SUNRICHER

Art-Net to DMX Bidirectional converter

SR-2100ArtNet-DMX

Installation Guide

The Art-Net™ DMX Bidirectional Converter is used as a part of a control system for operating various lighting and multi-media products. The physical and digital construction of the control network is determined by the location and signal needs of the products.

When designing a control system that uses the Converter, consider the following:

- Placing the Converter so the LCD screen and ports can be accessed.
- Running the cables so there is no tension or pull on the cables or plugs.
- Planning a large control system carefully before configuring the components so IP address, DMX address, and other identifiers are not duplicated.

Signal Connection

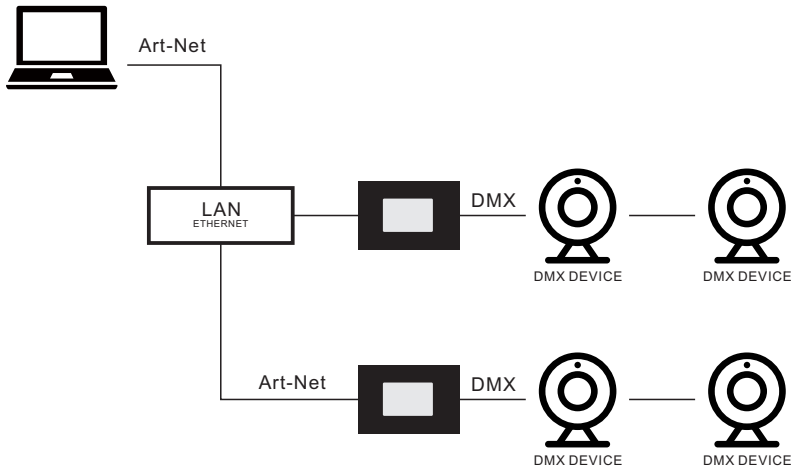
The Converter receives signal through one of the 2 Ethernet ports and 1 DMX In port. It send signal out through the other Ethernet port and 4 DMX Out ports.

Art-Net™ Connection

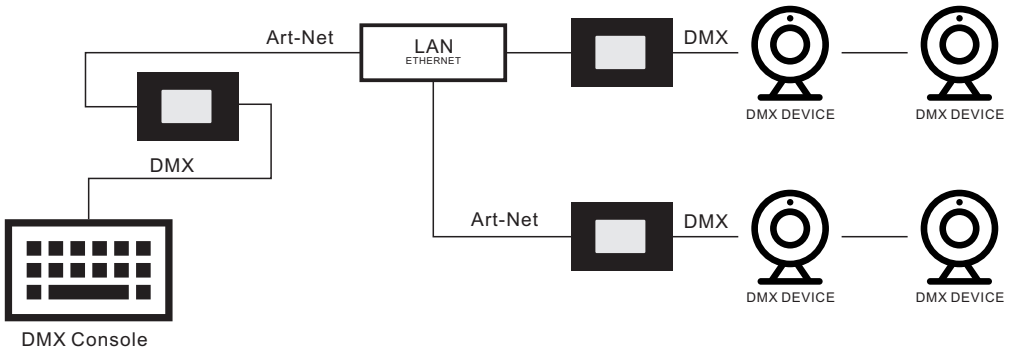
Art-Net™ is an Ethernet protocol that uses TCP/IP to transfer a large amount of DMX512 data using an Ethernet port RJ45 connection over a large network. Art-Net™ designed by and copyright Artistic Licence Holdings Ltd.

