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**PCI-8513-2**

## SPECIFICATIONS

# PCI-8513

## 1- or 2-Port, Software-Selectable/FD CAN Interface Device

This document lists specifications for the PCI-8513 1-port and 2-port software-selectable/FD CAN interface device.

## Definitions

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*Warranted* specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

*Characteristics* describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- *Typical* specifications describe the performance met by a majority of models.
- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are *Typical* unless otherwise noted.

## Conditions

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Specifications are typical at 0 °C to 55 °C unless otherwise noted.

## Power Requirements

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+5 VDC (±5%)	640 mA
+3.3 VDC (±5%)	940 mA

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## Physical

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### Dimensions and Weight

Dimensions	10.67 cm x 16.76 cm (4.2 in. x 6.6 in.)
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## Weight

1 port	98 g (3.5 oz.)
2 port	102 g (3.6 oz.)

## RTSI/Front Panel Sync Connectors

Trigger lines	7 input/output
Clock lines	1 input/output
Front panel sync connectors	2 input/output
I/O compatibility	TTL
Power-on state	Input (High-Z)
Response	Rising edge triggers

## Physical Characteristics

### CAN Physical Layer

#### High-Speed CAN, Flexible Data Rate

Transceiver <sup>1</sup>	NXP TJA1041 or TJA1043
Max baud rate <sup>2</sup>	1 Mbps
Min baud rate	40 kbps
CAN_H, CAN_L bus lines voltage	-27 VDC to +40 VDC

#### Low-Speed/Fault-Tolerant CAN

Transceiver <sup>3</sup>	NXP TJA1054A or TJA1055T
Max baud rate	125 kbps
Min baud rate	40 kbps, 10 kbps min for all error modes

<sup>1</sup> PCI-8513 revision F and later use the TJA1043 transceiver for high-speed/FD CAN; previous hardware revisions use the TJA1041 transceiver. To identify your hardware revision, refer to the 19xxxx<rev>-4xL text on the green label in the top left corner on the secondary side of the board; <rev> indicates the hardware revision.

<sup>2</sup> The TJA1043 transceiver is CiA certified for baud rates up to 5 Mbps in the CAN FD fast phase, while speeds up to 8 Mbps are possible experimentally. NI-XNET provides a warning when a transceiver is used at higher baud rates than it is certified for. As new CiA-certified transceivers with higher baud rates are released, NI will continue to update the hardware with newer revisions.

<sup>3</sup> PCI-8513 revision E and later use the TJA1055T transceiver for low-speed/fault-tolerant CAN; previous hardware revisions use the TJA1054A transceiver. To identify your hardware revision, refer to the 19xxxx<rev>-4xL text on the green label in the top left corner on the secondary side of the board; <rev> indicates the hardware revision.

## Single Wire, Software-Selectable

Transceiver <sup>4</sup>	NXP AU5790 or ON Semiconductor NCV7356 (single wire),
Max baud rate	83.3 kbps
Min baud rate	33.3 kbps
Bus Power Required	8 V to 18 V

### External CAN Transceiver

The PCI-8513 allows you to connect an optional external transceiver. Refer to the *NI-XNET Hardware and Software Help* for more information about connecting an external CAN transceiver and configuring NI-XNET hardware to communicate with the custom transceiver.

## Environmental

### Operating Environment

Ambient temperature	0 °C to 55 °C
Relative humidity	10% to 90% RH, noncondensing
Maximum altitude	2,000 m (800 mbar) at 25 °C ambient temperature

Indoor use only.

### Storage Environment

Ambient temperature	-20 to 70 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)
Relative humidity	5 to 95% RH, noncondensing (Tested in accordance with IEC-60068-2-56.)
Pollution Degree (IEC 60664)	2

<sup>4</sup> PCI-8513 revision D and later use the ON Semiconductor NCV7356 single-wire transceiver; previous hardware revisions use the NXP AU5790 single-wire transceiver. To identify your hardware revision, refer to the 19xxx<rev>-4xL text on the green label in the top left corner on the secondary side of the board; <rev> indicates the hardware revision.

# Isolation Voltages

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## Port-to-port ground

Withstand	500 V <sub>rms</sub> verified by a 5 s dielectric withstand test
Continuous	60 VDC, Measurement Category I

## Port-to-earth ground

Withstand	500 V <sub>rms</sub> verified by a 5 s dielectric withstand test
Continuous	60 VDC, Measurement Category I



**Note** This isolation is intended to prevent ground loops.

Measurement Category I is for measurement 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.



**Caution** Do not connect the PCI-8513 to signals or use for measurements within Measurement Categories II, III, or IV.



**Attention** Ne connectez pas le PCI-8513 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure II, III ou IV.



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

## Safety Compliance Standards

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This device 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 device label or the [Product Certifications and Declarations](#) section.

# Electromagnetic Compatibility

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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** 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** 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.



**Notice** For EMC declarations and certifications, and additional information, refer to the [Product Certifications and Declarations](#) section.

## CE Compliance

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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)

## Product Certifications and Declarations

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Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit [ni.com/certification](https://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

# Environmental Management

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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](http://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](http://ni.com/environment/weee).

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