DNA/DNR/DNF-DIO-452

12-Channel Electromechanical Relay Output Layer

10-Year Availability Guarantee

- DNR/DNF-DIO-452 for use in RACKtangle/FlatRACK chassis
- DNA-DIO-452 for use in DNA series Cubes
- 12 independent Form C (SPDT) electromechanical relays
- 220 VDC or 250 VAC (maximum operating voltage)
- 200 mOhm resistance (not including cabling)
- 2 Amp @ 30 VDC, (continuous rated load)
- 750 mA @ 125 VAC (continuous rated load)
- 125 Hz switching rates (36000 operations/hour limit)
- Available with output current/voltage readback (see DIO-462)
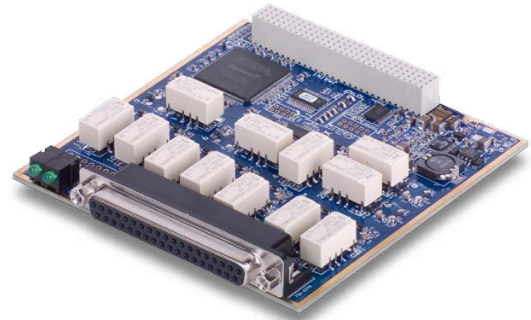
DNA-DIO-452 boards (shown) are for use in "Cube" chassis. The DNR/DNF-DIO-452 is designed for use in RACKtangle™/FlatRACK chassis respectively.

General Description:

The DNA/DNR/DNF-DIO-452 are 12-channel, electromechanical relay boards for use with UEI's "Cube", RACKtangle and FlatRACK chassis respectively. The DIO-452 boards are designed for use in a wide variety of switching and digital control applications. Each channel is configured as a standard Form C (SPDT) relay and switches voltages up to 220 VDC or 250 VAC. Each channel is rated for continuous operation at 2 Amps @ 30 VDC and 0.75 Amp at 125 VAC with an output voltage drop of less than 200 mV (impedance <200 mOhm).

All relays default to "NC" on power up/reset. Switching rates up to 125 Hz are supported. There are no fuses or overcurrent protection devices on the board. If an overcurrent condition is possible, we recommend the use of an external fuse.
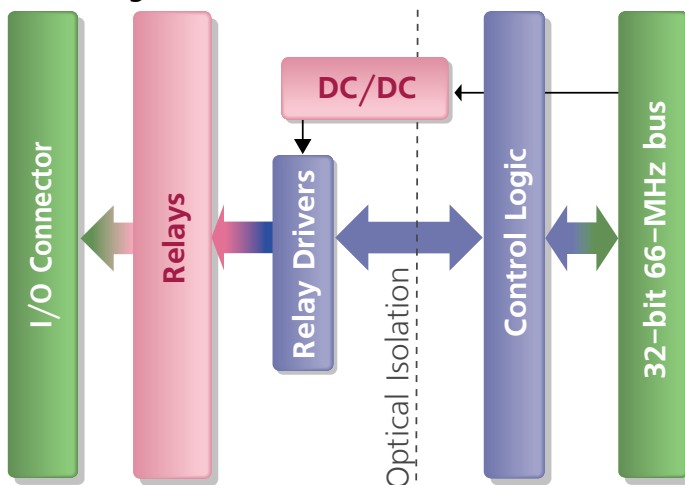
All connections are made through a convenient 37-pin D connector ensuring no problems obtaining mating cables or connectors. Users may also connect the DNx-DIO-452 boards to our popular DNA-STP-37 screw terminal panel via the DNA-CBL-37S cables. The cables are fully shielded and are available in 1, 3, 10 and 20 foot lengths. Each board provides 350 VDC isolation between channels, as well as between the board, cube and other installed I/O boards.

The DNx-DIO-452 series includes software drivers supporting all popular operating systems including: Windows, Linux, QNX, VXWorks, RTX, and other popular Real-Time Operating Systems. Windows users may take advantage or the powerful UEIDAQ Framework which provides a simple and complete software interface to all popular Windows programming languages and data acquisition and control applications (e.g. LabVIEW, DASYLab, MATLAB).
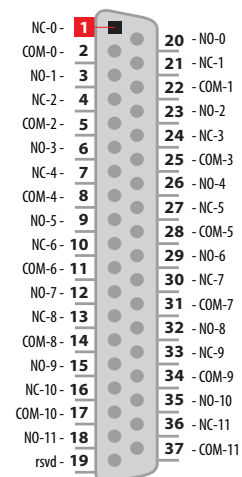
Technical Specifications:

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 µA, 10 mVDC
Contact Material	Ag (Au clad)
Contact ON impedance	200 mOhm max (at the I/O connector)
Contact OFF impedance	>100 MOhm
Off Leakage Current	< 100 µA
Turn-On Time	4 mS max, 2.5 mS typ
Turn-Foff 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
Power up / reboot state	Off (NC Energized)
Power dissipation	< 5 W not including output switches
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

Block Diagram:

Pinout Diagram:

DB-37 (female)
37-pin connector:

NC-0 – 1	20 – NO-0
COM-0 – 2	21 – NC-1
NO-1 – 3	22 – COM-1
NC-2 – 4	23 – NO-2
COM-2 – 5	24 – NC-3
NO-3 – 6	25 – COM-3
NC-4 – 7	26 – NO-4
COM-4 – 8	27 – NC-5
NO-5 – 9	28 – COM-5
NC-6 – 10	29 – NO-6
COM-6 – 11	30 – NC-7
NO-7 – 12	31 – COM-7
NC-8 – 13	32 – NO-8
COM-8 – 14	33 – NC-9
NO-9 – 15	34 – COM-9
NC-10 – 16	35 – NO-10
COM-10 – 17	36 – NC-11
NO-11 – 18	37 – COM-11
rsvd – 19	

Connection Options:

Terminal Panels	Matching Cable	Description
DNA-STP-37	DNA-CBL-37S	Connects all I/O signals to easy to use screw terminals (standard cables in 1, 3, 10 and 20 foot lengths)