Application

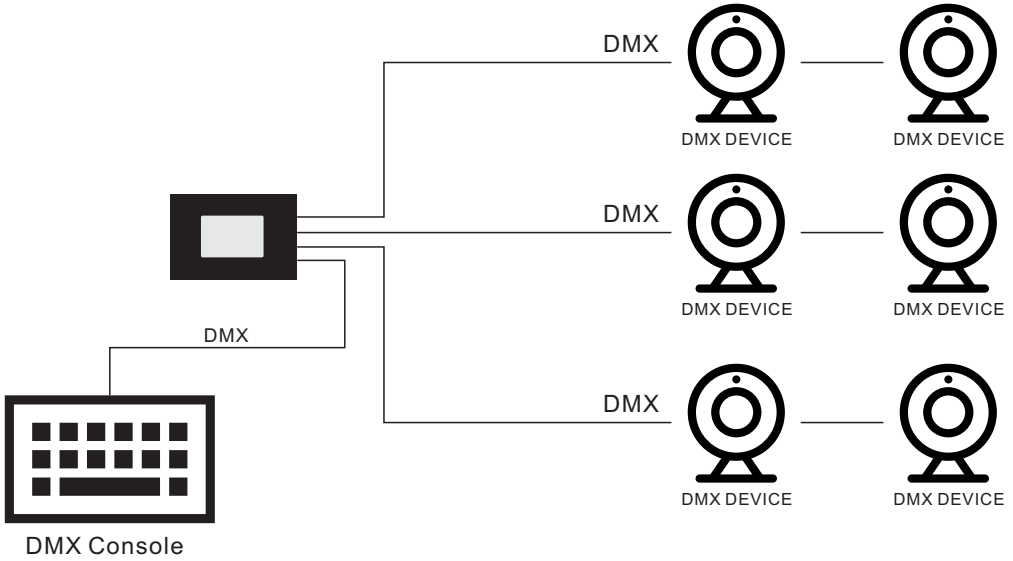
1) When the Work Mode is configured as ArtNet->DMX



2) When the Work Mode is configured as DMX->ArtNet



3) When the Work Mode is configured as 1IN->3OUT (DMX splitter)



Notes: 1) The Ethernet ports are through ports, each port can be either an input or an output port.
2) The 4 DMX ports can be all out ports, only the Port 1 can be configured as DMX In port.
3) The device has Ethernet switch capability and the 2 Ethernet ports are through ports that allow daisy chaining of the devices.

Operation

LCD Operation

The Converter is configured through the 3.5 inch large LCD screen using a touch control pen. Once it is properly configured it operates without user intervention.

The Converter can be used as an Art-Net™ node, in which case the Art-Net™ universes must be assigned to the DMX Out ports, and the Net, IP address settings must be configured.

The Converter's Recorder function allows you to record programs such as color sequences that are programmed and played by a Art-Net supported PC software or DMX console and save them to the SD card.

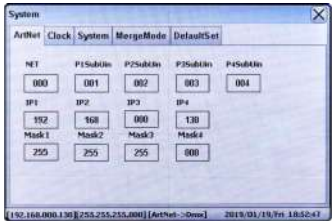
The Converter's TaskManage function allows you to create up to 10 scheduled tasks which will play the chosen recorded programs based on the frequency of day or week. Each scheduled task allows you to choose up to 10 recorded programs. The play mode can be SinglePlay or LoopPlay.

Connect the Converter and power on, you will get the configuration menus on the LCD screen home page as follows:



1. System Configuration

First we should start with the System configuration, short touch the System icon on the screen using the touch control pen to enter into System Configuration window as follows:

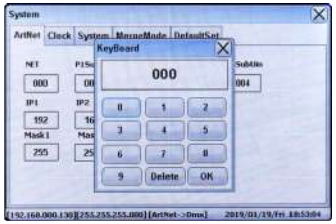


The 1st tab is "ArtNet", which is to configure the Net, Subnet, IP address settings, and assign the Art-Net™ universes to the 4 DMX ports.

Set NET

A group of 256 consecutive Universes is referred to as a net. There are 128 Nets in total.

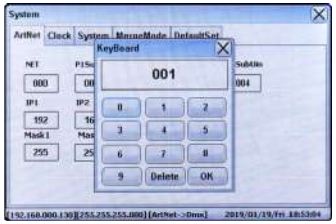
Short touch the number in the box under NET , the key board window will pop up as follows, input numbers on the key board to set the net number, the available net number range is 0-127. Once set, touch OK on the key board. Then close the System configuration window to confirm and save the setting.



Set Universes

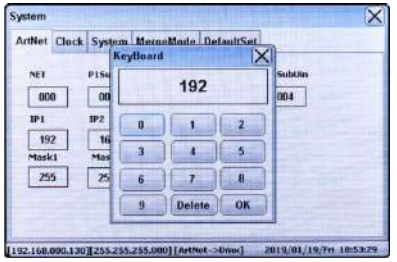
A single DMX512 frame of 512 channels is referred to as a Universe. Each Net has 256 consecutive Universes. A theoretical limit of 32,768 universes exists in the Art-Net™ 4 specification.

