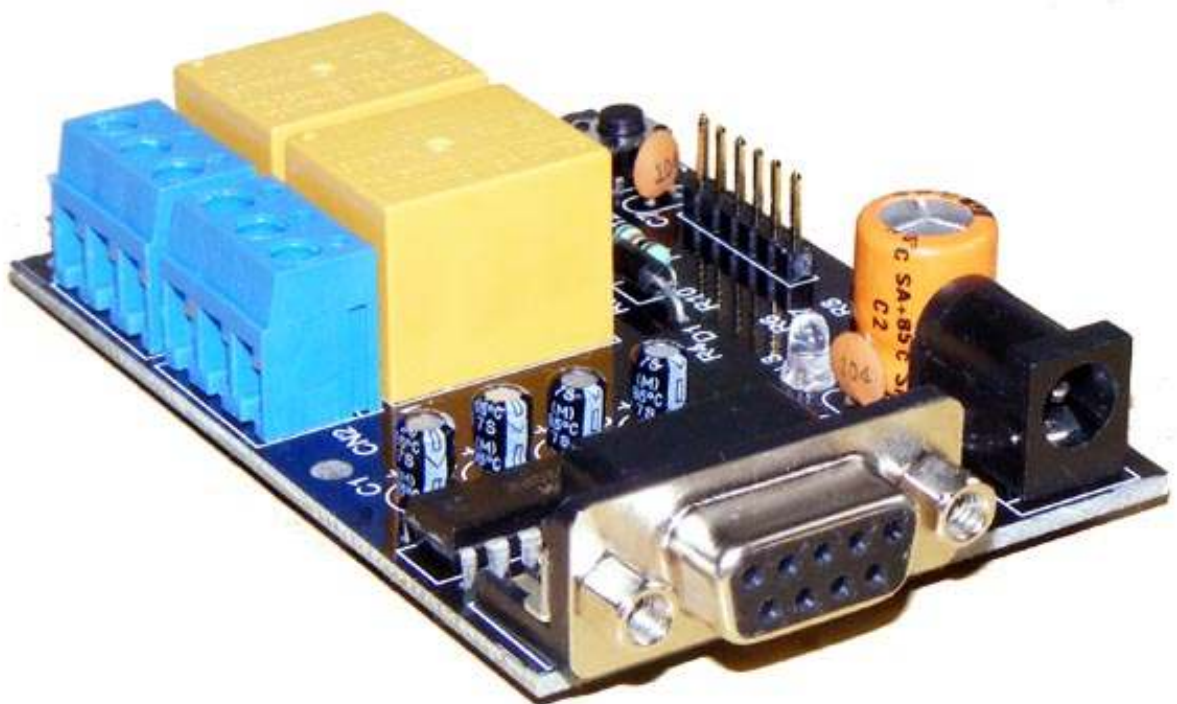iknowvations

User Manual

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2 channel RS232 Relay & DAQ Board -iRS-2R

Welcome to the world of Computer Automation. This RS232 Relay Board - iRS-2R is a perfect companion for all your computer automation projects. It is RS232 based card having 2 onboard relays for switching external devices and up to 4 Digital Input/Output and Analog channels .

The Analog channels have 10 bit resolution for connecting many sensors to measure parameters like
 Temperature, Pressure, Humidity, Magnetic etc.

It uses existing Com Port (you can choose the available one), which allows easy communication with
 the card. Any programming language that supports serial communications (C, C#, C++, VB, VB.NET, Perl, Java etc) can be used to communicate with iRS-2R very easily. Easy to use commands are available to communicate with iRS-2R for Switching On/Off of Relays and playing with Input/Output channels and Analog inputs.

The revised ikantrol-R242 V 1.1 software (freely downloadable from our download section at
http://iknowvations.in/downloads/) can be used to test & operate iRS-2R card.

