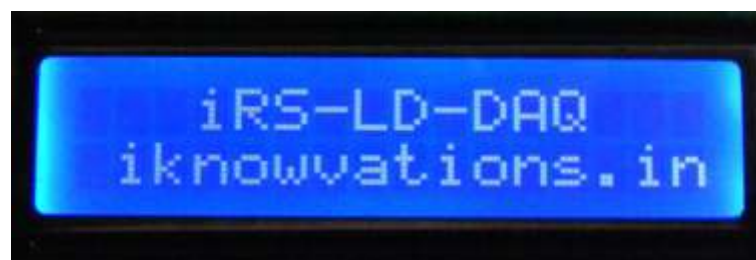
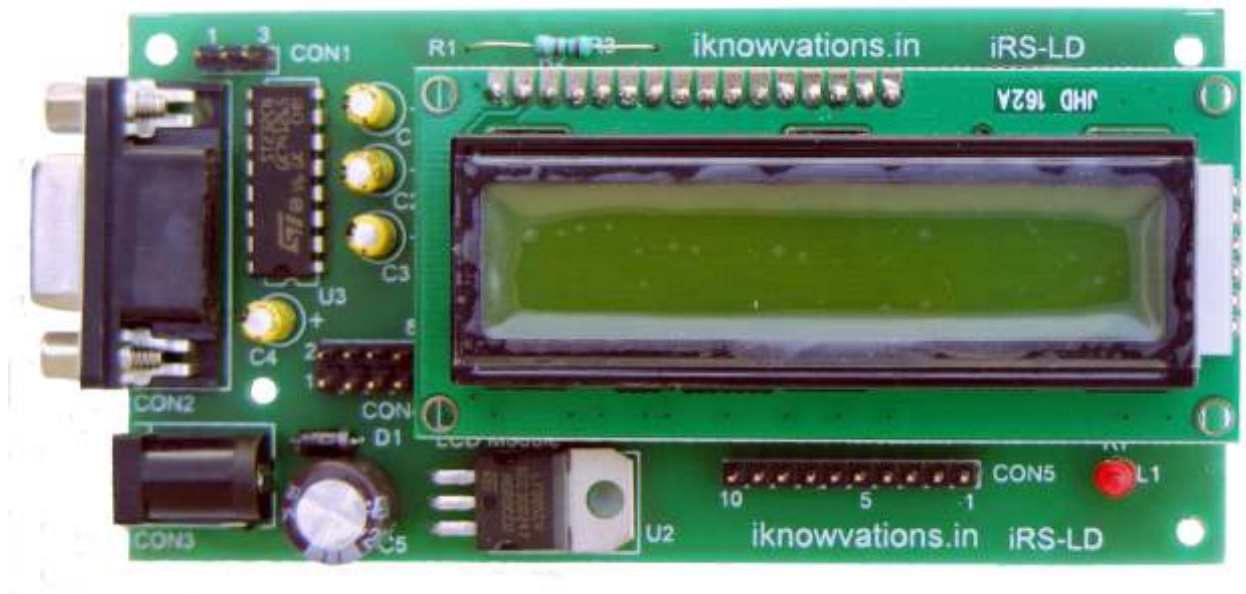