The P1SubUin-P4SubUin is to assign Art-Net™ universes to the 4 DMX Out ports. Short touch the number in the box under P1SubUin-P4SubUin , the key board window will pop up as follows, input numbers on the key board to set the Universe number, the available Universe number range is 1-255. Once set, touch OK on the key board. Then close the System configuration window to confirm and save the setting.



Set IP Address

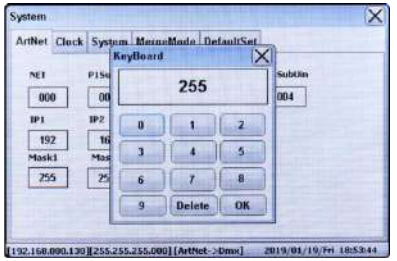
The Art-Net™ protocol can operate on either a DHCP managed address scheme or using static addresses. When DHCP is set as "ON", the addressing and subnet masks will be modified as dictated by the DHCP server. Only when DHCP is set as "OFF", we can set static address.



The IP1-IP4 is to set manual IP address. Short touch the number in the box under IP1-IP4 the key board window will pop up as follows, input numbers on the key board to set the IP address, the address (the format is IP1.IP2.IP3.IP4) can be set from 000.000.000.000 to 255.255.255.255 after set IP1-IP4 respectively. Once set, touch OK on the key board. Then close the System configuration window to confirm and save the setting.

Set Masks

The Art-Net™ protocol can operate on either a DHCP managed address scheme or using static addresses. When DHCP is set as "ON", the addressing and subnet masks will be modified as dictated by the DHCP server. Only when DHCP is set as "OFF", we can set Mask manually.

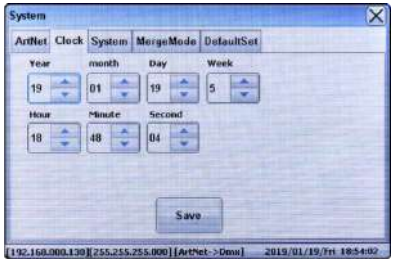


The Mask1-Mask4 is to set Net Mask. Short touch the number in the box under Mask1-Mask4  the key board window will pop up as follows, input numbers on the key board to set the Net Mask, the Net Mask (the format is Mask1.Mask2.Mask3.Mask4) can be set as 255.000.000.000, 255.255.000.000 or 255.255.255.000 after set Mask1-Mask4 respectively. Once set, touch OK on the key board. Then close the System configuration window to confirm and save the setting.

The 2nd tab on System configuration window is "Clock", which is to set system time

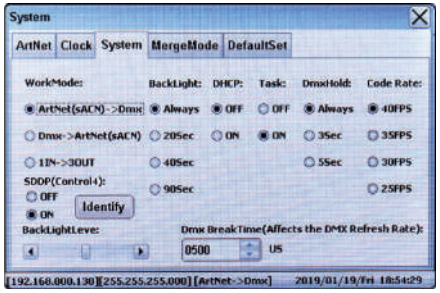
Set Clock

Touch the scroll up or down menu under Year, month, Day, Week, Hour, Minute and Second to set the time. Once set, touch the "Save" button to save the setting. The converter is designed with built-in RTC which ensures its system time will be still up to date in the event of power failure.



The 3rd tab on System configuration window is "System", which is to set Work Mode, BackLight, DHCP, Task, and DMX Hold.

Set Work Mode



The converter supports 3 kinds of Work Mode: ArtNet(sACN)->DMX, DMX->ArtNet(sACN), 1IN->3OUT. Touch the Work Mode you would like to select it. Once set, close the System configuration window to confirm and save the setting.

ArtNet(sACN)->DMX: receives ArtNet (sACN) and sends out DMX, when the device works under this mode, the sACN protocol can work in singlecast, multicast, broadcast mode.

DMX->ArtNet(sACN): receives DMX and sends out ArtNet (sACN) (Only the DMX Port 1 can work as DMX In), when the device works under this mode, sACN protocol can only work in multicast mode, data packet of each port will be sent to a designated multicast address, the multicast address range is from 239.255.0.0 to 239.255.255.255.

