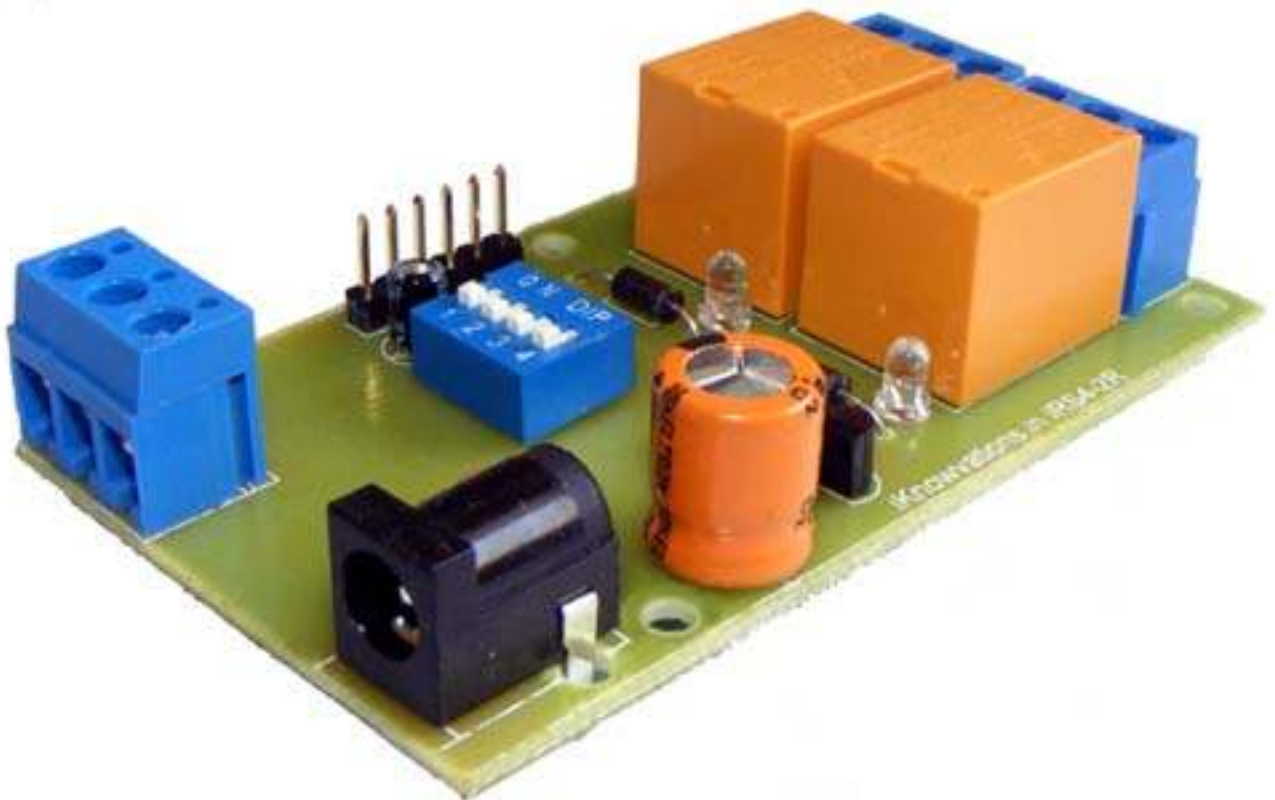


User Manual





2 Channel RS485 Relay & DAQ Board - iRS4-2R

User manual

2 channel RS485 Relay & DAQ Board -iRS4-2R

Welcome to the world of Computer Automation. This RS485 based Relay & DAQ Board - iRS4-2R is a perfect companion for all your computer automation projects. It is RS485 based card having 2 onboard relays for switching external devices and up to 4 Digital Input/Output and 4 Analog channels.

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

The card uses iKnowBus protocol to communicate It is very easy & user friendly.

