

ET-OPTO RELAY4 Manual

ET-OPTO RELAY4

The ET-OPTO RELAY4 board is an OPTO-Isolated 4 channel output board which is used to control the operation of electrical equipment by the use of a TTL +5V control signal. The Relay circuit uses an Opto-Isolated circuit to control the operation and to prevent interference. The optical isolation provides effective isolation by completely isolating the control and load circuits, this is done by using an optical source to close the output contacts of the circuit. The relay closes on logic "0" and opens on a logic "1", this prevents the relay from switching on during the micro-controller resets or when the board is turned on.

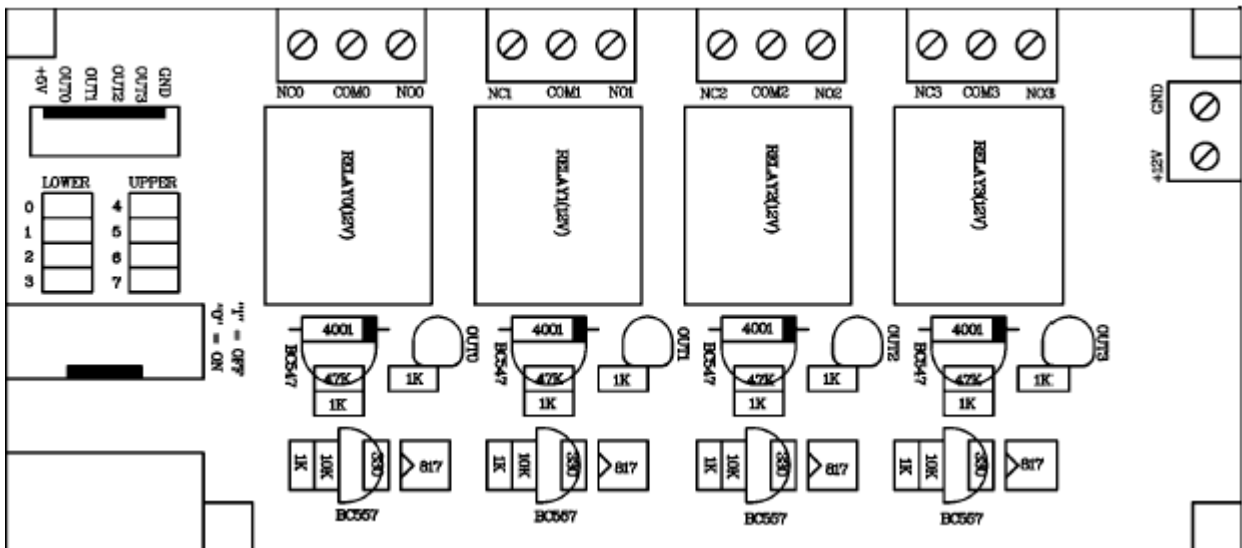


Figure 1: Layout of ET-OPTO RELAY4 Board

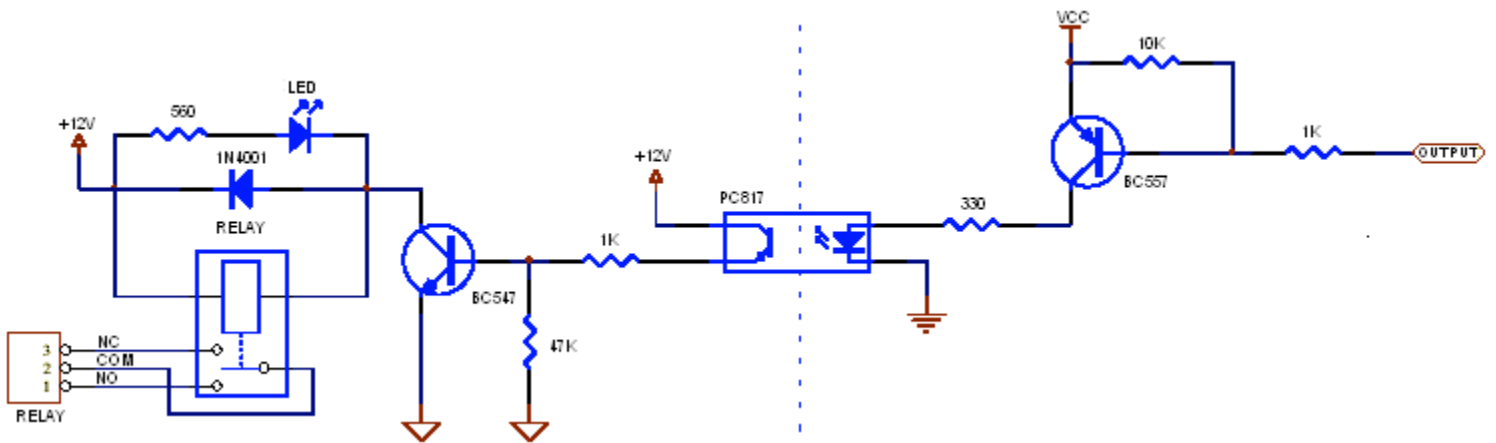


Figure 2: Single Channel Circuit for ET-OPTO RELAY4 Board

