What's New in NI CompactDAQ

NI CompactDAQ Platform Now Features More than 30 Modules

The NI CompactDAQ platform now includes 19 new C Series measurement modules, bringing the total number of available modules to 30. The new modules (see Table 1) add measurements such as current I/O, resistance temperature detector, ±60 V analog, 24-bit precision high-speed analog, and resistance. The NI 9219 universal NI CompactDAQ module measures strain, temperature, current, voltage, and resistance, all with channel-to-channel isolation. All modules are hot-swappable and autodetect once you insert them into the National Instruments cDAQ-9172 USB plug-and-play chassis. With these modules, test engineers, system integrators, and students can build custom data acquisition and logging programs with commercial off-the-shelf benefits. For a full list of modules and more information on the NI CompactDAQ platform, please see the Product Overview and Module FAQ or visit ni.com/cdaq and select Industrial I/O Modules. To configure and price an NI CompactDAQ system online, use the NI CompactDAQ Advisor.

	Model	Channels	Range	Resolution	Description	Sample Rate
Analog Input	NI 9201	8	±10 V	12-bit	Low cost	500 kS/s
	NI 9203	8	±20 mA	16-bit	Current	200 kS/s
	NI 9217	4	100 Ω	16-bit	RTD	400 S/s
	NI 9219	4	Various	24-bit	Universal, ch-to-ch isolated	100 S/s/ch
	NI 9221	8	±60 V	12-bit	High voltage	800 kS/s
	NI 9229	4	±60 V	24-bit	Ch-to-ch isolated	50 kS/s/ch
	NI 9239	4	±20 V	24-bit	Ch-to-ch isolated	50 kS/s/ch
Analog Output	NI 9264	16	±10 V	16-bit	Voltage AO	25 kS/s/ch
	NI 9265	4	0 to 20 mA	16-bit	Current AO	100 kS/s/ch
Digital	NI 9403	32	5 V TTL	--	DIO	100 kHz
	NI 9411	6	5 to 24 V	--	DI	2 MHz
	NI 9422	8	24 to 60 V	--	DI (sink/source)	4 kHz
	NI 9423	8	24 to 30 V	--	DI (sink)	1 MHz
	NI 9225	32	12 to 24 V	--	DI (sink)	140 kHz
	NI 9235	4	5 to 250 V	--	Universal	333 Hz
	NI 9474	8	5 to 30 V	--	DO (source)	1 MHz
	NI 9476	32	6 to 36 V	--	DO (source)	2 kHz
	NI 9477	32	5 to 60 V	--	DO (sink)	125 kHz
Relay	NI 9485	8	±60 V	--	SSR	50 Hz

Table 1. New NI CompactDAQ C Series Modules

New NI LabVIEW Data-Logging Software for Ready-to-Run Systems

Along with the 19 new C Series modules, National Instruments has released new data-logging LabVIEW software that is shipped with every NI hardware device compatible with NI-DAQmx. This new software, National Instruments LabVIEW SignalExpress LE, helps engineers acquire, view, and log data to ASCII text files or export to Microsoft Excel for post processing. Current NI data acquisition hardware owners can download this FREE software with NI-DAQmx 8.5 or later driver and measurement services software.
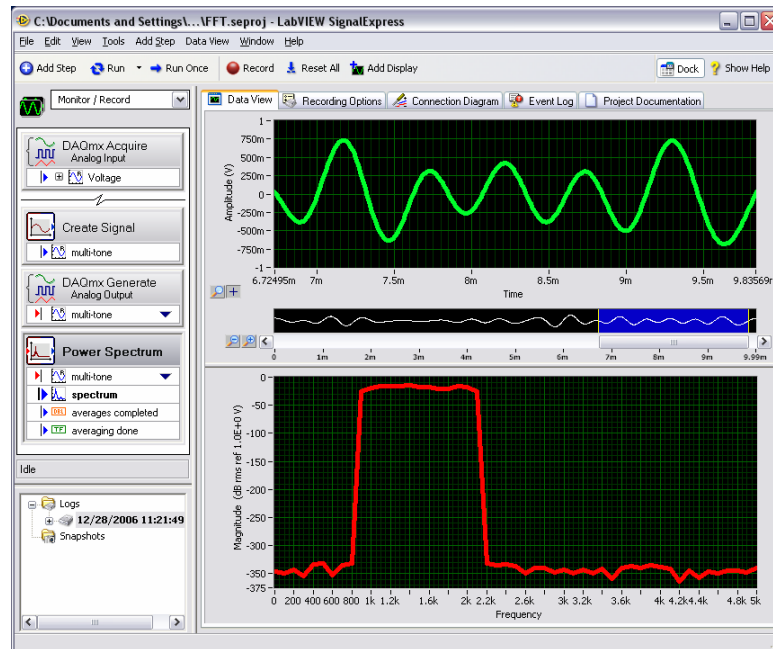

