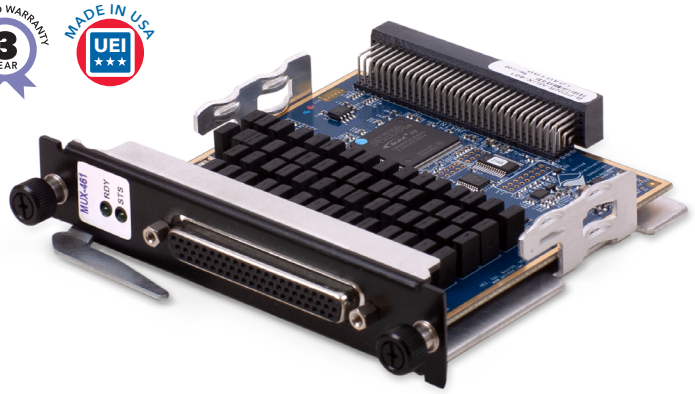
# DNA/DNR/DNF-MUX-461-350

## High Voltage Multiplexer for the DMM-261

- DNR/DNF-MUX-461 for use in RACKtangle/FlatRACK chassis
- DNA-MUX-461 for use in DNA series Cubes
- ±350 VDC or VAC (maximum operating voltage)
- 24 two-wire or 12 four-wire channels
- Fully compatible with the DNx-DMM-261
- Connects to DMM-261 without external wiring
- 4.0 Ω resistance (not including cabling)
- 500 mA switching current
- Compatible with standard voltage DNx-MUX-461
- 500 Hz update rate



DNA-MUX-461-350 boards are for use in "Cube" chassis. The DNR/DNF-MUX-461-350 is designed for use in RACKtangle™/FlatRACK chassis respectively (DNR-MUX-461-350 shown).

## General Description:

The DNA/DNR/DNF-MUX-461 provides 24 two-wire or 12 four-wire multiplexers. It is ideally suited for use with the DNx-DMM-261 DMM board, but is an ideal MUX board for almost any system requiring a high voltage multiplexer. All connections are made inside the Cube or RACKtangle, so the only connections you need to make are to the various channels on the board. Up to five of the boards may be daisy chained within the Cube/RACK chassis, providing up to 120 two-wire or 60 four-wire channels in a single chassis. Larger systems are possible, though they will require the DMM-261 to MUX-461 interconnection be external to the chassis itself.

The MUX-461-350 is designed for use in a wide variety of switching applications. Each channel is capable of switching voltages up to ±350 VDC or AC, is rated for continuous operation at 500 mA DC or AC rms, and with a switch resistance of less than 4.0 Ω (not including external cables). For systems that do not require switching signal over 170VDC/VAC, we recommend use of the DNx-MUX-461 (without the -350 suffix). The standard MUX-461 will provide better performance on lower level signals that are often monitored with a DMM.

The relays are solid state, so they are not limited by a maximum number of operations. All relays default to "open" on power up/reset. Switching rates up to 500 Hz are supported. Each board provides 350 VDC isolation between channels, and between the board, cube and other installed I/O boards.

A digital trigger input is provided at the I/O connector and can be used to initiate channel switches. A digital trigger output provides the relay status (in transition or stable).

MUX-461 series boards may be connected to DNx-DMM-261 series DMMs totally within the DNA or DNR chassis. In the DNA Cubes, the MUX-461 is connected to the DMM-261 by a set of internal connectors that connect to the board above (and/or below). In DNR chassis, a special cable is used to connect MUX-461 series board together as well as to the DMM-261.

All field wiring 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-461 boards to our popular DNA-STP-62 screw terminal panel via the DNA-CBL-62 cables.

