

# SCANTRON

*American DJ®*



## User Instructions

### ScanTron™

### General Information

**Unpacking:** Thank you for purchasing the ScanTron™ by American DJ®. Every ScanTron™ has been thoroughly tested and has been shipped in perfect operating condition. Carefully check the shipping carton for damage that may have occurred during shipping. If the carton appears to be damaged, carefully inspect your fixture for any damage and be sure all equipment necessary to operate the unit has arrived intact. In the event damage has been found or parts are missing, please contact our toll free customer support number for further instructions. Please do not return this unit to your dealer without first contacting customer support.

**Introduction:** This unit is five channel DMX intelligent scanner that may be easily converted to an intelligent color changer by removing the mirror unit. This unit can also run as a stand alone, sound-active unit, or in a Master/Slave configuration as either a scanner or color changer. The ScanTron™ comes with several build in programs and is best used in multiples of four. When used as a stand alone unit or when used in multiples linked in a master/slave configuration the optional IRC/1 controller may be used. The optional controller will access different programs and control a blackout function. *For best results use fog or special effects smoke to enhance the beams projections.*

**Customer Support:** American DJ® provides a toll free customer support line, to provide set up help and to answer any question should you encounter problems during your set up or initial operation. You may also visit us on the web at [www.americandj.com](http://www.americandj.com) for any comments or suggestions. Service Hours are Monday through Friday 9:00 a.m. to 5:00 p.m. Pacific Standard Time.

Voice: (800) 322-6337

Fax: (323) 582-2610

E-mail: [support@americandj.com](mailto:support@americandj.com)

To purchase parts online visit <http://parts.americandj.com>

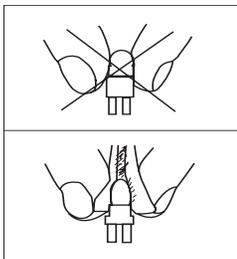
**Warning!** To prevent or reduce the risk of electrical shock or fire, do not expose this unit to rain or moisture.

**Caution!** There are no user serviceable parts inside this unit. Do not attempt any repairs yourself, doing so will void your manufactures warranty. In the unlikely event your unit may require service please contact American DJ®.

To optimize the performance of this product, please read these operating instructions carefully to familiarize yourself with the basic operations of this unit. These instructions contain important safety information regarding the use and maintenance of this unit. Please keep this manual with the unit, for future reference.

The ScanTron™ carries a one year limited warranty. Please fill out the enclosed warranty card to validate your purchase. All returned service items whether under warranty or not, must be freight pre-paid and accompany a return authorization (R.A.) number. The R.A. number must be clearly written on the outside of the return package. A brief description of the problem as well as the R.A. number must also be written down on a piece of paper included in the shipping carton. If the unit is under warranty, you must provide a copy of your proof of purchase invoice. You may obtain a R.A. number by contacting our customer support team on our toll free customer support number. All packages returned to the service department not displaying a R.A. number on the outside of the package will be returned to the shipper.

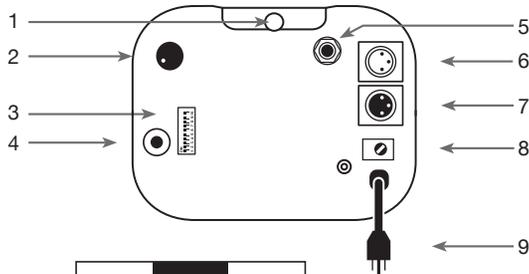
- Micro-Stepping Motors for Smooth Color and Gobo Transitions
- DMX-512 Protocol Compatible (Uses Five DMX Channels)
- 14 Gobo Patterns Plus Spot/11 Colors Plus White
- Master/Slave Operation
- Internal Microphone with Volume Sensitivity Knob
- Removable Head for Color Changer Operation
- Variable Speed Strobe Function
- Optional IRC/1 Remote Controller



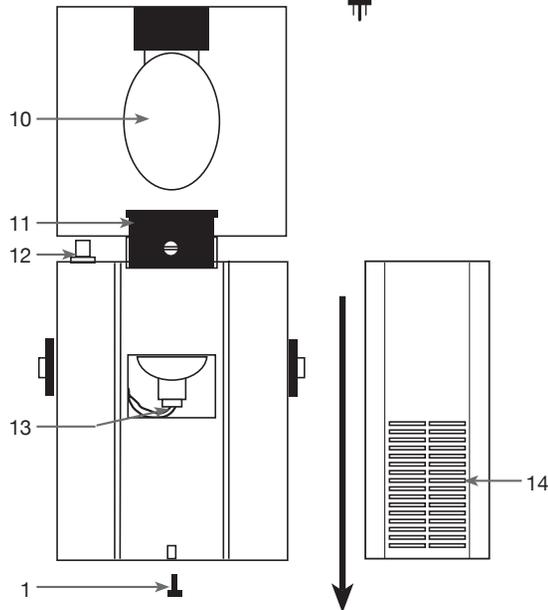
This fixture is fitted with halogen lamps which are highly susceptible to damage if improperly handled. Never touch the lamps with your bare fingers as the oil from your hands will shorten lamp life. Also, never move the fixture until the lamps have had ample time to cool. Remember, lamps are not covered under warranty conditions.

- To reduce the risk of electrical shock or fire, do not expose this unit rain or moisture
- Do not spill water or other liquids into or on to your unit.
- Be sure that the local power outlet match that of the required voltage for your unit.
- Do not attempt to operate this unit if the power cord has been frayed or broken.
- Do not attempt to remove or break off the ground prong from the electrical cord. This prong is used to reduce the risk of electrical shock and fire in case of an internal short.
- Disconnect from main power before making any type of connection.
- Do not remove the cover under any conditions. There are no user serviceable parts inside.
- Never operate this unit when it's cover is removed.
- Never plug this unit in to a dimmer pack
- Always be sure to mount this unit in an area that will allow proper ventilation. Allow about 6" (15cm) between this device and a wall.
- Do not attempt to operate this unit, if it becomes damaged.
- This unit is intended for indoor use only, use of this product outdoors voids all warranties.
- During long periods of non-use, disconnect the unit's main power.
- Always mount this unit in safe and stable matter.
- Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- Cleaning -The fixture should be cleaned only as recommended by the manufacturer. See page 7 for cleaning details.
- Heat -The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
- The fixture should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged.
  - B. Objects have fallen, or liquid has been spilled into the appliance.
  - C. The appliance has been exposed to rain or water.
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance.

## REAR



## FRONT



**1. Thumb Screw** - This thumb screw holds the lamp socket assembly cover (16) into place.

**2. Audio Sensitivity Knob** - This adjust audio sensitivity of the INTERNAL MICROPHONE (3). Turning the sensitivity knob in the clockwise direction will increase the sensitivity to sound. Turning the knob in the counter clockwise direction will decrease the fixture's sensitivity to sound.

**3. Dip Switches** - These switches serve two functions. In DMX mode each switch corresponds to a specific value based on binary code. See page 7 for a detailed explanation of DMX binary code. When the unit is operating in master/slave mode the pan and tilt movements may

be inverted by moving dip switch 10 to the "on" position. All other dip switches have no function in master/slave mode.

**4. Microphone** - This microphone receives external low frequencies to trigger the unit in Sound-Active and Master/Slave mode.

**5. IRC/1 Controller Jack** - This jack is for use with the optional IRC/1 controller only. Do not attempt to connect an audio signal to this jack, this will damage the PC board and void your manufactures warranty!

**6. XLR Output Jack** - This jack is used to transmit the incoming DMX signal to another DMX fixture, or transmit a Master/Slave signal to the next ScanTron™ in the chain. For best results in DMX or Master/Slave mode terminate this jack if it is the last unit in the chain. See "Terminator" on page 7.

**7. XLR Input Jack** - This jack is used to accept an incoming DMX signal or Master/Slave signal.

**8. Breaker** - A 6.3A built-in safety breaker to reduce the risk of electrical shock or fire and protect the circuitry. In the case of a internal short or power surge.

**9. Power Cord** - Connect only to a matching power outlet. Never use this fixture is the ground prong has been removed or broken off.

**10. Mirror** - This is a highly reflective surface mirror specifically designed to optimize and enhance beam output. Never use glass cleaner that contain ammonia to clean the surface of the mirror (such as Windex).

**11. Lens** - This is a fully focusing high quality lens. Focus the lens by manually turning the lens in a clockwise or counter-clockwise direction.

**12. Mirror Interface** - This connection is used to create an interface between the mirror head and the unit body. Disconnect this interface when the unit is going to be used as a color changer with the mirror piece removed.

**13. Lamp Socket Assembly** - This assembly holds a LL-ELC (24v/250w) lamp.

**14. Lamp Socket Assembly Plate** - This plate is used to protect and accesses the lamp socket assembly.

**Operating Modes:**

- **Stand alone mode** - The unit will react to sound, chasing through the built-in programs. You can also use the optional IRC/1 Remote Control to blackout and other functions.
- **Master/Slave mode** - You can daisy chain up to 16 units together to get a synchronized light show that will react to sound chasing through several built in programs. You can also use the optional IRC/1 Remote Control to blackout and other functions.
- **DMX control mode** - This function will allow you to control each individual fixtures traits with a standard DMX--512 controller such as the American DJ Show Designer.™
- **Color Changer** - By removing the mirrored head this unit will function as a color change in all the preceding modes. See page 14.

**Universal DMX Control:** This function allows you to use a universal DMX-512 controller such as the American DJ® DMX Operator™ or Show Designer™ to control mirror movement, the color wheel, the gobo wheel, and the shutter (strobe). A DMX controller allows you to create unique programs tailored to your individual needs. **Special Note:** *Because these units are designed to automatically go in to sound-active mode when they do not sense a DMX signal, these units may activate when your DMX controller is turned off. To avoid this problem leave your DMX controller on when the lights are powered on and be sure the sound sensitivity knob is always turned down (counter-clockwise) when running these units in DMX mode.*

1. The ScanTron™ uses five DMX channels. Channel 1 controls pan, channel 2 controls tilt, channel 3 controls color channel 4 controls gobo wheel, and channel 5 controls the strobe function. See page 14 for detailed description of the DMX traits.
2. To control your fixture in DMX mode, follow the set-up procedures on pages 5 - 7 as well as the set-up specifications that are included with your DMX controller.
3. Use the controller's faders to control the various DMX fixture traits.
4. This will allow you to create your own programs.
5. When using a DMX controller and setting up for DMX operation follow the dip switch settings on page 15.
6. For longer cable runs (more than a 100 feet) use a terminator on the last fixture.

7. For help operating in DMX mode consult the manual included with your DMX controller.

**Stand-Alone Operation (Sound Active):** This mode allows a single unit to run to the beat of the music. Only use this mode when running a single unit, or when running several units as individuals.

1. This unit is automatically designed to go into sound-active mode when it does not sense a DMX signal. The unit will react to the low frequencies of music via the internal microphone. You may invert the pan and tilt functions by flipping dipswitch 10 to the "on" position.
2. Adjust the audio sensitivity knob on the bottom of the unit to make the unit more or less sensitive to sound. Turning the sensitivity knob in the clockwise direction will increase the sensitivity, turning the knob in the counter-clockwise direction will decrease the fixture's sensitivity to sound.
3. The optional *IRC/1 Controller* may be used with this mode to control blackout, slow scan, and strobe functions.

**Master-Slave Operation (Sound Active):** This function will allow you to link up to 16 units together and operate without a controller. The units will be sound activated. In Master-Slave operation one unit will act as the controlling unit and the others will react to the controlling units programs. Any unit can act as a Master or as a Slave.

1. Using standard XLR microphone cables, daisy chain your units together via the XLR connector on the rear of the units. Remember the Male XLR connector is the input and the Female XLR connector is the output. For longer cable runs we suggest a terminator at the last fixture.
2. There are no dipswitch settings, Master/Slave mode is automatic. Simply daisy chain the units together using XLR cables. You may invert the pan and tilt functions by flipping dipswitch 10 to the "on" position.
3. The optional *IRC/1 Controller* may be used with in this operation for blackout, slow scan, and strobe function.
4. Use the sensitivity knob on the rear of the master unit to make it more or less sensitive to sound.

*Note: In Stand-Alone and Master-Slave operation the units will blackout to conserve lamp life when a sound source is not received.*

**Power Supply:** Before plugging your unit in, be sure the source voltage in your area matches the required voltage for your American DJ® ScanTron.™ The American DJ® ScanTron™ is available in a 120v and 220v version. Because line voltage may vary from venue to venue, you should be sure your unit voltages matches the wall outlet voltage before attempting to operate you fixture.

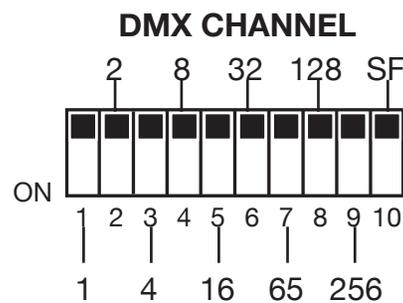
**DMX-512:** DMX is short for Digital Multiplex. This is a universal protocol used as a form of communication between intelligent fixtures and controllers. A DMX controller sends DMX data instructions from the controller to the fixture. DMX data is sent as serial data that travels from fixture to fixture via the DATA “IN” and DATA “OUT” XLR terminals located on all DMX fixtures (most controllers only have a DATA “OUT” terminal).

**DMX Linking:** DMX is a language allowing all makes and models of different manufactures to be linked together and operate from a single controller, as long as all fixtures and the controller are DMX compliant. *To ensure proper DMX data transmission, when using several DMX fixtures try to use the shortest cable path possible. The order in which fixtures are connected in a DMX line does not influence the DMX addressing. For example; a fixture assigned a DMX address of 1 may be placed anywhere in a DMX line, at the beginning, at the end, or anywhere in the middle. When a fixture is assigned a DMX address of 1, the DMX controller knows to send DATA assigned to address 1 to that unit, no matter where it is located in the DMX chain.*

**Dip-switches in DMX mode:** This unit uses dip switches to assign a DMX address. Each dip switch represents a binary value.

Dip Switch 1 address equals 1  
 Dip Switch 2 address equals 2  
 Dip Switch 3 address equals 4  
 Dip Switch 4 address equals 8  
 Dip Switch 5 address equals 16  
 Dip Switch 6 address equals 32  
 Dip Switch 7 address equals 64  
 Dip Switch 8 address equals 128  
 Dip Switch 9 address equals 256

*Dip Switch 10 - Some unit omit dip switch 10, when a unit does included dip switch 10 it is usually used for special functions such as*



*sound activation or in this case pan/tilt inversion.*

Each dip switch has a preset value. A specific DMX address is set by combining the dip switches that sum your desired value. For example: To achieve a DMX address of 21, combine dip switches 1, 3, and 5. Sense dip switch 1 has a value of 1, dip switch 3 has a value of 4, and dip switch 5 has a value of 16, the combination of the create a DMX value of 21.

Set DMX address 21:

Dip-switches # 1 = 1  
 3 = 4  
 5 = 16  
 = 21

Set DMX address 201:

Dip-switches # 1 = 1  
 4 = 8  
 7 = 64  
 8 = 128  
 = 201

**Data Cable (DMX Cable) Requirements (For DMX and Master/Slave Operation):** The ScanTron™ can be controlled via DMX-512 protocol.

The ScanTron™ is a five channel DMX unit. The DMX address is set on the bottom panel of the ScanTron.™ Your unit and your DMX controller require a standard 3-pin XLR connector for data input and data output (Figure 1). If you are making your own cables, be sure to use standard two conductor shielded cable (This cable may be purchased at almost all pro sound and lighting stores). Your cables should be made with a male and female XLR connector on either end of the cable. Also remember that DMX cable must be daisy chained and can not be split.



Figure 1

**Notice:** Be sure to follow figures two and three when making your own cables. Do not use the ground lug on the XLR connector. Do not connect the cable's shield conductor to the ground lug or allow the shield conductor to come in contact with the XLR's outer casing. Grounding the shield could cause a short circuit and erratic behavior.

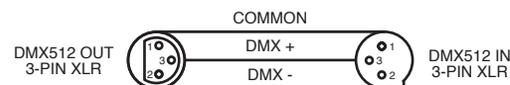


Figure 2

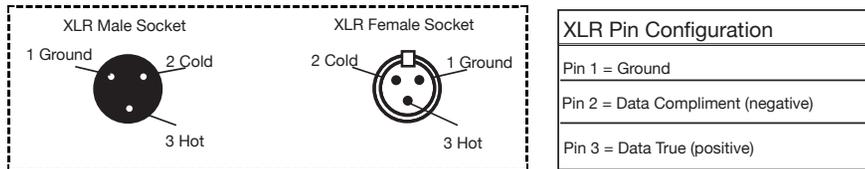


Figure 3

**Special Note: Line Termination.** When longer runs of cable are used, you may need to use a terminator on the last unit to avoid erratic behavior. A terminator is a 90-120 ohm 1/4 watt resistor which is connected between pins 2 and 3 of a male XLR connector (DATA + and DATA -). This unit is inserted in the female XLR connector of the last unit in your daisy chain to terminate the line. Using a cable terminator (ADJ part number Z-DMX/T) will decrease the possibilities of erratic behavior.



Termination reduces signal errors and avoids signal transmission problems and interference. It is always advisable to connect a DMX terminal, (Resistance 120 Ohm 1/4 W) between PIN 2 (DMX-) and PIN 3 (DMX+) of the last fixture.

Figure 4

**5-Pin XLR DMX Connectors.** Some manufactures use 5-pin XLR connectors for DATA transmission in place of 3-pin. 5-pin XLR fixtures may be implemented in a 3-pin XLR DMX line. When inserting standard 5-pin XLR connectors in to a 3-pin line a cable adaptor must be used, these adaptors are readily available at most electric stores. The chart below details a proper cable conversion.

3-Pin XLR to 5-Pin XLR Conversion		
Conductor	3-Pin XLR Female (Out)	5-Pin XLR Male (In)
Ground/Shield	Pin 1	Pin 1
Data Compliment (- signal)	Pin 2	Pin 2
Data True (+ signal)	Pin 3	Pin 3
Not Used		Pin 4 - Do Not Use
Not Used		Pin 5 - Do Not Use

**Caution:** Always replace with the exact same type lamp, unless otherwise specified by an authorized American DJ® service technician. Replacing with anything other than the specified part can damage your unit and will void your manufactures warranty.

**Warning:** If you continue to blow lamps or the breaker, STOP using the unit. Contact customer support for further instructions, you may have to return the unit for servicing. Continuing to use the unit may cause serious damage.

**Lamp Replacement:** Caution! Never attempt to change the lamp while the fixture is plugged in. Always disconnect the main power and allow the unit ample time to cool before attempting to replace the lamp. Lamp replacement has been made simple by incorporating the use of a flip-up front cover that is retained by thumb screws.

1. Be sure to follow the proper handling procedures that deal with halogen lamps.
2. Remove the thumb screw on the rear of the unit that holds the lamp socket assembly cover in place.
3. After removing the thumb screw, slide out the cover from the rear of the unit to expose the lamp socket assembly.
4. Carefully remove the old lamp and discard it in the trash.
5. Replace the lamp with an exact match and reassemble in reverse order.

This unit is equipped with a built-in safety breaker. This breaker is designed to close the power circuit in the event of an internal short or power surge. This will reduce the risk of electrical shock or fire and protect the circuitry. To reset the breaker, push the breaker button in until you hear it “pop” back in to place. If the breaker continues to pop, stop using the unit and contact our customer support team, the unit may need to be returned for service.

**Fixture Cleaning:** Due to fog residue, smoke, and dust cleaning the internal and external optical lenses and mirror should be carried out periodically to optimize light output. Cleaning frequency depends on the environment in which the fixture operates (I.e. smoke, fog residue, dust, dew). In heavy club use we recommend cleaning on a monthly basis. Periodic cleaning will ensure longevity, and crisp output.

1. Use normal glass cleaner and a soft cloth to wipe down the outside casing.
2. Use a brush to wipe down the cooling vents and fan grill.
3. Clean the external optics and mirror with glass cleaner and a soft cloth every 20 days.
4. Clean the internal optics with glass cleaner and a soft cloth every 30-60 days.
5. Always be sure to dry all parts completely before plugging the unit back in.

**Trouble Shooting:** Listed below are a few common problems that you may encounter, with solutions.

**No light output from the unit;**

1. Be sure you have connected your unit into a standard 120v wall outlet.
2. Be sure the external breaker has not blown. The breaker is located on the bottom panel of the unit.
3. Remove the lamp cover and be sure the lamp is seated in its socket properly. Occasionally lamps become loose during shipping be sure the lamp is push in to its socket all the way.

**Unit does not respond to sound;**

1. Low frequencies (bass) should cause the unit to react to sound. Tapping on the microphone, quiet or high pitched sounds may not activate the unit.
2. Be sure the *SENSITIVITY KNOB (5)* is not set to the minimum position (full counter-clockwise).

This chart below details the DMX traits. The individual trait can only be accessed an universal DMX controller.

DMX512 CONFIGURATION									
CHANNEL 1		CHANNEL 2		CHANNEL 3		CHANNEL 4		CHANNEL 5	
PAN		TILT		GOBO		COLOR		SHUTTER	
FLAT	BARREL	FLAT	BARREL						
			Stopped	255	Fast	255	Fast	255	⚡⚡⚡⚡
									⚡⚡⚡
					Slow		Slow		⚡
			Stopped	128		128		174	⚡⚡⚡⚡
				120	Gobo 14	121	Magenta		⚡⚡
				104	Gobo 13	110	Amber		⚡
				96	Gobo 12	99	Lt. Green	92	⚡
				88	Gobo 11	88	Purple		⚡⚡⚡⚡
				80	Gobo 10	88	Lt. Blue		⚡⚡⚡⚡
				72	Gobo 9	77	Pink		⚡⚡⚡
				64	Gobo 8	66	Orange		⚡⚡⚡
				56	Gobo 7	55	Yellow		⚡⚡
				48	Gobo 6	44	Green		⚡⚡
				40	Gobo 5	33	Blue		⚡
				32	Gobo 4	22	Red		⚡
				24	Gobo 3	11	Gobo+Color		⚡
				16	Gobo 2	0	White		⚡
			Stopped	8	Open				⚡
				0	Blackout				⚡

The icons below detail the gobo pattern as well as their placement on the gobo wheel, starting with 1 on the left and 15 on the right.



The ScanTron™ is designed with a removable mirror head. When the head is removed the unit can be used as a color changer with gobo patterns. The unit will function normally in all operating modes with the exception of mirror movements. To remove the head; 1 Disconnect the mirror interface cable, 2 Unscrew the three large thumb-screws surrounding the output lenses that secure the head assembly to the body. 3 Gently pull the up and away from the output lens.

