# User's Manual of Board ET-REL8

ET-REL8

Board ET-REL8 is 8 Channel RELAY OUTPUT Board to control operation of electric devices as ON/OFF Switch Contact. Each RELAY has 2 sets of Switch Contacts (NO and NC). Board is designed to connect with 34 PIN I/O PORT 8255 (72IOZ80-BUS) ETT standards, so user can set Port of 8255 to control operation of all 3 Ports of RELAY independently (PORTA, PORTB, and PORTC). Additionally, it can be connected with various versions of ETT Board that has 34PIN Port Interface or it can be connected through 10PIN ET I/O PORT (ETT standards) but user can not use all 3 Ports; PORTA, PORTB, and PORTC because it can directly interface only one Port.
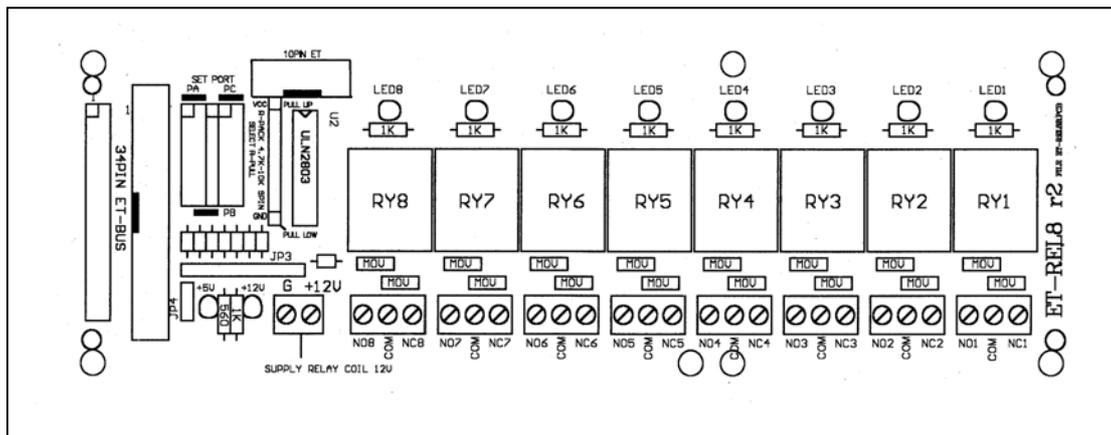
Setup Jumpers on Board ET-REL8

1. Set Port of 8255 to control RELAY; there are 3 Ports of RELAY; PORTA, PORTB, and PORTC. In this case, user can use any Port to control RELAY independently. The method to set Jumper is to select Port (SET PORT) as shown below.
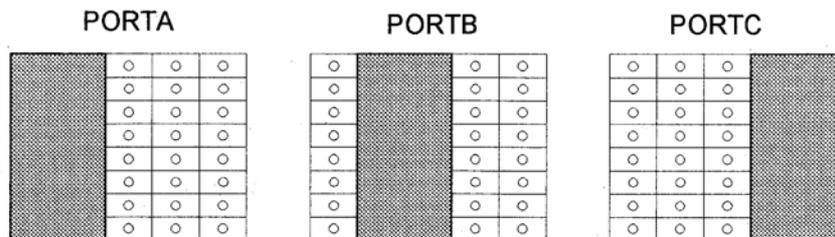

Figure displays the methods to setup Jumpers to select Port.

2. Set type of Power Supply to support Board ET-REL8; in this case, there are 3 choices to as described below;

   2.1 Interface +5VDC from Controller Board (from 34 PIN Pair Cable) if using 6V RELAY (on Board ET-REL8 is 12V RELAY, so we do not recommend user to use this method because power on RELAY will interfere in +5V Power System that is connected with CPU except the +5V Power System is good enough). User must do Short Jumper JP4 to position 2-3 and user does not interface any Voltage at Terminal 2PIN (Supply Relay +12V), lets it free.

