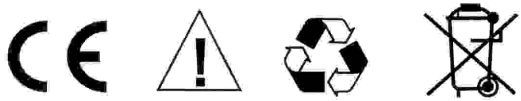
# Laser Show System
# User Guide



(Please read this product manual carefully before using)

# WARNING

Thank you for purchasing this product. For better using it in a correct way, please read this user manual carefully, in case of any unsafe for human being or cause any damage for lighting fixture.

Please check product carefully when receiving it, and check if there's any problem caused during transportation.

You should find inside the laser carton the following items:

1. Laser
2. Power Cable
3. User Manual

# CAUTION

**The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the equipment.**

- Make sure that the best temperature range is: 20~35°C.
- Never use laser direct to people, especially for eyes in case of any harm.
- Make sure that the available voltage is between AC220V~240V, and make sure the ground cable is always reliable.
- Please don't turn on or off frequently, in case of reducing the normal lifespan of laser.
- As per solid state laser diode features, better avoid laser working for long time. After using 3 hours, please turn off the light for 15-min break, and re-start after cooling off completely.
- Don't touch the laser diode mirror, in case affecting the lighting effect.
- Don't disassemble lighting fixture, if there's any problem, please ask a qualified engineer inspect the equipment before operation again.

Dear user:

This is product integrates many advanced technologies like optics, electronics and digital graphic processing. It's dedicated design for dancing halls and disco applications. As per music rhythms, built-in beam program can be activated; if using smoke, light curtain wall and time tunnel can be formed to create a colorful and fantastic laser world.

## LASER CLASSIFICATIONS

**A) Step motor Laser (With DMX function)**

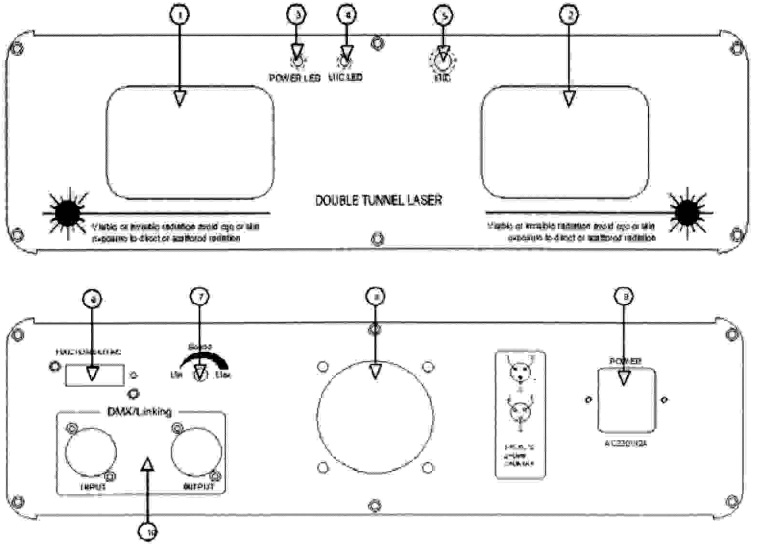
**B) Animation Grating Laser**

**C) Animation Laser (Without ILDA interface)**

**D) Animation Laser (With ILDA interface)**

## A.) Step motor Laser (With DMX function)

**1. Front and back panel diagram** (as per different items there'll be some difference)




① ② Laser Aperture

③ Power Indicator

④ Sound Sensitivity Indicator

⑤ Sound activation MIC

⑥ Dip switches

⑦ Sound Sensitivity knob

⑧ Cooling Fan

⑨ Power Outlet

⑩ DMX XLR

**2. Single Laser Mode**

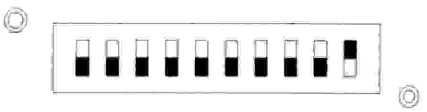
Use dip switch to set operating mode(See the table below）. Set the operating mode according to clients' requirement: **SOUND ACTIVE** or **AUTO MODE**.

Connect the power supply, and laser starts to work.

When in SOUND ACTIVE mode, adjust sound active sensitivity, and adjust the sound sensitivity knob according to the surrounding's sound strength. In the front panel when the blue indicator flashes to indicate the sound activation, the system is in sound active program; when in Auto mode, the system is in Auto-working program.

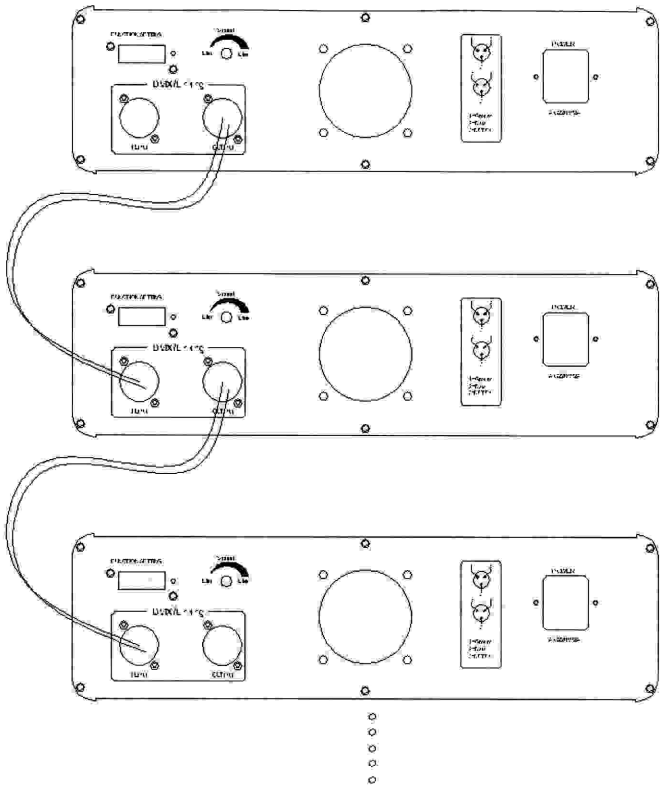
| DIPSWITCH CHART | | | | | | | | | | FUNCTION |
|---|---|---|---|---|---|---|---|---|---|---|
| #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | |
| X | X | X | X | X | X | X | X | X | 1 | SOUND ACTIVE |
| X | X | X | X | X | X | X | X | 1 | 1 | AUTO MODE |
| | | | | | | | | | | |

**Sound Activation**



**Auto Mode**

### 3. Step motor Lasers. Master & Slave synchronous mode

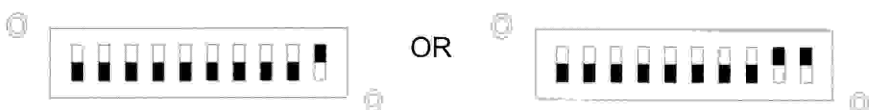



The switching way of Master& Slave synchronous mode

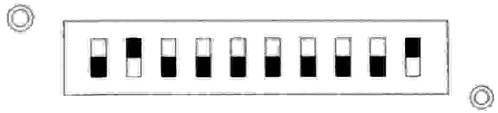
**Master**

**Sound mode**. Set dip switch 10 to the **ON** position and all others to **OFF**.

**Auto mode**. Set dip switch 9 + 10 to the **ON** position and all others to **OFF**.




**Slave Mode.** To set the unit/s in slave mode, set dip switch 2 + 10 to the **ON** position and all others to **OFF**. The laser will now run in sequence with the master unit.



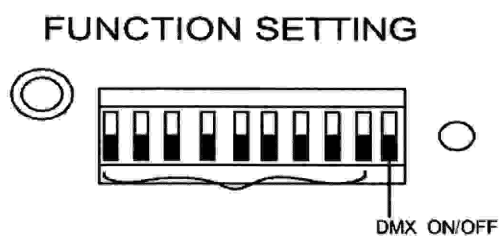
1.1 **Set working mode.** Set a laser in Master & Slave mode (MASTER: SOUND/AUTO), and other lasers are all set in Slave mode.

1.2 **DMX Linking**. Using XLR-XLR line to connect the XLR output of the master to the XLR input of the first slave, and then connect the XLR output of the first slave to the XLR input of the second slave. Do like this until all the slaves are connected.

1.3 Connect the power supply, and laser starts to work. And the beam of slave laser should be synchronous with master.

1.4 When in **SOUND ACTIVE** mode, adjust sound control sensitivity, and adjust the sound control sensitivity knob according to the surrounding's sound strength. In the front panel when the blue LED indicator flashes to indicate the sound activation, the system is in sound active program; when in Auto mode, the system is in Auto mode.

