

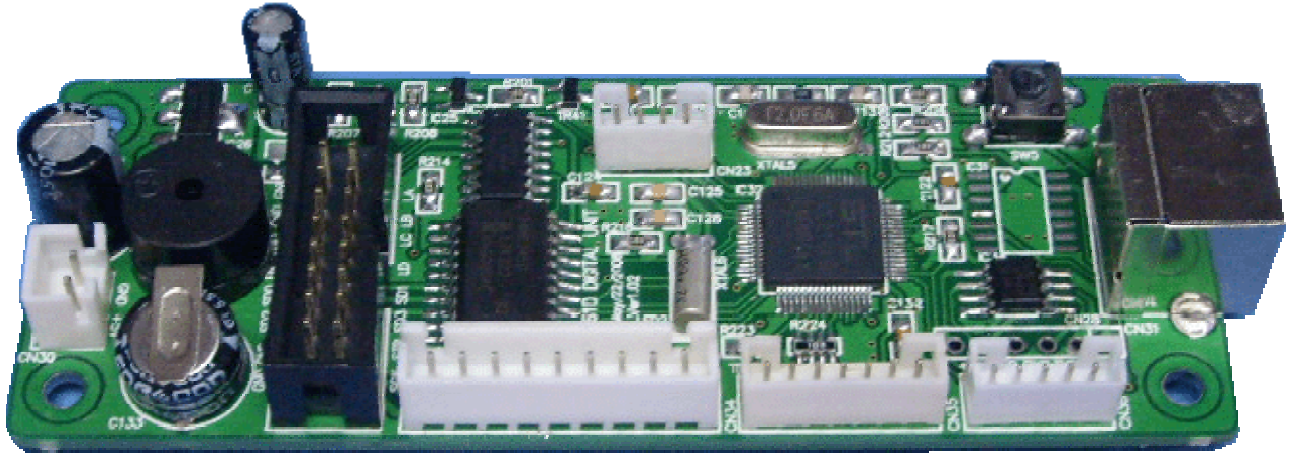
LED Display Drive Board DL61D User Manual

Model: DL61D

DL61D can drive all one-color and two-color LED display screens in the market. Support the standard computer keyboard and infrared remote control, and without the help of computer can edit and change display contents at will. Support Pinyin, T9 strokes of a Chinese character, and English input, can work with the display screen of any dimension.

◆ Characteristics

- Use DispTool computer terminal control tool, support GIF animated cartoon, BMP picture and TXT text files.
- The maximum supports 32768 dots one-color display screen (256 16 × 8 characters) or 16384 dots two-color display screen (128 16 × 8 characters).
- On-board PS2 keyboard interface, user can directly use standard computer keyboard as input tool, there is no need to use computer to change display contents.
- Support infrared remote control, users can easy input various symbols and realize various entering laws such as Pinyin, T9 strokes of a Chinese character, numbers, and English.
- Universal LED display screen interface can drive any one-color and two-color LED display screen on market.
- Automatic luminosity control function can automatically adjust brightness display according to the surrounding environment changes.
- User can modify at will the quantity of display screen connected and arrangement mode.
- Take the lead in putting out the shortest display screen connection technology, even though many rows of display screens are connected together, still can make sure that only link between two adjacent screens, and don't need to increase control card or apply the lines of different specifications.
- Single chip applies the mode that using serial interface sends internal code to carry out display, as control unit, which provides convenience for being added into the product of user.
- Internal simplified Chinese character and traditional Chinese character two kinds of 16×16 dot matrix Chinese character library; support GB (GUO BIAO) and BIG5 internal code.
- Communication function is powerful, support various communication interfaces such as RS232, RS485, USB device, and FM RDS wireless.
- Opened serial interface communication protocol, user can carry out secondary development, and realize the individuation of product.
- Can display year, month, day, hour, minute, second, week, temperature, luminosity, and humidity, support 12-hour time system and 24-hour time system.
- +5V single power supply input.



◆ Application Fields

- Plaza, emporium, shopping center, etc.
- The sale exhibition counter, exposition, etc.
- Advertisement industry, mobile information, information announcing, etc.
- Government policy and decree announcing and all kinds of market quotations announcing.
- The common place needing information display such as airport, station, dock, gymnasium, bank.

