

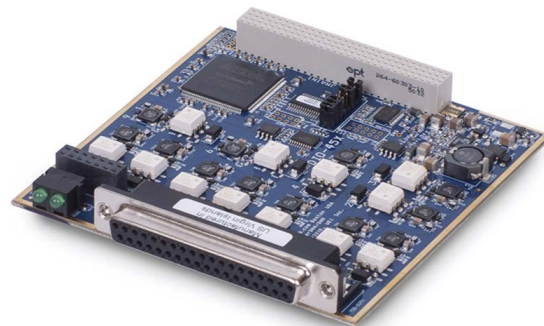
DNA/DNR-DIO-463

Guardian™ 12-Channel Solid State Relay Output Board

The Guardian Advantage

- Programmable overcurrent protection (50 mA to 2 A)
- Programmable overcurrent duration limits
- Monitors each channel's output voltage and current allowing Automatic detection of shorts/open and other system failures
- DNR/DNF-DIO-463 for use with RACKtangle/FlatRACK I/O chassis
- DNA-DIO-463 for use with "Cube" I/O chassis
- 2 A continuous output current at 48 VDC or 35 VAC
- Fully solid state contacts
- 150 milliohm on resistance
- Output throughput rate of 125 updates per second

10-Year
Availability
Guarantee



DNA-DIO-463 boards (shown above) are for use in "Cube" chassis while the DNR-DIO-463 is designed for use in RACKtangle™ chassis

General Description:

The DNA-DIO-463, DNR-DIO-463, DNF-DIO-463 are 12-channel, solid-state relay boards designed for use with UEI's "Cube", RACKtangle and FlatRACK chassis, respectively. Electronically, they are identical. Relays are in a Form A (SPST) configuration and are rated for continuous operation at 2A at 51 VDC, Solid state contacts ensure many more operations than electromechanical relays and are also silent. The board provides an ON resistance of less than 150 milliohms and update rates up to 125 Hz.

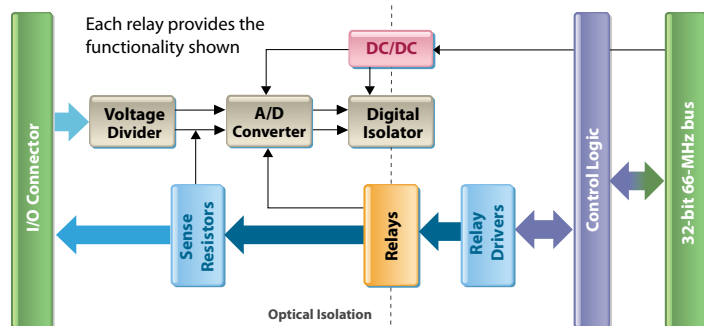
The DIO-463 is part of UEI's Guardian series. It not only controls the relay outputs, it also provides a powerful output monitoring capability. An on-board A/D converter allows you to monitor DC output voltages (relative to the common terminal) and DC output current. This allows the application to detect short and open circuits as well as other "suspicious behavior". The monitoring capability is also a powerful diagnostic tool that allows a repair technician to quickly and accurately identify damaged or mis-wired channels.

The Guardian advantage also includes programmable overcurrent protection – the user may select the overload current up to one second before the channel is shut down. Each board provides 350 Vrms isolation between channels, as well as between the board, cube, and other installed I/O boards.

All connections are made through 37-pin D connectors that ensure that mating cables or connectors are readily available. Users may also use the DNA-STP-37 screw terminal panel via DNA-CBL-37 or -37S series cables.

The DNx-DIO-463 includes software drivers supporting all popular operating systems including: Windows, Linux, QNX, VXWorks, RTX, and other popular Real-Time Operating Systems. Our UEIDAQ Framework provides Windows users a simple and complete software interface to all popular programming languages and data acquisition and control applications (e.g., LabVIEW, DASyLab, MATLAB).

Block Diagram:



Technical Specifications:

Output specifications	
Rated Load (< 50 °C)	2 A at 48 VDC or 35 VAC continuous
Rated Load (85 °C)	1 A at 48 VDC or 35 VAC continuous
Rated Load (50 - 85 °C)	derate linearly between 2A and 1A
Max Operating Voltage	51 VDC (DC voltage or peak AC)
Min Permissible Load	none
Contact ON impedance	150 mOhm max (at the I/O connector)
Contact OFF impedance	>2 MOhm
Off Leakage Current	< 50 µA
Turn-On Time	6 ms max
Turn-Off Time	2 ms max
Max Operating Freq.	125 operations/second (36000/hour limit)
Monitor/circuit breaker specs	(see note 1 below)
Resolution	16 bits
Range	±55 VDC
	0 - 2 A DC
	0.3-2 A AC
	-55/+100 °C
Accuracy	
DC Voltage	5% of measurement + 0.25% of the full scale
DC Current	5% of measurement + 0.25% of the full scale
Relay Temperature	±2 °C typ
Protection (only one type activated per channel)	
DC Voltage	±5 V to ±1 V
DC Current	50 mA to 2 A
Relay Temperature	0 - 85 °C
Disconnection Time	1 sec
Power up / reboot state	Off
Power dissipation	< 2.5 W
Isolation	350 Vrms
Operating Temp. Range	Tested -40 to +85 °C
Operating Humidity	95%, non-condensing
Vibration	IEC 60068-2-6 5 g, 10-500 Hz, sinusoidal
	IEC 60068-2-64 5 g (rms), 10-500 Hz, broad-band random
Shock	IEC 60068-2-27 50 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
MTBF	260,000 hours

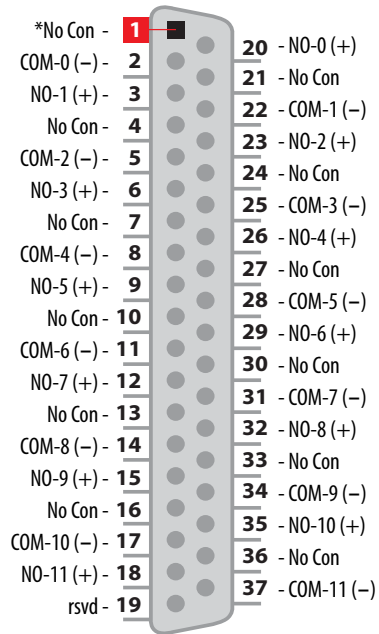
Note 1: The DNx-DIO-463 is targeted at DC applications. Though the solid state relay used allows for AC operation, the automatic, programmable output protection mode is only supported in DC applications when the NO input (see connector pinout on the following page) is used as the + (positive) terminal, while the COM terminal is connected at the - (negative). DC users should pay careful attention to the polarities. AC users are advised to insert external current protection if the application requires it.

Connection Options:

Terminal Panels	Matching Cable	Description
DNA-STP-37	DNA-CBL-37 series	Connects all I/O signals to easy to use screw terminals

Pinout Diagram:

DB-37 (female)
37-pin connector:



*No Con indicates no
on-board connection