User Manual

iRS-LD

iRS-LD-DAQ





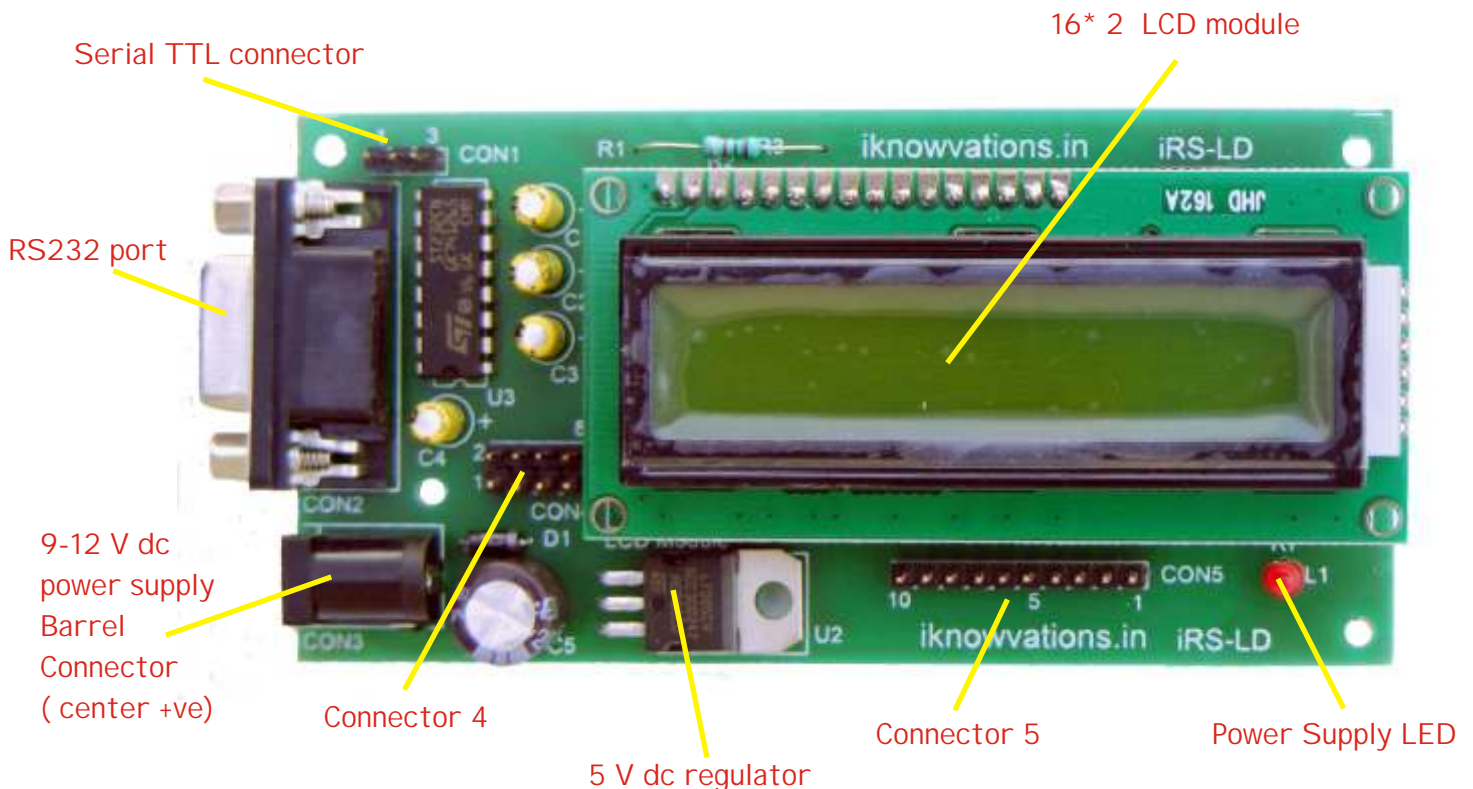
iRS-LD Serial LCD Board

User manual

Welcome to iRS-LD and iRS-LD-DAQ. These boards are Serial LCD boards. iRS-LD is only Serial LCD board while iRS-LD-DAQ is having additional 16 input output pins which can be used for Data Acquisition purposes apart from using it as regular serial LCD.

Features -

1. RS232 based serial LCD.
2. Can be connected directly to COM port of any computer or laptop.
3. On board TTL connections also to connect to any MCU.
4. Can be used for 16*2 LCD. (other options also will shortly be provided)
5. Simple commands to use full functionality of LCD. No need to know how to program LCD.
6. Up to 16 Digital I/Os including 4 ADC channels (having 10 bit resolution) are provided for Data Acquisition purpose. (only for iRS-LD-DAQ board.)
7. 9-12 V dc power supply can be used. 5V regulator is provided on board.
8. Back Light of LCD can be controlled directly by software command.
9. On board power supply LED for visual indication.