◆ The Files Relating to DL61D

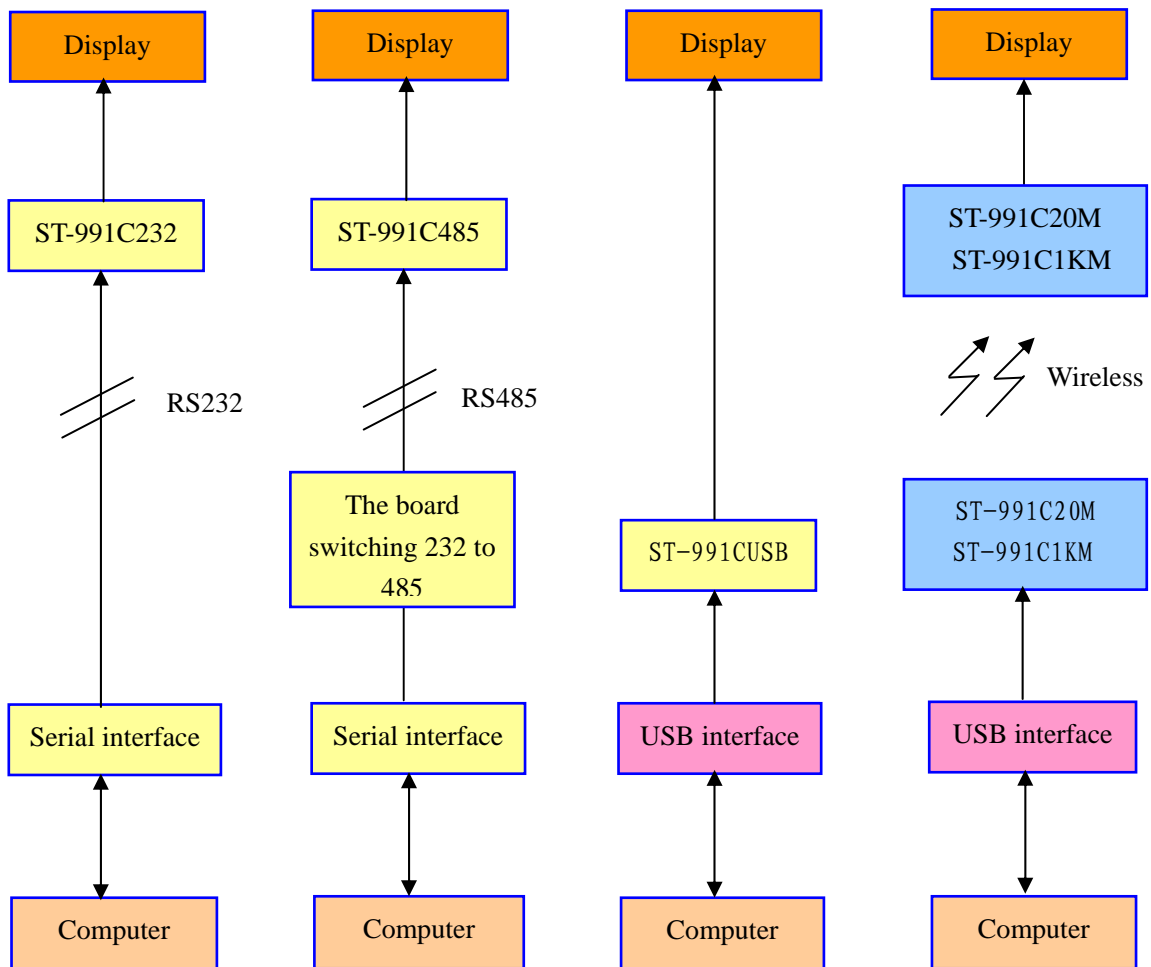
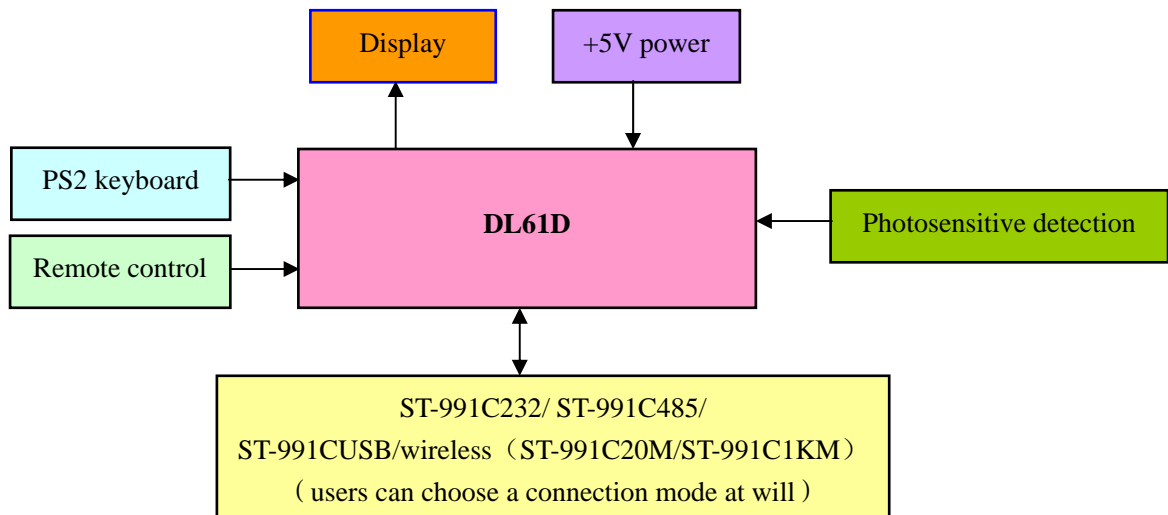
- 《DispTool display screen control tool user manual》-----cnstl802.pdf
- 《The keyboard and remote control of display screen operation user manual》-----cnstl264.pdf
- 《High brightness LED display screen user manual》-----cnstl261.pdf
- 《Cordwood LED module display screen user manual》-----cnstl263.pdf
- 《 The Ethernet and serial interface of display screen communication protocol V3.88 》
-----cnstl101.pdf
- 《Display screen interfaces user manual》-----cnstl231.pdf
- 《ST-991AR5 upgrading device user manual》-----cnstl201.pdf

