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# **ECUTS-16001**

# **Specifications**

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# ECUTS-16001 Specifications

These specifications apply to all ECUTS-16001 configuration options unless otherwise noted.

## Definitions

**Warranted** specifications describe the performance of a model under stated operating conditions and are covered by the model warranty. Warranted specifications account for measurement uncertainties, temperature drift, and aging. Warranted specifications are ensured by design or verified during production and calibration.

**Characteristics** describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- **Typical** specifications describe the performance met by a majority of models.
- **Nominal** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.
- **Measured** specifications describe the measured performance of a representative model.

Specifications are **Warranted** unless otherwise noted.

Specifications are **Measured** unless otherwise noted.

## Conditions

Refer to [ni.com/manuals](http://ni.com/manuals) for detailed specifications on the specific instruments used within the ECUTS-16001.

Specifications are valid for the system and all included instruments under the following conditions unless otherwise noted.

- ECU Test System environmental characteristics are met
- Instrument-level conditions are met

## Calibration Conditions

The performance of an externally calibrated instrument is defined in the instrument specifications. Additionally, specifications for externally calibrated instruments are only valid if the conditions defined in the instrument specifications are met. For applications that require calibrated power measurements, NI recommends using PXI and switch load and signal conditioning (SLSC) instrumentation.

## Physical Characteristics

### Dimensions

#### Width

All configurations 584 mm (23.0 in.)

#### Depth

Without 9025TR platform<sup>[1]</sup> 884 mm (34.8 in.)

With 9025TR platform 1,356 mm (53.4 in.)

#### Height

All configurations 2,068 mm (84.1 in.)

### Total System Weight<sup>[2]</sup>

Minimum 267 kg (589 lb)

Maximum<sup>[3]</sup> 400 kg (882 lb)

**Maximum Fixture Weight**

9025TR platform	18 kg at 20 in. (40 lb)
Fixture <sup>[4]</sup>	18 kg at 20 in. (40 lb)
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-130 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.

## Power Requirements

**Note** The AC power cords used in the ECUTS-16001 are specially designed for the ECUTS-16001. Do not use these power cords in 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-130. Other sources of external power must not be used.

Input voltage range	200 VAC to 240 VAC, 50/60 Hz, single phase, 24 A, maximum
Input power receptacle	IEC 60309 2P+E 6H 32 A
<b>Ring lug</b>	
Size	M8
Length	21 mm (0.8 in.)

The ECUTS-16001 shipment contains a power cord that corresponds to your country of operation.

## Maximum Thermal Load

Minimum rating for internal equipment	50 °C
<b>Maximum Allowable Internal Dissipation</b>	
40 °C Ambient	1,350 W
28 °C Ambient	3,400 W
23 °C Ambient	4,300 W

## Compressed Air

Air type	Clean, dry air
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Connector type	6 mm outer diameter
Maximum pressure	100 PSI (690 kPa)

## DC Output

PDU	Nominal Voltage	Rated Output Current	Overcurrent Protection	Location <sup>[5]</sup> and Use	Interlock <sup>[5]</sup>
DC1	12 V	4 A	20 A	Connector J22, pin 1 referenced to pin 2, fixture power	Connector J1, short, dry contact between pins B43 and B44
DC2	24 V	2 A	10 A	Connector J22, pin 34 referenced to pin 35, fixture power	Connector J1, short, dry contact between connectors C43 and C44
DC3 <sup>[6]</sup>	24 V	5 A	10 A	Internal, fans and instrumentation	—
DC4	48 V	2 A	5 A	Internal, network switch	—

Table 1. DC Output

<b>RMX-410x (optional)</b>	
Interlock <sup>[5]</sup>	Connector J1, short, dry contact between pins A43 and A44
Maximum total output power	2,000 W
<b>N67xx (optional)</b>	
Interlock <sup>[5]</sup>	Connector J1, short, dry contact between pins D43 and D44
Maximum total output power	1,600 W