### 4. Setting the DMX address:



The DMX mode enables the use of a universal DMX controller. Please refer DMX Dip Switch Quick Reference Chart.

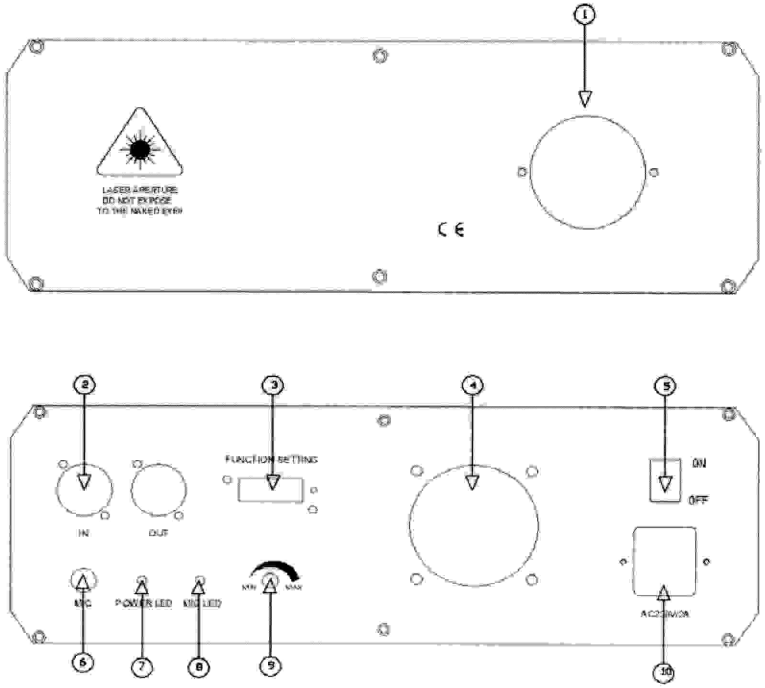
**From 1 to 9**: starting address

**The 10th**: sound activation/DMX functions interchange

**OFF**: sound activation **ON**: DMX signal control

## B.) Animation Grating Laser

**1. Front and back panel diagram** (as per different items there'll be some difference)



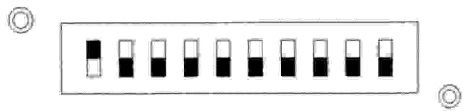

① Laser Aperture
② DMX XLR
③ Dip Switches
④ Cooling Fan
⑤ Power Supply
⑥ Sound Active MIC
⑦ Power Indicator
⑧ Sound Active Indicator
⑨ Sound Sensitivity Knob
⑩ Power Outlet

**2. Operating Instructions**

| DIPSWITCH CHART | | | | | | | | | | FUNCTION | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | | |
| X | X | X | X | X | X | X | X | X | x | SOUND ACTIVE | |
| 1 | X | X | X | X | X | X | X | x | x | AUTO MODE | |
| | | | | | | | | | | | |

**Sound Activation**

**Auto Mode**



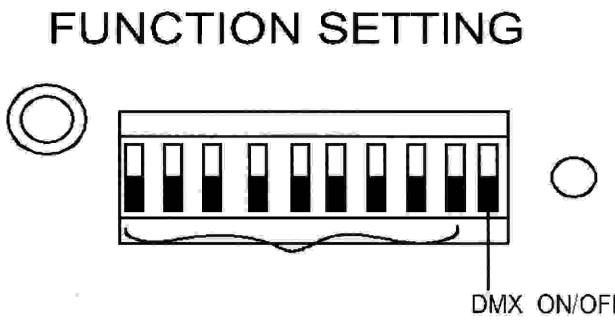
1.1 Use dip switch to set operating mode (See the table above). Set the operating mode according to clients' requirement: **SOUND ACTIVE** or **AUTO MODE**.

1.2 Connect the power supply, and laser starts to work.

1.3 When in **SOUND ACTIVE** mode, adjust sound control sensitivity, and

adjust the sound control sensitivity knob according to the surrounding's sound strength. In the front panel when the blue LED indicator flashes to indicate the sound activation, the system is in sound active program; when in Auto mode, the system shows animation effect.

**3. DMX mode switching method**




When in DMX mode, the DMX controller controls the laser, and the corresponding function of every channel is shown in attachment. The DMX address code is in the attached address table.

