



INTERFACE SERIES

Installation & Operation Instructions
DMUX-4J, DMUX-8J

Phone: 1-888-967-5224
Website: workaci.com

GENERAL INFORMATION

DMUX-4-J: Sequence 4 relays or One of 4 or Individual Relay Control or Rooftop Unit Control.

DMUX-8-J: Sequence 8 relays or One of 8 relays or Individual Relay Control or Rooftop Unit Control.

MOUNTING INSTRUCTIONS

The interface device may be mounted in any position. If circuit board slides out of snap track, a non-conductive "stop" may be required. Use only fingers to remove board from snap track. Slide out of snap track or push against side of snap track and lift that side of the circuit board to remove. **Do not flex board or use tools.**

WIRING INSTRUCTIONS

PRECAUTIONS

- Remove power before wiring. Never connect or disconnect wiring with power applied.
- When using a shielded cable, ground the shield only at the controller end. Grounding both ends can cause a ground loop.
- It is recommended you use an isolated UL-listed class 2 transformer when powering the unit with 24 VAC. Failure to wire the devices with the correct polarity when sharing transformers may result in damage to any device powered by the shared transformer.
- If the 24 VDC or 24VAC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have an MOV, DC/AC Transorb, Transient Voltage Suppressor (ACI Part: 142583), or diode placed across the coil or inductor. The cathode, or banded side of the DC Transorb or diode, connects to the positive side of the power supply. Without these snubbers, coils produce very large voltage spikes when de-energizing that can cause malfunction or destruction of electronic circuits.
- All wiring must comply with all local and National Electric Codes.

Before connecting DC power, place J9 Shunt in DC position.

Before connecting AC power, place J9 Shunt in AC position.

Apply power: the "POWER" LED should light. Close the pulse input relay contacts: the "PULSE" LED should light indicating that the DMUX is receiving the timing signal. Further test the DMUX operation by comparing the operation of output relays with respective input pulse. The LED for each relay will turn on when the respective relay is activated.

FIGURE 1: DIMENSIONS

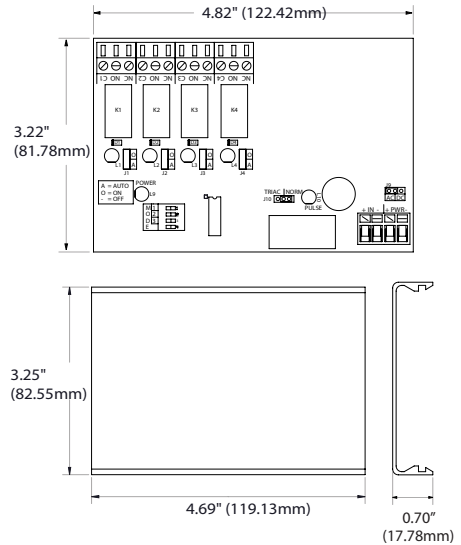
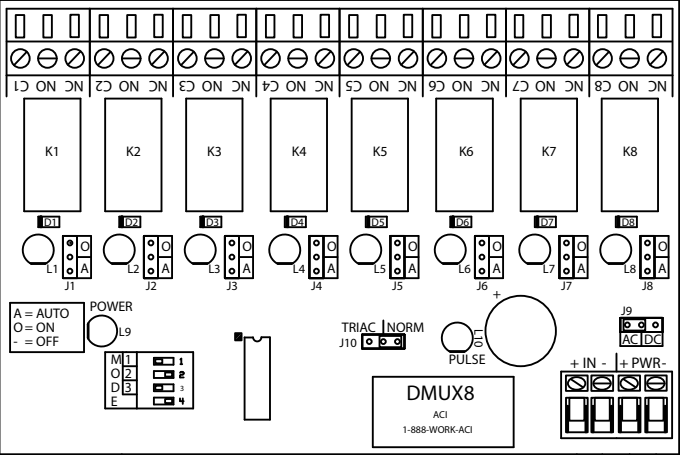
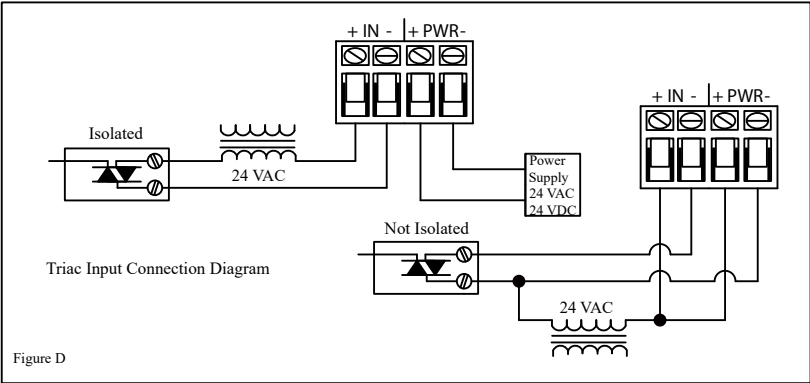
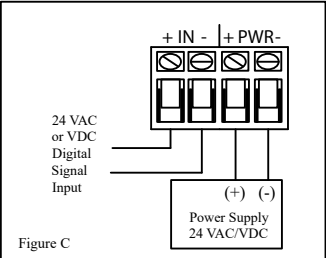
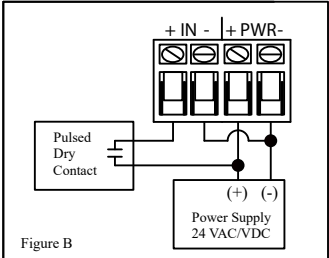
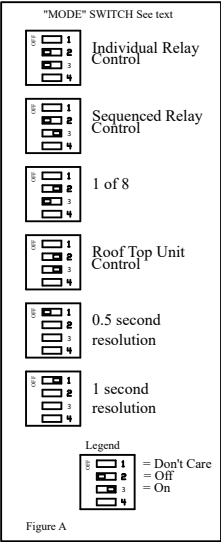