# I/O

## Network Ports

### External

Type I219

Standard IEEE 802.3 Ethernet, 10BASE-T, 100BASE-TX, 1000BASE-T

Speed 10 Mbps, 100 Mbps, 1000 Mbps

### Internal

Speed 10 Mbps, 100 Mbps

Subnet 169.254.160.xxx

Number of ports 15 switched ports (two for the mass interconnect, up to 13 for instrumentation)

## USB Ports

### Rear

Number of ports 2

Type USB 3.0

### Internal (optional)

Number of ports 7

Type USB 2.0





Model		Description
PXI Controller	<a href="#">PXIe-8861</a>	2.8 GHz Quad-Core Intel Xeon PXI Controller
	<a href="#">PXIe-8881</a>	3 GHz 18-Core Intel Xeon PXI Controller
<a href="#">RMX-10011</a>		Mid Power 40U Rack with Low Speed Fan Panel
<a href="#">RMX-10050</a>		Single Phase PDU  Single Phase PDU with DC Output

Table 2. Required Hardware Components

Model	Description	Overriding Ratings in ECUTS <sup>[8]</sup>	
		Maximum Working Voltage	Maximum Transient Voltage
<a href="#">PXI-2520</a>	80-Channel, 2 A, SPST Relay Module	100 V, CAT I	500 V
<a href="#">PXI-2564</a>	16-Channel, 5 A, SPST Relay Module	100 V, CAT I	500 V
<a href="#">PXI-2527</a>	32-Channel, 2-Wire Multiplexer	60 V	60 V
<a href="#">PXI-2567</a> <sup>[9]</sup>	64-Channel Relay Driver Module	—	—
<a href="#">PXI-8517</a>	2-Port FlexRay Interface Module	—	—
<a href="#">PXIe-2532B</a>	512-Crosspoint Matrix Switch Module	100 V, CAT I	500 V
<a href="#">PXIe-2737</a>	4 x 64, 2-Wire Matrix Switch Module	100 V, CAT I	500 V
<a href="#">PXIe-2738</a>	8 x 32, 2-Wire Matrix Switch Module	100 V, CAT I	500 V
<a href="#">PXIe-2739</a>	16 x 16, 2-Wire Matrix Switch Module	100 V, CAT I	500 V
<a href="#">PXIe-4081</a> <sup>[10]</sup>	7½-Digit Multimeter with 1.8 MS/s Isolated Digitizer	100 V, CAT I (slots J3-J8)	500 V (slots J3-J8)
		60 V (slots J18-J21)	60 V (slots J18-J21)
<a href="#">PXIe-4082</a>	6½-Digit Multimeter with 1.8 MS/s Isolated Digitizer, L and C Measurement Support	100 V, CAT I (slots J3-J8)	500 V (slots J3-J8)
		60 V (slots J18-J21)	60 V (slots J18-J21)

