Anytronics DMX Anyscene 512 : Installation Guide

The Anytronics Anyscene 512 provides 23 programmable DMX scenes each of 512 channels in a compact and user friendly form which is suitable for use in a wide variety of architectural applications. The Anyscene 512 fits in a standard wall mounting UK double patress box (which can be supplied on request). Several Anyscene 512s (push button or IR controlled) may be used in one installation, but only one will be active at a time.

The Anyscene 512 is normally powered remotely from +5 Volts supplied via a Category 5 cable with RJ45 connector (as supplied) which also carries the DMX signals to and from the unit. This connection is most simply accomplished by connecting the RJ45 cable (supplied) to the memory port provided on an Anytronics wall mounted dimming pack, Anycolour DMX to DFB interface, or to a Power supply PCB with DMX connections that Anytronics can supply.

The Anyscene 512 can be set to receive and store data from DMX addresses 1-512. It will transmit stored scenes to DMX addresses 1-512.

Getting Started

1. Please first read section 4.0 on correct DMX configuration for multiple Anyscene 512 systems. In any DMX system, one Anyscene 512 should have its line bias network (LBN) enabled (smaller DIL switch position 1 to ON). Equipment connected at either end of the DMX pair should have termination resistors

2. Use supplied RJ45 cable to connect to +5 Volt supply, 0V and DMX data lines. (If being used with an Anytronics dimming pack, Anycolour or Anytronics DMX Interface or power supply, then connect to a suitable RJ45 port on that equipment)

3. Set DMX addressing on any DMX light fittings, dimmers or other DMX equipment.

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Anyscene 512 DMX Memory Unit : USER GUIDE

1.1 Front Panel Overview

The front panel has ten buttons and ten LED indicators. Switches labelled 0-7 have their own blue mimic LEDs and are used for storing and recalling the contents of the 23 programmable memories. The Up and Down buttons are normally used to control the Master level, allowing control of the overall lighting level. They also provide access to the upper and lower memory banks, each of eight scenes. The green power LED shows when the unit is powered up, and the yellow data LED indicates that the unit is receiving suitable programming data from a DMX source. Switch 0 is the blackout select switch. Its LED will flash when the unit is in blackout.

1.2 Back panel overview

The RJ45 sockets are on the back of the PCB along with two DIL switches. The small DIL switch is used to set the correct operating conditions for the DMX connection. The large DIL switch is used to set the desired parameters for Anyscene 512 operation.

Switch	Off	On
1	-	-
2	Memory unprotected	Memory Write Protected
3	-	-
4	Master level adjust	Scene period adjust
5	Fade Time x 1	Fade Time x 2
6	Fade Time x 1	Fade Time x 4
7	External scene advance enabled	External scene advance disabled
8	LEDs dim	LEDs bright

DIL switch 2 (labelled MWP) protects the scene memory contents when set to ON. New scenes can be programmed into the unit during commissioning only if this switch is in the OFF position.

DIL Switch 4 selects whether the Up and Down buttons control Master level or auto cycle period (see section 2.8).

Switches 5 and 6 select the fade time between scenes as shown below.

DIL Sw 6	DIL Sw 5	Fade Time (sec)
Off	Off	2.5
Off	On	5
On	Off	10
On	On	20

DIL switch 8 controls the brightness of the front panel scene mimic LEDs.

2.0 Guide to Operation

2.1 Recalling Scene Memories

Normally when the Anyscene 512 is powered up it will have remembered which stored scene was last selected and will output data from that stored scene. Alternative scene memories can be selected by depressing the appropriate button. The Anyscene 512 outputs will fade to the newly selected scene values and the corresponding mimic LED will be lit to indicate which scene memory is active.

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Scenes 0-7 (where scene 0 is blackout) are accessed by just pressing the scene buttons as described above. An additional 16 scenes can be accessed by holding down either the Up or Down button and pressing and releasing one of the eight scene buttons. The LED by the scene button will be lit as the scene is recalled.

