NI-9381 Specifications

Contents

NI 9381 Datasheet
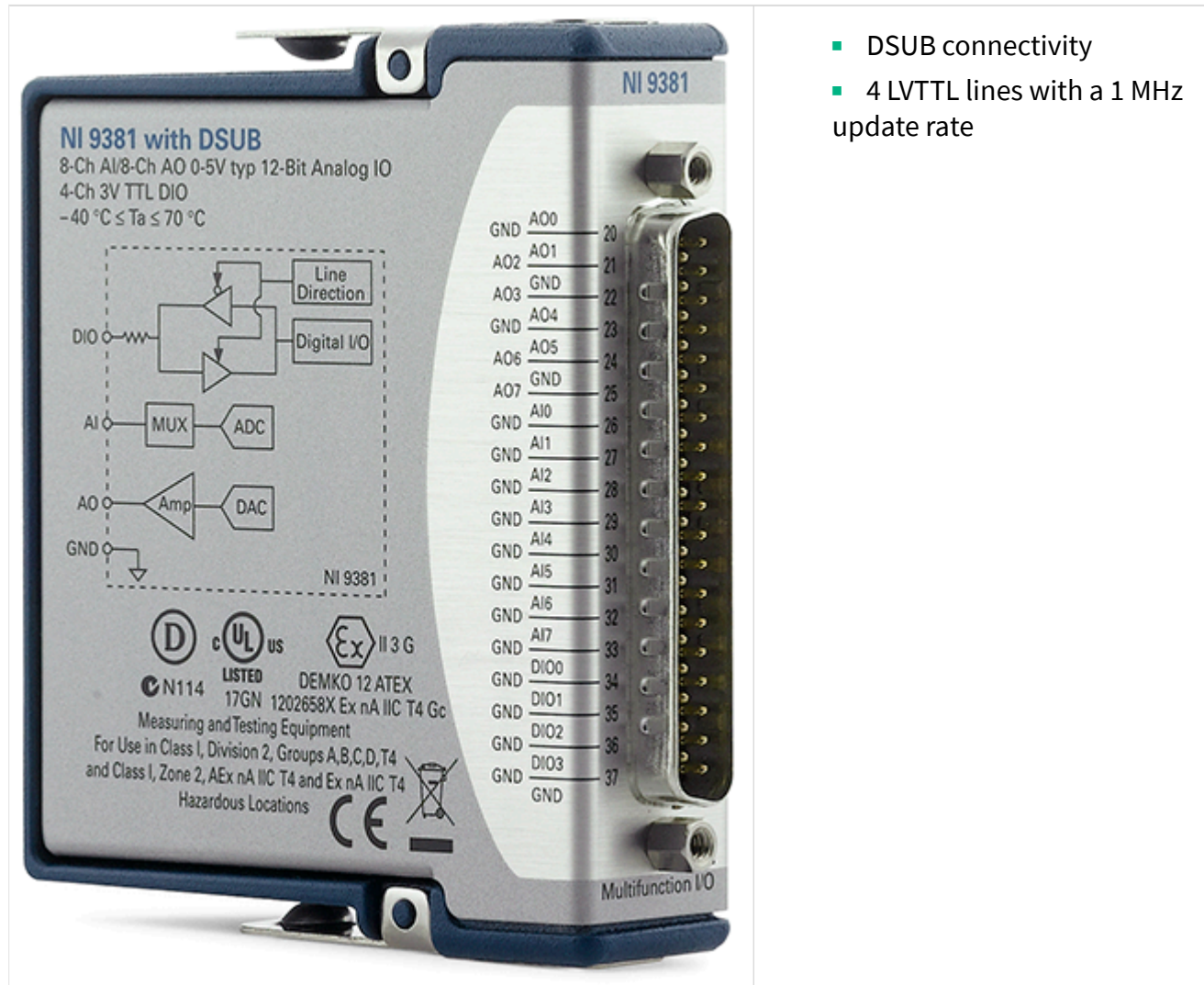
- DSUB connectivity
- 4 LVTTL lines with a 1 MHz update rate

The NI-9381 multifunction I/O module for CompactRIO systems. The NI-9381 combines common I/O circuitry into a single module to help system designers fit more functionality into a single system.

