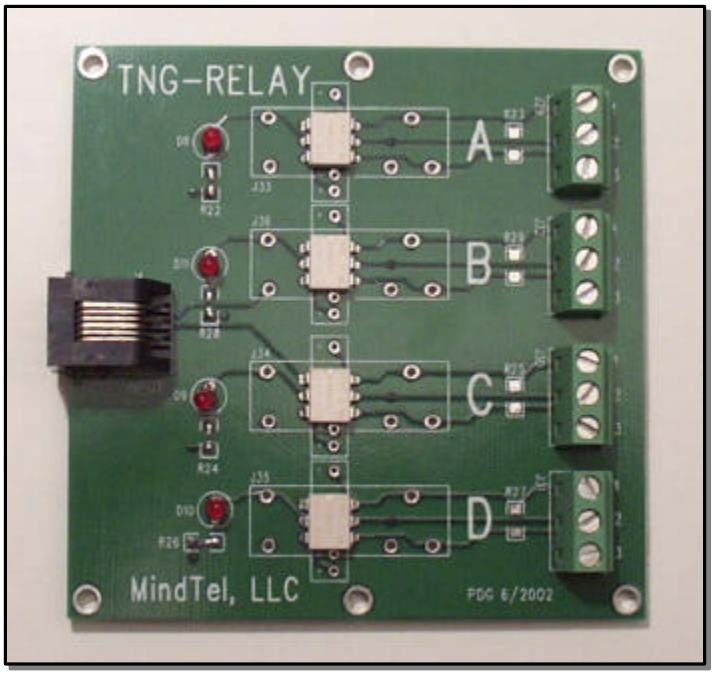
PDG September 24, 2002

TNG-relay Board

The TNG-relay board allows a TNG-4 digital output port to control four relays. The relays can be PVN012 PhotoMOS relays as shown at right, P&B/Tyco T75S5D15-05 (DigiKey #PB442) mechanical relays, Radio Shack 275-310 AC SSR (Sharp), H11L1 logic optoisolators, or many of Aromat's AQV-type photoMOS relays.



Each channel can be configured separately.

Indicator LEDs not required. The value of the current limiting resistors, R22, R24, R26, and R28, depends on the current requirements of the relay device and LED.

Screw terminal connections are optional, as is the 6-6 modular jack.

Each relay channel has three output connections labeled "1", "2", and "3". The function of the three connections depends on the relay implemented and the configuration of the load.

The P&B/Tyco T75S5D15-05 relay requires more current than can be supplied by TNG-4 directly.

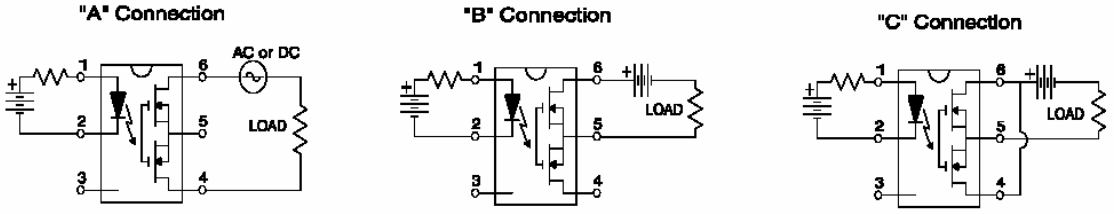
Device		Pin 1	Pin 2	Pin 3	Control Current	Load Characteristics
PVN012	"A"	AC or DC +power	No connection	AC or DC load high; connect low side of load to DC power ground	~2.8 mA (R=665 w/ LED) Use 5mA for max. current.	±20V (peak) AC OR DC @ 2.0A max. Turn on = 5ms Turn off = 0.5ms
PVN012	"B"	+DC power	DC load high; connect low side of load to DC power ground	No connection	~2.8 mA	3A DC max.
PVN012	"C"	+DC power	DC load high; connect low side of load to DC power ground	+DC power	~2.8 mA	4.5A DC max.

P&B/Tyco T75		Switch Common	Normally closed	Normally open	~43mA	5A @ 125VAC or 8A @ 24VDC in 10ms
H11L1		Vcc	GND	Logic Output (install 47k resistor)	~2mA	Output sinks up to 16mA
Radio Shack SHARP S101S05V		AC Load	No connection	AC Load	20 mA	3A @125 VAC turn on time 1ms; turn off time 10ms.
Sharp S101S02		AC load	No connection	AC Load	20 mA	1.5A @125 VAC turn on time 1ms; turn off time 10ms.
Aromat/ NAIS AQV210E		AC or DC +power	No connection	AC or DC load high; connect low side of load to DC power ground	3 mA	130mA @ 350V max. AC or DC 2ms switching time
Aromat/ NAIS AQV212		AC or DC +power	No connection	AC or DC load high; connect low side of load to DC power ground	3 mA	400mA @ 60V max. AC or DC 2ms switching time
Aromat/ NAIS AQV214		AC or DC +power	No connection	AC or DC load high; connect low side of load to DC power ground	3 mA	120mA @ 400V max. AC or DC 0.5ms switching time
Aromat/ NAIS AQV241		AC or DC +power	No connection	AC or DC load high; connect low side of load to DC power ground	3 mA	500mA @ 40V max. AC or DC 2ms switching time

Other SSRs, mech. Relays, and optoisolators may be adapted to this board.

PVN012

Connection Diagrams



PVN012 pins 6, 5, and 4 correspond to TNG-relay output pins 1, 2, and 3, respectively.

The TNG-relay PCB is 3.5 x 3.5". There are six 0.125" mounting holes, three along the top and three along the bottom edge of the board. All the holes are located 0.125" from the nearest edge. The center holes are (surprise) situated on the board's midline (1.75").

Unpopulated relay board: