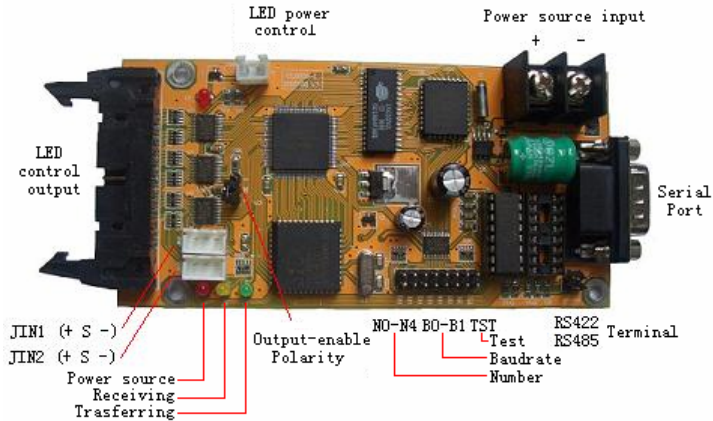CL2005 serial asynchronous system

Engineer Manual V3.x

Please carefully read this manual before using CL2005 serial asynchronous system.

1. Index:

Type-I:

Controlling Scope: 1024 columns x 128 rows (1-color) or 1024 col.
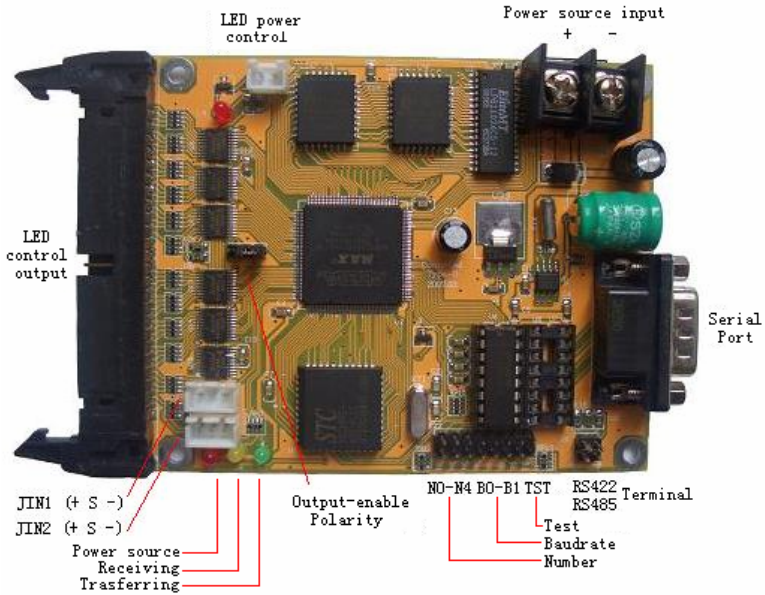   x 64 rows (2-color)

Scanning frequency: 110 HZ

Total storage: 4M bits

Temperature input, humidity input

1/16 scanning mode

Type-II：

Scanning scope: 1024 col. x 256 rows (1-color) or 1024 col. x 128 rows (2-color)
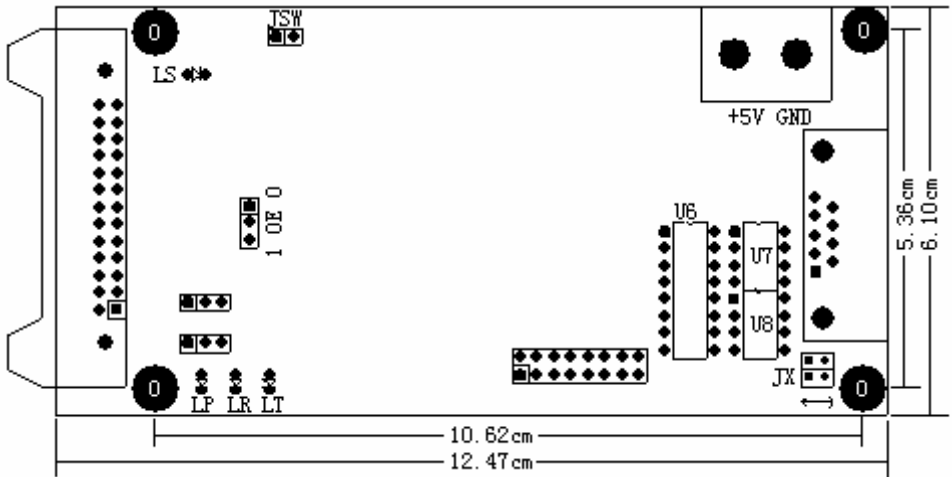
Scanning frequency: 110HZ

Total storage: 8M bits

Temperature input and humidity input

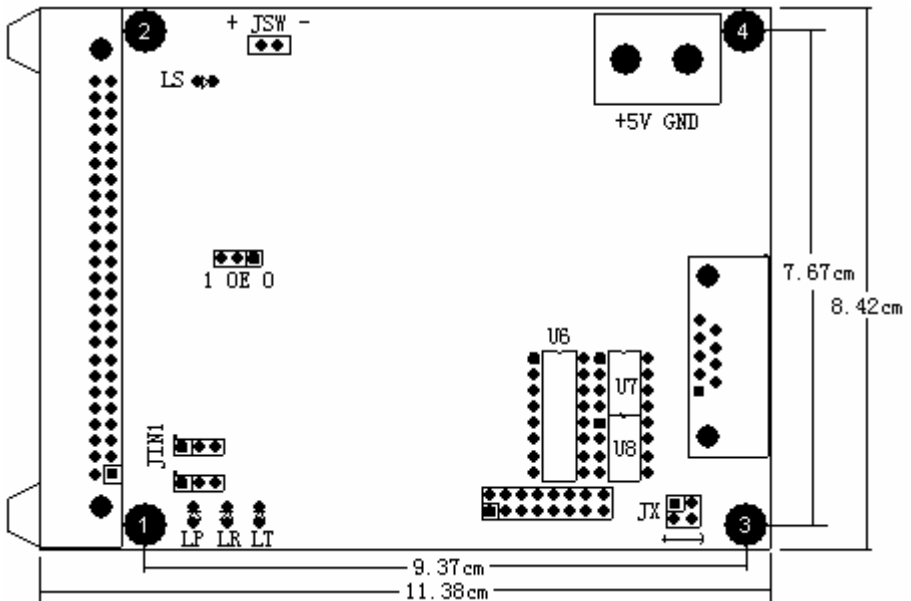Type-IV：(Size and appearance as type II)

Controlling scope: 2048 col. x 128 rows (1-color) or 2048 col, x 64 rows (2-color)

2. Size and holes' position

The size and holes' position of Type-I are as the below diagram:

The size and holes' position of Type-II and Type-IV board are as the below diagram:

3. Power Source

Controller uses 5V ± 5% DC power source, the polar is marked at the input end.

4. Indicators and Outside power source control

'LP': power source; it turns on when controller is powered on

'LR': receiving; it twinkles while controller receiving data

'LT': sending; it twinkles while controller sending data

'LS': LED power source; it turns on while LED power source is on.

'JSW': LED power source controlling interface, it outputs controlling
current of 3V/ 20mA to control the solid-state relay.

5. Communication Interface

The communication connector is DB9 male socket. PIN5 is the ground.

PIN2 is for data receiving, normally is connected to PIN3 of PC's DB9 male socket.

PIN3 is for data sending, normally is connected to PIN2 of PC's DB9 male socket.

If U7 and U8 are inserted with Max 485(or compatible IC) and no IC is in U6, the controller will work under RS422 mode:

PIN1 is T- connected to RS232/422 converter's R-;

PIN2 is T+ connected to RS232/422 converter's R+;

PIN3 is R+ connected to RS232/422 converter's T+;

PIN4 is R- connected to RS232/422 converter's T-;

With RS422 mode, if PIN1 and PIN4 are shorted together, PIN2 and PIN3 are shorted together; controller will work under RS485 mode:

PIN1 is '-' connected to RS232/485 converter's '-';

PIN2 is '+' connected to RS 232/485 converter's '+';

If the controller is at the end of the RS422/485 bus, the RS422/RS485 terminal has to be connected by short the two pair of

pins marked with 'JX'.

6. Output-enable polarity selection

3-PIN jumper marked with 'OE' is especially for different output-enable polarity driving board. When the short plug is placed at '1' side, then 'OE' signal controller gives is a high level (driving board is turned on when it is at high level); when short plug is placed at '0' side, 'OE' signal is a low level (driving board is turned on when it is at low level)

7. Jumper set up

There are total 8 jumpers in the right-bottom corner of the controller, when they are shorted, there will be some special functions:

1. TST: if this jumper is shorted, the controller will go to test mode, it will display solid pattern and oblique lines. Meanwhile, the communication is workable.
2. B0, B1: Baudrate selection, it has to be configured before the controller is powered on. '1' means shorted, '0' means not shorted
   a) (B0,B1)=00：38400
   b) (B0,B1)=10：57600
   c) (B0,B1)=01：9600
   d) (B0,B1)=11：19200
3. N4-N0： Screen number has to be configured before the controller is powered on. When using RS422 or RS485 to control multiple screens, each screen has to be given a number. N4-N0 is 5 bits in binary, it could be 0-31, '0' means open, '1' means short, N4 is the MSB, N0 is the LSB. For example, Screen 5 is denoted as '00101' in the binary, then N4-N0 is setup as below:

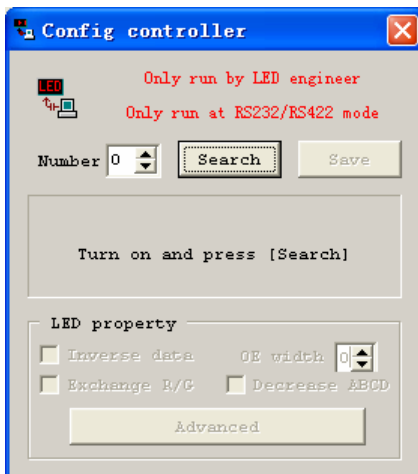# 8. Driving board properties setup

In CL2005 software, click [setup]→[controller setup],
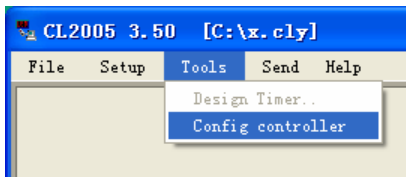
Input password '20052006', the below dialog box will pop out:

After the controller is found, and please refer to the screen configuration and the driving board properties, to setup the controller's advanced configuration. For type-II and type-IV, there will come out the below box when [Advanced] was clicked:
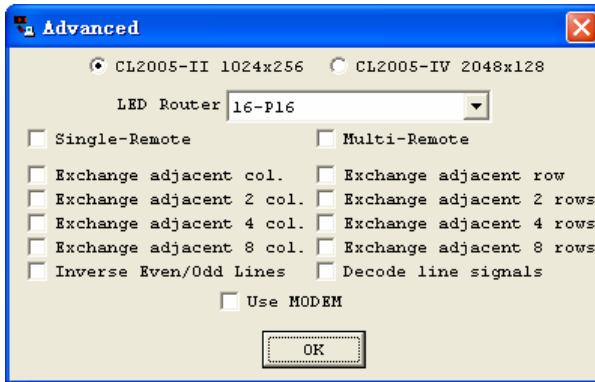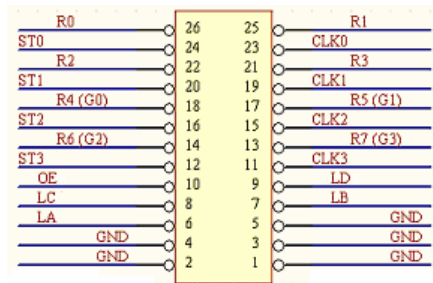
In this dialog interface, the screen's driving mode can be setup (for example, 1/16 scanning, 1/8 scanning, or 1/4 scanning), and the route-type and some other options can be setup. If the card type is changed (only for version above V4.0 II or IV controller), or the layout of the driving board is changed, there will automatically pops out a progress dialog box, in this box, PC will automatically download the software into the controller.

Route-type is described as format: 'xx-Pyy[-nn-mm]'. 'xx' indicates scanning mode, it could be one of 16(1/16 scan), 08(1/8 scan), 04(1/4 scan), 02(1/2scan) or 01(static); 'yy' indicates the rows controlled by one group of color signals on the drive board, normally it could be one of 02, 04, 08 or 16, very few is 01; 'nn' and 'mm' has multiple choices, referring to the driving IC on the board, for the connection between the LED pin and IC, 'nn' indicates columns, 'mm' indicates the rows.