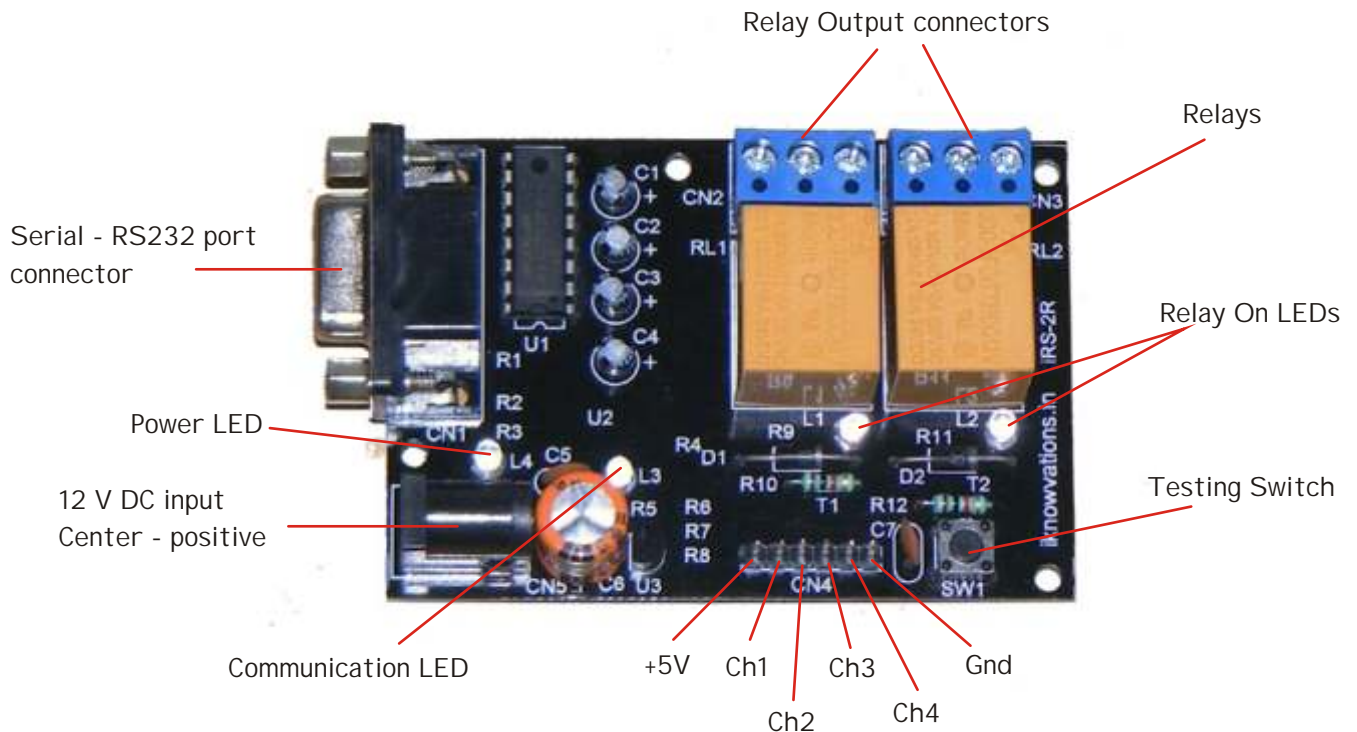Get windows drivers, test applications and sample codes at -

http://iknowvations.in

Manufactured by -

Iknowvations
Rajivnagar,Vidyanagar
Hubli - 580031
India.

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Relay Output connectors

Relays

Serial - RS232 port connector

Relay On LEDs

Power LED

Testing Switch

12 V DC input
Center - positive

Communication LED

+5V Ch1 Ch3 Gnd

Ch2 Ch4

Technical Specifications -

Input channels	-	up to 4.
Output channels	-	up to 4.
Analog inputs	-	up to 4.
ADC resolution	-	10 bits.
ADC range	-	0 to 5V.
ADC output	-	0 to 1023 decimal counts.
No. Of Relays	-	2.
Relay Specifications	-	Coil Voltage 12V Dc. Contact capacity - 5A at 230 V AC Max.
Supply voltage	-	12 V Dc.
Size	-	75 mm Length * 52 mm Width * 17 mm Height

Please note that there are totally 4 channels available on this card which can be individually operated as I/O or analog channels.

Please Read Carefully

This device iRS-2R connects to RS232 port of your computer and can be used to control external devices through its relays. Incorrect use or faulty board can cause damage to controller itself or Serial Port controller of your computer or Motherboard of your computer. Extreme care should be taken while using this board. It will be totally user's responsibility for the use of this card.

Iknowvations, it's employees, suppliers, distributors, dealers and/or resellers are not liable to any kind of damage or loss of data as a result of use of this device, including special, incidental, or consequential damages resulting from the use of this device or under any legal theory, including loss of profits, downtime, goodwill damage to, or replacement of equipment or property and any cost for recovering or reproducing any data stored in computers connected with this device.