◆ Installation Characteristics

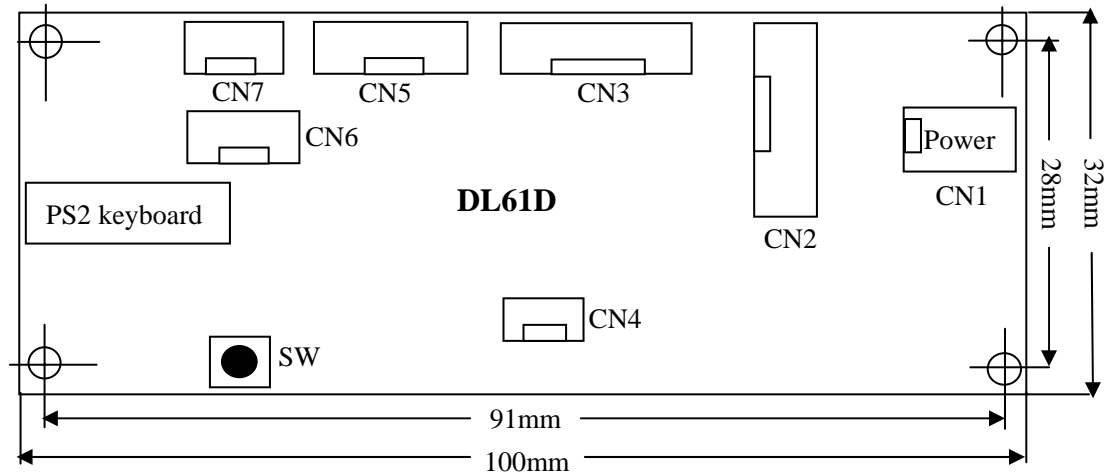
- Outline dimension is $100 \times 32\text{mm}^2$ and installation dimension is $91 \times 28\text{mm}^2$.
- An internal touch switch used to display luminosity percentage, humidity, temperature, and the IP address of display screen.
- Internal buzzer, user can carry out any operation, have corresponding ringing indication.
- Adopt farad capacitance as the backup power, which can completely eradicate the abuse of electrolyte leakage aroused by battery supplying and lifetime is short.
- Adopt FLASH memory, all operation and advertisements have power-fail memory, and erasing times exceed 100,000 times.
- Accurate clock rectification function can do +/-63 steps clock accuracy adjustment, and can correct timekeeping errors aroused by the temperature of installation place and other factors.

