

# NI 9375

30 V DC, 16 DI/16 DO, 7  $\mu$ s Sinking DI, 500  $\mu$ s Sourcing DO  
C Series Digital Module

Read this document and the documents listed in the *Additional Resources* section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.



**Note** This document contains information for the push-in type NI 9375 with spring terminal model.



**Note** In this document, the NI 9375 with spring terminal and the NI 9375 with DSUB are referred to inclusively as the NI 9375. The information in this document applies to all versions of the NI 9375 unless otherwise specified.

## Icons

---



**Notice** Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.



**Caution** Take precautions to avoid injury. Consult the model documentation for cautionary statements when you see this icon printed on the model. Cautionary statements are localized into French for compliance with Canadian requirements.



**ESD Sensitive** Take precautions to avoid damaging the model with electrostatic discharge.

## Safety Caution


---




**Caution** Observe all instructions and cautions in the user documentation. Using the model in a manner not specified can damage the model and compromise the built-in safety protection. Return damaged models to NI for repair.




**Attention** Suivez toutes les instructions et respectez toutes les mises en garde de la documentation utilisateur. L'utilisation d'un modèle de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée. Renvoyez les modèles endommagés à NI pour réparation.

 **Caution** Do not install or remove C Series modules from your system if any external power supplies connected to the  $V_{sup}$  and COM pins are powered on.


 **Attention** Ne pas installer ou retirer les modules de la Série C de votre système si une alimentation externe connectée aux broches  $V_{sup}$  et COM est sous tension.


## Safety Guidelines for Hazardous Locations


Follow these guidelines if you are installing the device in a potentially explosive environment. The device has been evaluated as compliant with the ATEX directive and is IECEx certified. Each device is marked  II 3G and is suitable for use in Zone 2 hazardous locations, in ambient temperatures of  $-40^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$ . The device is suitable for use in non-hazardous locations and the following hazardous locations.


U.S. (UL)	Class I, Division 2, Groups A, B, C, D, T4; Class I, Zone 2, AEx nA IIC T4 Gc
Canada (C-UL)	Class I, Division 2, Groups A, B, C, D, T4; Ex nA IIC T4 Gc
Europe (ATEX) and International (IECEx)	Ex nA IIC T4 Gc; DEMKO 07 ATEX 0626664X; IECEx UL 14.0089X


## Cautions for Hazardous Locations


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


 **Attention** Ne déconnectez les fils d'alimentation, les fils côté E/S et les connecteurs de l'appareil que s'il est hors tension ou que vous savez que l'endroit n'est pas dangereux.


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


 **Attention** N'installer ou ne retirer l'appareil que s'il est hors tension ou s'il se trouve dans une zone non dangereuse.


 **Caution** Substitution of components may impair suitability for use in explosive atmospheres.


 **Attention** Si des composants sont substitués, le système risque de ne plus être conforme pour une utilisation dans une atmosphère explosive.


 **Caution** The equipment shall be installed in an enclosure that provides a degree of protection not less than IP54 in accordance with IEC/EN 60079-15.


 **Attention** L'équipement doit être installé dans un boîtier offrant un degré de protection IP54 minimum conformément à la norme IEC/EN 60079-15.


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

 **Attention** Le système ne doit être utilisé que dans des endroits ne dépassant pas le degré de pollution 2 défini dans la norme IEC/EN 60664-1.

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

 **Attention** La protection contre les phénomènes transitoires doit être fournie à un niveau ne dépassant pas 140 % de la valeur de la tension nominale de crête aux bornes d'alimentation de l'équipement.

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

 **Attention** Le coffret doit disposer d'une porte ou d'un couvercle accessible uniquement à l'aide d'un outil.

## NI 9375 Safety Voltages

Connect only voltages that are within the following limits:

Channel-to-COM or V<sub>sup</sub>-to-COM 30 V DC maximum

### Isolation

DI bank-to-DO bank	60 V DC maximum
Channel-to-Channel	No isolation between channels
Channel-to-earth ground	
Continuous	60 V DC, Measurement Category I
Withstand up to 3,000 m	1,000 V RMS, verified by a 5 s dielectric withstand test
Withstand up to 5,000 m	860 V RMS

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.



**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** Do not connect the NI 9375 to signals or use for measurements within Measurement Categories II, III, or IV.



**Attention** Ne connectez pas le NI 9375 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure II, III ou IV.

## 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, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1
- EN 60079-0: Ed 5, EN 60079-15: Ed 4
- IEC 60079-0: Ed 6, IEC 60079-15: Ed 4
- UL 60079-0; Ed 6, UL 60079-15; Ed 4
- CSA C22.2 No. 60079-0, CSA C22.2 No. 60079-15



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

## EMC Guidelines

---






This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) stated in the product specifications. These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by NI could void your authority to operate it under your local regulatory rules.


## EMC Notices

Refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified EMC performance.

-  **Notice** For EMC declarations and certifications, and additional information, refer to the *Product Certifications and Declarations* section.
-  **Notice** Changes or modifications to the product not expressly approved by NI could void your authority to operate the product under your local regulatory rules.
-  **Notice** The performance of the NI 9375 with spring terminal can be disrupted if subjected to Electrostatic Discharge (ESD) during operation. To prevent damage, industry-standard ESD prevention measures must be employed during installation, maintenance, and operation.
-  **Notice** Operate this product only with shielded cables and accessories.
-  **Notice** The length of all I/O cables must be no longer than 30 m (100 ft).

## Special Conditions for Marine Applications

Some models are approved for marine (shipboard) applications. To verify marine approval certification for a model, visit [ni.com/product-certifications](https://ni.com/product-certifications), search by model number, and click the appropriate link.

