

NI PXI-2503 Specifications

24-Channel Relay Multiplexer/Matrix

This document lists specifications for the NI PXI-2503 multiplexer/matrix module. All specifications are subject to change without notice. Visit ni.com/manuals for the most current specifications.

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

Input Characteristics

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

Maximum switching voltage 30 VAC, 60 VDC
(channel-to-channel and channel-to-ground)

Maximum switching current 1 A
(per channel)

Maximum carry current 1 A
(per channel)

Maximum switching power 30 W
(per channel)



Caution The switching power is limited by the maximum switching current and the maximum voltage. Switching power must not exceed 30 W (37.5 VA) per channel.

DC path resistance

Initial <1 Ω

End of life >2 Ω

Path resistance is a combination of relay contact resistance and trace resistance. Contact resistance typically remains low for the life of a relay. At the end of relay life, the contact resistance rapidly rises above 1.0 Ω .

Thermal EMF (differential) <2 μ V

RF Performance Characteristics

Typical bandwidth \geq 10 MHz
(50 Ω termination)

Typical channel-to-channel isolation
(50 Ω termination)

10 kHz >100 dB

100 kHz >80 dB

1 MHz >55 dB

10 MHz >30 dB

Dynamic Characteristics

Maximum scan rate 100 channels/s, typical

Relay operate time (at 20 °C) 3 ms typical,
5 ms maximum



Note Certain applications may require additional time for proper settling. For information about including additional settling time, refer to the *NI Switches Help*.

Release time (at 20 °C) 1.5 ms typical,
5 ms maximum

Expected relay life

Mechanical 5×10^7 cycles

Electrical 2×10^5 cycles
(maximum load)

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

Physical Characteristics

Relay type.....	Electromechanical, nonlatching
I/O connector.....	68-pin male SCSI
Power requirement	
+5 VDC.....	370 mA typical, 700 mA maximum
Contact material	Gold-clad silver alloy
Dimensions (L \times W \times H).....	3U, one slot, PXI/cPCI module 21.6 \times 2.0 \times 13.0 cm (8.5 \times 0.8 \times 5.1 in.)
Weight	250 g (9 oz)

Environment

Operating temperature.....	0 $^{\circ}$ C to 50 $^{\circ}$ C
Storage temperature.....	–20 $^{\circ}$ C to 70 $^{\circ}$ C
Relative humidity	5% to 85% noncondensing
Pollution Degree.....	2
Maximum altitude	2,000 m
Indoor use only	

Shock and Vibration

Operational shock.....	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC-60068-2-27. Test profile developed in accordance with MIL-PRF-28800F.)
Random vibration	
Operating	5 to 500 Hz, 0.3 g_{rms}
Nonoperating	5 to 500 Hz, 2.4 g_{rms} (Tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Accessories

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



Caution You *must* install mating connectors according to local safety codes and standards and according to the specifications provided by the connector manufacturer. You are responsible for verifying safety compliance of third-party connectors and their usage according to the relevant standard(s), including UL and CSA in North America and IEC and VDE in Europe.

Table 1. NI Accessories Available for the NI PXI-2503

Accessory	Part Number
NI TB-2605 multiplexing terminal block and analog bus plug kit (1-wire 48 \times 1 multiplexer) (2-wire 24 \times 1 multiplexer) (2-wire dual 12 \times 1 multiplexers) (2-wire quad 6 \times 1 multiplexers) (4-wire 12 \times 1 multiplexer)	777878-01
NI TB-2606 matrix terminal block and analog bus plug kit (2-wire 4 \times 6 matrix)	777879-01
TBX-68S terminal block with cold-junction sensor	777716-01
CB-68LP 68-pin digital and trigger I/O terminal block	777145-01
SH68-68S shielded cable, 1 m	185262-01
SH68-68S shielded cable, 2 m	185262-02
SH68-68S shielded cable, 5 m	185262-05