	Kit Contents	• NI 9381 • NI 9381 Getting Started Guide
	Accessories	**Front-Mount** • NI 9923 Screw-Terminal Block
		Cable • DSUB Cable, 1 m (778621-01) • Din-Rail Spring-Terminal Block (778676-01)

NI 9381 MODULE COMPARISON					
Product Name	Measurement Type	Channels	Range	Resolution	Connectivity
NI 9201	AI	8	±10 V	12 Bit	Screw-terminal, Spring-terminal, DSUB
NI 9263	AO	4	±10 V	16 Bit	Screw-terminal, Spring-terminal
NI 9381	AI, AO, DIO	8 AI, 8 AO, 4 DIO	0 V to 5 V, 3 V TTL	12 Bit	DSUB
NI 9401	DIO	8	5 V TTL	—	DSUB

NI C Series Overview

NI provides more than 100 C Series modules for measurement, control, and communication applications. C Series modules can connect to any sensor or bus and allow for high-accuracy measurements that meet the demands of advanced data acquisition and control applications.

- Measurement-specific signal conditioning that connects to an array of sensors and signals

- Isolation options such as bank-to-bank, channel-to-channel, and channel-to-earth ground
- -40 °C to 70 °C temperature range to meet a variety of application and environmental needs
- Hot-swappable

The majority of C Series modules are supported in both CompactRIO and CompactDAQ platforms and you can move modules from one platform to the other with no modification.

CompactRIO

CompactRIO combines an open-embedded architecture with small size, extreme ruggedness, and C Series modules in a platform powered by the NI LabVIEW reconfigurable I/O (RIO) architecture. Each system contains an FPGA for custom timing, triggering, and processing with a wide array of available modular I/O to meet any embedded application requirement.
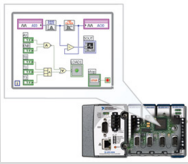
Software

**LabVIEW Professional Development System for Windows**
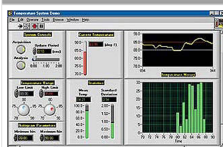
- Use advanced software tools for large project development
- Use advanced measurement analysis and digital signal processing
- Take advantage of open connectivity with DLLs, ActiveX, and .NET objects
- Build DLLs, executables, and MSI installers

NI LabVIEW FPGA Module

- Design FPGA applications for NI RIO hardware
- Program with the same graphical environment used for desktop and real-time applications
- Execute control algorithms with loop rates up to 300 MHz
- Implement custom timing and triggering logic, digital protocols, and DSP algorithms
- Incorporate existing HDL code and third-party IP including Xilinx IP generator functions
- Purchase as part of the LabVIEW Embedded Control and Monitoring Suite

NI LabVIEW Real-Time Module
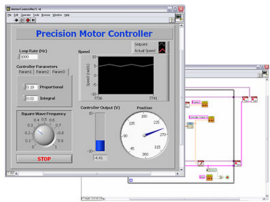
- Design deterministic real-time applications with LabVIEW graphical programming
- Download to dedicated NI or third-party hardware for reliable execution and a wide selection of I/O
- Take advantage of built-in PID control, signal processing, and analysis functions
- Automatically take advantage of multicore CPUs or set processor affinity manually
- Take advantage of real-time OS, development and debugging support, and board support
- Purchase individually or as part of a LabVIEW suite

NI-9381 Circuitry
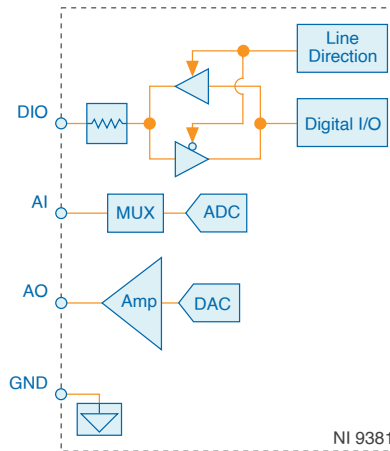
- The module provides an analog-to-digital converter (ADC), eight digital-to-analog converters (DAC), and four digital lines.

- Line direction logic enables/disables the line input and output transceiver.