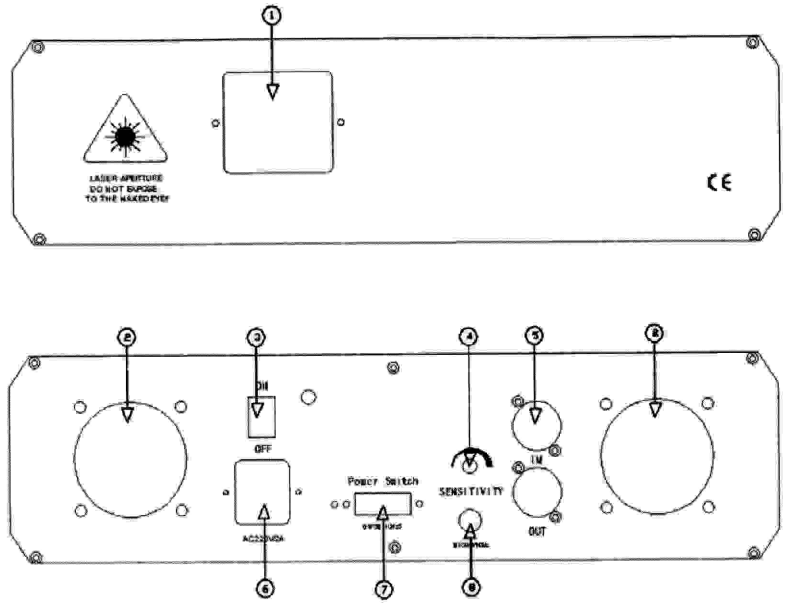
**From 1 to 9**: starting address

**The 10th**: sound activation/DMX functions interchange

**OFF**: sound activation **ON**: DMX signal control

## C.) Animation Laser (Without ILDA interface)

**1. Front and back panel diagram** (as per different items there'll be some difference)




① Laser Aperture ② Cooling Fan

③ Power Supply ④ Sound Sensitivity Knob

⑤ DMX XLR ⑥ Power Outlet

⑦ Dip Switches ⑧ Sound Activation MIC

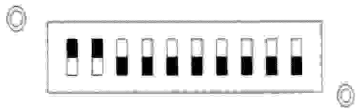
**1. Operating Instructions**

| DIPSWITCH CHART | | | | | | | | | | FUNCTION | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | | |
| X | X | X | X | X | X | X | X | X | x | SOUND ACTIVE | |
| 1 | X | X | X | X | X | X | X | x | x | AUTO MODE | |
| 1 | 1 | x | x | x | x | x | x | x | x | Animatiom | |

Sound Activation

Auto Mode

Animation



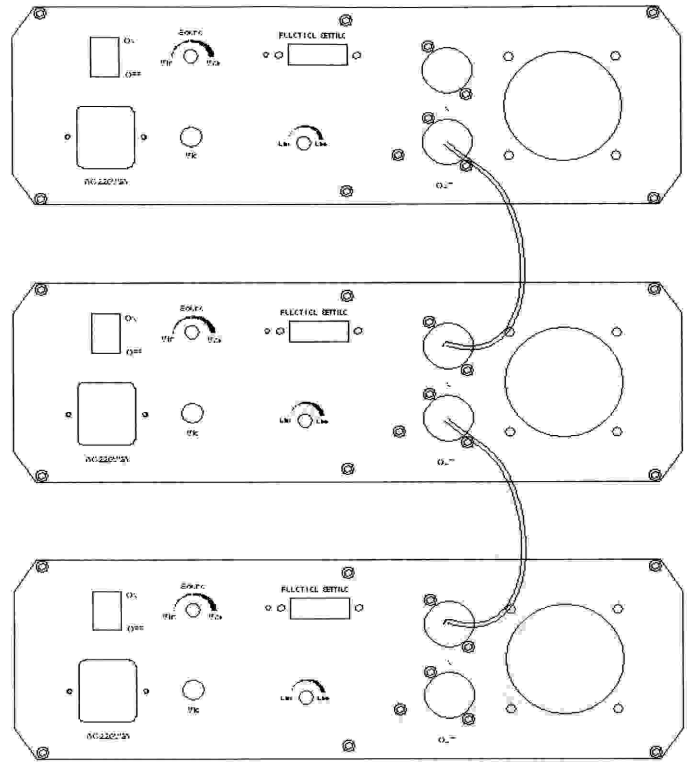
**1.1 Single Laser Mode**

1.1.1 Use dip switch to set operating mode (See the table below). Set the operating mode according to clients' requirement: **SOUND ACTIVE** or **AUTO MODE**.