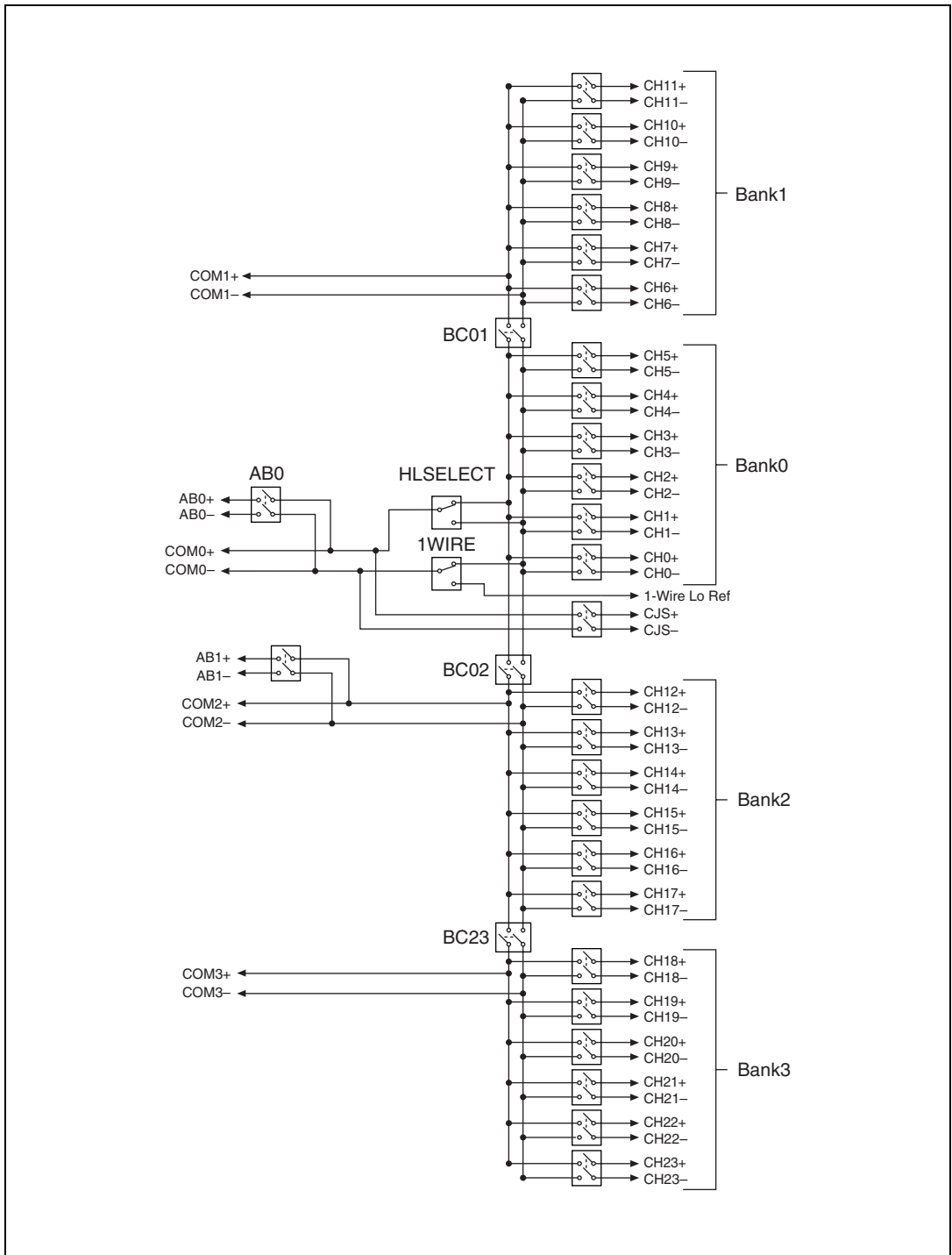


Figure 1. NI PXI-2503 Power-On State

Compliance and Certifications

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 61010-1, CSA 61010-1



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

Electromagnetic Compatibility

This product is designed to meet the requirements of the following standards of EMC for electrical equipment for measurement, control, and laboratory use:

- EN 61326 EMC requirements; Minimum Immunity
- EN 55011 Emissions; Group 1, Class A
- CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A



Note For EMC compliance, operate this device according to product documentation.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 73/23/EEC; Low-Voltage Directive (safety)
- 89/336/EEC; Electromagnetic Compatibility Directive (EMC)



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

Waste Electrical and Electronic Equipment (WEEE)



EU Customers At the end of their life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit ni.com/environment/weee.htm.

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