

ART-NET SPI/DMX Multi-functional 8-port controller

User Manual



GC-508 PRO



(Please read through this manual before installation and use)

Update time: 2026.8.15

1、Overview

The GC-508 PRO controller utilizes an FPGA processor, supports dual 100M Ethernet, and is compatible with the ART-NET protocol. It converts network data into DMX512 and SPI data for output. The controller outputs 8 ports, each supporting 8 universes, which amounts to 1360 SPI-protocol pixels, totaling 10880 pixels.

GC-508 PRO is an intelligent LED lighting control device that integrates online real-time control, offline autonomous playback, DMX512/Art-Net protocol access, and automatic mode switching. Paired with our self-developed programming software "FAST LED", it is also compatible with lighting software such as MADRIX, JINX, and XLIGHTS. It is widely used in various scenarios such as landscape lighting, banquet halls and wedding halls, bars and KTVs, stage performances, cultural tourism and night tours, as well as building facade light shows.

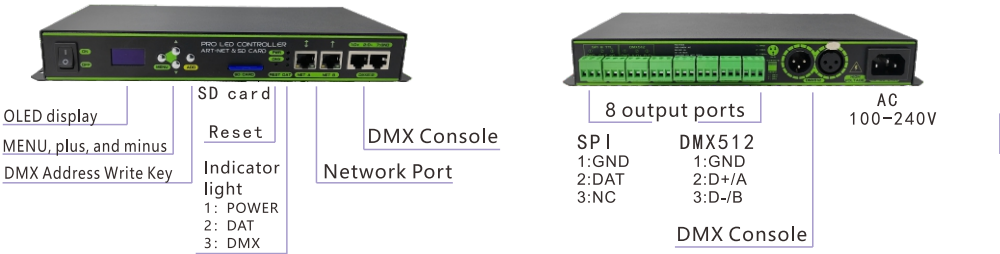
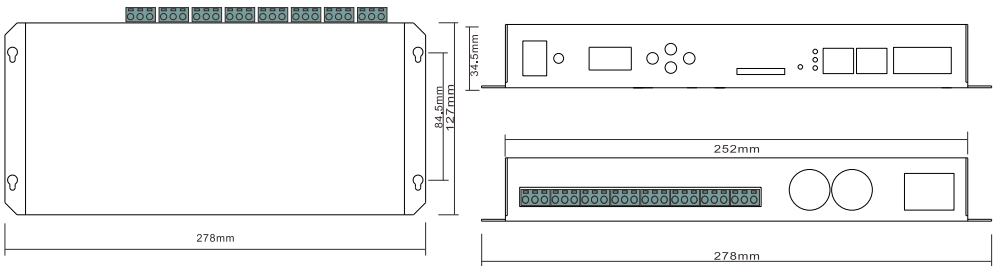
2、performance parameters

Voltage	AC 100~240 V
Output	8 ports x1360 (SPI) & 8 ports x170 (DMX512), with expansion support
Network	Dual 100M Ethernet
Network protocol	GC-NET & ART-NET adaptive switching
Driver IC	DMX512-250K(Standard) 、DMX512-500K(Baud rate adjustable) 、2811、ucs2903、ucs8903、ucs5603、sm16803、sm8612、sk9814、sk9816、sk9818、TM1814、ws2816、SM18604、UserZero(Advanced user customization)
Pixel count	1, SPI: 1360 (RGB) 、1024 (RGBW) 2, DMX512-250K,170点-40hz (RGB) , 300点-25hz (RGB) 3, DMX512-500K,170~512点-25hz (RGB)
Temperature	-20℃-50℃
Dimensions	L278×W140×H35 mm
Net weight	1.15 kg

3、Features and Characteristics

- (1) Dual 100M Ethernet ports, capable of hand-in-hand cascading networking, with multi-mode adaptive switching between online, offline, DMX512 console, and ART-NET modes.
- (2) Supports a master-slave network mode, where any device can be set as the master and used as a master controller, eliminating the need for subsequent controllers to be equipped with cards.
- (3) Compatible with ART-NET protocol, it supports playback without artsync, supports complex maps, and allows for varying lengths of each universe. It also supports the use of lighting software such as MADRIX, JINX, ARENA, and XLIGHTS.
- (4) Provide multi-language support, OLED display settings, and language selection options.
- (5) The output port can simultaneously accommodate both DMX differential signals and SPI serial signals.
- (6) Supports one-click modification of parameters such as IP address, universe address, IC type, color sequence, etc., for single or multiple devices.
- (7) The controller is equipped with an SD card interface, supports offline local playback, and can play up to 60 files.
- (8) Supports integration with DMX512 control consoles, allowing real-time control over content playback, speed, brightness, color, strobe effects, overlay backgrounds, reverse scrolling, and more.
- (9) Supports DMX512 one-key address writing and is compatible with multiple commonly used DMX512 driver ICs.
- (10) The current gain of the drive chip can be modified (such as: sm18604, GS83XX, SK9814, SK9818, SK9816, SM1680X, UCS5603, TM1814, etc.)
- (11) Supports baud rate adjustment for the driver chip to enhance signal transmission stability in complex electrical environments

4、Description of dimensions and interfaces

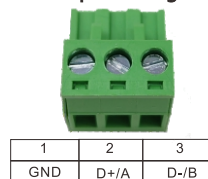


5. Operation Instructions

Wiring instructions for SPI & TTL outputs:



DMX512 output wiring instructions:



Note:

- 1: The machine has high voltage inside, and non-professionals are not allowed to open the casing
- 2: Before inserting or removing the card, the power must be turned off
- 3: No watering and do not apply heavy pressure
- 4: During construction wiring, ensure that strong current and weak current are separated

6. Parameter Settings

Main interface of display screen



The main interface displays a musical note when it is turned on.
After successful card reading, the currently playing program number will be displayed in real-time on the top right corner.