Get windows drivers, test applications and sample codes at -

<http://iknowvations.in>

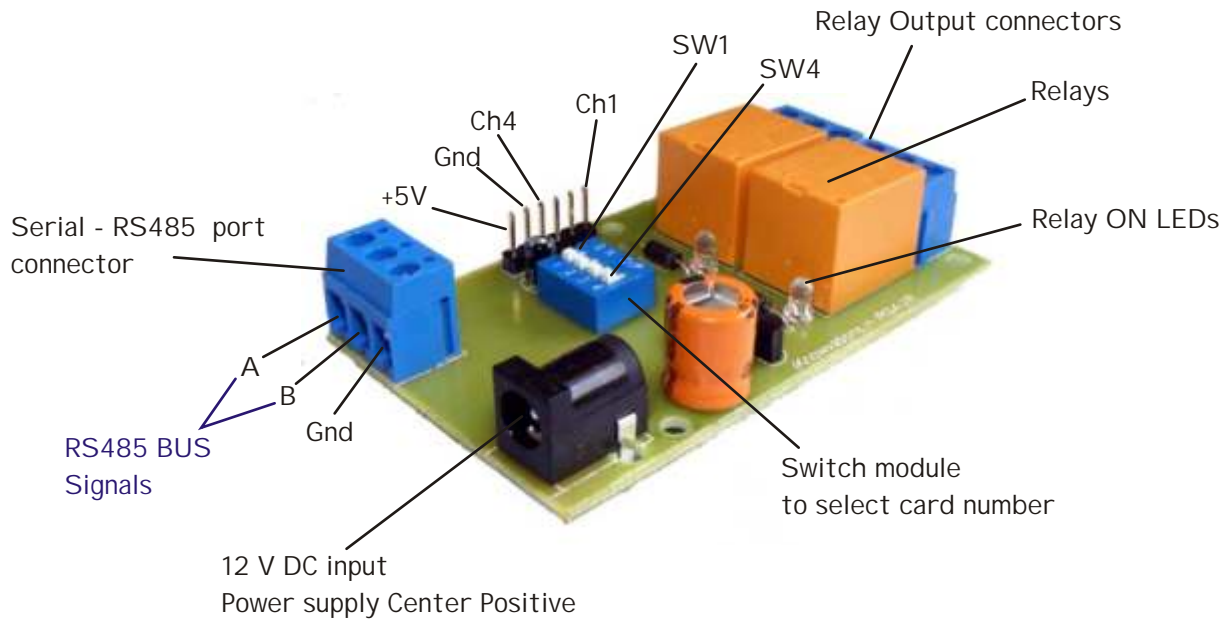
Manufactured by -

I knowvations
Rajivnagar,Vidyanagar
Hubli - 580031
India.



2 Channel RS485 Relay & DAQ Board - IRS4-2R

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SW4	SW3	SW2	SW1	
8	4	2	1	Value when OFF
0	0	0	0	Value when ON

Card number can be programmed by making relative switches off. For example for card no.5 make sw1 and sw3 OFF, rest ON.

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	- 80 mm Length * 46 mm Width * 17 mm Height

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

Please Read Carefully

This device IRS4-2R connects to RS485 BUS your computer or device and can be used to control external devices through its relays. Incorrect use or faulty board can cause damage to controller itself or RS485 Serial Port controller of your computer or Motherboard of your computer or device. Extreme care should be taken while using this board. It will be totally user's responsibility for the use of this card.

I knowvations, its 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.

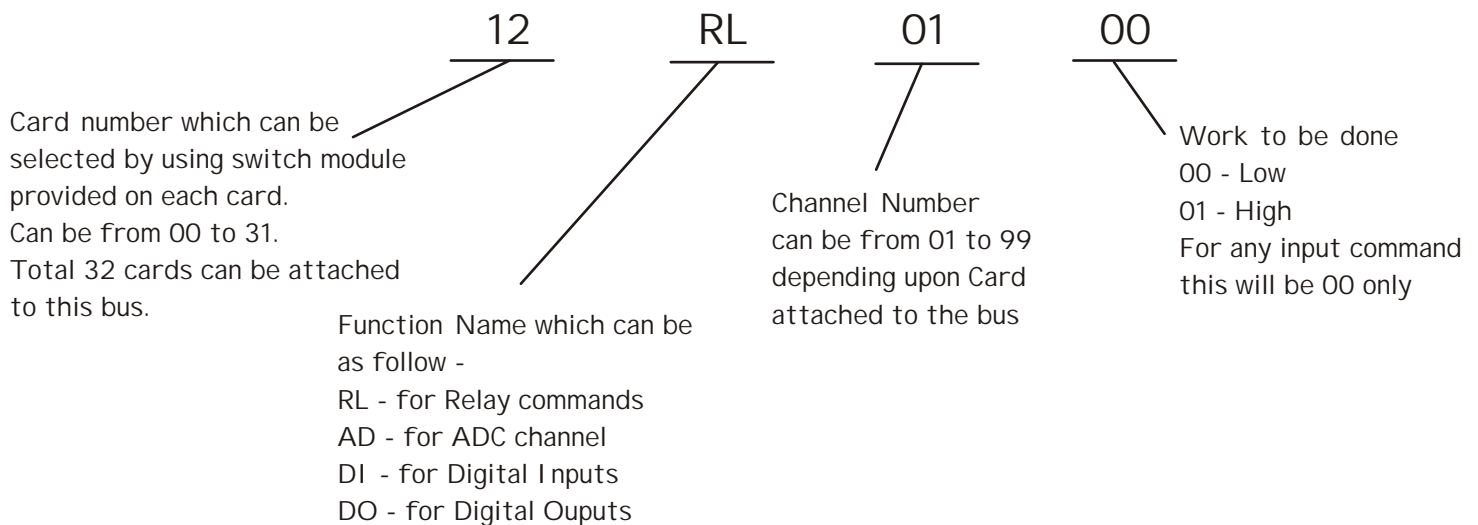
Your purchase and/or use of this board indicates your acceptance of these terms.



