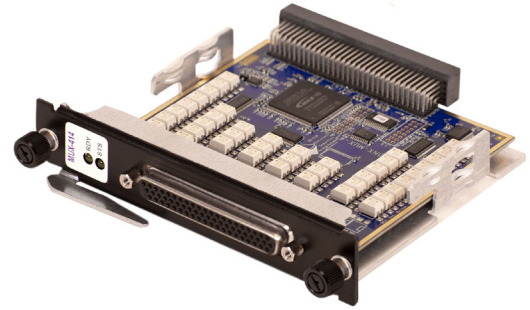


DNR/DNF/DNA-MUX-414

14 Channel 1-by-3 Multiplexer/switch Interface

- DNR/DNF/DNA-MUX-414 for RACKtangle/FlatRACK/Cube chassis
- 14 fully isolated 1 x 3 channel multiplexer/switch
- Ideal solution for maximum flexibility SIL connections
- ± 48 VDC / 34 Vrms (sinusoidal) maximum operating voltage
- 0.2 Ohm resistance (not including cabling)
- 1 A continuous load current rating ($<75^{\circ}\text{C}$)
- 3 A surge current (<100 mS)
- 250 Hz update rate

10-Year
Availability
Guarantee



The DNR/DNF/DNA-MUX-414 is designed for use in RACKtangle™ / FlatRACK/Cube chassis respectively. (DNR-MUX-414 shown).

General Description:

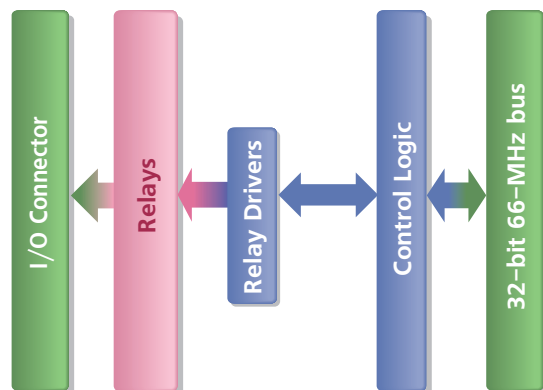
The DNR/DNF/DNA-MUX-414 provides 14 independent one-by-three switches for use with UEI's RACKtangle, FlatRACK and Cube chassis respectively. The MUX-414 boards are designed for use in a wide variety of switching and digital control applications and in particular making connections is SIL applications. Each channel provides a "common" terminal connected to three independent SPST (Form A) contacts. In a typical SIL application, this allows each flight computer signal to be connected to the actual trainer, a simulated device, a third test or error signal, or left open to simulate a broken wire or other open circuit condition.

Each channel is capable of switching voltages up to ± 48 VDC, AC waveforms with peaks less than ± 48 VDC or sinusoidal signals up to 34 Vrms. Each channel is rated for continuous operation at 1 A DC or AC rms with a switch resistance of less than 0.2 Ohm (typical, not including external cables). Switches may be connected in parallel to increase current handling capacity. Please ensure current sharing switches are changed at the same time. All relays default to "open" on power up/reset. Switching rates up to 250 Hz are supported and all channels default to break-before-make relay operation. Each board provides 350 VDC isolation between channels, as well as between the board, cube and other installed I/O boards.

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-MUX-414 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, 6, 10 and 20 foot lengths.

The DNx-MUX-414 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 use the 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, MATLAB).

Block Diagram (board level):

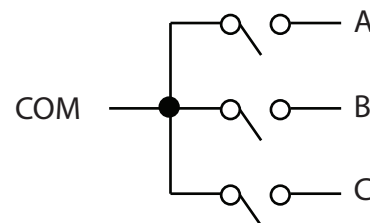


Technical Specifications: (at 25 °C unless otherwise noted)

Output configuration	14 independent 1 x 3 switches
Output specifications	
Rated Load (continuous)*	0.8A @+85°C, 1A (-40 to +75°C) 2A (-40 to +25°C)
Rated Load (peak)	3 A < 0.1 second
Max Operating Voltage	48 VDC, 48 V peak in AC waveforms, 34 Vrms (sinusoidal signals)
Absolute Max Voltage	55 VDC
Contact type	Solid State
Contact ON impedance	0.2 Ohm typical, 0.25 Ohm max (at the I/O connector)
Contact OFF impedance	>100 MOhm
Off Leakage Current (A, B or C terminal)	< 10 nA typical, <3 μA max over full temp range (common terminals up to 3x this spec)
Max update rate	250 Hz (including break-before-make timing)
Turn-Off Time	<0.2 mS typical (1 mS max)
Turn-On Time	< 0.45 mS typical (2 mS max)
Power up / reboot state	All Switches Off
Sync in/out specifications	
Sync in High Voltage	2.8 V min
Sync in Low Voltage	1.0 V max
Sync out High Voltage	3.55 V min / 4.0 V max @ 3 mA
Sync out Low Voltage	0.4 V max @ 3 mA
Power dissipation	< 5 W
Isolation	350 Vrms
Isolation resistance	>1 GOhm
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	>400,000 hours

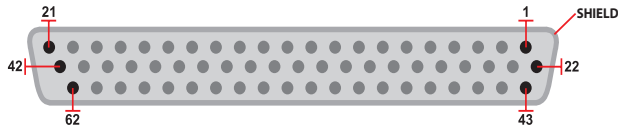
*Channels may be run in parallel to achieve higher current capabilities but care must be taken to ensure parallel channels are always turned on and off at the same time (in the same write).

Block Diagram (single channel):



Contacts for A, B and C are independently programmable. Switches may be connected in parallel to increase current handling capacity. Please ensure current sharing switches are changed at the same time.

Pinout Diagram: DB-62 (female)



<i>Pin</i>	<i>Signal</i>	<i>Pin</i>	<i>Signal</i>	<i>Pin</i>	<i>Signal</i>
1	ch 11-A	22	ch 11 -com	43	ch 11 -C
2	ch 13-B	23	ch 13 -C	44	ch 11 -B
3	ch 13 -A	24	ch 13 -com	45	ch 12 -A
4	ch 12 -B	25	ch 12 -C	46	ch 12 -com
5	sync out	26	sync gnd	47	sync +3.75V
6	ch 10 -B	27	ch 10 -C	48	sync in
7	ch 10 -A	28	ch 10 -com	49	ch 9 -A
8	ch 9 -B	29	ch 9 -C	50	ch 9 -com
9	ch 8 -B	30	ch 8 -C	51	ch 8 -A
10	ch 7 -B	31	ch 7 -C	52	ch 8 -com
11	ch 7 -A	32	ch 7 -com	53	ch 6 -A
12	ch 6 -B	33	ch 6 -C	54	ch 6 -com
13	ch 5 -B	34	ch 5 -C	55	ch 2 -C
14	ch 5 -A	35	ch 5 -com	56	ch 2 -B
15	ch 2 -A	36	ch 2 -com	57	ch 1 -A
16	ch 1 -B	37	ch 1 -C	58	ch 1 -com
17	ch 4 -B	38	ch 4 -C	59	ch 4 -A
18	ch 3 -B	39	ch 3 -C	60	ch 4 -com
19	ch 3 -A	40	ch 3 -com	61	ch 0 -A
20	ch 0 -B	41	ch 0 -C	62	ch 0 -com
21	rsvd*	42	rsvd*		

* Please do not connect anything to pins designated as rsvd

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, 6, 10 and 20 foot lengths)