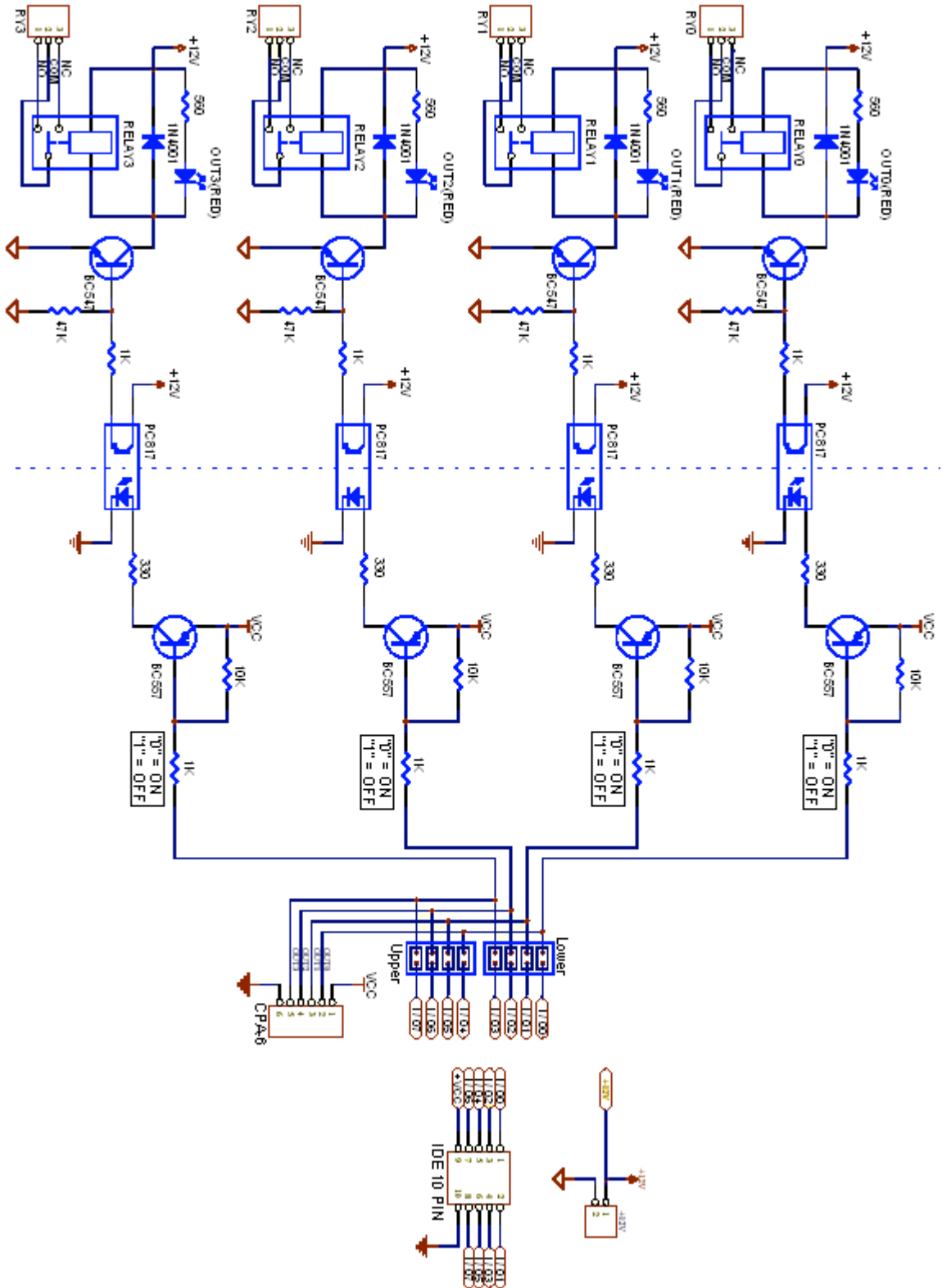


Figure 3: Circuit of ET-OPTO RELAY4 Board

The Board Operation

The relay will close after the input of the circuit is cleared or set to logic "0". This turns on the transistor BC557 which controls the Opto-Isolator (PC817) circuit supplying the necessary bias. The current can then flow from the Emitter pin to the Collector through the limiting resistor 330ohm, to the input of the Opto Isolator (PC817). The opto-isolator will now turn on. The control voltage +12VDC is reduced by the 1k limiting resistor prior to connecting to the base pin of BC547 transistor and turning on the relay. The board can control the operation of any electrical equipment by connecting the output relay contacts in the supply circuit for that equipment. The relay Interface has 2 types of contacts: NO (normally-open) and NC (normally-closed). It is recommended to use only one contact combined with the COM pin (Common).