Your purchase and/or use of this board indicates your acceptance of these terms.

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Command Reference -

1. For Relay Outputs   -   RL10 - Make Relay 1 Off.
                                   RL11   - Make Relay 1 On.
                                   RL20 - Make Relay 2 Off.
                                   RL21   - Make Relay 2 On.

  There are 2 additional commands for relays -
                                   RLA0 - Make All Relays Off.
                                   RLA1   - Make All Relays On.

2. For Setting Outputs   -   SO10 - Make Channel 1 - Low - 0.
                                   SO11 - Make Channel 1 - High - 1.
                                   SO20 - Make Channel 2 - Low - 0.
                                   SO21 - Make Channel 2 - High - 1.
                                   SO30 - Make Channel 3 - Low - 0.
                                   SO31 - Make Channel 3 - High - 1.
                                   SO40 - Make Channel 4 - Low - 0.
                                   SO41 - Make Channel 4 - High - 1.

3. For Getting Inputs   -   GI01 - Get input from Channel 1.
                                   GI02 - Get input from Channel 2.
                                   GI03 - Get input from Channel 3.
                                   GI04 - Get input from Channel 4.

  The card will respond with 1 or 0 for Input High or Input Low respectively.

4. For Getting Analog Inputs   -   ADC1 - Get Analog input value from Channel 1.
                                    ADC2 - Get Analog input value from Channel 2.
                                    ADC3 - Get Analog input value from Channel 3.
                                    ADC4 - Get Analog input value from Channel 4.

  The card will respond with 0 to 1023 depending upon the voltage present on that channel.
  0 for 0 v and 1023 for full 5.0 V.

5. Miscellaneous Commands -
                        BORD - Issuing this command will return the card Number.
                        VERS - Issuing this command will return the Firmware Version Number.
                        HELP - prints these menu commands.

Using the card - iRS-2R-

You can connect the card with your computer using any serial port cable. You have also to apply power 12 V Dc to Barrel connector (center +ve).

You can communicate with the card through Hyper Terminal Software which generally every computer has pre installed or you can use iKantrol-R242 V1.1 - a special software developed by Iknowvations (you can download it free from download section of our website iknowvations.in) or you can develop your own software.

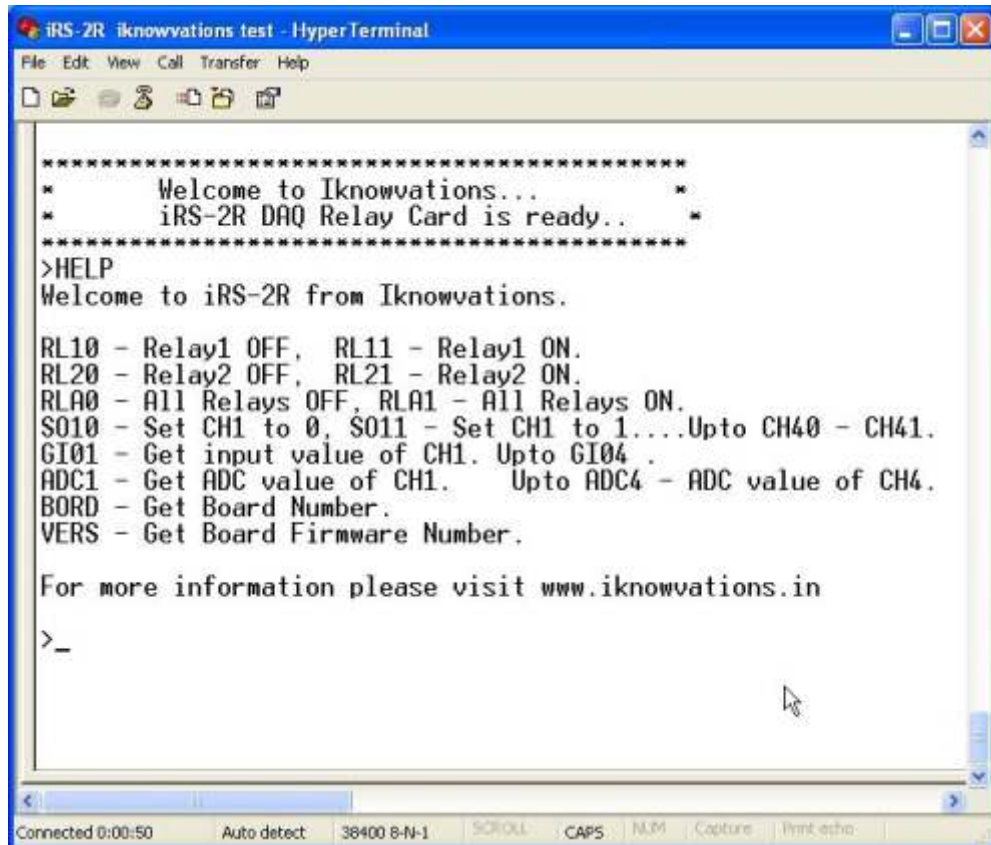# 2 Channel RS232 Relay & DAQ Board-iRS-2R
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If you want to communicate with the card via HyperTerminal then start the HyperTerminal & set the COM Port values as per following screen shot.