1IN->3OUT: DMX splitter mode, 1 DMX In port (Only the DMX Port 1 can work as DMX In), 3 DMX Out ports.

SDDP(Control4): this device supports Control4's SDDP Simple Device Discovery Protocol, once this function is turned on, this device can be integrated into and controlled through Control4 SDDP platform, for detailed operations, please refer to the SDDP operation manual.

Set BackLight

The Backlight is to set how long will the screen backlight stays on. Touch to select a time you would like. Once set, close the System configuration window to confirm and save the setting.

Always: the backlight will always stay on
20Sec: the backlight will stay on for 20 seconds then turn off
40Sec: the backlight will stay on for 40 seconds then turn off
90Sec: the backlight will stay on for 90 seconds then turn off

Set DHCP

The DHCP is to set whether DHCP is enabled or disabled. Touch to select "OFF" or "ON". Once set, close the System configuration window to confirm and save the setting.

OFF: DHCP is disabled
ON: DHCP is enabled

Set Task

The Task is to set whether Task function is enabled or disabled. Touch to select "OFF" or "ON". Once set, close the System configuration window to confirm and save the setting.

OFF: Task function is disabled
ON: Task function is enabled

Note: if Task function is disabled, the Tasks configured in the part "Task Manage" will not be executed.

Set DmxHold

The DmxHold is to set how long will the signal output last without external DMX signal. Touch to select a time you would like. Once set, close the System configuration window to confirm and save the setting.

Always: the signal will always keep output of the last frame DMX output.
3Sec: the signal will keep output of the last frame DMX output for 3 seconds, then signal output will stop
5Sec: the signal will keep output of the last frame DMX output for 5 seconds, then signal output will stop

Set Code Rate

The Code Rate is to set the ArtNet code rate. Touch to select a rate you would like from the 4 available settings: 40FPS, 35FPS, 30FPS and 25FPS. Factory default setting is 40FPS. Once set, close the System configuration window to confirm and save the setting.

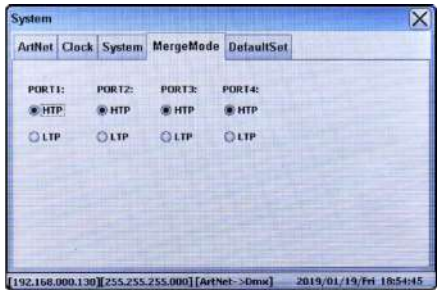
Set Backlight Level

The Backlight level is to set the brightness of the screen backlight. Slide the brightness slider leftward or rightward to select a brightness you would like. Once set, close the System configuration window to confirm and save the setting.

Set DMX Break Time

The DMX Break Time is to set the DMX Break Time which will affect the DMX refresh rate. Touch the scroll up or down menu to select a time from the available range: 100uS to 1000uS. Factory default setting is 500uS. Once set, close the System configuration window to confirm and save the setting.

The 4th tab on System configuration window is "MergeMode", which is to set DMX Merge.

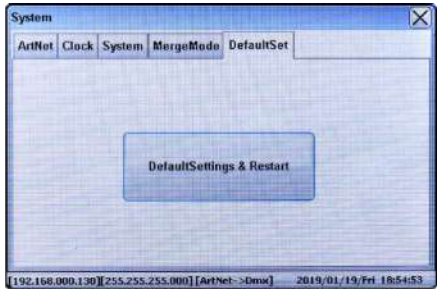


Set MergeMode

This device is capable of merging two signals from different IP addresses of the same protocol into one using HTP (Highest Takes Precedence), or LTP (Latest Takes Precedence) logic. The MergeMode can be set for 4 DMX ports separately. System will merge the data from two IP addresses and send to corresponding DMX port according to the set merge mode if two signals from two IP addresses are detected. If there are no data from two different IP addresses are detected any longer within 3 seconds, system will quit MergeMode.

Touch to select a MergeMode you would like from the 2 available settings: HTP and LTP for each DMX port separately. Factory default setting is HTP. Once set, close the System configuration window to confirm and save the setting.

The 5th tab on System configuration window is "DefaultSet", which is to reset the device to factory default setting.

