

NI PXI-2501 Specifications

24-Channel FET Multiplexer/Matrix

This document lists specifications for the NI PXI-2501 multiplexer/matrix module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

Configurations.....	48 × 1, 1-wire multiplexer
	24 × 1, 2-wire multiplexer
	Dual 12 × 1, 2-wire multiplexers
	Quad 6 × 1, 2-wire multiplexers
	12 × 1, 4-wire multiplexer
	4 × 6, 2-wire matrix



Note The 48 × 1, 1-wire and the 24 × 1, 2-wire multiplexer configurations can enable a unity gain amplifier to reduce FET settling time. Refer to the *NI Switches Help* for more information.

Input Characteristics

All input characteristics are DC, AC_{rms} , or a combination, unless otherwise specified.

Maximum switching voltage..... ±10 VDC, 7 VAC
(channel-to-ground)

Overvoltage protection

Signals CH<0..23>, COM<0..3>

Powered on or off ±25 VDC

Signals AB<0..1>

Powered on ±25 VDC

Powered off..... ±15 VDC

FET switch on resistance	
Typical	50 Ω
Maximum at 25 °C	85 Ω
Maximum at 85 °C	100 Ω
Total path resistance	
Channel-to-analog bus	
Typical.....	1,650 Ω
Maximum	1,900 Ω
Channel-to-COM	
Typical.....	1,900 Ω
Maximum	2,150 Ω
Offset voltage	
Channel amplifier (differential).....	≤ 1.2 mV
Cold-junction sensor	
channel amplifier	≤ 60 μ V

RF Performance Characteristics

Typical bandwidth (50 W source, 1 MW 25 pF load)	
-3 dB	400 kHz
-10 dB	1 MHz

Dynamic Characteristics

Typical scan speed.....	25,000 cycles/s
Settling time (+5 V to -5 V step), measured with a 6-inch AB connector to a PXI multifunction DAQ device	
0.012% accuracy	
With amplifier	8.5 μ s
Without amplifier	9.0 μ s
0.006% accuracy	
With amplifier	10 μ s
Without amplifier	11.5 μ s
0.0015% accuracy	
With amplifier	16 μ s
Without amplifier	18 μ s

Settling time (+5 V to -5 V step), measured with a 3-meter cable to a PXI multifunction DAQ device

0.012% accuracy

With amplifier..... 21 μ s

Without amplifier 45 μ s

0.006% accuracy

With amplifier..... 30 μ s

Without amplifier 60 μ s

0.0015% accuracy

With amplifier..... 80 μ s

Without amplifier 160 μ s



Note Settling time is greatly affected by the external wiring to the switch. You can improve the settling time by minimizing the wiring from the analog bus connection to the measurement device.

Trigger Characteristics

Input trigger

Sources..... PXI trigger lines 0–7,
Front panel

Minimum pulse width

PXI trigger lines..... 70 ns

Front panel..... 500 ns

Output trigger

Destinations PXI trigger lines 0–7,
Front panel

Pulse width..... 1 μ s

Power requirements

+5 VDC..... 300 mA, typical

+12 VDC..... 30 mA, typical

-12 VDC..... 30 mA, typical

Physical Characteristics

Relay type FET switch

I/O connector..... 68-pin male SCSI

Dimensions (W × H × D).....2.0 cm × 10.0 cm × 16.3 cm
 (0.8 in. × 3.9 in. × 6.4 in.)

Weight175 g
 (6.5 oz)

Environment

Operating temperature0 °C to 50 °C

Storage temperature–20 °C to 70 °C

Relative humidity5% to 85% noncondensing

Pollution Degree2

Approved at altitudes up to 2,000 m

Indoor use only

Accessories

Visit ni.com for more information about the following accessories.