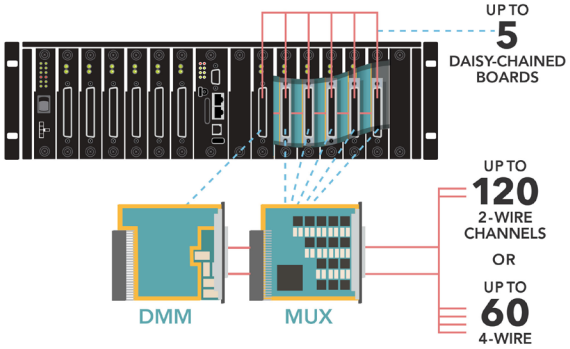
## Technical Specifications: (at 25 °C unless otherwise noted)

| | | |
|---|---|---|
| Configuration | | 24 two-wire or 12 four-wire multiplexers |
| Switch Specifications | | |
| Rated Load (switching) | | 500 mA (-40 to +85 °C) |
| Maximum Operating Voltage | | 350 VDC (peak) or VAC |
| Contact Type | | Solid State/MOS FET relays |
| Contact ON Impedance | | 4.0 Ω max (at the I/O connector) |
| Contact OFF Impedance | | >10 MΩ |
| Off Leakage Current | | <10 µA max, 0.05 µA typical |
| Maximum Update Rate | | 500 Hz |
| Turn-Off Time | | <1 ms typical |
| Turn-On Time | | <1 ms typical |
| Maximum Operating Rate | | 500 Hz |
| Power Up/Reboot State | | All switches off |
| Power Dissipation | | < 5 W not including output switches |
| Isolation | | 350 Vrms |
| Operating Temperature Range | | Tested -40 to +85 °C |
| Operating Humidity | | 95%, non-condensing |
| Vibration | *IEC 60068-2-6*<br>*IEC 60068-2-64* | 5 g, 10–500 Hz, sinusoidal<br>5 g (rms), 10–500 Hz, broad-band random |
| Shock | *IEC 60068-2-27* | 50 g, 3 ms half sine, 18 shocks @ 6 orientations<br>30 g, 11 ms half sine, 18 shocks @ 6 orientations |
| MTBF | | TBD 000 hours |

The cables are shielded and available in 1, 3, 10 and 20 foot lengths.

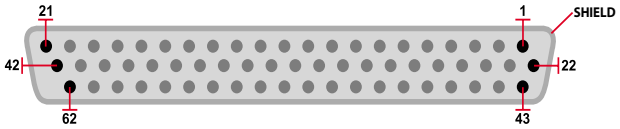
The DNx-MUX-461 series includes software drivers supporting all popular operating systems including: Windows, Linux, QNX, VXWorks, and more. Windows users may take advantage of the powerful UEIDAQ Framework, which provides a simple and complete software interface to all popular Windows programming languages and data acquisition and control applications (e.g. LabVIEW, MATLAB).

## DMM / MUX Integration:



## Pinout Diagram:

DB-62 (female)



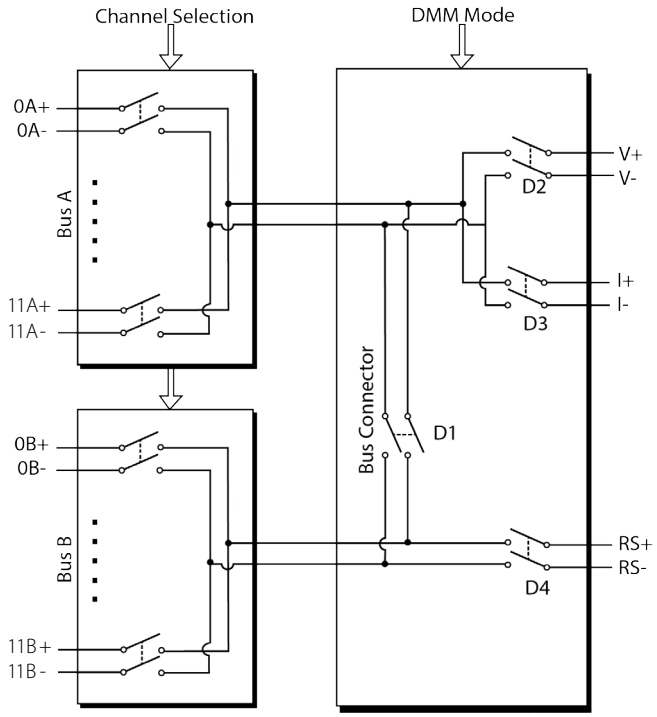

### 2-WIRE MEASUREMENT

| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | Sync +3.75V | 22 | Sync Gnd | 43 | nc |
| 2 | Sync Out | 23 | Sync In | 44 | nc |
| 3 | nc | 24 | nc | 45 | IN 23- |
| 4 | IN 11+ | 25 | IN 11- | 46 | IN 23+ |
| 5 | IN 10+ | 26 | IN 10- | 47 | IN 9- |
| 6 | IN 22+ | 27 | IN 22- | 48 | IN 9+ |
| 7 | IN 21+ | 28 | IN 21- | 49 | IN 20- |
| 8 | IN 8+ | 29 | IN 8- | 50 | IN 20+ |
| 9 | IN 7+ | 30 | IN 7- | 51 | IN 6- |
| 10 | IN 19+ | 31 | IN 19- | 52 | IN 6+ |
| 11 | IN 18+ | 32 | IN 18- | 53 | IN 17- |
| 12 | IN 5+ | 33 | IN 5- | 54 | IN 17+ |
| 13 | IN 4+ | 34 | IN 4- | 55 | IN 3- |
| 14 | IN 16+ | 35 | IN 16- | 56 | IN 3+ |
| 15 | IN 15+ | 36 | IN 15- | 57 | IN 14- |
| 16 | IN 2+ | 37 | IN 2- | 58 | IN 14+ |
| 17 | IN 1+ | 38 | IN 1- | 59 | IN 0- |
| 18 | IN 13+ | 39 | IN 13- | 60 | IN 0+ |
| 19 | IN 12+ | 40 | IN 12- | 61 | DMM V- |
| 20 | DMM RS- | 41 | DMM RS+ | 62 | DMM V+ |
| 21 | DMM I- | 42 | DMM I+ | | |

### 4-WIRE MEASUREMENT

| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | Sync +3.75V | 22 | Sync Gnd | 43 | nc |
| 2 | Sync Out | 23 | Sync In | 44 | nc |
| 3 | nc | 24 | nc | 45 | IN 11B- |
| 4 | IN 11A+ | 25 | IN 11A- | 46 | IN 11B+ |
| 5 | IN 10A+ | 26 | IN 10A- | 47 | IN 9A- |
| 6 | IN 10B+ | 27 | IN 10B- | 48 | IN 9A+ |
| 7 | IN 9B+ | 28 | IN 9B- | 49 | IN 8B- |
| 8 | IN 8A+ | 29 | IN 8A- | 50 | IN 8B+ |
| 9 | IN 7A+ | 30 | IN 7A- | 51 | IN 6A- |
| 10 | IN 7B+ | 31 | IN 7B- | 52 | IN 6A+ |
| 11 | IN 6B+ | 32 | IN 6B- | 53 | IN 5B- |
| 12 | IN 5A+ | 33 | IN 5A- | 54 | IN 5B+ |
| 13 | IN 4A+ | 34 | IN 4A- | 55 | IN 3A- |
| 14 | IN 4B+ | 35 | IN 4B- | 56 | IN 3A+ |
| 15 | IN 3B+ | 36 | IN 3B- | 57 | IN 2B- |
| 16 | IN 2A+ | 37 | IN 2A- | 58 | IN 2B+ |
| 17 | IN 1A+ | 38 | IN 1A- | 59 | IN 0A- |
| 18 | IN 1B+ | 39 | IN 1B- | 60 | IN 0A+ |
| 19 | IN 0B+ | 40 | IN 0B- | 61 | DMM V- |
| 20 | DMM RS- | 41 | DMM RS+ | 62 | DMM V+ |
| 21 | DMM I- | 42 | DMM I+ | | |

## Block Diagram:




## Products/Accessories:

| Part Number | Description |
|---|---|
| DNx-MUX-461-350 | High voltage multiplexer for the DMM-261 |
| DNA-STP-62 | 62-channel screw terminal panel |
| 1000-126 | DIN rail tray for the STP-62 |
| DNA-STP-62-DR | 62-pos terminal panel for PowerDNA layers |
| DNA-CBL-62 | 2.5ft, 62-way, male to male, round shielded cable |
| Extended Warranty | Option to purchase UEI's extended 5 year warranty is available |