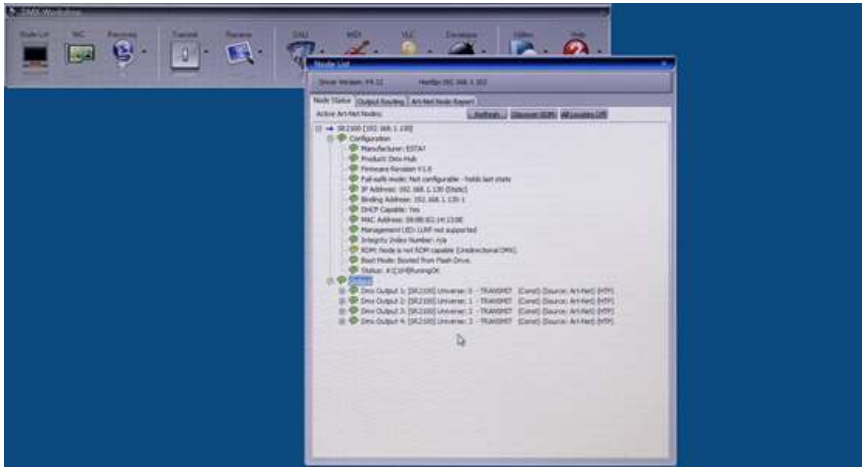


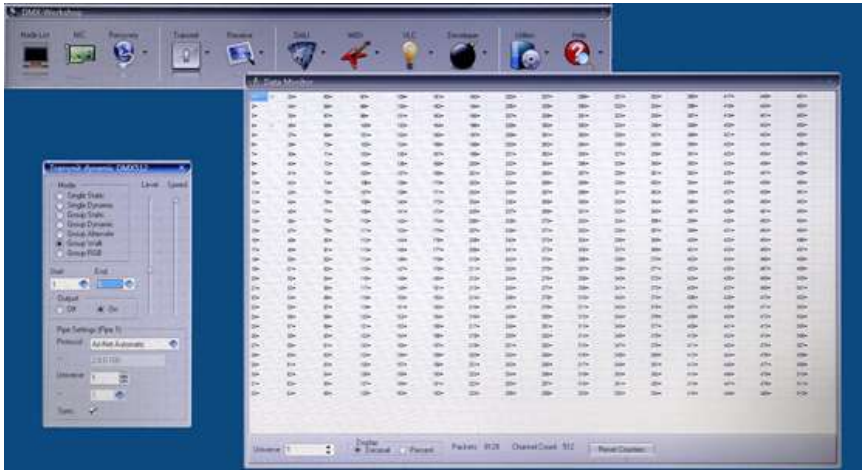
Set DefaultSet

Tap the button "DefaultSettings & Restart" to reset the device to factory default setting and restart.

Monitoring & Manual Testing Remotely Through PC Software

The Converter can be remotely monitored & manual tested through Art-Net™ supported PC software including Sunlite, DMX workshop, Luminair, Madrix, etc. The computer should be on the same network as the Converter.
Following is an example using DMX workshop to monitor and manually test the Converter after completing the System Configuration (Work mode is configured as ArtNet->DMX) :





2. Test Tool

On the LCD screen home page, touch the “Test Tool” icon to enter into Test Tool configuration page. You will get 3 choices, default is “ALL Darkness”, which means all DMX controlled lights are all off. Touch to select an effect to test the lights, then close the window to confirm and save the setting:

ALL Darkness: All controlled lights turn off
ALL Brightness: All controlled lights turn on
RGB Ramp: RGB lights dynamic change
Speed: Data refresh rate





3. Information

On the LCD screen home page, touch the “Information” icon to enter into information page. It is about the product’s model, manufacturer, hardware and firmware information. The model number and manufacturer information can be OEM modified by factory setting.



