



**Technical Sales**  
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# NI USB-8451

## I<sup>2</sup>C/SPI/SMBus Interface

Bus-powered USB interface for I<sup>2</sup>C, SMBus, and SPI communication; cable included  
 Compatible with Windows 7/Vista/XP/2000  
 I<sup>2</sup>C master interface with clock rates up to 250 kHz  
 SMBus master interface with clock rates up to 100 kHz  
 SPI master interface with clock rates up to 12 MHz  
 High-level API for NI LabVIEW, NI LabWindows™/CVI, and Microsoft Visual C/C++ 6.0  
 Available in OEM board-only version  
 8 general-purpose digital I/O lines



## Overview

The NI USB-8451 is an interface for connecting to and communicating with I<sup>2</sup>C, SMBus, and SPI devices. With plug-and-play USB connectivity, the USB-8451 is a portable solution to communicate with consumer electronics and integrated circuits. It also includes eight general-purpose digital I/O lines for a variety of applications, such as configuring the address of I<sup>2</sup>C devices or toggling LEDs.

The USB-8451 can be physically located more closely to I<sup>2</sup>C/SPI devices than PCI interfaces, reducing I<sup>2</sup>C bus length and minimizing noise problems. Additionally, the interface provides +5 V and GND to power circuits up to 230 mA with no external power supply.

The NI USB-6000 prototyping accessory attaches to the 16-position connector of the USB-8451 (non-OEM version) interface. It has a small breadboarding area for custom-defined signal conditioning and prototyping within the housing. You can use up to two accessories per USB-8451 module.

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## Specifications

### Specifications Documents

Specifications (2)  
 Data Sheet

### Specifications Summary

General	
Product Family	I <sup>2</sup> C / SPI
Form Factor	USB
Operating System / Target	Windows
LabVIEW RT Support	No
OEM Available	Yes

<b>Power Requirements</b>	
<b>Voltage</b>	5 VDC
<b>Current</b>	80 mA
<b>Source</b>	Internally Powered
<b>Port Information</b>	
<b>Number of Ports</b>	1
<b>Termination</b>	External
<b>Max Clock Rate (I2C)</b>	250 kHz
<b>Max Clock Rate (SPI)</b>	12 MHz
<b>Special Features</b>	
<b>Hardware Synchronization</b>	No
<b>Hardware Timestamping</b>	No
<b>Physical Specifications</b>	
<b>Length</b>	8.18 cm
<b>Height</b>	2.31 cm
<b>Width</b>	8.51 cm
<b>I / O Connector</b>	Screw terminals
<b>Operating Temperature</b>	0 °C - 45 °C

## Pricing

Part Number	Description	Est Ship	US Dollars*	Qty
I2C and SPI Interface				
779553-01	USB-8451, I2C/SPI/SMBus Interface	1 - 3	\$ 446.00	<input type="text" value="0"/>
779553-50	USB-8451, I2C/SPI/SMBus Interface, Board Only OEM Version	5 - 10	\$ 414.00	<input type="text" value="0"/>
Related Products and Accessories				
779511-01	NI USB-600x Series Prototyping Accessory	5 - 10	\$ 37.00	<input type="text" value="0"/>

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## Services

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### Extended Warranties

National Instruments designs and manufactures all products to minimize failures, however unexpected failures can still occur. Extended warranties provide a fixed economical price at the time of system purchase, covering any repair costs for up to three years. In addition, they offer the following benefits:

Significant cost savings compared to individual repair incidents

Fault location, diagnostics, and repair by NI any time the system product fails

All parts and labor costs covered as well as any adjustments needed to restore the hardware to manufacturing specifications

For more information about your warranty options:

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Talk to an Expert About Extended Warranties

[javascript:openCallMeWindowCTA\(document.referrer,%20'US'\)](http://www.ni.com/services/warranty.htm)

View Warranty Repair Policies [http://www.ni.com/services/warranty\\_repair\\_policies.htm](http://www.ni.com/services/warranty_repair_policies.htm)

### Calibration

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. NI provides manual calibration procedures, services to recalibrate your products, and automated calibration software to calibrate many NI measurement products.

Learn More About Calibration Services <http://www.ni.com/services/calibration.htm>

### Training

NI training is the fastest, most certain route to productivity with NI tools and successful application development.

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Find a Course Near You and View Schedules <http://sine.ni.com/tacs/app/tp/p/ap/ov/pg/1/>

### Repair Services

Return your registered product under warranty at no additional labor and parts cost. NI offers fault location, diagnostics, and repair any time the system fails as well as any adjustments needed to restore the hardware to manufacturing specifications.

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Contact NI to obtain a Return Material Authorization (RMA) form and shipping instructions.  
[http://sine.ni.com/apps/utf8/nicc.call\\_me](http://sine.ni.com/apps/utf8/nicc.call_me)

View your RMA support request status online. <https://sine.ni.com/srm/app/myServiceRequests>

Register your product <http://www.ni.com/register>.

### Technical Support

[ni.com/support](http://www.ni.com/support) <http://www.ni.com/support/>

## Resources


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### Additional Product Information

[Product Certifications](#)

### Related Information

- [NI USB-6000 Series Prototyping Accessory](#)
- [NI USB-8451 Hardware and Software User Manual](#)
- [KnowledgeBase: NI USB-8451](#)
- [Drivers and Updates: NI USB-8451](#)

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