1.1.2 Connect the power supply, and laser starts to work.

1.1.3 When in **SOUND ACTIVE** mode, adjust sound control sensitivity, and adjust the sound control sensitivity knob according to the surrounding's sound strength. In the front panel when the blue LED indicator flashes to indicate the sound activation, the system is in sound active program; when in Auto mode, the system is in Auto-working program.

1.2 High Speed Scanner Laser, Master & slave synchronous mode



Master

Slave

Slave

**Master**

**Sound active mode**

To select sound active mode set all dip switches to **OFF**. You can now use the sensitivity control on the back panel to set the required sound level.

**Auto pattern mode**

To select auto beam mode, set dip switch **1** to the **ON** position and all others to **OFF**. The Laser will now cycle through all its internal patterns.

**Auto Animation Mode**

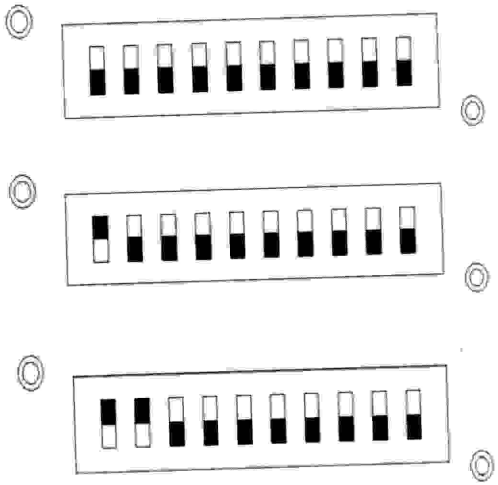
To select auto animation pattern mode, set dip switches **1 + 2** to the **ON**

position and all others to **OFF**. The laser will now cycle through all its internal animation programs such as numbers, running dinosaur and flying bird etc.

**Slave mode**

To select the unit/s in slave mode, set dip switch **2** or **3** to the **ON** position and all others to **OFF**. The laser will now run in sequence will the master unit.

**Master (sound activation, auto beam, auto animation mode)**



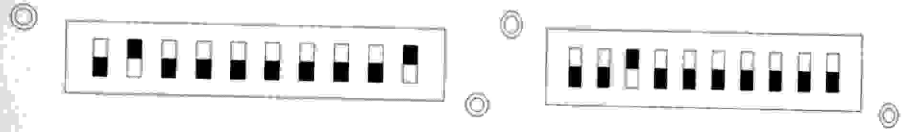
**Slave**

1.1 **Set working mode.** Set a laser in Master& Slave mode (MASTER: SOUND/AUTO), and other lasers are all set in Slave mode.

1.2 **DMX Linking**. Using XLR-XLR line to connect the XLR output of the master to the XLR input of the first slave, and then connect the XLR output of the first slave to the XLR input of the second slave. Do like this until all the slaves are connected.

1.3 Connect the power supply, and laser starts to work. And the slave beam is synchronous with master.

1.4 When in **SOUND ACTIVE** mode， adjust sound control sensitivity, and adjust the sound control sensitivity knob according to the surrounding's sound strength. In the front panel when the blue LED indicator flashes to indicate the sound activation, the system is in sound active program; when in Auto mode, the system is in Auto-working program.



**DMX mode switching method**

When in DMX mode, the DMX controller controls the laser, and the corresponding function of every channel is shown in attachment. The DMX address code is in the attached address table.