Connector details -

1. CON1 - Serial TTL connector

Pin 1	Gnd
Pin 2	Rx
Pin 3	Tx

2. CON2 - RS232 serial COM port connector for computer or laptop.

3. CON3 - 9-12V dc power supply barrel (center + Ve) connector.

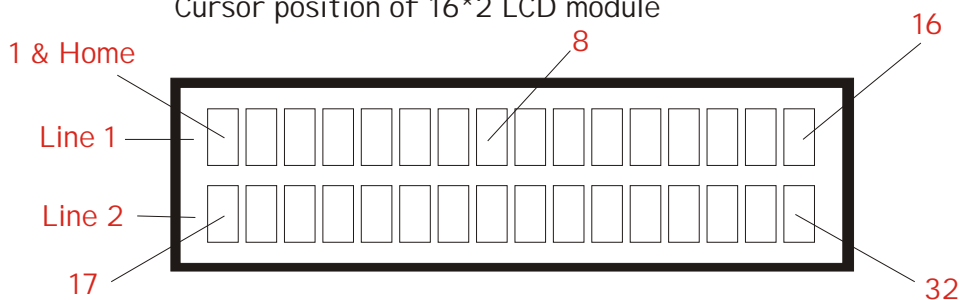
4. CON4 - Digital I/O connector (working only on iRS-LD-DAQ).

Pin 1	Gnd
Pin 2	Channel 10
Pin 3	Channel 11
Pin 4	Channel 12
Pin 5	Channel 13
Pin 6	Channel 14
Pin 7	Channel 15
Pin 8	Channel 16

5. CON5 - Digital I/O connector (working only on iRS-LD-DAQ).

Pin 1	Gnd
Pin 2	Channel 1
Pin 3	Channel 2
Pin 4	Channel 3
Pin 5	Channel 4
Pin 6	Channel 5 / ADC 1
Pin 7	Channel 6 / ADC2
Pin 8	Channel 7 / ADC3
Pin 9	Channel 8 / ADC4
Pin 10	Channel 9

Cursor position of 16*2 LCD module





LCD Commands -

All commands are in CAPS and have to be followed by ENTER key.

BD	Blink entire display
BF	Back light OFF
BO	Back light ON
CH	Place cursor to home position - Line 1 Column 1
CL	Shift cursor left
CR	Shift cursor right
CS	Clear entire display
DL	Shift entire display left
DR	Shift entire display right
DF	Display OFF
DO	Display ON
DC	Display cursor
HC	Hide cursor
FW	Show firmware version
LO	Blinking cursor ON
LS	Blinking cursor OFF
MB	Marque- place exact 30 character string following this command. (will show only on Line 1)
MS	Marque start
MF	Marque stop
S1	Splash for Line 1. Place exact 16 characters following this command.
S2	Splash for Line 2. Place exact 16 characters following this command.
SE	Splash enable.
SD	Splash disabled.

Additional Commands for iRS-LD-DAQ card-

STnx	Set channel output nn- channel number- 01 to 16 x - 0 for Low, 1 for High
GI nn	Get channel input. nn- channel number- 01 to 16
ADCn	Get ADC input. nn - channel number - 1 to 4



Operation -

Using iRS-LD board is very easy. Follow below steps.

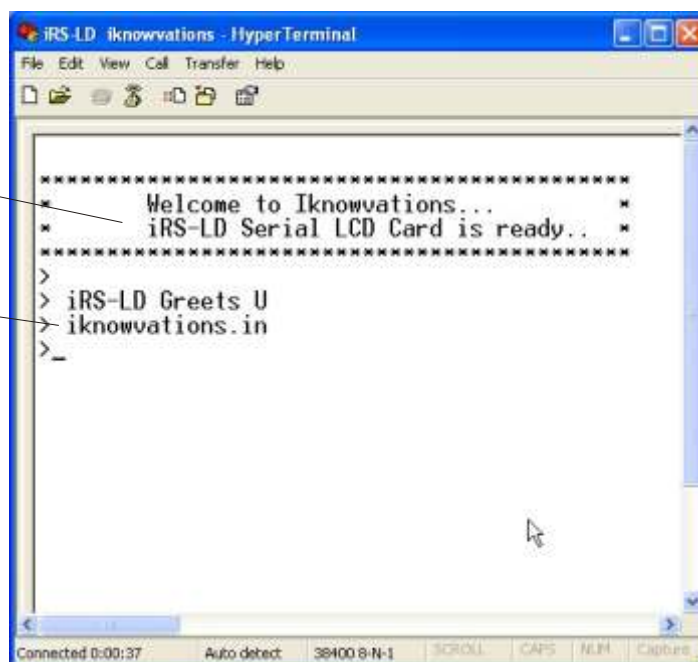
1. Connect board to any spare COM port of your PC using serial cable. If you have only USB ports available, you can use USB to Serial Converter.
2. Open Hyperterminal or any other Terminal software and open COM port that has been connected to the board having following properties -
Baud rate - 38000, Bits-8, Parity - none, Stop bits - 1, Flow control - none.