When the scene number selected is 0 without the Up or Down button being pressed (ie 'blackout'), its LED will flash, but when scene 0 in the upper or lower memory banks is active this LED will be lit, but will not flash.

2.2 DMX Backup feature

With the power applied, the Anyscene 512 will power up and, if no input DMX data is detected within 2 seconds, it will start to output DMX data from the last accessed scene memory as explained above in section 2.1. If another source of DMX data is detected in the system, the Anyscene 512 will instead remain dormant in standby/receive mode capturing the current DMX data with start code zero from channels 1-512.

Whilst in this mode, the yellow Data LED will remain illuminated if valid data is being received at any of the decoded addresses. If the memory write protect (MWP) switch is in the OFF position, this captured DMX data can be stored as scenes into the non volatile memory (see section 2.4).

If the DMX source is then disconnected or fails, the yellow Data LED on the Anyscene 512 will be extinguished (if it was lit). After two seconds the Anyscene 512 will start to retransmit the last received DMX data, providing a standby or DMX backup feature. None of the mimic LEDs will be illuminated in this mode as the output data corresponds to the last data received rather than to the contents of any of the scene memories. If required this backup output data can be dimmed down and back up by adjusting the Master level using the Up and Down buttons, (see section 2.3).

When in this transmit mode, one of the stored scenes (or blackout) can be recalled from memory as described in section 2.1 by pressing a scene select button. The Anyscene 512 will forget the DMX backup data if a scene is selected from memory, the unit is powered down, or if another DMX data source is connected to the system. If another source of DMX data is detected in the system, the Anyscene 512 will automatically revert to standby/receive mode, and take in DMX data with start code zero.

NOTE that if the new DMX sequence is shorter than the previous, the data stored from higher addresses beyond the incoming sequence will not be overwritten or reset.

2.3 Master Level control

If DIL switch 4 is set to OFF, whenever the Anyscene 512 is transmitting a DMX signal the overall illumination level can be temporarily adjusted by using the Up and Down buttons to increase and decrease the setting of the Master level control. Note that these altered settings are not saved, so that selection of a new scene from memory by pressing a scene select button will download the stored data levels and reset the Master level to maximum overriding these temporary adjustments.

With DIL switch 4 set to ON (in position SPD), the Up and Down buttons do not change the Master level but control the auto cycle period (see section 2.8).

2.4 Programming Scenes

Note that scenes are protected and cannot be programmed with DIL switch 2 ON (in the MWP) position. The following section assumes that this switch is in the OFF position to allow reprogramming of the scenes. Note also that scene 0 is reserved for blackout and is not programmable.

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As supplied, the Anyscene 512 scene memories are cleared of data. They can be easily programmed from any source of DMX data including another Anytronics scene memory, DMX lighting desk or a computerised lighting system. The DMX data source should be connected to the DMX system so that the effect of the scenes can be observed. When the Anyscene 512 is powered up, if all is well, both Power and Data LEDs should be lit, the yellow Data LED indicating the presence of suitable programming DMX data with start code zero.

NOTE that unless this data LED is illuminated, and unless the internal MWP DIL switch 2 is in the OFF position, no programming of the scenes will be possible.

To program the scenes into memory, adjust the controls on the DMX data source to achieve the desired lighting effect, then hold down a scene select button on the Anyscene 512 to save the DMX data to the required scene memory. The Data LED will flash twice, and will then stay off until the button is released (to indicate that the scene memory has been successfully programmed). To programme scenes in the upper or lower memory banks hold down the Up or Down button before and during this programming procedure.

This process can be repeated for all of the 23 scene memories in any order, any number of times until the installer is satisfied with all the stored scenes and their location on the panel. Only the data last entered into each memory will be remembered. To check the memory contents, disconnect the programming DMX data source, set DIL switch 2 to ON (MWP) to protect the stored scenes and recall and check the programmed scenes one by one.