- 9-level flow speed adjustment, this function supports every advertisement different flow speed, and makes display more nimble and changeful.
- Can choose various circulation modes such as order, repeat, and random.

◆ DL61D Application Block Diagram

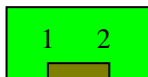


◆ Outline Dimension (unit: mm)



◆ Socket Function Instructions

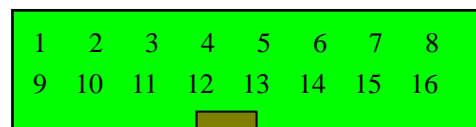
CN1



Direct current power supply input interface.

1. **GND** Direct current power supply ground wire input.
2. **+5V** Direct current power supply+5V input.

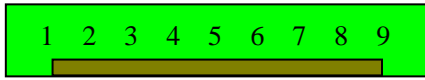
CN2



Other companies' LED display screen interface.

1. **GND** Ground wire input.
2. **GND** Ground wire input.
3. **SD2** Display screen serial data signal output 2.
4. **SD0** Display screen serial data signal output 0.
5. **ENA** Display screen brightness control signal.
6. **GND** Ground wire input.
7. **GND** Ground wire input.
8. **GND** Ground wire input.
9. **SCK** Display screen serial clock wire output.
10. **STB** Display screen locking signal output.
11. **SD3** Display screen serial data signal output 3.
12. **SD1** Display screen serial data signal output 1.
13. **LD** Display screen row selection signal output B3.
14. **LC** Display screen row selection signal output B2.
15. **LB** Display screen row selection signal output B1.
16. **LA** Display screen row selection signal output B0.

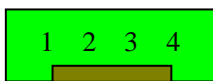
CN3



LED display screen control interface, this is the standard display screen control interface of HSAV.

1. **SCK** Display screen serial clock wire output,
2. **GND** Ground wire output.
3. **OEG** Display screen brightness control signal output.
4. **SDP** Display screen row data signal.
5. **STB** Display screen locking signal,
6. **SD0** Display screen serial data signal output 0.
7. **SD1** Display screen serial data signal output 1.
8. **SD2** Display screen serial data signal output 2.
9. **SD3** Display screen serial data signal output 3.

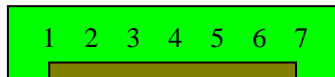
CN4



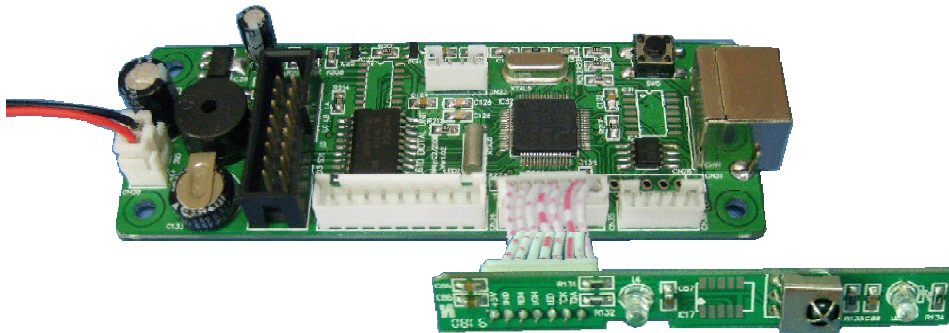
This interface is used to upgrade and test display screen in the inside of factory, and connecting ST-991AR5 can upgrade program.. In general, user may pay attention to it unnecessarily.

1. **SDA** The data wire input of I²C of ST-991AR5.
2. **SCL** The clock wire input/output of I²C of ST-991AR5.
3. **GND** Ground wire output.
4. **+5V** Power supply +5V output.

