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PXIe-5653





SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

PXIe-5653







8.3 GHz PXI RF Analog Signal Generator

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.

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.
-  **Hot Surface** Take precautions to avoid physical burns.
-  **ESD Sensitive** Take precautions to avoid damaging the model with electrostatic discharge.

Safety




-  **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** All wiring must be insulated for the highest voltage used.
-  **Attention** Tout le câblage doit être isolé pour la plus haute tension utilisée.
-  **Caution** If the device has been in use, it may exceed safe handling temperatures and cause burns. Allow the device to cool before removing it from the chassis.
-  **Attention** Si l'appareil a été utilisé, il peut avoir atteint des températures trop élevées pour être manipulé en toute sécurité, ce qui peut provoquer des brûlures. Laissez l'appareil refroidir avant de le retirer du châssis.

Safety Voltages

Connect only voltages that are below these limits.

Maximum input voltage	5 V pk-pk
Maximum output voltage	
REF OUT 10 MHz	1.5 V pk-pk into 50 Ω
REF OUT 100 MHz	1.5 V pk-pk into 50 Ω
LO3 OUT	2.5 V pk-pk into 50 Ω
LO2 OUT	2.0 V pk-pk into 50 Ω
LO1 OUT	2.4 V pk-pk into 50 Ω


Measurement Category I/O

-  **Caution** Do not connect the PXIe-5653 to signals or use for measurements within Measurement Categories II, III, or IV.
-  **Attention** Ne connectez pas le PXIe-5653 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 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.

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 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 or commercial 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.

General EMC Notices


 **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.

Shielded Cable Notices

 **Notice** Operate this product only with shielded cables and accessories.


Cable Length Notices


 **Notice** Operate this product only with cables less than 3 m in length.

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; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-003: 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.

Environmental Guidelines

 **Notice** This model 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.

 **Notice** Failure to follow the mounting instructions in the device documentation can cause temperature derating.

Environmental Characteristics

Temperature and Humidity

Temperature	
Operating	0 °C to 55 °C
Storage	-41 °C to 71 °C
Humidity	
Operating	10% to 90%, noncondensing
Storage	5% to 95%, noncondensing
Pollution Degree	2
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Shock and Vibration	
Random vibration	
Operating	5 Hz to 500 Hz, 0.3 g RMS
Non-operating	5 Hz to 500 Hz, 2.4 g RMS
Operating shock	30 g, half-sine, 11 ms pulse

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. 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.


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。(For information about China RoHS compliance, go to 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 60068-2-56 Damp heat (steady state)
- IEC 60068-2-64 Random operating vibration
- IEC 60068-2-27 Operating shock
- MIL-PRF-28800F
 - Low temperature limits for operation Class 3, for storage Class 3
 - High temperature limits for operation Class 2, for storage Class 3
 - Random vibration for non-operating Class 3
 - Shock for operating Class 2

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

Power Requirements

+3.3 V	1.10 A (3.63 W)
+12 V	4.00 A (48.00 W)
Maximum total power	51.63 W

Physical Characteristics

Dimensions	3U, two slot, PXI Express module 21.6 cm × 4.0 cm × 13.0 cm (8.5 in. × 1.6 in. × 5.1 in.)
Weight	1,076 g (37.8 oz)

Maintenance

Clean the hardware with a soft, nonmetallic brush. Make sure that the hardware is completely dry and free from contaminants before returning it to service.

CE Compliance

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

- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

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) 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 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, search by model number, and click the appropriate link.

Additional Resources

Visit 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, 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 for information about the services NI offers.

Visit 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 or dial 1 866 ASK MYNI (275 6964). For support outside the United States, visit the [Worldwide Offices](http://ni.com/niglobal) section of ni.com/niglobal to access the branch office websites, which provide up-to-date contact information.

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