   2.2 Interface +12VDC from Controller Board (from 34PIN Pair Cable); in this case, it can be used with Controller Board version that has +12V Power Supply or version that consists of Regulator 7805 Circuit (In this case, DC Adapter that supplies direct current into Controller Board must be +12V DC). User must modify circuit by interfacing cable between +12VDC from Pin 1 (INPUT) of IC Regulator 7805 and Connector 34PIN of Controller Board. Additionally, user must do Short Jumper JP4 to position 1-2 on Board ET-REL8 and user does not interface any Voltage at Terminal 2PIN (Supply Relay +12V), lets it free.

JP4 = +5V FROM 34 PIN   JP4 = +12V FROM 34 PIN
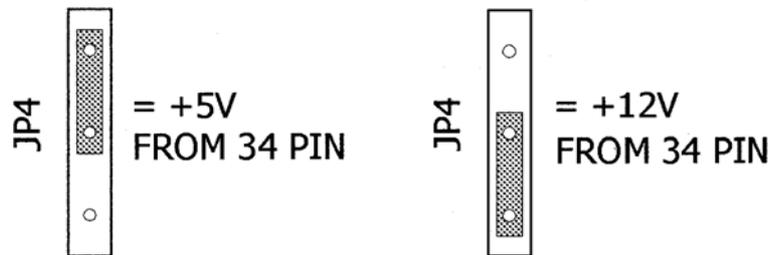
2.3 Interface +12VDC from external through Terminal 2PIN (Supply Relay +12V) of Board ET-REL8; in this case, user must remove Jumper JP4; otherwise it makes +12VDC and +5V short circuit and makes Board ET-REL8 damaged.

New version of Board ET-REL8 uses 12V Relay and not includes Jumper JP4 because it protects user from confused while applying, so user must select only the 3rd choice to set Power Supply for Board ET-REL8. In this case, user must interface +12VDC from external through Terminal 2PIN (Supply Relay +12V).

Application of Board ET-REL8

The controller of each RELAY (CH1-CH8) will be separated independently. One RELAY has 2 sets of Switch Contact; NO and NC. Switch Contact of each RELAY will be interfaced to Connector Terminal 3PIN (NO-COMMON-NC) and there is LED to display the operation status of each RELAY.

Writing program to control operation of Board ET-REL8, RELAY runs if it receives Logic "1" and RELAY stops running if it receives Logic "0" as described below;