Model	Description	Overriding Ratings in ECUTS <sup>[8]</sup>	
		Maximum Working Voltage	Maximum Transient Voltage
<a href="#">PXIe-4112</a>	2-Channel, 60 V, 1 A Programmable Power Supply	60 V	60 V
<a href="#">PXIe-4139</a>	60 V Precision Source Measure Unit	—	—
<a href="#">PXIe-4309</a>	2 MS/s, 28-bit Flexible Resolution Analog Input	—	—
<a href="#">PXIe-4310</a> with TB-4310 (600V)	8-Channel, 400 kS/s, 16-Bit Isolated Analog Input Module	60 V	60 V
<a href="#">PXIe-4322</a>	8-Channel, 250 kS/s, 16-Bit Isolated Analog Output Module	Isolation and DC Overvoltage: 100 V, CAT I (slots J3-J8)  60 V (slots J18-J21)	Isolation: 500 V (slots J3-J8)  60 V (slots J18-J21)
<a href="#">PXIe-5105</a>	8-Channel, 60 MHz Bandwidth, 12-Bit Oscilloscope	—	—
<a href="#">PXIe-5110</a>	2-Channel, 100 MHz Bandwidth, 8-bit Oscilloscope	100 V, CAT I	250 V
<a href="#">PXIe-5163</a>	2-Channel, 200 MHz Bandwidth, 14-bit Oscilloscope	100 V, CAT I	250 V
<a href="#">PXIe-5413</a>	2-Channel, 20 MHz Bandwidth, 16-Bit Waveform Generator	—	—
<a href="#">PXIe-5433</a>	2-Channel, 80 MHz Bandwidth, 16-bit Waveform Generator	—	—
<a href="#">PXIe-6366</a>	8 AI (16-bit, 2 MS/s/ch), 2 AO, 24 DIO Multifunction I/O Module	—	—
<a href="#">PXIe-6386</a>	8 AI (16-Bit, 14 MS/s/ch), 2 AO, 24 DIO Multifunction I/O Module	—	—
<a href="#">PXI-6515</a>	64-Channel, $\pm 30$ VDC, 32 Sink/Source Inputs, 32 Sink Outputs, Bank-Isolated Digital I/O Module	—	—
<a href="#">PXIe-6738</a>	1 MS/s, 16-bit Analog Output	—	—
<a href="#">PXIe-8430/8</a>	8-Port, RS232 Serial Interface Module	—	—

Model	Description	Overriding Ratings in ECUTS <sup>[8]</sup>	
		Maximum Working Voltage	Maximum Transient Voltage
<a href="#">PXIe-8510</a> with <a href="#">TRC-8543</a> and/or <a href="#">TRC-8546</a> Transceiver Cable	6-Port Vehicle Multiprotocol Interface Module with CAN or LIN Transceivers	—	—
<a href="#">PXIe-8523</a>	4-Port 100/1000BASE-T1 Automotive Ethernet	—	—

Table 3. PXI Instruments

Model	Description	Overriding Ratings in ECUTS <sup>[11]</sup>	
		Maximum Working Voltage	Maximum Transient Voltage
<a href="#">SLSC-12001</a>	12-Slot Chassis for SLSC	—	—
<a href="#">SLSC-12251</a> <sup>[12]</sup>	16-Channel, 8 A Fault Insertion Module	100 V, CAT I	500 V
<a href="#">SLSC-12252</a> <sup>[13]</sup>	8-Channel, 30 A Fault Insertion Module	100 V, CAT I	500 V
<a href="#">PXIe-6375</a>	104 AI, 3.8 MS/s, 16-Bit Multifunction I/O Module	—	—
<a href="#">USB-6363</a>	16 AI, 2 MS/s, 16-Bit Multifunction I/O Device	—	—

Table 4. Load Switching

Model	Description
<a href="#">RMX-4101</a>	20 V, 10 A, Programmable Power Supply Device
	36 V, 6 A, Programmable Power Supply Device
	60 V, 3.5 A, Programmable Power Supply Device
<a href="#">RMX-4102</a>	20 V, 20 A, Programmable Power Supply Device
	36 V, 12 A, Programmable Power Supply Device
	60 V, 7 A, Programmable Power Supply Device
<a href="#">RMX-4104</a>	20 V, 40 A Programmable Power Supply Device

Model	Description
	36 V, 24 A Programmable Power Supply Device
	60 V, 14 A Programmable Power Supply Device
N6752A/761	50 V, 10 A, 100 W Supply, with Output Disconnect
N6753A/761	20 V, 50 A, 300 W Supply, with Output Disconnect
N6754A/761	60 V, 20 A, 300 W Supply, with Output Disconnect
N6762A/761	Precision 50 V, 3 A, 100 W Supply, with Output Disconnect
N6763A/761	Precision 20 V, 50 A, 300 W Supply, with Output Disconnect
N6764A/761	Precision 60 V, 20 A, 300 W Supply, with Output Disconnect
N6700C	4-Slot 400 W Power System Mainframe
N6791A	60 V, 20 A, 100 W Electronic Load
N6792A	60 V, 40 A, 200 W Electronic Load

