

NI 9381

NI 9381: 8 AI, 8 AO, 4 DIO, 0 V to 5 V, C Series Multifunction I/O Module

Physical Characteristics

Weight	145 g (5.1 oz)
Dimensions	Visit ni.com/dimensions and search by module number.
Connector type	DSUB

Environmental

Temperature	
Operating	-40 °C to 70 °C
Storage	-40 °C to 85 °C
Ingress protection	IP40
Humidity	
Operating	10% RH to 90% RH, noncondensing
Storage	5% RH to 95% RH, noncondensing
Pollution Degree	2
Maximum altitude	2,000 m

Indoor use only.

Hazardous Locations

Explosive atmospheres rating	Ex nA IIC T4 Gc
CCC certificate number	2021312310000312

Safety Guidelines

Operate the product only as described in this document.





Caution This icon denotes a caution, which advises you to consult documentation where this symbol is marked.



Caution Do not operate this product in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to NI for repair.

Safety Guidelines for Hazardous Locations

These products have been evaluated as Ex nA IIC T4 Gc equipment and are CCC certified. Each product is suitable for use within ambient temperatures of $-40\text{ }^{\circ}\text{C} \leq T_a \leq 70\text{ }^{\circ}\text{C}$ in either nonhazardous locations or Zone 2 hazardous locations. If you are using the products in Gas Group IIC hazardous locations, you must use the device in an NI chassis that has been evaluated as Ex nA IIC T4 Gc equipment.

Follow these guidelines if you are installing the product in a potentially explosive environment. Not following these guidelines may result in serious injury or death.



Caution Do not disconnect I/O-side wires or connectors unless power has been switched off or the area is known to be nonhazardous.



Caution Do not remove modules unless power has been switched off or the area is known to be nonhazardous.



Caution Substitution of components may impair suitability for Zone 2.



Caution Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value of 85 V at the supply terminals to the equipment.



Caution The system shall only be used in an area of not more than Pollution Degree 2, as defined in IEC/EN 60664-1.



Caution The system shall be mounted in a CCC-certified enclosure with a minimum ingress protection rating of at least IP54 as defined in GB3836.1.



Caution The enclosure must have a door or cover accessible only by the use of a tool.



Caution For Zone 2 applications, connected low impedance sources must include a protection device installed between the source and the AI and DIO terminals. The protection device must prevent the AI to ground voltage and DIO to ground voltage from exceeding 42 V if there is a transient overvoltage condition.

Safety Voltages

Analog input range	0 V to 5 V
Analog output range	0 V to 5 V, ± 1 mA
Digital input range	0.8 V to 5.2 V
Digital output range	0.2 V to 2.7 V, 100 μ A
Measurement category	I
Isolation	
Channel-to-channel	None
Channel-to-earth ground	None



Caution Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.

Installing C Series Modules

Verify that power is not connected to the I/O connector(s) on the C Series module.

Removing C Series Modules

Verify that power is not connected to the I/O connector(s) on the C Series module before you remove a module from the chassis.

Safety Compliance and Hazardous Locations Standards

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

- IEC 61010-1
- IEC 60079-0: Ed 6, IEC 60079-15: Ed 4
- GB3836.1, GB3836.8



Note For safety certifications, refer to the product label or the [Product Certifications and Declarations](#) section.

Product Certifications and Declarations

To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

Worldwide Support and Services

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504, USA.

Information is subject to change without notice. Refer to the *NI Trademarks and Logo Guidelines* at ni.com/trademarks for information on NI trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering NI products/technology, refer to the appropriate location: **Help»Patents** in your software, the `patents.txt` file on your media, or the *National Instruments Patent Notice* at ni.com/patents. You can find information about end-user license agreements (EULAs) and third-party legal notices in the `readme` file for your NI product. Refer to the *Export Compliance Information* at ni.com/legal/export-compliance for the NI global trade compliance policy and how to obtain relevant HTS codes, ECCNs, and other import/export data. NI MAKES NO EXPRESS OR IMPLIED WARRANTIES AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL NOT BE LIABLE FOR ANY ERRORS. U.S. Government Customers: The data contained in this manual was developed at private expense and is subject to the applicable limited rights and restricted data rights as set forth in FAR 52.227-14, DFAR 252.227-7014, and DFAR 252.227-7015.

© 2020 National Instruments Corporation. All rights reserved.

378428A-01 March 11, 2021