FIGURE 2: WIRING



Mode Switch
See Figure A

Connections
(Fig B, C OR D)



DIP SWITCH SELECTABLE CONTROL MODES: Individual Relay Control, Sequenced Relay Control, Selected 1 (only) of 8 Relay Control, and Roof Top Unit Control (See **Figure 1** (Fig. A), page 2)

RESOLUTION SWITCH: Changes the pulse resolution on all modes (See **Figure 1** (Fig. A), page 2)

SEQUENCED RELAY CONTROL

This mode allows a single pulse to bring on multiple relays in sequencing order.

SWITCH SETTING: 2 OFF, 3 ON, 1 OFF for 0.5 second resolution, or 1 ON for 1 second resolution

PULSE LENGTH IN SECONDS		RELAY ACTION
(0.5 sec.) Resolution	(1 sec.) Resolution	
0.5	1	ALL OFF
1	2	1 ON, Others OFF
1.5	3	1,2 ON, Others OFF
2	4	1,2,3 ON, Others OFF
2.5	5	1,2,3,4 ON, Others OFF
3	6	1,2,3,4,5 ON, Others OFF
3.5	7	1,2,3,4,5,6 ON, Others OFF
4	8	1,2,3,4,5,6,7 ON, Others OFF
4.5	9	1,2,3,4,5,6,7,8 ON.
No action on longer pulses.		

INDIVIDUAL RELAY CONTROL

This mode allows the relays to be controlled individually as well as ALL ON and ALL OFF commands. All relays are OFF when power is applied. Each relay will hold its last commanded position until power loss.

Switch setting: 2 and 3 OFF, 1 OFF for 0.5 second resolution, or 1 ON for 1 second resolution

PULSE LENGTH IN SECONDS		RELAY ACTION
(0.5 sec.)Resolution	(1 sec.) Resolution	
0.5	1	ALL OFF
1	2	1 OFF
1.5	3	1 ON
2	4	2 OFF
2.5	5	2 ON
3	6	3 OFF
3.5	7	3 ON
4	8	4 OFF
4.5	9	4 ON
5	10	5 OFF
5.5	11	5 ON
6	12	6 OFF
6.5	13	6 ON
7	14	7 OFF
7.5	15	7 ON
8	16	8 OFF
8.5	17	8 ON
9	18	ALL ON
No action on longer pulses.		

ONE OF EIGHT

This mode allows only one relay at a time to be on. This mode is useful as an analog or digital signal multiplexer.