Apply the power to the card. You will be greeted with the welcome message and the prompt ">".

Welcome message

Splashscreen
also printed.

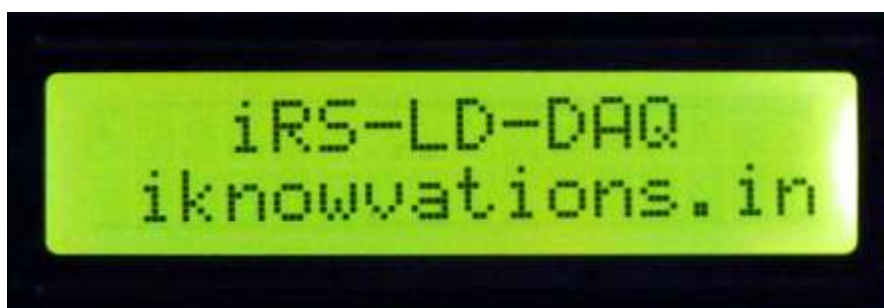




iRS-LD-DAQ welcome message.

```
IRS-LD-DAQ  Iknowvations - HyperTerminal
File Edit View Call Transfer Help
D [Icons]
> iRS-LD-DAQ Serial LCD card from Iknowvations.
> iRS-LD-DAQ
> iknowvations.in
>
Connected 0:01:41  Auto detect  38400 8-N-1  SCROLL  CAPS  NUM  Capture  Print
```

On LCD following screens will be displayed. -





Some examples of commands -

Entering DC & then CH command displays the cursor & places it to Home position.



Entering DR command shifts entire display to right one position.



Entering SC02 command places cursor to 2nd position.



Entering CR command shifts cursor to right to 3rd position.





Some examples of commands -

Entering LO command starts blinking of cursor.



Entering SD command disables splash screen and shows only cursor on next power ON.



Entering "S1My new Splash is" command programs 1st line splash in permanent memory .
Entering "S2now active. " command programs 2nd line splash in permanent memory .
After next power ON you will get your new splash screen displayed .





iRS-LD-DAQ commands -

Using commands for Data Acquisition is very easy.

For example, if you want channel 2 pin to be Output & make it High, you simply enter ST021 command. To make it Low, enter ST020 command.

To get input status of any pin, just send GI xx command. xx stands for channel number. For example, if you want input status of channel 10, send GI 10 command. The board will respond with 1 (input High) or 0 (input Low) as the case may be. All the commands will be responded by "ok".

Analog channels (ADC1 to ADC4) can be used to measure analog voltages at the respective pins (0 to 5.00 DC V). As the resolution is of 10 bits (1024 divisions) ($5/1024 =$ around 5 mV per division), any analog input on these ADC pins will be measured & provided as numbers (0 to 1024 - 0 for 0 volt & 1024 for full 5.0 V).

To measure ADC channel 1 - send command - ADC1. The board will respond with number between 0 & 1024 as per analog voltage present at the pin.

Please note that any voltage beyond 0 to 5 V DC to any of input pins may damage main controller permanently & render the board useless.

If you have any questions do contact us at info@iknowvations.in or our support team at support@iknowvations.in

iRS-LD Serial LCD Board

User manual

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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