

---

# ECUTS-16000

## Safety, Environmental, and Regulatory Information

---

04-2022

ECUTS-16000 Safety, Environmental, and Regulatory Information

## **24U ECU Test System**

# Contents

ECUTS-16000 Safety, Environmental, and Regulatory Information.....	3
Icons.....	3
Safety.....	3
EMC Guidelines.....	7
Environmental Guidelines.....	8
Protective Earthing.....	9
Power Requirements.....	9
Physical Characteristics.....	10
Export Compliance.....	11
Product Certifications and Declarations.....	11
Additional Resources.....	11
NI Services.....	11

# ECUTS-16000 Safety, Environmental, and Regulatory Information

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

Refer to individual component documentation for additional information.

## Icons

	<b>Notice</b> Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the product.
	<b>Caution</b> 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.
	<b>Shock Warning</b> Take precautions to avoid electrical shock.
	<b>Protective Conductor Terminal (PE)</b> Indicates a terminal that connects to accessible dead metal parts of the product. Connect the PE terminal(s) to an earth ground system (protective conductor) for safety.

## Safety



### 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. Contact your NI services personnel if your product is damaged.

### 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. Contactez le personnel des services techniques NI si votre produit est endommagé.



### CAUTION

All wiring must be insulated for the highest voltage used.

**CAUTION**

Tout le câblage doit être isolé pour la plus haute tension utilisée.

**CAUTION**

To prevent instability or tipping, do not lean on the 9025TR platform, keyboard tray, or interchangeable test adapter (ITA).

**CAUTION**

Pour éviter l'instabilité ou le basculement, ne vous appuyez pas sur la plate-forme 9025TR, le plateau du clavier ou l'adaptateur de test interchangeable (ITA).

**NOTE**

Ensure that maintenance is performed only by qualified personnel. Verify that all equipment is in a safe state after maintenance, prior to returning the product to operation.

## Safety Voltages

If hazardous voltages are connected to the product, take the following precautions. A hazardous voltage is a voltage greater than:

- 30 V RMS, 42.4 V peak, or 60 V DC in DRY LOCATIONS

Hazardous voltages may be applied to, or be present on, certain pins of the mass interconnect as follows:

- Observe SLSC-12251 and SLSC-12252 specification limits of 100 V peak channel-to-channel or channel-to-earth working voltage, and 920 V peak channel-to-earth transient overvoltage.
- Observe 100 V peak working voltage and 500 V peak overvoltage limits for some instruments when integrated into the ECUTS. Refer to the *ECUTS-16000 Specifications* for details.
- Hazardous voltage may be applied to some electronic load channels on J2. Load channels are isolated from each other, so hazardous voltage on one load channel does not imply that other load channels must be treated as hazardous.
- When hazardous voltage is present on any instrument pin on J3-J8, all pins connected to that instrument must be treated as hazardous.
- When hazardous voltage is present on any pin on J9, J10, or J16, all pins on that slot must be treated as hazardous.
- When hazardous voltage is present on any pin on J12 or J14, all pins on that slot and all corresponding J12-FIU or J14-FIU pins on J22 must be treated as hazardous.
- Hazardous voltage may be applied to some scope channels in J22. Scope channels have independent attenuators, so hazardous voltage on one channel does not imply that other channels must be treated as hazardous.

The voltage on other pins of the mass interconnect must remain non-hazardous.

**NOTE**

Refer to the *ECUTS-16000 Specifications* document for more information about system capabilities and limits.

**CAUTION**

Do not connect the ECUTS-16000 to signals or use for measurements within Measurement Categories II, III, or IV.

**ATTENTION**

Ne connectez pas le ECUTS-16000 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure II, III ou IV.

**CAUTION**

Ensure that hazardous voltage wiring is performed only by qualified personnel adhering to local electrical standards.

**ATTENTION**

S'assurer que le câblage à tension dangereuse est effectué par du personnel qualifié respectant les normes électriques locales.

**CAUTION**

Do not mix hazardous voltage circuits and non-hazardous voltage circuits on the same product, except as indicated above.

**ATTENTION**

Ne pas combiner des circuits à tension dangereuse et des circuits à tension non dangereuse sur le même produit, sauf dans les cas indiqués ci-dessus.

**CAUTION**

When product terminals are hazardous voltage LIVE, you must ensure that devices and circuits connected to the product are properly insulated from human contact.

**ATTENTION**

Lorsqu'une haute tension dangereuse est appliquée aux bornes du produit, vous devez vous assurer que les appareils et les circuits auxquels il est connecté sont correctement isolés de tout contact humain.

**CAUTION**

Do not exceed 40 A per terminal on the RMX-4005 module mass interconnect. Refer to the *RMX-400x Series User Manual and Specifications* document for details on proper connection methods.

**ATTENTION**

Ne pas dépasser 40 A par borne sur l'interconnexion de masse du module RMX-4005. Reportez-vous au document *RMX-400x Series User Manual and Specifications* pour plus de détails sur les méthodes de connexion appropriées.

## Measurement Category

### Measurement Category I

**CAUTION**

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

**ATTENTION**

Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour effectuer des mesures dans ces catégories.

**WARNING**

Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV, or for measurements on MAINS circuits or on circuits derived from Overvoltage Category II, III, or IV which may have transient overvoltages above what the product can withstand. The product must not be connected to circuits that have a maximum voltage above the continuous working voltage, relative to earth or to other channels, or this could damage and defeat the insulation. The product can only withstand transients up to the transient overvoltage rating without breakdown or damage to the insulation. An analysis of the working voltages, loop impedances, temporary overvoltages, and transient overvoltages in the system must be conducted prior to making measurements.

