

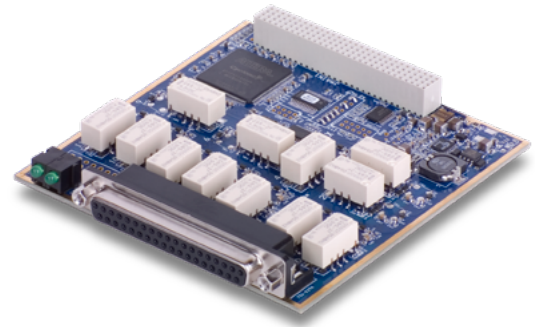
DNA/DNR-DIO-462

Guardian™ 12-Channel Form C 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-DIO-462 for use with RACKtangle I/O chassis
- DNA-DIO-462 for use with "Cube" I/O chassis
- 2 A continuous output current at 30 VDC
- 750 mA continuous output current at 125 VAC
- 200 milliohm on resistance
- Output throughput rate of 125 updates per second



DNA-DIO-462 boards are for use in "Cube" chassis while the DNR-DIO-462 is designed for use in RACKtangle™ chassis, and the DNF-DIO-462 is used in the FLATRACK chassis.

General Description:

The DNA-DIO-462 and DNR-DIO-462 are 12-channel, electromechanical relay boards designed for use with UEI's "Cube" and RACKtangle chassis, respectively. Electronically, they are identical. Relays are in a Form C (SPDT) configuration and are rated for continuous operation at 2A at 30 VDC, and .75 Amp at 125 VAC. Contacts are rated for 10 million operations. The board provides an ON resistance of less than 200 milliohms and update rates up to 125 Hz.

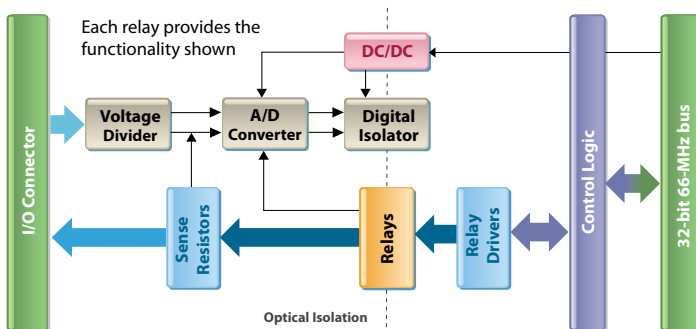
The DIO-462 is part of UEI's Guardian series. It not only controls the relay outputs, it also provides a powerful output monitoring capability. An on-board A/D converter allows you to monitor DC output voltages (relative to the common terminal) and DC output current. This allows the application to detect 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.

Software is included, providing a comprehensive, yet easy-to-use API that supports all popular operating systems, including Windows, Linux, and most real-time operating systems—such as QNX, Intime, VXworks, and more. Additionally, the UEIDAQ Framework—an even higher level Windows driver—supplies complete support for those creating applications in many popular Windows programming languages, as well as data acquisition software packages such as LabVIEW and MATLAB/Simulink.

Block Diagram:



Technical Specifications:

Output specifications	
Rated Load	2 A at 30 VDC, 0.75 A at 125 VAC continuous
Max Switching Capacity	94 VA, 90 W
Max Operating Voltage	220 VDC, 250 VAC
Min Permissible Load	10 μ A, 10 mVDC
Contact Material	Ag (Au clad)
Contact ON impedance	200 mOhm max (at the I/O connector)
Contact OFF impedance	>2 MOhm
Off Leakage Current	< 100 μ A
Turn-On Time	4 mS max, 2.5 mS typ
Turn-Off Time	4 mS max, 1.5 mS typ
Max Operating Freq.	125 operations/second (36000/hour limit)
Service Life	
Mechanical	
	100 000 000 min
Electrical	
	100 000 at 2 A 30 VDC or 0.75 A and 125 VAC
Monitor/circuit breaker specs	
Resolution	16 bit
Range	+150/-30 VDC
	\pm 2 A DC
	0.3-2 A AC
	-55/+100 $^{\circ}$ C
Accuracy	
DC Voltage	5% of measurement + 0.25% of the full scale
DC Current	5% of measurement + 0.25% of the full scale
AC Voltage/Current	not measured
Relay Temperature	\pm 2 $^{\circ}$ C typ
Protection (only one type activated per channel)	
DC Voltage	\pm 5 V to \pm 220 V
DC Current	50 mA to 2 A
AC Current	400 mA to 2 A
Relay Temperature	0-85 $^{\circ}$ C
Disconnection Time	1 sec
Power up / reboot state	Off (NC Energized)
Power dissipation	< 3.5 W
Isolation	350 Vrms
Operating Temp. Range	Tested -40 to +85 $^{\circ}$ C
Operating Humidity	95%, non-condensing
Vibration	IEC 60068-2-6 5 g, 10-500 Hz, sinusoidal
Shock	IEC 60068-2-64 5 g (rms), 10-500 Hz, broad-band random
	100 g, 3 ms half sine, 18 shocks @ 6 orientations
	30 g, 11 ms half sine, 18 shocks @ 6 orientations
Altitude	120,000 ft
MTBF	260,000 hours

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:

