NI SCXI™-1130 Specifications

256-Channel Reed Relay Multiplexer/Matrix

This document lists specifications for the NI SCXI-1130 multiplexer/matrix module. All specifications are subject to change without notice. Visit `ni.com/manuals` for the most current specifications.

Configurations.. 256x1 1-wire multiplexer
128x1 2-wire multiplexer
64x1 4-wire multiplexer
4x64 1-wire matrix
8x32 1-wire matrix
4x32 2-wire matrix

Note The NI SCXI-1130 has 16 interconnected banks of 16x1, 1-wire multiplexers. These can be used in any combination with the Independent topology.

Input Characteristics

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

Maximum switching voltage.................. 60 VDC, 30 VAC_{rms}, CAT I
(channel-to-channel and channel-to-ground)

Maximum current................................... 0.4 A
(per terminal or internal path)

Maximum switching power .... 10 W
(per channel, resistive)

Typical DC path resistance
(channel-to-common)

     Initial ....<2 Ω

     End of life ....≥3 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 may rise rapidly above 1 Ω.

Typical thermal EMF ....<50 μV
(1-wire configuration, channel-to-common)

RF Performance Characteristics

Typical bandwidth
(50 Ω system, 1-wire configuration referenced to 1WREF)

     16x1 ....>15 MHz

     256x1 ....>3 MHz

Typical channel-to-channel isolation
(50 Ω system, 1-wire configuration referenced to 1WREF)

     200 kHz ....>60 dB

     1 MHz..>40 dB

Dynamic Characteristics

Maximum scan rate ....900 channels/s

Simultaneous drive limit.........................64 relays

Typical relay life

     Mechanical ....1,000,000,000 cycles

     Electrical (resistive)

          10 V, 100 mA ....100,000,000 cycles

          25 V, 400 mA ....5,000,000 cycles

          60 V, 160 mA ....1,000,000 cycles

Note Reed relays are highly susceptible to damage from in-rush currents. Switching capacitive loads without resistive or inductive protection may weld the relay contacts in less than 1,000,000 cycles.

Trigger Characteristics

Input trigger

    Sources .... SCXI trigger lines 0–7,
                                                   Front panel,
                                                   Rear connector

    Minimum pulse width .... 150 ns

    Front panel input voltage

        Absolute minimum .... –0.5 V

        Absolute maximum .... +5.5 V

        V_{IL} maximum .... +0.7 V

        V_{IH} minimum .... +2.0 V

        Nominal .... +3.3 V

Output trigger

    Destinations .... SCXI trigger lines 0–7,
                                                     Front panel,
                                                   Rear connector

    Pulse width .... Programmable (1 μs to 62 μs)

    Front panel nominal voltage .... +3.3 V TTL, 8 mA

Physical Characteristics

    Relay types .... Reed

    Contact material .... Rhodium

    Front panel connectors .... Two 176-pin docking station
                                                           plugs

    SCXI power requirement

        +5 VDC .... 50 mA

        +18.5 VDC to +25 VDC .... 170 mA

        –18.5 VDC to –25 VDC .... 170 mA

    Dimensions ($W \times H \times D$) .... 3.0 cm $\times$ 17.3 cm $\times$ 19.8 cm
                                                        (1.2 in. $\times$ 6.7 in. $\times$ 7.8 in.)

    Weight .... 1,020 g
                                                        (2 lb 4 oz)

Environment

Operating temperature ....0 °C to 55 °C

Storage temperature ....–20 °C to 70 °C

Relative humidity ....5% to 85% noncondensing

Pollution Degree 2
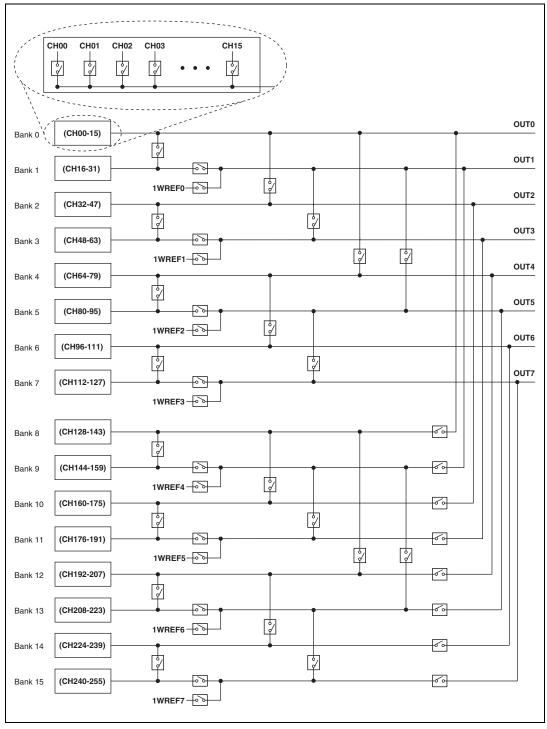
Approved at altitudes up to 2,000 m.

Indoor use only.

Accessories

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

Table 1. Accessories Available for the NI SCXI-1130

Accessory	Part Number
NI SCXI-1377 Terminal Block (multiplexer)	778716-01
NI SCXI-1378 Terminal Block (4x64 1-wire matrix, 4x32 2-wire matrix)	778731-01
NI SCXI-1379 Terminal Block (8x32 1-wire matrix)	778732-01

Table 2. Third-Party Accessories for the NI SCXI-1130

Accessory	Manufacturer	Manufacturer Part Number
Mating front panel connector, right-angle	Molex	52755-1760

Figure 1. NI SCXI-1130 Power On State (All Relays Open)

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 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

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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