



Technical Sales
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NI 9401

8 Ch, 5 V/TTL High-Speed Bidirectional Digital I/O Module

- 8-channel, 100 ns ultrahigh-speed digital I/O
- 5 V/TTL, sinking/sourcing digital I/O
- Bidirectional, configurable by nibble (4 bits)
- Industry-standard 25-pin D-Sub connector
- Hot-swappable operation
- -40 to 70 °C operating range



Overview

The National Instruments NI 9401 is an 8-channel, 100 ns bidirectional digital input module for any NI CompactDAQ or CompactRIO chassis. You can configure the direction of the digital lines on the NI 9401 for input or output by nibble (4 bits). Thus, you can program the NI 9401 for three configurations - eight digital inputs, eight digital outputs, or four digital inputs and four digital outputs. With reconfigurable I/O (RIO) technology (CompactRIO only), you can use LabVIEW FPGA to program the NI 9401 for implementing custom, high-speed counter/timers, digital communication protocols, pulse generation, and much more. Each channel is compatible with 5 V/TTL signals and features 1,000 Vrms transient isolation between the I/O channels and the backplane.

The NI 9934 (or other 25-pin D-Sub connector) is required for use with the NI 9401 module. The module includes a screw-terminal connector with strain relief as well as a D-Sub solder cup backshell for creating custom cable assemblies.

Specifications

Specifications Documents

- Specifications
- Data Sheet

Specifications Summary

General

Product Name	NI 9401
Product Family	Industrial I/O
Form Factor	CompactDAQ , CompactRIO
Part Number	779351-01
Operating System/Target	Real-Time , Windows

Measurement Type	Digital
Isolation Type	Ch-Earth Ground Isolation
RoHS Compliant	Yes
Analog Input	
Channels	0 , 0
Single-Ended Channels	0
Differential Channels	0
Analog Output	
Channels	0
Digital I/O	
Bidirectional Channels	8
Input-Only Channels	0
Output-Only Channels	0
Number of Channels	8 , 0 , 0
Timing	Hardware
Max Clock Rate	10 MHz
Logic Levels	TTL
Supports Handshaking I/O?	Yes
Supports Pattern I/O?	Yes
Maximum Input Range	0 V , 5.25 V
Maximum Output Range	0 V , 5.25 V
Counter/Timers	
Counters	0
Physical Specifications	
Length	9 cm
Width	2.3 cm
I/O Connector	25-pin D-Sub
Minimum Operating Temperature	-40 °C
Maximum Operating Temperature	70 °C
Minimum Storage Temperature	-40 °C
Maximum Storage Temperature	85 °C

Timing/Triggering/Synchronization	
Triggering	Digital
Triggers cDAQ Chassis	Yes

Pricing

Select one of the following options for product configuration and pricing:

Select Module and Accessories Below »

OR

Configure and Price a Complete CompactDAQ/CompactRIO System »




Module


Accessories


Chassis, Controllers, Modules


Software & Services

Step 1: Verify Device and Quantity Selection

Part Number	Description	Est Ship Days	US Dollars*	Qty
779351-01	NI 9401	1 - 2	\$ 269	1
Each NI 9401 requires: 1 Connectivity Accessory				
<div><div> NI 9401</div><div>←</div><div> Connectivity Accessory</div></div>				

Step 2: Select Connectivity Accessory

Part Number	Description	Est Ship Days	US Dollars*	Qty
Screw Terminals				
779104-01	NI 9934 25pin D-Sub connector kit NI Recommended	1 - 2	\$ 109	1

Step 3: Select Optional Accessories

Part Number	Description	Est Ship Days	US Dollars*	Qty
Cable				

192568-01	SH25F-25M-1 25-Pin Female to Male Shielded I/O Cable, 1 m	5 - 10	\$ 29	0
192568-02	SH25F-25M-2 25-Pin Female to Male Shielded I/O Cable, 2 m	5 - 10	\$ 39	0

Connectivity Accessories

781081-01	25-pin DSUB to Screw Terminal Block, DIN Rail Mount	5 - 10	\$ 59	0
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* You have selected the United States as the country where you will use the product(s). Pricing may have changed since you printed this document on 04/04/2011. Please visit ni.com to see current pricing.

Step 4: Place Order or Obtain Quote

Services

System Assurance Programs

Reduce your setup time and total cost of ownership, and get a system you can use out of the box with National Instruments system assurance programs. System assurance programs include:

- Installation and integration test of all individual hardware
- Courtesy installation of system driver sets and application development environments
- Extended warranty and calibration coverage for up to five years
- Custom documentation plus a custom restore and startup utility

This service is only available for PXI, NI CompactRIO, and NI Compact FieldPoint systems.

- Learn More about System Configuration and Deployment Services [<http://www.ni.com/services/configuration.htm>]
- Customize Your CompactRIO System [<http://ohm.ni.com/advisors/crio>]
- Customize Your Compact FieldPoint System [<http://ohm.ni.com/advisors/cfp>]
- Customize Your PXI System [<http://ohm.ni.com/advisors/pxi>]
- Talk to an Expert about Custom System Configurations [[javascript:openCallMeWindowCTA\(document.referrer,%20'US'\)\]](http://www.ni.com/services/configuration.htm)]

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:

- Learn More about Warranty Services [<http://www.ni.com/services/warranty.htm>]
- 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]

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.

- Learn More about NI Training and Certification [<http://www.ni.com/training/>]
- Find a Course Near You and View Schedules [<http://sine.ni.com/apps/utf8/nisv.custed>]

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.

- Learn More about Repair Services [<http://www.ni.com/services/warranty.htm>]
- Contact NI to Obtain a Return Material Authorization (RMA) Form and Shipping Instructions [http://sine.ni.com/apps/utf8/nicc.call_me]
- View Your RMA Support Request Status Online [<http://www.ni.com/support/servicereq/>]
- Register Your Product [<http://www.ni.com/register>]

Technical Support

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

Resources

Additional Product Information

- Manuals (7)
- Dimensional Drawings
- Product Certifications

Related Information

- Compare and Buy: CompactRIO Product Selection Guide
- Learn How to Program CompactRIO
- Learn More about CompactRIO
- Configure Your Complete CompactRIO System
- Learn More about NI CompactDAQ
- Configure Your Complete CompactDAQ System