Table 1. Accessories Available for the NI PXI-2501

Accessory	Part Number
NI TB-2605 terminal block (48 × 1, 1-wire multiplexer) (24 × 1, 2-wire multiplexer) (12 × 1, 4-wire multiplexer)	777878-01
NI TB-2606 terminal block (4 × 6, 2-wire matrix)	777879-01
TBX-68S terminal block with cold-junction sensor	777716-01
CB-68LB screw terminal block	777145-01
1 m SH68-68S shielded cable	185262-01
2 m SH68-68S shielded cable	185262-02
5 m SH68-68S shielded cable	185262-05

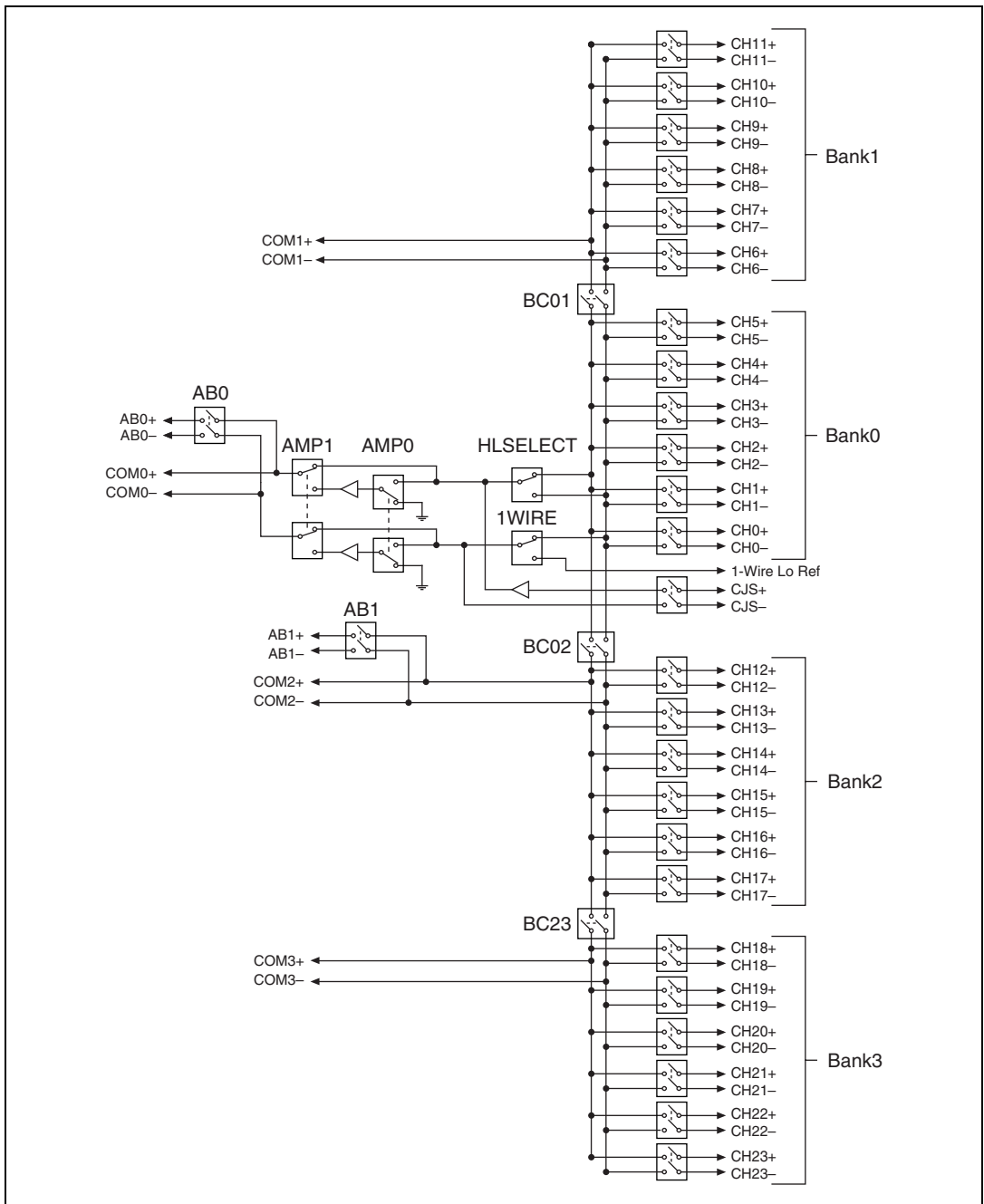


Figure 1. NI PXI-2501 Hardware Diagram

Compliance and Certifications

Safety

This product meets the requirements of the following standards for safety and electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 3111-1, UL 61010B-1
- CAN/CSA C22.2 No. 1010.1



Note For UL and other safety certifications, refer to the product label, or visit ni.com/hardref.nsf, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

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



Note For EMC compliance, you *must* 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



Note 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, search by model number or product line, and click the appropriate link in the Certification column.

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