- When user sets INPUT that enters Board ET-REL8 is Logic "1", it makes RELAY run (LED is in status ON) and it makes Switch Contact of RELAY between COMMON and NO connect together.
- When user sets INPUT that enters Board ET-REL8 is Logic "0", it makes RELAY run (LED is in status ON) and it makes Switch Contact of RELAY between COMMON and NC connect together.
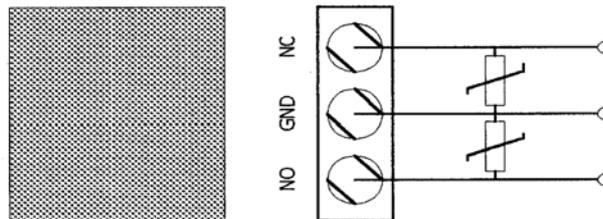
NO Switch Contact: It means that it is NORMAL OPEN or Opening Status.
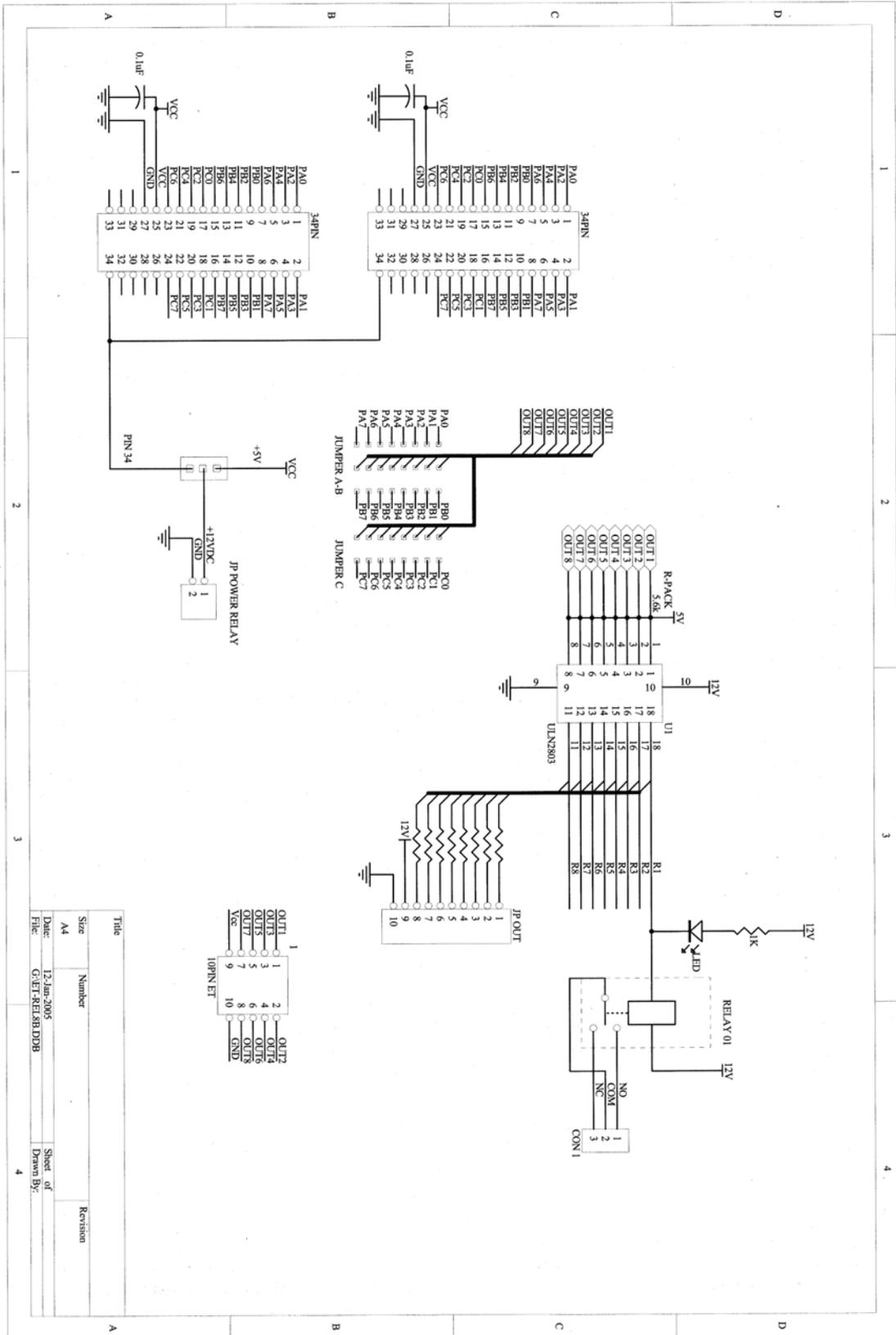NC Switch Contact: It means that it is NORMAL CLOSE or Closing Status.

Recommendations

If using Switch Contact of RELAY to drive very high current, signal maybe interfere in Switch Contact of RELAY while it is opening or closing, so it makes Board Microcontroller maybe error. In this case, user can solve this problem by putting VARISTOR (MOV) between Switch Contacts of RELAY as shown in the picture below to reduce this problem.

The method to select VARISTOR is to determine VOLTS value of VARISTOR and user always select VARISTOR Number that can endure the voltage higher than the real application. For example, if user uses 220VAC Switch Contact of RELAY to ON/OFF electric device, user should select VARISTOR higher than 220VAC; in this case, it should be 275VDC.