

## SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION


# SH68M-4IXBF DIO DIFF Cable Safety, Environmental, and Regulatory Information


## SH68M-4IXBF Differential Digital I/O Cable

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


## Icons


Refer to the following descriptions if one of these icons is marked on your product or used in this guide.


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

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

## Safety Guidelines

 **Caution** Observe all instructions and cautions in the user documentation. Using the product in a manner not specified can damage the product and compromise the built-in safety protection.

 **Attention** Suivez toutes les instructions et respectez toutes les mises en garde de la documentation d'utilisation. L'utilisation du produit de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée.

 **Caution** This product is intended for use within an enclosed cabinet, or use within cable tray or other protection in accordance to local codes such as the NFPA 70 (NEC), CSA C22.1 (CEC), or IEC 60364-1.


 **Attention** Ce produit est destiné à être utilisé dans une armoire fermée, ou dans un chemin de câbles ou un autre type de protection, conformément aux réglementations locales telles que NFPA 70 (NEC), CSA C22.1 (CEC) ou IEC 60364-1.


## Safety Current and Voltage Limits


Maximum working current and voltage


0.3 A per contact, 30 V DC


*Maximum working voltage* refers to the signal voltage plus the common-mode voltage, and applies to both channel-to-channel and channel-to-earth.


 **Caution** Do not supply hazardous voltages ( $>30 V_{\text{RMS}} / 42 V_{\text{peak}} / 60 V_{\text{dc}}$ ) to the cable.

 **Attention** Ne pas alimenter le câble avec des tensions dangereuses ( $> 30 V_{\text{eff}} / 42 V_{\text{pic}} / 60 V_{\text{cc}}$ ).

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

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

 **Caution** Source must be limited to not exceed rated maximum current and voltage.

 **Attention** La source doit être limitée de manière à ne pas dépasser le courant nominal maximal, ni la tension nominale maximale.

This product is rated for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS.


MAINS is a hazardous live electrical supply system to which equipment is designed to be connected to for the purpose of powering equipment. This product is rated 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.




# Safety Compliance 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

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

## Environmental Guidelines

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

 **Notice** All cabling should be strain-relieved near input connectors. Take care not to directionally bias cable connectors within input connectors when applying strain relief.


## Environmental Characteristics

Temperature	
Operating	0 °C to 55 °C
Storage	-40 °C to 85 °C
Humidity	
Operating	10% RH to 90% RH, noncondensing
Storage	5% RH to 95% RH, noncondensing
Pollution Degree	2
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient)
Shock and Vibration	
Operating vibration	5 Hz to 500 Hz, 0.3 g RMS
Non-operating vibration	5 Hz to 500 Hz, 2.4 g RMS
Operating shock	30 g, half-sine, 11 ms pulse

## 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 60068-2-78 Damp heat (steady state)
- IEC 60068-2-64 Random 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.

## Physical Characteristics

### Length and Weight

**Length** The dash number (-XX) in the NI part number indicates the cable length in meters, e.g. -01 is 1 m, -02 is 2m, while an "R" indicates a decimal point, e.g. -0R5 is 0.5m, -1R3 is 1.3 m.

<b>Weight</b>	
Base	52.3 g (1.84 oz)
Linear density	261.9 g (9.24 oz) per meter
Total	Base + linear density * cable length

### Connectors

P1 to P4	10-position IX Industrial Plug, Type B
P5	68-position VHDCI Plug

## Export Compliance

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This product 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 product may also be subject to additional license requirements of other countries' regulations.

Additionally, this product 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 product. 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.


## 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 *Commitment to the Environment* 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).

## 电子信息产品污染控制管理办法（中国 RoHS）



NI 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 NI 中国 RoHS 合规性信息，请登录 [ni.com/environment/rohs\\_china](http://ni.com/environment/rohs_china)。(For information about China RoHS compliance, go to [ni.com/environment/rohs\\_china](http://ni.com/environment/rohs_china).)

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

## NI Services

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Visit [ni.com/support](http://ni.com/support) to find support resources including documentation, downloads, and troubleshooting and application development self-help such as tutorials and examples.

Visit [ni.com/services](http://ni.com/services) to learn about NI service offerings such as calibration options, repair, and replacement.

Visit [ni.com/register](http://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 N Mopac Expwy, Austin, TX, 78759-3504, USA.

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