-  **Notice** In order to meet the EMC requirements for marine applications, install the model in a shielded enclosure with shielded and/or filtered power and input/output ports. In addition, take precautions when designing, selecting, and installing measurement probes and cables to ensure that the desired EMC performance is attained.

## Electromagnetic Compatibility Standards

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; Industrial immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, 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 Europe, Australia, and New Zealand (per CISPR 11) Class A equipment is intended for use in non-residential locations.

## Environmental Guidelines

---



**Notice** This model is intended for use in indoor applications only.



**Notice** To meet the shock and vibration specifications in this document, you must panel mount the system.

## Environmental Characteristics

### Temperature and Humidity

---

#### Temperature

---

Operating	-40 °C to 70 °C
-----------	-----------------

---

Storage	-40 °C to 85 °C
---------	-----------------

---

#### Humidity

---

Operating	10% RH to 90% RH, noncondensing
-----------	---------------------------------

---

Storage	5% RH to 95% RH, noncondensing
---------	--------------------------------

---

Ingress protection	IP40
Pollution Degree	2
Maximum altitude	5,000 m

## Shock and Vibration


Operating vibration	
Random	5 g RMS, 10 Hz to 500 Hz
Sinusoidal	5 g, 10 Hz to 500 Hz
Operating shock	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations

## 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 *Commitment to the Environment* web page at [ni.com/environment](https://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](https://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](https://ni.com/environment/rohs_china)。(For information about China RoHS compliance, go to [ni.com/environment/rohs\\_china](https://ni.com/environment/rohs_china).)

## Environmental Standards

This product meets the requirements of the following environmental standards for electrical equipment.

- IEC 60068-2-1 Cold
- IEC 60068-2-2 Dry heat
- IEC 60068-2-30 Damp heat cyclic (12 + 12h cycle)
- IEC 60068-2-64 Random operating vibration
- IEC 60068-2-6 Sinusoidal operating vibration
- IEC 60068-2-27 Operating shock



**Note** To verify marine approval certification for a product, refer to the product label or visit [ni.com/certification](https://ni.com/certification) and search for the certificate.

## Power Requirements

---

### Power consumption from chassis

Active mode	450 mW maximum
Sleep mode	25 $\mu$ W maximum

### Thermal dissipation (at 70 °C)

Active mode	1.5 W maximum
Sleep mode	0.6 W maximum

## Physical Characteristics

---

### Spring terminal wiring

Gauge	0.14 mm <sup>2</sup> to 1.5 mm <sup>2</sup> (26 AWG to 16 AWG) copper conductor wire
Wire strip length	10 mm (0.394 in.) of insulation stripped from the end



Temperature rating	90 °C, minimum
Wires per spring terminal	One wire per spring terminal; two wires per spring terminal using a 2-wire ferrule
Ferrules	
Single ferrule, uninsulated	0.13 mm <sup>2</sup> to 1.5 mm <sup>2</sup> (26 AWG to 16 AWG) 10 mm barrel length
Single ferrule, insulated	0.13 mm <sup>2</sup> to 1.0 mm <sup>2</sup> (26 AWG to 18 AWG) 12 mm barrel length
Two-wire ferrule, insulated	2x 0.34 mm <sup>2</sup> (2x 22 AWG) 12 mm barrel length
Connector securement	
Securement type	Screw flanges provided
Torque for screw flanges	0.2 N · m (1.80 lb · in.)
Weight	
NI 9375 with spring terminal	164 g (5.8 oz)
NI 9375 with DSUB	148 g (5.3 oz)



**Tip** For two-dimensional drawings and three-dimensional models of the C Series module and connectors, visit [ni.com/dimensions](https://ni.com/dimensions) and search by module number.

## Maintenance

If you need to clean your device, wipe it with a dry towel.

## CE Compliance

---

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

- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)
- 2014/34/EU; Potentially Explosive Atmospheres (ATEX)

## Export Compliance

---

This model is subject to control under the U.S. Export Administration Regulations (15 CFR Part 730 et. seq.) administered by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) ([www.bis.doc.gov](http://www.bis.doc.gov)) and other applicable U.S. export control laws and sanctions regulations. This model may also be subject to additional license requirements of other countries' regulations.

Additionally, this model may also require export licensing before being returned to NI. The issuance of a Return Material Authorization (RMA) by NI does not constitute export authorization. The user must comply with all applicable export laws prior to exporting or re-exporting this model. See [ni.com/legal/export-compliance](http://ni.com/legal/export-compliance) for more information and to request relevant import classification codes (e.g. HTS), export classification codes (e.g. ECCN), and other import/export data.

## Product Certifications and Declarations

---

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/product-certifications](http://ni.com/product-certifications), search by model number, and click the appropriate link.

## Additional Resources

---

Visit [ni.com/manuals](http://ni.com/manuals) for more information about your model, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

## Worldwide Support and Services

---

The NI website is your complete resource for technical support. At [ni.com/support](http://ni.com/support), you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

Visit [ni.com/services](https://ni.com/services) for information about the services NI offers.

Visit [ni.com/register](https://ni.com/register) to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. NI also has offices located around the world. For support in the United States, create your service request at [ni.com/support](https://ni.com/support) or dial 1 866 ASK MYNI (275 6964). For support outside the United States, visit the *Worldwide Offices* section of [ni.com/global](https://ni.com/global) to access the branch office websites, which provide up-to-date contact information.

Information is subject to change without notice. Refer to the *NI Trademarks and Logo Guidelines* at [ni.com/trademarks](http://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](http://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](http://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. All rights reserved.

378290A-01 March 6, 2020