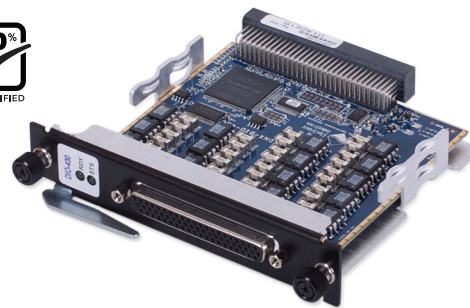# DNA/DNR/DNF-DIO-430
30-Channel SS Relay Output Board

- DNR/DNF-DIO-430 for use in RACKtangle/FlatRACK chassis
- DNA-DIO-430 for use in DNA series Cubes
- 30 independent Form A (SPST) solid state relays
- ±55 VDC (maximum operating voltage)
- 1.5 Ohm resistance (not including cabling)
- 400 mA continuous load current rating
- 2 A peak current (<10 mS)
- 1000 Hz update rate

DNA-DIO-430 boards are for use in "Cube" chassis. The DNR/DNF-DIO-430 is designed for use in RACKtangle™/FlatRACK chassis respectively. (DNR-DIO-430 shown)
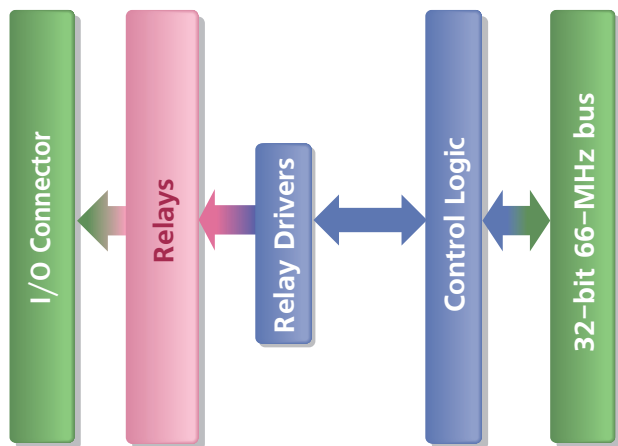
General Description:

The DNA/DNR/DNF-DIO-430 are 30-channel, solid state relay boards for use with UEI's "Cube", RACKtangle and FlatRACK chassis respectively. The DIO-430 boards are designed for use in a wide variety of switching and digital control applications. Each channel is configured as a standard Form A (SPST) relay and switches voltages up to ±55 VDC or AC waveforms with peaks less than ±55 VDC. Each channel is rated for continuous operation at 400 mA DC or AC rms with a switch resistance of less than 1.5 Ohm (not including external cables).

All relays default to "OFF" on power up/reset. Switching rates up to 1000 Hz are supported. Each board provides 350 VDC isolation between channels, as well as between the board, cube and other installed I/O boards. Outputs are protected against transients by SMAJ60CA TVS diodes and against over current with a 1 Amp, fast blow fuse.

All connections are made through a convenient 62-pin D connector ensuring no problems obtaining mating cables or connectors. Users may also connect the DNx-DIO-430 boards to our popular DNA-STP-62 screw terminal panel via the DNA-CBL-62 cables. The cables are fully shielded and are available in 1, 3, 10 and 20 foot lengths.

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.
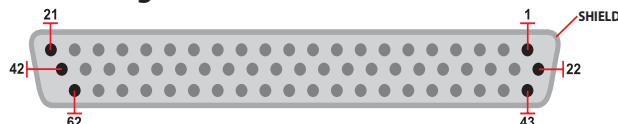
Technical Specifications:

Output specifications	
Rated Load (continuous)	400 mA (-40 to +85°C) 600 mA (-40 to +55°C)
Rated Load (peak)	2 A <10 mS, 1.5 A <100 mS, 1 A <1 second
Max Operating Voltage	55 VDC, 55 V peak in AC waveforms
Contact Material	Solid State
Contact ON impedance	1.5 Ohm max (at the I/O connector)
Contact OFF impedance	>100 MOhm
Off Leakage Current	< 1 µA
Turn-On/Off Time	< 1 mS / < 1 mS
Output Protection	Transient protection via SMAJ60CA TVS diode
	1A fast-blow fuse (Littlefuse 0453001.MR or equivalent)
Power up / reboot state	Off
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	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	600,000 hours

Block Diagram:

I/O Connector — Relays — Relay Drivers — Control Logic — 32–bit 66–MHz bus

Pinout Diagram:

DB-62 (female)

Pin	Signal	Pin	Signal	Pin	Signal
1	Rsvd-do not use	22	Rsvd-do not use	43	Relay 28-B
2	Relay 29-A	23	Relay 29-B	44	Relay 28-A
3	Relay 27-A	24	Relay 27-B	45	Relay 25-B
4	Relay 26-A	25	Relay 26-B	46	Relay 25-A
5	Relay 24-A	26	Relay 24-B	47	Relay 22-B
6	Relay 23-A	27	Relay 23-B	48	Relay 22-A
7	Relay 21-A	28	Relay 21-B	49	Relay 19-B
8	Relay 20-A	29	Relay 20-B	50	Relay 19-A
9	Relay 18-A	30	Relay 18-B	51	Relay 16-B
10	Relay 17-A	31	Relay 17-B	52	Relay 16-A
11	Relay 15-A	32	Relay 15-B	53	Relay 13-B
12	Relay 14-A	33	Relay 14-B	54	Relay 13-A
13	Relay 12-A	34	Relay 12-B	55	Relay 10-B
14	Relay 11-A	35	Relay 11-B	56	Relay 10-A
15	Relay 9-A	36	Relay 9-B	57	Relay 7-B
16	Relay 8-A	37	Relay 8-B	58	Relay 7-A
17	Relay 6-A	38	Relay 6-B	59	Relay 4-B
18	Relay 5-A	39	Relay 5-B	60	Relay 4-A
19	Relay 3-A	40	Relay 3-B	61	Relay 1-B
20	Relay 2-A	41	Relay 2-B	62	Relay 1-A
21	Relay 0-A	42	Relay 0-B		

Connection Options:

Terminal Panels	Matching Cable	Description
DNA-STP-62	DNA-CBL-62	Connects all I/O signals to easy to use screw terminals (standard cables in 1, 3, 10 and 20 foot lengths)