Table 5. Power Supplies and Electronic Loads

Part Number	Description	Maximum Working Voltage	Maximum Transient Voltage
132503-03	ECUTS B3-3 PXIe-4322 Cable	100 Vpk	500 Vpk
132504-01	ECUTS B4-1 Switch Cable	100 Vpk	500 Vpk
132504-02	ECUTS B4-2 Switch, DMM, and PXIe-4322 Cable	100 Vpk	500 Vpk
132504-04	ECUTS B4-4 SLSC-12251, DMM, and PXIe-4322 Cable	100 Vpk	500 Vpk
132504-05	ECUTS B4-5 PXIe-2527 and DMM Cable	100 Vpk	500 Vpk
132504-06	ECUTS, B4-6, VPC Quadrapaddle Signal to DMM and 2x 78 Pin Female DSUB	100 Vpk	500 Vpk
136249-01	ECUTS B4-7 PXIe-2532B and DMM Interface Assembly	100 Vpk	500 Vpk
132505-0x	ECUTS B5-x SLSC-12251 Cable	100 Vpk	500 Vpk
132506-01	ECUTS B6 SLSC-12252 Cable	100 Vpk	500 Vpk
132508-05	ECUTS B8-5 Multifunction Cable	100 Vpk	500 Vpk
132508-06	ECUTS B8-6 Multifunction Cable	100 Vpk	500 Vpk
132508-07	ECUTS B8-7 Multifunction Cable	100 Vpk	500 Vpk
132508-08	ECUTS B8-8 Multifunction Cable	100 Vpk	500 Vpk

Part Number	Description	Maximum Working Voltage	Maximum Transient Voltage
132509-0x	ECUTS B9-x RMX-400x Cable	80 Vpk	80 Vpk

Table 6. High-Voltage Cables and Assemblies

<sup>1</sup> Depth of the system without the 9025TR platform assumes a folded open keyboard tray.

<sup>2</sup> The weight of the system depends on which options are purchased and installed.

<sup>3</sup> The weight of an ECUTS-16001 as configured by NI (combined weight of the frame, instrumentation, cabling, monitor, 9025TR platform, and keyboard tray) does not exceed 400 kg (882 lbs). The maximum weight of an ECUTS-16001, including user additions, must not exceed 453 kg (1,000 lbs). Contact NI for more information about the weight of your system.

<sup>4</sup> Maximum weight limit when a fixture is attached to the ECUTS-16001 without the 9025TR platform.

<sup>5</sup> Refer to the **ECUTS-16001 User Manual** for more information about connector and pin locations.

<sup>6</sup> Reserved for NI internal use only.

<sup>7</sup> An optional secondary PXIe-1084 chassis can be added using a [PXIe-8301](#) Thunderbolt™ 3 PXI Remote Control Module.

<sup>8</sup> In some cases, integrating a device in an ECUTS imposes a new specification. This table lists device ratings that change in ECUTS.

<sup>9</sup> Maximum total drive current per module in ECUTS-16001: 10 A

<sup>10</sup> Add  $\pm 15 \mu\text{V}$  to the DC accuracy specifications in the **PXIe-4081 Specifications** on [ni.com/docs](https://ni.com/docs) when used in the ECUTS. Do not add this value to the performance limits specified in a calibration procedure or calibration certificate for the PXIe-4081.

11 In some cases, integrating a device in an ECUTS imposes a new specification. This table lists device ratings that change in ECUTS.

12 Limit maximum current to 5 A per channel for SLSC-12251 modules routed to the J3-J8 QuadraPaddle slots.

13 The maximum allowable current in an SLSC-12252 channel is 30 A.