- NO or Normal Open will run after the relay closes.
- NC or Normal Close will stop running after the relay closes.

The TTL control signal can be connected in two ways,

1. Connect through the IDE 10 pin terminal block with a cable pair, by determining the correct TTL signal combination for the board running: lower and upper.
2. Connect through terminal CPA 6 pin as table below.

Output Terminal	LOWER		UPPER	
	IDE 10 Pin	CPA 6 Pin	IDE 10 Pin	CPA 6 Pin
RELAY0	Px0	OUT0	Px4	OUT0
RELAY1	Px1	OUT1	Px5	OUT1
RELAY2	Px2	OUT2	Px6	OUT2
RELAY3	Px3	OUT3	Px7	OUT3

Figure 4: Connection Between signal of ET-OPTO RELAY4 Board and Micro-Controller Table

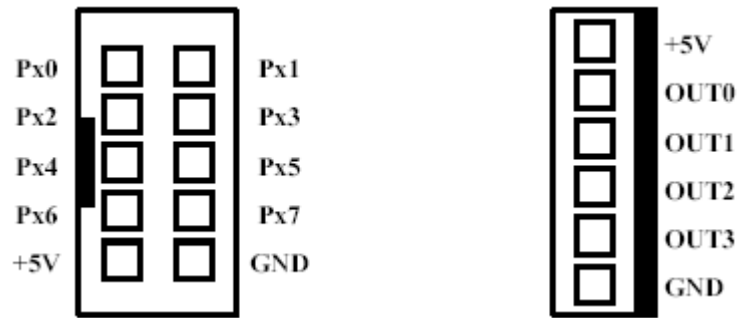


Figure 5: Signals for IDE-10 Pin Connection and CPA-6 Pin Connection