SWITCH SETTINGS: 2 ON, 3 OFF, 1 OFF for 0.5 second resolution, or 1 ON for 1 second resolution

PULSE LENGTH IN SECONDS		RELAY ACTION
(0.5 sec.) Resolution	(1sec.) Resolution	
0.5	1	ALL OFF
1	2	1 ON Others OFF
1.5	3	2 ON Others OFF
2	4	3 ON Others OFF
2.5	5	4 ON Others OFF
3	6	5 ON Others OFF
3.5	7	6 ON Others OFF
4	8	7 ON Others OFF
4.5	9	8 ON Others OFF
5	10	ALL OFF

No action on longer pulses.

ROOF TOP UNIT CONTROL

This mode allows a single pulse to bring on relay combinations that are useful in controlling RoofTop Units.

SWITCH SETTINGS: 2 ON, 3 ON, 1 OFF for 0.5 second resolution, or 1 ON for 1 second resolution

EXAMPLE:

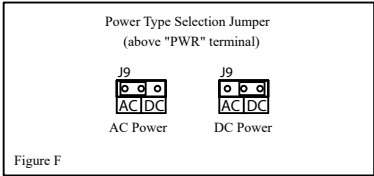
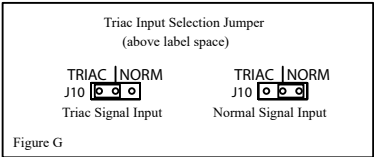
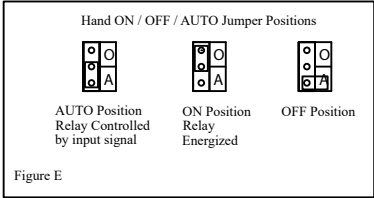
Relay number	RTU Control Function (Examples only)
1	Fan
2	Cool1
3	Cool2
4	Heat1
5	Heat2
6	Heat3
7	Heat4
8	Economizer

PULSE LENGTH IN SECONDS		RELAY ACTION (Examples only)
(0.5 sec.) Resolution	(1sec.) Resolution	
0.5	1	ALL OFF
1	2	Fanonly (turns off Economizer)
1.5	3	Fan, Cool1
2	4	Fan, Cool1, Cool2
2.5	5	Fan, Heat1
3	6	Fan, Heat1, Heat2
3.5	7	Fan, Heat1, Heat2, Heat3
4	8	Fan, Heat1, Heat2, Heat3, Heat4
4.5	9	Fan, Economizer

Note: The 4 relay version will go to 2.5 seconds (0.5 sec. resolution) or 5 seconds (1sec. resolution) in controlling the 4 relays.

Custom versions of the DMUX are available that include Pulse Addressing (the ability to address one of several DMUX boards, and then control its relays), different pulse time resolutions and relay output combinations. Please contact the sales departments with your requirements.

FIGURE 3: SWITCH SETTINGS



PRODUCT SPECIFICATIONS

SENSOR NON-SPECIFIC INFORMATION	
Supply Voltage:	24 VAC or 24VDC, (+/- 10%), 50/60 Hz
Supply Current:	260 mA maximum
Input Pulse Source:	Relay Contact Closure, Transistor or Triac (jumper selectable)
Input Pulse Trigger Level:	5 to 24 volts AC or DC, 20 mA maximum
Input Pulse Timing:	0.5S or 1S Resolution
Off Time Between Pulses:	10 milliseconds minimum
Digital Output Type:	Form "C" Relays
Relay Contact Rating:	2A maximum @ 24 VDC
Relay Electrical Life:	100,000 operations minimum
Relay Mechanical Life:	1,000,000 operations
Output Relay:	4 or 8 N.O. and N.C. contacts (model dependant)
Relay Override Jumpers:	Three-position (ON/OFF/AUTO)
Connections:	45° Captive screw Terminal Blocks
Wire Size:	12 (3.31 mm ²) to 22 AWG (0.33 mm ²)
Terminal Block Torque Rating:	0.5 Nm (Minimum); 0.6 Nm (Maximum)
Operating Temperature Range:	35 to 120°F (1.7 to 48.9°C)
Operating Humidity Range:	10 to 95% non-condensing
Storage Temperature:	-20 to 150°F (-28.9 to 65.5°C)

WARRANTY

The DMUX Series are covered by ACI's Two (2) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's website: www.workaci.com.

W.E.E.E. DIRECTIVE

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with household waste. Do not burn.



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