4.Recorder

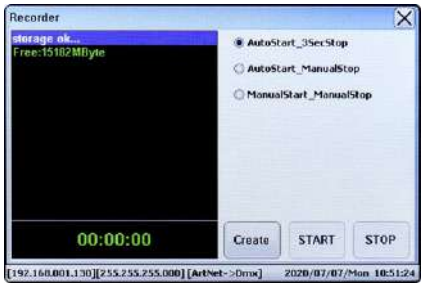
On the LCD screen home page, touch the “Recorder” icon to enter into Recorder configuration page. The Recorder function is to record programs such as color sequences that are programmed and played by the Art-Net supported PC software or DMX console, total 999 programs can be recorded. On the Recorder configuration page, status box and time box are on the left side, 3 kinds of trigger method are on the right side:

AutoStart_3SecStop: press the “START” button at the bottom, when signal is detected, recording starts, when no

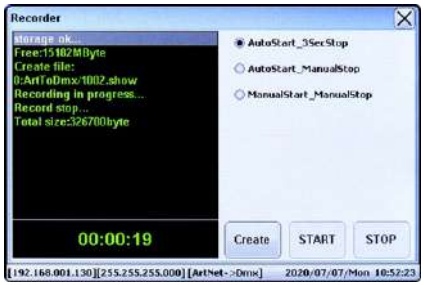


signal detected, recording ends after 3 seconds.
AutoStart_ManualStop: press the “START” button at the bottom, when signal is detected, recording starts, recording ends by manual operation.
ManualStart_ManualStop: press the “START” button at the bottom, recording starts immediately, recording ends by manual operation.

Create button: when you would like to record a program, the 1st step should be creating a file by pressing Create button. The file will be named as xxxx.show by system.



Start button: after creating a file, press the Start button to start, then system will trigger recording automatically according to the selected trigger method, if the selected trigger method is manual trigger, system will start to record signal.



Stop button: pressing the Stop button under any circumstances will end recording.

Close the Recorder configuration page by pressing the close button at the upper right corner will end recording and close the window.

Note: 1) 4 universes record simultaneously, high speed recording with 40FPS frame rate.
2) please do not modify the file names which are created and managed by system
3) when recording is in progress, please do not remove the SD card.

5. PlayBack (Standalone)

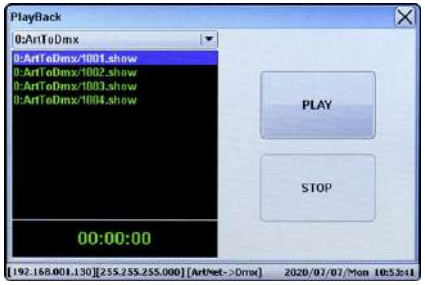
Once the programs are recorded, we can playback the programs without a ArtNet supported PC software or DMX console, the device will run at standalone mode.

On the LCD screen home page, touch the “PlayBack” icon to enter into PlayBack page. The PlayBack function is to play the recorded programs, the drop down list at the upper left is to select a work mode under which the programs are recorded, after select the work mode, all programs recorded under this mode will be listed in the box, select a file by short touch the file name, lower left box shows the PlayBack time:



Play button: after selecting a file, press the Play button to play it.

Stop button: press the Stop button to stop playing the file.



6. TaskManage (Standalone)

TaskManage function allows you to create up to 10 scheduled tasks which will play the chosen recorded programs based on the frequency of day or week, the tasks will run under standalone mode which does not need a ArtNet supported PC software or DMX console. Each scheduled task allows you to choose up to 10 recorded programs. The play mode can be SinglePlay or LoopPlay. On the LCD screen home page, touch the “TaskManage” icon to enter into TaskManage Configuration page.



On the TaskManage Configuration page, you can create, delete tasks, the drop down list at the upper left is to select a work mode under which the programs were recorded, after select the work mode, all programs recorded under this mode will be listed in the left box, Multiple recorded programs (up to 10 programs) can be selected for 1 task by short touch the recorded file names, steps to create a task are as follows:



Step 1: select the recorded files (up to 10 files for 1 task) that you would like to play.
Step 2: set the time you would like to play the selected programs (using the scroll down list to set Year, Month, Day, Week, Hour, Minute, Second).
The Week item in the 1st row is to select number of days you would like the task to be triggered when the task type is set as Week Task, for instance, you can set the number of days as 7 to trigger the task everyday in a week. The 2nd row is to set the starting time of the task and choose the task ID you would like to set, and the 3rd row is to set the end time of the task, for instance, if you would like to trigger the task the whole day repeatedly, just set the starting time as 00:00:00 and set the end time as 23:59:59.
Step 3: select the task type: Day Task, Week Task or All Day Task, and select the play mode: Single Play or Loop Play. Once you choose Single Play, the task will be triggered for only once during the set time range. Once you choose Loop Play, the task will be triggered repeatedly during the set time range.
Step 4: set the TaskID (using the scroll down list to set TaskID, total 10 task ID available from 01-10, which means total 10 tasks can be created).
Step 5: press “Create” button to create a task, the task information will be showed on upper right task information box.