Select the COM Port as per your connection to the card.
Apply the power to the card. You will be greeted with the welcome message and the prompt ">". Type "HELP" to get a list of all commands.

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Type HELP and press Enter. This is the way to enter any command. Please note that all the commands are entered in CAPs followed by Enter button. HELP command shows all the available commands along with their short description.
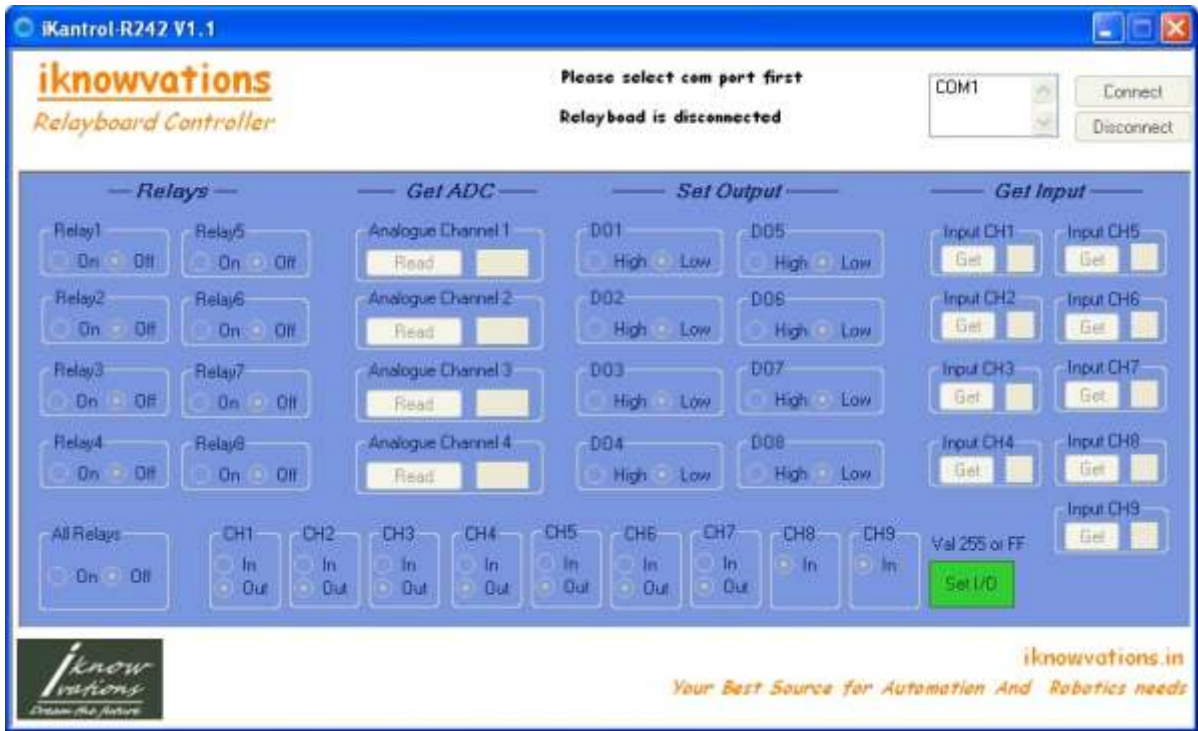

Screen shot showing various other commands.