**MISE EN GARDE**

Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour des mesures dans ces catégories, ou des mesures sur secteur ou sur des circuits dérivés de surtensions de catégorie II, III ou IV pouvant présenter des surtensions transitoires supérieures à ce que le produit peut supporter. Le produit ne doit pas être raccordé à des circuits ayant une tension maximale supérieure à la tension de fonctionnement continu, par rapport à la terre ou à d'autres voies, sous peine d'endommager et de compromettre l'isolation. Le produit peut tomber en panne et son isolation risque d'être endommagée si les tensions transitoires dépassent la surtension transitoire nominale. Une analyse des tensions de fonctionnement, des impédances de boucle, des surtensions temporaires et des surtensions transitoires dans le système doit être effectuée avant de procéder à des mesures.

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.

## 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.

## EMC Guidelines

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

This product is intended for use in commercial and light-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.

### 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.



**NOTICE**

Refer to the individual instrument documentation for additional notices pertaining to specific cable, accessory, or other requirements to ensure specified EMC performance.



**NOTICE**

The length of all I/O cables must be no longer than 3 m (10 ft), except the rear Ethernet port.

## Environmental Guidelines



**NOTICE**

This product is intended for use in indoor applications only.

## Environmental Characteristics


Temperature	
Operating	5 °C to 40 °C
Storage	0 °C to 60 °C
Humidity	
Operating	20% to 80%, noncondensing
Storage	10% to 80%, noncondensing
Pollution Degree	2
Maximum Altitude	2,000 m

## 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 *Engineering a Healthy Planet* 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.

## 电子信息产品污染控制管理办法(中国 RoHS)

 **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).)



## Protective Earthing

High levels of leakage current may be present on the ECUTS-16000. Connect the ECUTS-16000 protective earth terminal before connecting to AC power.



### NOTE

The facility installation shall provide a means for connection to protective earth, and qualified personnel shall install a protective earthing conductor from the ECUTS-16000 protective earthing terminal to the protective earth wire in the facility.

### Protective Earth Terminal Wiring

Grounding wire	2.1 mm <sup>2</sup> (14 AWG)
Ring lug	
Size	M8
Length	20 mm (0.8 in.)
Minimum protective earth terminal torque	1.29 N · m (11.5 lb · in.)

## Power Requirements



### NOTE

The AC power cords used in the ECUTS-16000 are specially designed for the ECUTS-16000. Do not use these power cords with other electrical appliances. Contact your assigned NI Hardware Services Project Manager for system-specific power cords and associated part numbers.



### NOTE

All equipment inside the rack must be powered, directly or indirectly, through the power entry panel PEP-116. Other sources of external power must not be used.

Input Voltage Range	200 VAC to 240 VAC, 50/60 Hz, single phase, 16 A, maximum
Input Power Receptacle	IEC 60320 C20

The ECUTS-16000 shipment contains a power cord that corresponds to your country of operation.

## Removing Power



### CAUTION

The emergency power off (EPO) button, the power switch, and the circuit breaker do not fully remove power from the ECUTS-16000. For full EPO functionality, refer to the *ECUTS-16000 User Manual*. To completely interrupt power to a single phase system, you must disconnect the AC power cable. Do not position equipment so that it is difficult to disconnect the cable.

### ATTENTION

Le bouton d'arrêt d'urgence, l'interrupteur d'alimentation et le disjoncteur ne coupent pas complètement l'alimentation du ECUTS-16000. Pour en savoir plus sur la fonctionnalité complète de l'arrêt d'urgence, reportez-vous au manuel *ECUTS-16000 User Manual*. Pour interrompre complètement l'alimentation d'un système monophasé, vous devez déconnecter le câble d'alimentation CA. Veillez à positionner l'équipement de sorte qu'il soit facile d'en déconnecter le câble d'alimentation.

## Physical Characteristics

Dimensions	
Width	
All configurations	584 mm (23.0 in.)
Depth	
Without 9025TR platform	853 mm (33.6 in.)
With 9025TR platform	1,650 mm (65.0 in.)
Height	
With monitor mount, before monitor arm assembly	1,440 mm (56.5 in.)
Maximum, with monitor and keyboard tray	2,080 mm (81.8 in.)
Total System Weight <sup>†</sup>	
Minimum	185 kg (407 lb)
Maximum <sup>‡</sup>	270 kg (595 lb)
Maximum Fixture Weight	
9025TR platform	18 kg at 510 mm (40 lb at 20 in.)
Fixture <sup>§</sup>	18 kg at 510 mm (40 lb at 20 in.)

<sup>†</sup> The weight of the system depends on which options are purchased and installed.

<sup>‡</sup> This value reflects the maximum weight of an ECUTS-16000 as configured by NI. The maximum weight of an ECUTS-16000, including user additions, must not exceed 453 kg (1,000 lbs). Contact NI for more information about the weight of your system.

<sup>§</sup> Maximum weight limit when a fixture is attached to the ECUTS-16000 without the 9025TR platform.

Keyboard tray	0.9 kg (2 lb)
Human-Machine Interface Weight	
Keyboard tray	0.9 kg (2 lb)
Monitor	3.5 kg (8 lb)
Rack Paint	
Color	RAL-7035 gray
Paint type	ESD dissipative paint as defined in IEC 61340-5-1

The circuit breaker on the power entry panel PEP-116 is rated for a mechanical impact energy level of IK06 (1 J), when tested with a direct vertical impact per IEC 61010-1, 3rd Ed., Table 15 and Clause 8.2. The circuit breaker should be guarded against impacts exceeding 1 J.

## Export Compliance

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.

## 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/docs](http://ni.com/docs) for more information about your product, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

## NI Services

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](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 N Mopac Expwy, Austin, TX, 78759-3504, USA.

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.