Scenes can be altered or changed at any time in this way, when the unit is connected to a suitable DMX data source. Any ordinary lighting desk with DMX output can be used as a programming tool. To protect the scene memory contents (particularly when connected to a DMX data source), leave the MWP switch in the ON position.

2.5 Clearing all Memory contents

If required, it is possible to clear all the scene memories, but note that with the MWP switch in the ON position, the scene memories are protected, so that this memory clearing operation will not work.

Clear the scene memories by holding down both the Up and Down level buttons whilst powering up the unit with another DMX data source connected. This is most simply achieved by plugging the RJ45 cable from the Anyscene 512 into the RJ45 port on an Anytronics dimmer which already has another DMX source connected, whilst holding down both Up and Down buttons.

If this is operation has been successful, the Data LED on the Anyscene 512 will light after approximately 4 seconds. It will cycle briefly on then off for 4 seconds until the Up and Down level buttons are released.

2.6 Programming from another Anyscene 512

In 2.4 above, another Anyscene 512 memory can be used as the DMX data source so that the scene memory contents can be copied from one memory unit to another. In this way it is possible to programme one Anyscene 512 unit and then either exactly duplicate or edit its scene memory contents into other units.

Note that the MWP switch on the programming Anyscene 512 should be set to ON to protect its memory contents. Only one data source should be present in the system at a time, but several receiving units can be programmed from the same source and each Anyscene 512 to be programmed must have its MWP switch in the OFF position.

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It is simplest to connect the programming data source (Anyscene 512) into the RJ45 system first so that it powers up first and acts as the DMX data source. The memory units to be programmed (all with DIL switch 2 set to OFF) should then be plugged in using the RJ45 cable supplied. Their yellow data LEDs should light to show that they are receiving valid programming data.

Select the scenes in turn on the source Anyscene 512, saving each into the receiving Anyscene 512 memories. Note that in most applications, the Anyscene 512 memory contents will probably be copied straight across to the same scene number in the receiving unit, but it is possible to alter the order or numbering of scenes as required into the receiving units. Similarly it is possible to merge data from the selected scene memories of two or more Anyscene 512s in this way.

2.6 Fade Rate Selection

The full scale fade period from one scene to another can be set to one of four values (2.5, 5, 10 or 20 seconds) according to the settings of DIL switches 5 and 6.

2.7 Auto Cycle Mode

Enter the auto cycle mode by depressing both Up and Down buttons for approximately two seconds. On entering this mode the yellow Data LED will be illuminated until the buttons are released and the Anyscene 512 will start to cycle round scene memories 1-7 in ascending sequence.

Whilst in this auto cycle mode the Up and Down buttons can be used to raise and lower the overall illumination level as in normal operation when DIL switch 4 is set to OFF. This adjustment to the Master level will be retained whilst the unit remains in auto cycle mode, but reset to maximum if a scene is manually recalled.

If the Anyscene 512 is powered down whilst in auto cycle mode, when powered up it will recommence the auto cycle, starting from the scene memory in which it originally started scene cycling. On powering up however, any manual adjustments to the Master level will have been forgotten and the Master level control reset to full, unless first saved (2.8).

Pressing any of the scene select buttons will terminate the auto cycle mode, and the Anyscene 512 will fade to the selected scene. This scene selection also overrides any previous adjustment to the overall lighting level made with the Up and Down buttons, resetting the Master level control to maximum. If the unit is connected to a source of DMX data, whilst in auto cycle mode, the DMX output and auto cycle will be stopped.

2.8 Adjusting Scene Cycle Period and its changing default settings

With DIL switch 4 set to OFF, the Up and Down buttons can be used to adjust the Master level in auto cycle. This setting will be reset to maximum when leaving auto cycle mode, but can be memorised for use when powering up in auto cycle using the procedure below.