Note: please select different TaskIDs for different tasks, otherwise the newly created task using the same TaskID as a previously created one will cover the previously created task.

Task List information on upper right task information box are as follows:
TaskID: the ID number of the task
TaskType: Task type, the task can be DAY TASK or WEEK TASK.
File Num: the number of files selected and to be played by the task.
TaskState: state of the task, the state can be ACTIVE or UNACTIVE.
PlayMode: play mode of the task, can be SinglePlay or LoopPlay.
TaskTime: the time scheduled to play the task.
TaskFile#: the file directory of the 10 files.

Delete Button: press Delete button to delete the task with current Task ID.
DeleteALL Button: press DeleteALL button to delete all created tasks.

When a task is played, the Task PlayBack Window will pop up and show the task information.



Note: 1) please make sure the Task function is enabled in the part of "Set Task" of System Configuration page, Task should be set as "ON". Otherwise the created Tasks will not be played at the scheduled time.

Note: 2) If two tasks are created at the same scheduled time, the task with Week Task Type will have priority, the task with Day Task Type will be ignored.

Note: 3) Within a time period, if a task is being executed, and the trigger time of another task is within this period, this another task will be ignored.

Note: 4) If multiple recorded files are selected for a task, and one of them is deleted accidentally, system will ignore this deleted file and play next file directly.

Note: 5) If you would like to trigger the task repeatedly 24 hours every day, just set the task mode as All Day Task, choose Week item (number of days in a week) as 7, set the play mode as Loop Play, and set the starting time as 00:00:00 and set the end time as 23:59:59 on the date which is later than the date of system time.

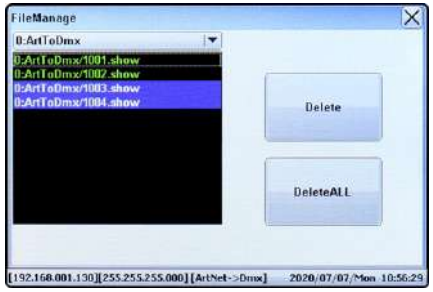
Note: 6) This device has memory function, once a task was triggered and device power is reset, the device will continue to play the triggered task.

7.FileManage

On the LCD screen home page, touch the "FileManage" icon to enter into FileManage page. FileManage function allows you to mange the recorded files, you can select multiple files by short touch the file names, then press **"Delete Button"** to delete the selected files or press **"DeleteALL Button"** to delete all recorded files.

Note: please be careful to delete the recorded files, once deleted, the recorded files will lose and all the created tasks using the deleted files will lose.





8.Screen Calibration

When touch screen is not sensitive for touch control, we need to calibrate the screen and initialize the calibration parameter, please follow the steps below:

1. Power off the device
2. Use the touch pen or a finger to press and hold down the touch screen
3. Power on the device when press and hold down touch screen
4. Keep holding the screen for 2 seconds after power on the device then release the screen, the program will enters into calibration mode, then press the 4 appeared cross sight beads one by one to complete calibration.

9. Application of Recorder & TaskManage Functions

Step 1: Record programs (color sequences) that are programmed and played by a ArtNet supported PC software and save to SD card, following is an example of Madrix lighting control, please refer to its user manual to learn how:



Step 2: Create scheduled tasks which will play the chosen recorded programs at scheduled time every day or week by TaskManage function, which will run under standalone mode, and does not need a ArtNet supported PC software, following is an application example of TaskManage function:



Note: 1) The Recorder & TaskManage functions enable the device to run programs under standalone mode.
2) One ArtNet supported PC software is enough for multiple projects which will save much costs.
3) Use the PC software just for Recorder function, all projects can run programs under standalone mode.