Figure 1. LabVIEW SignalExpress UI (example)

For more advanced data logging, analysis, and report generation, try NI LabVIEW SignalExpress. This software package includes:
- More than 200 analysis functions ranging from statistical calculations to waveform processing
- Customizable reports including graph snapshots
- Data views in a variety of formats such as graphs, charts, gages, meters, and thermometers
- Alarms that can trigger logging, transistor-transistor logic, or analog outputs

Move from the nonprogramming environment of LabVIEW SignalExpress into one of the LabVIEW development environments to create advanced data acquisition systems by converting to code within LabVIEW SignalExpress.

Feature	LabVIEW SignalExpress LE	LabVIEW SignalExpress
Ability to perform simple continuous logging of data	√	√
Acquisition from more than one device	√	√
Multiple UI indicators	√	√
Autolaunch for USB devices	√	√
NI-DAQmx support	√	√
Getting started guide	√	√
LabVIEW code generation	√	√
Historical data navigation	√	√
Exportation to Excel or other spreadsheet	√	√
Ability to load saved data	—	√
Multiple log files	—	√
More than 200 analysis functions	—	√
Alarms/triggers	—	√
Dynamic report generation	—	√

Table 2. LabVIEW SignalExpress Feature Comparison

New Industrial Features Bring USB Plug and Play to Rugged Applications

The new modules bring even more industrial features to the already rugged and portable platform.

New industrial features include:
- 4 to 20 mA measurement and control
- Strain relief available for laptop side of USB cable (Part Number 777550-01)
- Multiple modules now available with channel-to-channel isolation
- Industrial enclosures (see Figure 3)

Other industrial features include:
- Rugged chassis made of A380 aluminum
- 30 g shock rating and -20 to 55 °C temperature rating
- Up to 2300 V_{rms} module-to-chassis isolation available on several modules
- DIN-rail, rack-mount, and panel-mount options available
- Strain relief for USB cable on chassis
- Module backshells available for safe high-voltage connections (see Figure 2)

Figure 2. High-Voltage Backshell

Figure 3. Industrial Enclosure

New Module FAQs

1. Some of the "new" C Series modules have the same model number as modules that have been shipping for the National Instruments CompactRIO platform for some time now. Are these the same?

Yes. Some of these new modules were already supported by the NI CompactRIO platform and are now compatible with the NI CompactDAQ platform. If you already have one of these modules for CompactRIO, you can use it in an NI cDAQ-9172 chassis even though it may have a "cRIO-9xxx" model number on it. Just make sure you download the latest version of NI-DAQmx driver software, Version 8.5, which is compatible with these new modules.

2. With this new release of modules, will all C Series modules work in both the NI CompactDAQ and CompactRIO platforms?

No. There are still some modules that work with CompactRIO but not NI CompactDAQ. Please see the NI CompactDAQ Advisor or home page (ni.com/cdaq) to check for compatibility.

3. Some of the C Series modules seem to work on their own in a single-sleeve device (USB-9162). Can any of these new NI CompactDAQ modules work in the single-sleeve device?

If a module is compatible with the single-sleeve USB device, it will be listed under the same model number with USB on the front end (example: USB-9221). This is the model for the NI 9221 that is sold with a single USB module carrier. These products are found on ni.com/usb.

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