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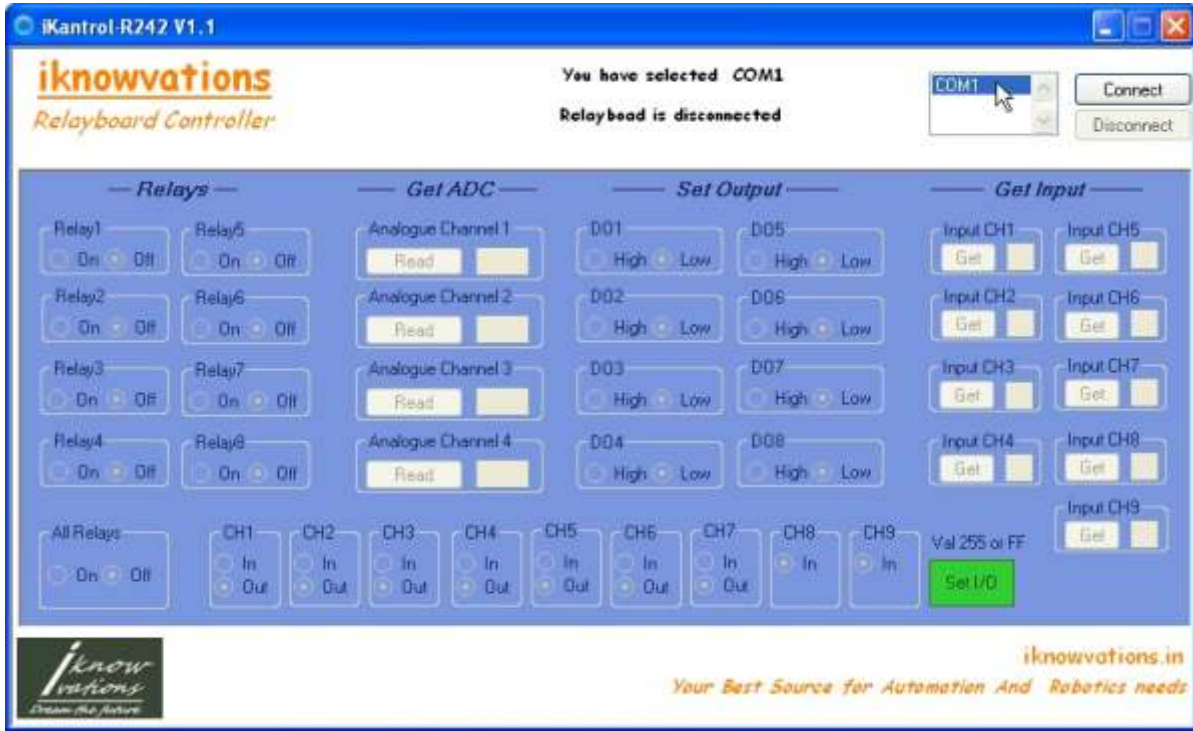
The working of the card also can be tested by iKantrol-R242 V1.1 software. You can download this free from our download section of website http://iknowvations.in/downloads/.

Fig-1

This software can be used for our RS232 based relay & DAQ cards like R242, iRS-2R and iRSD-8R.

Fig-2

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Get the setup file from our website & install the software.

Start the program and you will see a screen as per Fig-1 on previous page. On right hand side upper corner you will see all the available serial COM ports in your computer. Choose the one to which your card is connected. See Fig-2 on previous page.

Now click the Connect button. The computer will immediately connect to the card and you will get a screen as below, showing the connected message & picture of the card. You can test various commands by clicking appropriate buttons.

If there is any problem you will see Error message like below. Try to see that cable & power supply is ok and try again. You can also test this card by using Hyper Terminal as shown before.
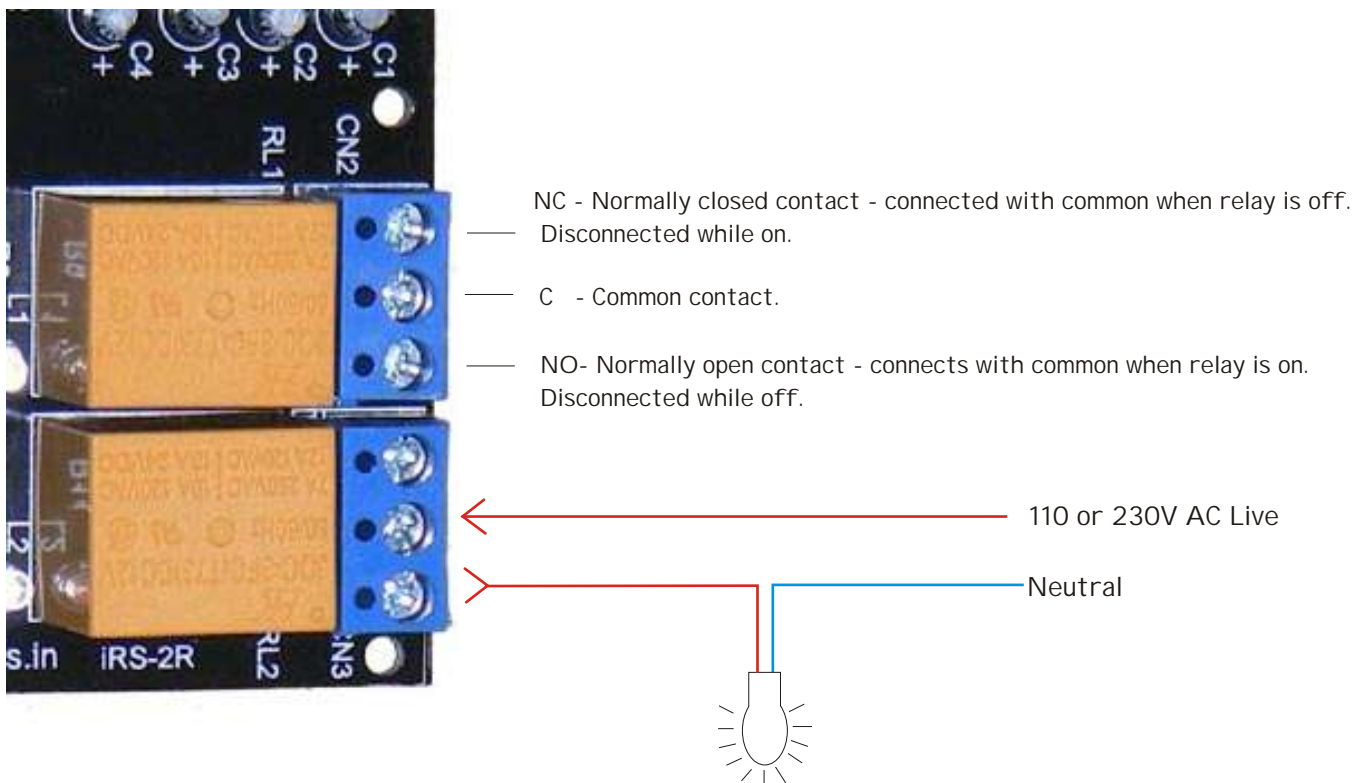
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Using Relay Outputs -

Relay outputs can be used to operate various electrical devices under software control. Extreme care should be taken if you are using 110 or 230 V AC. Iknowvations will not be responsible for any kind of damage or loss whatsoever to life or property. It will be totally user's responsibility.

NC - Normally closed contact - connected with common when relay is off. Disconnected while on.

C - Common contact.

NO- Normally open contact - connects with common when relay is on. Disconnected while off.

110 or 230V AC Live

Neutral

Use of RC Snubber Circuit across relay contacts is recommended to avoid electrical interference. It is must when Relays are used to operate any inductive load like motor, coil, relay , transformer etc. The value of R - can be from 39 ohms to 1 Kilo ohms & C may be from 0.01 mf to 0.1 mf 400V.

The R & C is connected in series & both ends are connected across two relay contacts -Common & NC. The purpose is to absorb back EMF generated when the load is disconnected from supply. When relay is made off the energy stored in inductive load try to jump across relay contacts which results in sparks. This sparks across contacts not only damage the tip material but also induce noise to the power supply circuit. This noise may cripple functioning of micro controller used in circuit. So if you use any inductive load with this circuit, do connect RC Snubber Circuit across the relay contacts.

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If you have any questions, want any assistance, want us to develop any special products for you just contact us at support@iknowvations.in.

We have other products also that might interest you like -

U452 is an USB based DAQ & Relay Card having up to 16 I/O channels including 8 ADC channels. The ADC resolution is 8/10/12 bits user selectable.

R242 is an RS232 based DAQ & Relay Card having up to 9 I/O channels including 4 ADC channels. The ADC resolution is 10 bits . There are 4 onboard relays.

iRSD-8R is an RS232 based DAQ & Relay Card having up to 8 I/O channels including 4 ADC channels. The ADC resolution is 10 bits . There are 8 onboard relays.

Ethernet based DAQ & I/O card.

For more information, experiments & other technical knowledge do read our blog at
www.iknowvations.in

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