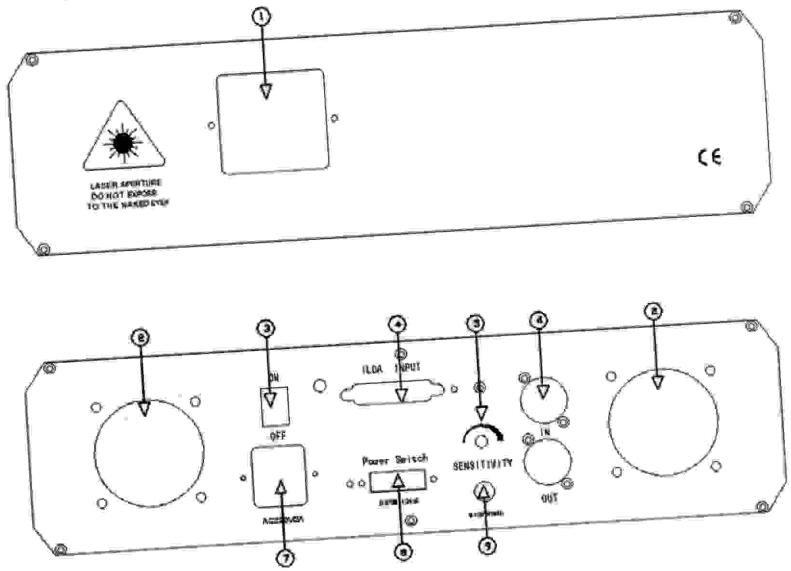
**From 1 to 9**: starting address

**The 10th**: sound activation/DMX functions interchange

**OFF**: sound activation **ON**: DMX signal control

## D.) Animation Laser (With ILDA interface)

**1. Front and back panel diagram** (as per different items there'll be some difference)




① Laser Aperture

② Cooling Fan

③ Power Supply

④ ILDA interface (ILDA/DB-25)

⑤ Sound Sensitivity Knob

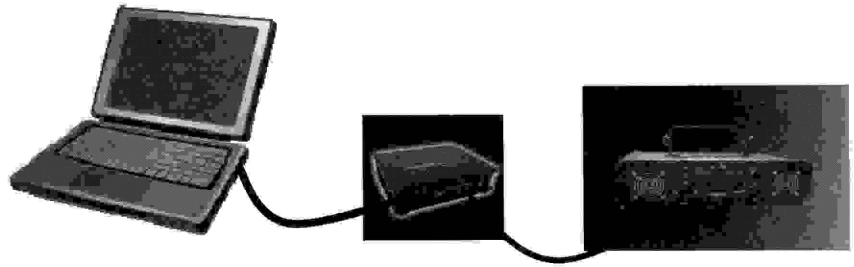
⑥ DMX XLR

⑦ Power Outlet

⑧ Dip Switches

⑨ Sound Activation MIC

The operation way is the same between lasers with or without ILDA interface. Here is the way of how to connect ILDA interface laser with computer output. Please view the diagram below.



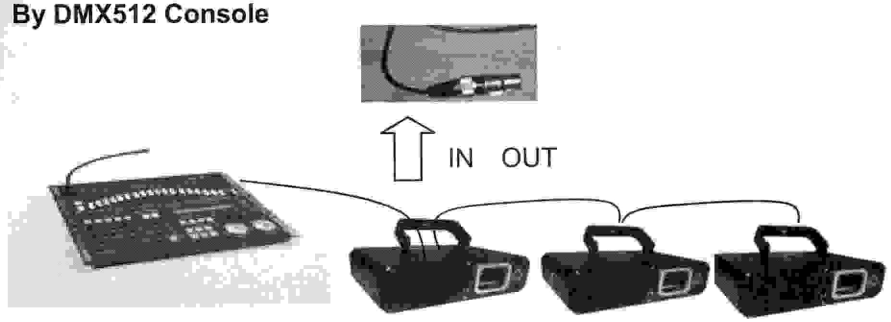
Lighting software like Phoenix, Pangolin and ISHOW can work with laser which has ILDA interface.

**Attention** After connecting, the laser will not be controlled by its own program.

After connecting software, users can edit patterns, animation, texts and etc. freely.

Users can edit patterns, animation, text, and etc. on Lasers via SD Card. Please refer to the user manual of lasers with SD card and CD.

**By DMX512 Console**




DMX Console
(Sending Terminal)

1st laser 2nd laser 3rd laser
(Receiving Terminal) x N.....

For example, if the laser has 11 channels, the address sets as:

000000001, 000001100, 000010111 ...