As supplied, with DIL switch 4 set to OFF the default time spent in each scene is approximately 10 seconds, but with it set to ON (SPD) this time can be altered using the Up and Down buttons. The Up button will speed up the auto cycle and reduce the cycle period to under 3 seconds. The Down button will reduce the auto cycle speed and increase the scene cycle period to one minute. This altered setting will normally be maintained whilst the unit is powered up, but will be forgotten when the power is removed.

However altered settings of both Master level and cycle time can be memorised and will become the default setting for the scene cycle by following this simple procedure :-

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a. whilst in scene cycle, set DIL switch 4 on and adjust the required Master level using the Up and Down buttons,

b. set DIL switch 4 to ON (SPD) for auto cycle period control and set the required cycle period using the Up and Down buttons,

c. set DIL switch 2 (MWP) OFF, then DIL switch 4 OFF for Master level control, then DIL switch 2 (MWP) back to ON for normal protected operation.

The current Master and cycle time settings are now saved as the power up default, and DIL switch 4 can be set to ON or OFF to allow push button control either of Master level or auto cycle period as required. Note that any time DIL switch 4 is moved from ON to OFF with DIL switch 2 in the OFF position, the current Master level and cycle speed will be saved as the new power up default.

2.9 Step Cycle Mode

The Anyscene 512 also has the ability to use external isolated closing contacts to cycle round memories 1-7 in ascending sequence. The contacts should be connected to the two screw terminals on the back of the Anyscene 512 PCB, and DIL switch 7 should be set to ON. When the Anyscene 512 is in DMX output mode (and not when in auto cycle mode), the next scene from the 1-7 scene cycle will be selected on each contact closure. To facilitate 'debouncing' of contact closure, contact closing inputs which occur less than two seconds after the previous contact closure will be ignored.

As with the auto cycle mode, if the power is disconnected during this step cycling, when the power is restored the cycle will be restarted from whichever scene was first in the cycle.

Whilst in step cycle mode, whichever scene is active, it can be overridden by pressing one of the scene recall buttons. The next contact closure will cause the Anyscene 512 to step on to the next scene after this manually recalled scene. The remote contacts can be disabled by switching DIL switch 7 to OFF.

When in auto cycle or standby/receive modes all contact closures are ignored.

3.0 Multiple Anyscene 512 installations

It is possible to use several Anyscene 512 units in the same DMX installation. This allows smooth transfer of control from one unit to another providing control of DMX installations from multiple locations. Both this pushbutton unit and IR controlled Anyscene 512s may be mixed within the same system and they may have the same scenes or totally different scenes stored in each unit. In normal operation the last activated unit will take over control of the system and provide the DMX data. After power up, the unit which was last in control of the system will restore the last selected scene (or auto cycle). If any normal DMX source is connected to the system it will take over control of the system and force all the Anyscene 512 units into a standby/receive state

To ensure that the scene memory contents remain intact in such multiple unit installations, it is vital that once scene programming has been completed, the MWP switches on all units are moved to the ON position. If this is not done then the units may reprogramme each other when attempting to recall scenes.

3.1 Multiple Anyscene 512 installation connections

Anyscene 512 units can be 'daisy chained' using RJ45 connectors to provide a parallel connection of the units giving common power supply lines and DMX connections. It is important that the resultant DMX system is linear without branches to different equipment. For best results with larger installations, equipment at either end of the DMX

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line should have termination resistors fitted. PCBs with RJ45 connectors, power supply connections and XLR sockets are available from Anytronics to facilitate correct connection.

3.2 Multiple Anyscene 512 system commissioning

After programming the Anyscene 512s, first test the system by connecting each Anyscene 512 one at a time to check operation over the installed cabling. This is also the procedure to be followed in case of encountering any problems with the installation in order to isolate the problem area.