9. Interface definition.

Outputting signal definitions of Type-I's 26 lines as below:

| RO	26	25	R1
ST0	24	23	CLK0
R2	22	21	R3
ST1	20	19	CLK1
R4 (G0)	18	17	R5 (G1)
ST2	16	15	CLK2
R6 (G2)	14	13	R7 (G3)
ST3	12	11	CLK3
OE	10	9	LD
LC	8	7	LB
LA	6	5	GND
GND	4	3	GND
GND	2	1	GND

Outputting signal definitions of Type-II's and Type-IV's 50 lines as below:

RO	50	49	R1
ST0	48	47	CLK0
R2	46	45	R3
ST1	44	43	CLK1
R4 (G0)	42	41	R5 (G1)
ST2	40	39	CLK2
R6 (G2)	38	37	R7 (G3)
ST3	36	35	CLK3
OE0	34	33	LD0
LC0	32	31	LB0
LA0	30	29	GND
GND	28	27	GND
GND	26	25	GND
R8	24	23	R9
ST4	22	21	CLK4
R10	20	19	R11
ST5	18	17	CLK5
R12 (G4)	16	15	R13 (G5)
ST6	14	13	CLK6
R14 (G6)	12	11	R15 (G7)
ST7	10	9	CLK7
OE1	8	7	LD1
LC1	6	5	LB1
LA1	4	3	GND
GND	2	1	GND
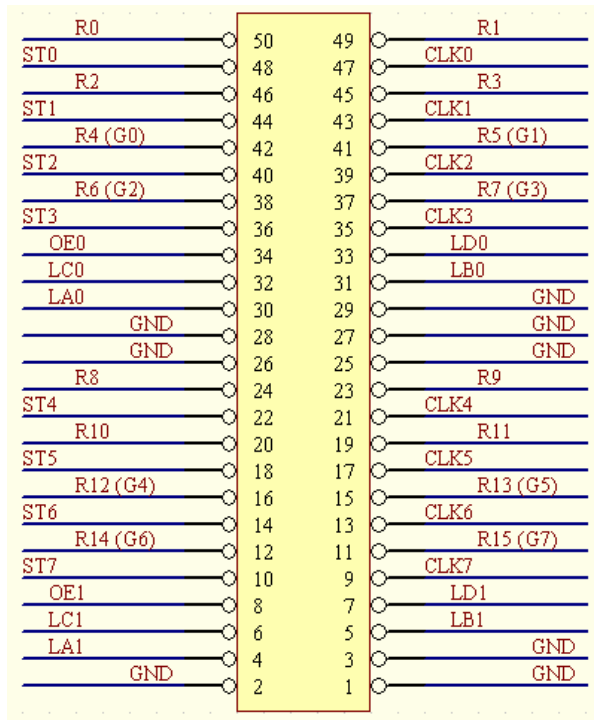
10. Power Source control

Controller controls power source of the LED screen. The power source connection is as below diagram (users themselves need purchase the solid-state relay and controller's power source, driving board power source, and the related cables)
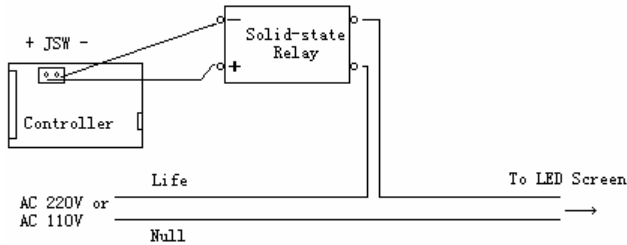
11. Optional parts

Temperature sensor: DS18B20 temperature sensor can be connected to JIN1 to get the temperature from the environment, and display the temperature data on the screen.

Humidity sensor: HF3223 humidity sensor can be connected to JIN2 to get the humidity from the environment, and display the humidity information on the screen.

Brightness sensor: Brightness sensor produced by LYTec can be connected to JIN2 to get brightness from the environment, to enable the automatic adjustment of brightness of the screen. The brightness sensor is as below: