB-10 ..... 200 mW

Analog input modules
- FP-AI-V50m, FP-AI-100m ..... 300 mW
- FP-AI-C020, FP-AI-C420, FP-AI-V1, FP-AI-V5, FP-AI-V10, FP-AI-V5B, FP-AI-V10B, FP-RTD-PT100, FP-RTD-PT100-3, FP-RTD-PT100-4, FP-TC-J, FP-TC-K, FP-TC-T ..... 375 mW max

Analog output modules
- FP-AO-C020, FP-AO-C420, FP-AO-C024 ..... 1100 mW at max output
- FP-AO-V5, FP-AO-V10, FP-AO-V5B, FP-AO-V10B ..... 1100 mW at max output

Digital input modules
- FP-DI-DC, FP-DI-AC120, FP-DI-AC240 ..... 60 mW

Digital output modules
- FP-DO-DC60, FP-DO-DC200, FP-DO-AC120, FP-DO-AC240 ..... 70 mW

Scan Times

Analog input/output modules ..... 1.5 ms
Digital input/output modules and empty slots ..... 0.2 ms

Physical Characteristics

Field-wiring diameter ..... 24 to 12 AWG

Weight
- FP-TB-10 ..... 290 g (10.2 oz)
- I/O module ..... 60 g (2.1 oz)

Operating temperature
- FP-TB-10 ..... -40 to 70 °C
- Digital modules ..... -40 to 70 °C
- Analog modules ..... -40 to 70 °C
- Storage temperature ..... -40 to 85 °C

Environment

Operating temperature ..... -40 to 70 °C
Storage temperature ..... -55 to 85 °C
Reltive humidity ..... 10 to 90%, noncondensing

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:
- IEC 61010-1, EN 61010-1
- UL 3121-1, UL 61010C-1
- CAN/CSA C22.2 No. 1010.1

For UL, hazardous location, and other safety certifications, refer to the product label or to ***ni.com.***

Electromagnetic Compatibility

CE, C-Tick, and FCC Part 15 (Class A) Compliant
Emissions ..... EN 55011 Class A at 10 m FCC Part 15A above 1 GHz
Immunity ..... EN 61326:1997 + A2:2001, Table 1

For EMC compliance, operate this device with shielded cabling.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE Marking, as follows:
Low-Voltage Directive (safety) 73/23/EEC

Electromagnetic Compatibility
- Directive (EMC) 89/336/EEC

Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit ***ni.com/hardref.nsf/*** and search by model number or product line.

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