CN5

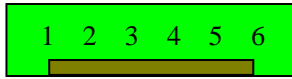


Expansion external remote control, temperature, humidity, and photosensitive detection function interface.



1. **+5V** Power supply +5V output.
2. **GND** Ground wire output.
3. **REM** Infrared remote control signal input.
4. **LGH** Photometer photometric detection signal input.
5. **LED** LED indicator light output.
6. **TCK** Temperature and humidity signal clock output.
7. **TDA** Temperature and humidity signal data input and output.

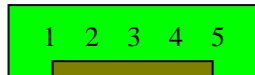
CN6



Large-capacity FLASH chip online upgrade and function expansion. In general, user may pay attention to it unnecessarily.

1. **VCC** Power supply output.
2. **GND** Ground wire output.
3. **SFCK** Serial clock input/output.
4. **SFMI** Serial data input.
5. **SFMO** Serial data output.
6. **SFCS** Control input/output.

CN7



Serial communication expansion interface.

If users choose to connect with ST-991C232(RS232 level switching board used by LED display screen), this interface can be used for RS232 expansion interface.

If users choose to connect with ST-991C485(RS485 level switching board used by LED display screen), this interface can be used for RS485 expansion interface.

Choosing ST-991CUSB can directly connect computer with display through USB interface.

After connecting with ST-991 receiving device, using ST-991C20M sending device to connect with the USB interface of computer can realize 20 meters long distance wireless communication, and using ST-991C1KM sending device to connect with the USB interface of computer can realize 1000 meters long distance wireless communication.

1. **ETX** Sending allowance output port. When it is sending, its level is high level and TTL level.
2. **TXD** The serial interface data output port of TTC level.
3. **RXD** The serial interface data input port of TTC level.
4. **GND** Ground wire input/output.
5. **VCC** Power supply input/output.

◇ Touch switch instructions

- a) Pressing this switch continuously can in turn display the current luminosity percentage, temperature, humidity, and exit.
- b) Pressing this switch long time can display the IP address of display screen, pressing it again can exit, or after several seconds, display screen can automatically exit.

◆ Using Remote Control or Keyboard Controls Display Screen

More information, please refer to the keyboard and remote control of display screen operation user manual (cnstl264.pdf).

◆ Using DispTool Display Screen Control Tool Controls Display Screen

More information, please refer to DispTool display screen control tool user manual (cnstl802.pdf).

◆ The Upgrade Method of DL61D

Using ST-991AR5 can upgrade the software of DL61D and realize more functions. DL61D uses CN4 socket as upgrading interface, and ST-991AR5 connecting with CN4 can upgrade software.

For further information, please refer to ST-991AR1 upgrading device user manual (cnstl201.pdf), as shown in the following illustration



◆ Electrical Specification and Temperature Specification

- working power supply: +5V.
- working current: 80mA (don't include LED display screen).
- Working life: exceed five years
- Working temperature: 0°C ~ +85°C。 if users need the product of industry level, can directly ask for our company when order goods.
- running time: Automatically run **10 to 20** days when power supply is disabled.

◆ Troubleshooting

- 1) Display screen cannot be lighted up: check the power supply to make sure that display screen has connected with power supply successfully, and control line is correct.
- 2) PC terminal tool communication is not normal.
 - a) Check display screen power supply to make sure that power supply has been connected correctly.
 - b) Check RS232 or RS485 interface to make sure that connection is right.
 - c) Check the COM port to make sure that the COM port that has been chosen is correct. More information, please refer to “COM Port Selection and Ascertaining IP” of DISPTOOL display screen control tool software user manual. In addition, have to first install CP210X driver when users adopt wireless communication mode, and then search corresponding serial port, more information, please refer to the serial interface of display screen user manual (cnst1231.pdf).
 - d) Check the “end address selection” and “start address selection” of “COM Port” setting to make sure that their IP are identical with the IP of display screen.
- 3) If users accidentally press the touch switch can exit according to the operation method of touch switch instructions mentioned above.

The specifications of this product will be updated and perfected unceasingly, and specifications subject to change without notice.