iKnowBus Protocol & Command Reference -

iKnowBus protocol uses very easy to understand command structure to communicate with RS485 based relay & Data Acquisition Cards from I knowvations.

The structure of any command is as follow -
All commands are 8 characters long.



Now let us take some practical examples. Take for example you have connected 5 cards on the bus. They are numbered 1 to 5 with the help of onboard switch module.

To turn Relay number 4 ON of 3rd card you should send - 03RL0401 command
and to turn it OFF, you should send - 03RL0400 command

To make Channel 1 pin of 5th card, High send - 05DO0101 command
and to make it Low send - 05DO0100 command

To get digital input value of 2nd Channel of 4th card - 04DI0200 command
The card will respond with 0 or 1

To get ADC value of Channel 7 of 1st card, send - 01AD0700 command
The card will respond with 0 to 1023 decimal number

Please note that this command structure is common for all RS485 based cards made by I knowvations. You can use these same commands for all such cards depending upon each individual card features.

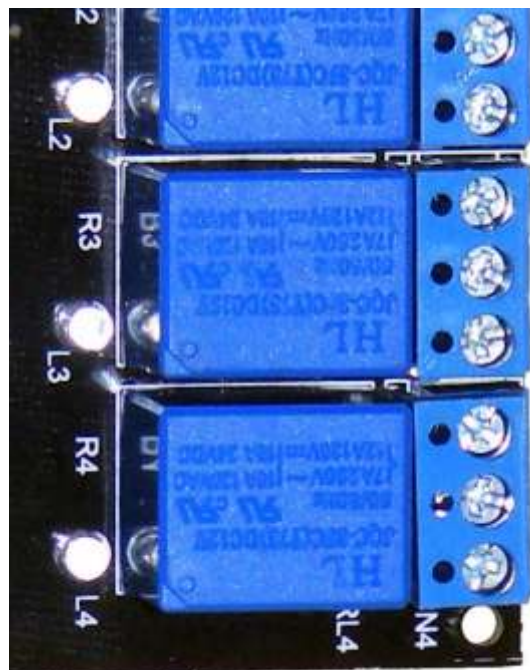


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Using Relay Outputs -

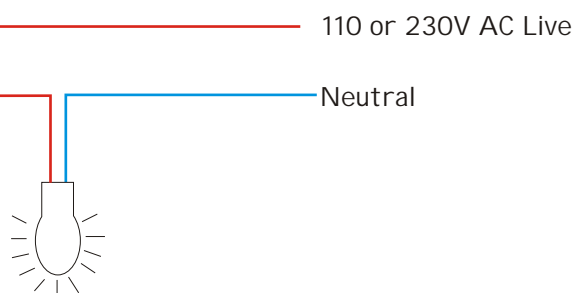
Relay outputs can be used to operate various electrical devices under software control. **Extreme care should be taken if you are using 110 or 230 V AC. I knowvations will not be responsible for any kind of damage or loss whatsoever to life or property. It will be totally user's responsibility.**



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.



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 -



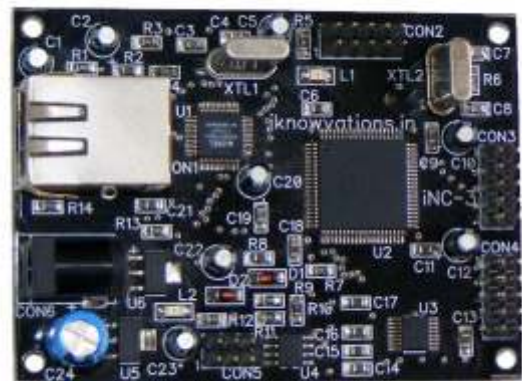
U452 is an USB based DAQ & Relay Card having up to 16 I/O channels including 8 ADC channels. The ADC resolution is 8/10/12 bits user selectable.

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.



iRS-2R is an RS232 based DAQ & Relay Card having up to 4 I/O channels including 4 ADC channels. The ADC resolution is 10 bits . There are 2 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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