Once the wiring has been checked, build up the system by adding additional Anyscene 512 units in turn and checking that control of the DMX network is passed smoothly from one Anyscene 512 to the other when the scene recall buttons are pressed. The dormant Anyscene 512 units should have their data LEDs lit showing that they are receiving DMX data from the active unit (or DMX programming source). The one active Anyscene 512 unit driving the DMX system should have its data LED extinguished and a scene LED lit (unless it is replaying DMX data originating from another controller which has since been removed from the system).

Anyscene 512 units can be put into auto cycle or step cycle modes and will retain control of the whole system until another unit is activated to take over control.

4.0 DMX loading / connection / termination / power supply considerations

4.1 DMX loading

A maximum of 32 DMX receivers is allowed along a single DMX line without buffering. In practice the maximum number used before buffering is required is usually rather less than this out of consideration for the effects of impedance discontinuities at each connection. Each Anyscene 512 has a DMX loading equivalent to two DMX receivers. For correct operation all Anyscene 512s must be connected together on the same DMX twisted pair, ie not separated by a DMX buffer. The controlled equipment may be driven from a DMX buffer with all the Anyscene 512s connected to the input.

4.2 DMX wiring / installation

The DMX specification is based on the use of a single DMX source at one end of a twisted pair with receiving equipment connected along the twisted pair, the last receiving apparatus along the line having a termination resistor. The use of multiple DMX sources in one system (as with a multiple Anyscene 512 installation) is not directly covered by the specification. When connecting Anyscene 512 units into a DMX system the same topology should be emulated by using a direct linear connection from one end of the system to the other. The DMX line should be linear from start to finish ideally with no branches or junctions. Anyscene 512 units and receiving apparatus may be placed in any order along the DMX line, but the equipment at either end of this DMX line (whether receiving apparatus or an Anyscene 512) should have a termination resistor fitted for best results. The termination resistor on an Anyscene 512 is engaged by switching the smaller DIL switch 2 to ON.

4.3 Line Bias Networks

Each Anyscene 512 is also equipped with a line bias network. This bias is enabled by setting the smaller DIL switch 1 (LBN) ON. To ensure correct operation whether there are several or just one Anyscene 512 units in the system, only one Anyscene 512 should have its line bias network set to ON.

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4.4 Power Supply

Although the DMX standard was originally based on use of XLR connectors, the RJ45 connection system has been shown to work equally well with Category 5 cabling and it also provides the means to carry +5V power to the Anyscene 512s.

At any moment only one Anyscene 512 will be in control of the DMX network with the others in a standby or receive state. In the standby state they consume around 15mA per unit, and in the transmit state the DMX line loading (typically 50mA) should be added to this figure. The RJ45 DMX port on most Anytronics equipment will supply a maximum of 100mA total, so should drive at least four units as only one unit is active at a time. This capability can be boosted by using an Anytronics RJ45 expander PCB with a mains power supply to provide power to the system.

5.0 Specification

Supply : +5 V dc via Category 5 DMX cable from Memory Port of a Dimmer, DMX to DFB interface unit or Anytronics RJ45 PCB

In/Outputs : DMX input/output via RJ45 connector.
Data received from DMX addresses 1-512
Data output to DMX addresses 1-512
Low voltage closing contact input for step cycle mode control

Controls : 8 scene select buttons
Master level up/down switches

Scenes : 23 stored scenes, each of 512 channels of DMX data
1 'blackout' scene with all outputs zero

Connecting Leads Supplied : 5m RJ45 Category 5 data and supply cable
maximum length of cable recommended : 50m
use a Cat 5 shielded cable in noisy environments

Temperature : Recommended ambient in range 0 - 40^{o}C

Dimensions : 148 x 86 x 15 mm, the unit is designed to mount in a standard UK double patress box (which can be supplied on request)
recommended minimum patress internal depth : 25 mm

Weight : Gross inc cable and packaging 0.75 kg Net 0.14 kg

Compliance : Relevant current standards under EN55103-1, EN55103-2

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