Mode Setting

Mode
adaptive

Long press the MENU button to enter settings, The first item is mode, and then adjust this parameter using the plus and minus buttons.

- 1、Adaptive: Automatic switching between online, offline, and console modes.
- 2、DMX Trigger: Dedicated for DMX Console Mode.
- 3、Host (loop): The first one is set as the host, playing in a loop, supports DMX console.
- 4、Host (single): Set the first one as the host, and play in single track loop.

Brightness

Bright
255

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Brightness parameter.
Brightness can be adjusted linearly within the range of 0-255.
When the mode is set to host mode, the brightness of all controllers will be changed.

Speed

Speed
25hz

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Speed parameter.
The speed can be adjusted linearly within the range of 6-150Hz.
When the mode is set to host mode, the speed of all controllers will be changed.

Chip

Chip
UCS2903

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Chip parameter.
The chip represents the type of IC that the controller is intended to drive, and it is designated as an SD card by default.

DMX Addr

DMX Addr
001

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the DMX Addr parameter.
The DMX address is the address code used for connecting to a DMX512 console.

IP Addr

IP Addr
001

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the IP Addr parameter.
The IP address is used for ART-NET operation, and what is set here is the last part, The first three digits are 192.168.1.

Start
universe
0001

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Start universe parameter.
The starting universe indicates the universe from which the local machine starts receiving data when operating in ART-NET.

universe /port
6

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the universe/port parameter.
This parameter represents the number of universe loaded on each port under ART-NET operation, with a default parameter of 6 universe.

Chan/universe
6

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Chan/Universe parameter.
This parameter represents the number of channels loaded per universe under ART-NET operation, with a default value of 512.

DMX addressing



- 1: Press MENU to find the DMX chip parameters, and select the IC model that needs to be addressed.
- 2: Press "MENU" again, find the Starting addr, and enter the starting value, which defaults to 001.
- 3: Press "MENU" again, find the Channel number parameter and enter the channel number for addressing: generally, RGB is 003, and RGBW is 004.
- 4: Press "MENU" again, find Write Address, and then press the "ADD" button on the right.

Pixel
RGB

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Pixel parameter.
This parameter indicates whether the controlled lighting fixture is of RGB or RGBW.

Color arrang
RGB

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Color arrang parameter.
This parameter indicates whether the controlled lighting fixture is of RGB or RGBW.

Language
English

Long press the "MENU" button to enter parameter settings, and continue pressing it to switch to the Language parameter.
This parameter allows you to select the language displayed on the controller screen.

DMX512 trigger channel table-Used for connecting to DMX512 control console

- Channel 1** (0-255): total dimming
- Channel 2** (0-255): red dimming
- Channel 3** (0-255): green dimming
- Channel 4** (0-255): blue dimming
- Channel 5** (0-255): white dimming, only valid for RGBW four-color lamps
- Channel 6** (0-255): program: 0-3 program 1, 4-7 program 2, 8-11 program 3 and so on
- Channel 7** (0-255): speed 0-255 is adjustable
- Channel 8** (0-255): with the function of explosion and flash, the frequency of explosion and flash can be continuously adjusted from low to high
- Channel 9** (0-255): Overlay base color function, 0 no base color, 32-63 base color mode 1, 64-95 base color mode 2, 96-127 base color mode 3, no base color above 128
- Channel 10** (0-255): red background, value 0-255 adjustable
- Channel 11** (0-255): green background, value 0-255 adjustable
- Channel 12** (0-255): blue background, value 0-255 adjustable
- Channel 13** (0-255): white background, value 0-255 adjustable (only valid for RGBW)
- Channel 14** (0-255): 0-127 positive direction, greater than 128 negative direction

7、Application connection method

1: ART-NET series connection



2: ART-NET Switch parallel connection



3: The main controller 6600 connected to multiple 508 PRO devices



4: The first 508 pro is set as the master device, operating in master-slave mode



8、Configure parameters online

Select the IP address of the computer

Search results
Display IP and universe

Search Controller

Write the IP of the

Controller network speed

The number of universes per port

Set the starting universe for the first controller

RGB arrange

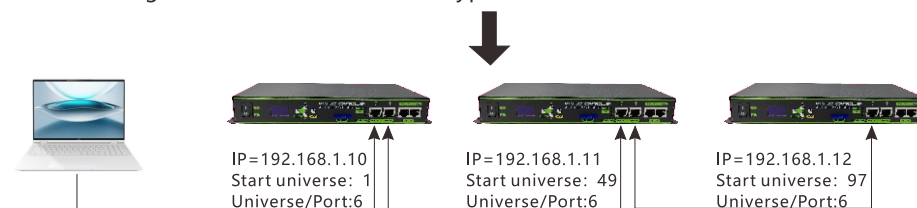
Pixel: RGB & RGBW

Special application parameters
Usually no adjustment is needed

Output driver IC type

Write all parameters with one click

Note: In most applications, using the default parameters is sufficient, with the key focus being on the selection of the IC type..



Example: IP address and automatic universe increment (default: 6 universes per port, 48 universes for one controller).