SPECIFICATIONS

NI SCXI-1129

256-Crosspoint Relay Matrix

This document lists specifications for the NI SCXI-1129 matrix module. All specifications are subject to change without notice.

Topologies	2-wire 16 × 16 matrix 2-wire 4 × 64 matrix 2-wire 8 × 32 matrix 2-wire quad 4 × 16 matrix 2-wire dual 4 × 32 matrix 2-wire dual 8 × 16 matrix

Caution The protection provided by the NI SCXI-1129 can be impaired if it is used in a manner not described in this document.

Input Characteristics

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

Maximum switching voltage	150 V, CAT I (channel-to-channel and channel-to-earth)

Caution This module is rated for Measurement Category I and intended to carry signal voltages no greater than 150 V. This module can withstand up to 800 V impulse voltage. Do not use this module for connection to signals or for measurements within Categories II, III, or IV. Do not connect to MAINS supply circuits (for example, wall outlets) of 115 or 230 VAC. Refer to the *Read Me First: Safety and Electromagnetic Compatibility* document for more information on measurement categories.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.

NATIONAL INSTRUMENTS

Caution Do not connect the NI SCXI-1129 with DSUB to signals or use for measurements within Measurement Categories II, III, or IV.

Note Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Caution When hazardous voltages (>42.4 V_{pk}/60 VDC) are present on any relay terminal, safety low-voltage (≤42.4 V_{pk}/60 VDC) cannot be connected to any other relay terminal.

Caution Modules that can connect to a common high-voltage analog backplane derate to their lowest common voltage rating. Refer to the *NI Switches Getting Started Guide for NI SCXI Switch Modules* for more information.

Caution The maximum switching power is limited by the maximum switching current, the maximum voltage, and must not exceed 30 W, 37.5 VA.

Maximum switching power (per channel)	30 W, 37.5 VA
Maximum switching current (per channel)	1 A
Maximum carry current (per channel)	2 A
Maximum module current	5 A

Caution Switching inductive loads (for example, motors and solenoids) can produce high voltage transients in excess of the module's rated voltage. Without additional protection, these transients can interfere with module operation and impact relay life. For more information about transient suppression, visit `ni.com/info` and enter the Info Code `induct`.

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	<9 µV

RF Performance Characteristics

Typical channel-to-channel isolation (50 Ω termination)	
10 kHz	>80 dB
100 kHz	>65 dB
1 MHz	>50 dB

Dynamic Characteristics

Relay operate time (at 20 °C)	4 ms maximum[1]
Release time (at 20 °C)	4 ms maximum
Maximum scan rate	100 crosspoints/s
Expected relay life	
Mechanical	5×10^7 cycles
Electrical	1×10^5 cycles (maximum load)

Note The relays used in the NI SCXI-1129 are field replaceable. Refer to the *NI Switches Help* for information about replacing a failed relay.

Trigger Characteristics

Input trigger	
Sources	SCXI trigger lines 0-7 Rear connector Front panel
Minimum pulse width	150 ns
Output trigger	
Destinations	SCXI trigger lines 0-7 Front panel
Pulse width	1 µs

[1] Certain applications may require additional time for proper settling. Refer to the *NI Switches Help* for information about including additional settling time.

Physical Characteristics

Relay types	Electromechanical, latching and nonlatching
Relay contact material	Gold/gold-clad silver
Power requirement, including optional internal drive power	6.3 W at ±18.5 V 200 mW at 5 V
Dimensions (L × W × H)	19.8 × 3.0 × 17.3 cm (7.8 × 1.2 × 6.8 in.)
Weight	725 g (1 lb 10 oz)

Environment

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Ambient temperature range	0 °C to 55 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2. Meets MIL-PRF-28800F Class 3 low temperature limit and MIL-PRF-28800F Class 2 high temperature limit.)
Relative humidity range	10% to 90%, noncondensing (Tested in accordance with IEC 60068-2-56.)

Storage Environment

Ambient temperature range	-40 °C to 71 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2. Meets MIL-PRF-28800F Class 3 limits.)
Relative humidity range	5% to 95%, noncondensing (Tested in accordance with IEC 60068-2-56.)

Shock and Vibration

Operating shock	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC 60068-2-27. Meets MIL-PRF-28800F Class 2 limits.)

Random vibration	
Operating	5 Hz to 500 Hz, 0.3 g_{rms} (Tested in accordance with IEC 60068-2-64.)
Nonoperating	5 Hz to 500 Hz, 2.4 g_{rms} (Tested in accordance with IEC 60068-2-64. Test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Compliance and Certifications

Safety

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

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

Note For UL and other safety certifications, refer to the product label or the *Online Product Certification* section.

Electromagnetic Compatibility

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

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.

Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

Note For EMC declarations, certifications, and additional information, refer to the *Online Product Certification* section.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and 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.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at *ni.com/environment*. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit *ni.com/environment/weee*.

电子信息产品污染控制管理办法（中国 RoHS）

中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令(RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

Reference

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

Table 1. Accessories Available for the NI SCXI-1129

Accessory	Part Number
NI SCXI-1333 terminal block (quad 4 × 16, 2-wire matrix)	777687-33
NI SCXI-1334 terminal block (4 × 64, 2-wire matrix)	777687-34
NI SCXI-1335 terminal block (8 × 32, 2-wire matrix)	777687-35
NI SCXI-1336 terminal block (16 × 16, 2-wire matrix) (dual 8 × 16, 2-wire matrix)	777687-36
NI SCXI-1337 terminal block (dual 4 × 32, 2-wire matrix)	777687-37
NI SCXI-1339 terminal block	777687-39
Matrix expansion plug	778364-01
0.40 m matrix expansion cable	185440-0R4
0.75 m matrix expansion cable	185440-0R75

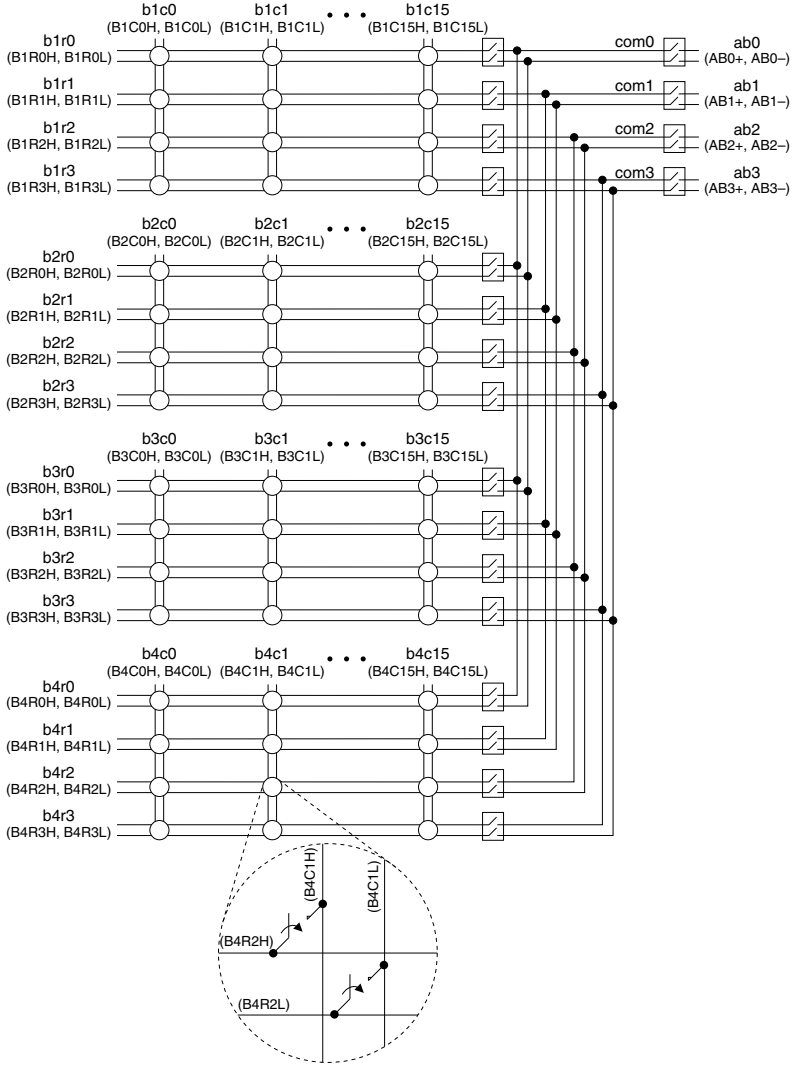
Caution You must install mating connectors according to local safety codes and standards and according to the specifications provided by the connector manufacturer. You are responsible for verifying safety compliance of third-party connectors and their usage according to the relevant standard(s), including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

Accessory	Manufacturer	Part Number
180-pin HDI mating front panel connector, right-angle[2]	AMP	532903-6
180-pin HDI connector key and ears	AMP	530341-7

[2] PCB mount, additional cover or enclosure required. See previous safety caution.

Topology

Figure 1. NI SCXI-1129 Quad 2-Wire 4 × 16 Matrix Topology



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