**1. Connection Way**

**DMX Console TO Laser**

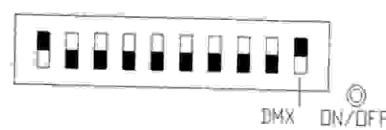
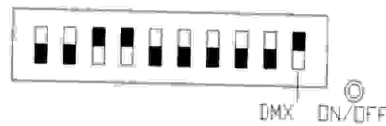
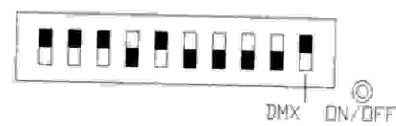
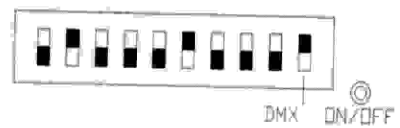
Each Laser is connected in series like serial installation. Many people think signal is serial, but DMX signal is collateral indeed. All receiving terminals are connected in parallel in DMX control output cable. If address code isn't differentiated, we can't differentiate sending ends. As long as the sending ends are differentiated, it can form different and regular effects. Therefore, the address switch in our laser can set address, and then DMX console can tell the difference. How to set the address can be shown at 3. (Attention: the terminal should connect with 120 Resistor to avoid signal disturbing.

**2. Address allocation:**

DMX 512 console supports 512 channels. If every laser has 16 channels, so is can connect 32 sets of lasers. Usually a RGB LED occupies 3 channels, so DMX 512 console can connect 170 pieces of LED lighting fixture in every line.

**3. How to set address code switch:**

Address code setting: In the binary system, the first has 0 and 1 numerical value, and it corresponds with Switch "OFF" and "ON". When calculating meet 2 into, as shown below.

| LOOP | ADDR | BINARY | USAGE OF DIP SWITCH |
|---|---|---|---|
| The 1st laser | 1 | 000000001 = |  |
| The 2nd laser | 12 | 000001100 = |  |
| The 3rd laser | 23 | 000010111= |  |
| The 4th laser | 34 | 000100010= |  |



## Common troubleshooting

1. In the sound activation mode, beam effects don't change with music.

**Solution:** Rotate right (Sensitivity control) knob until satisfaction.

2. When in DMX512 mode, push-and-pull controlling rob doesn't work.

**Solution:** First check whether DMX 512 console can work normally and whether the signal lines are connected correctly; and then check whether the first channel push rob of the laser is in the controlling (the numerical value is between 192-255).

3. The laser doesn't react.

**Solution:** First check whether the cooling fan can rotate, then check whether the power supply is connected and the fuse is brown.

4. The laser doesn't shine enough.

**Solution:** Each laser needs normal warm-up time, so please take 5-10 minutes to warm-up before using; please check whether the lens is dirty and use soft cotton swab with absolute alcohol to clean the lens.

Form I The international standard DMX 512 Signal suitable for laser with 7 channels. The detailed control function is shown below:

**Form I**

| Channel | Function | DMX512 Value | Description |
|---|---|---|---|
| CH1 | Mode | 0～49 | Close, laser OFF |
| | | 50～99 | Static patterns of DMX mode |
| | | 100～149 | Dynamic patterns of DMX mode |
| | | 150～199 | Sound active mode |
| | | 200～255 | AUTO mode |
| CH2 | Pattern selection | 0～255 | 52 static/ dynamic patterns |
| CH3 | Position-X | 0～255 | Adjust position-X |
| CH4 | Position-Y | 0～255 | Adjust position-Y |
| CH5 | Scanning speed | 0～255 | 0 is speedy, 255 is slow |
| CH6 | Dynamic patterns play speed | 0～255 | 0 is speedy, 255 is slow, has ten grade speed |
| | | | |
| CH7 | Static pattern size | 0～255 | 0 is small, 255 is big |

Adopting international standard DMX512 Signal suitable for lasers with 11 channels, the detailed control function is shown below:

**Form 2**

| | DMX512 value | Control function |
|---|---|---|
| **1) control mode** | 0~51 | sound control （3-10 channels don't work） |
| | 52~103 | Auto mode（3-10 channels don't work） |
| | 104~155 | Animation mode |
| | 156~206 | Manual mode，sound control start |
| | 207-255 | Auto mode, auto start |
| **2)blanking & light-free** | 0~15 | Light free |
| | 16~25 | No blanking |
| | 26~135 | Water-flow effect, closer to 135, water flow quickly. |
| | 136~245 | Flashing effect, closer to 245, it flashes more quickly. |
| | 246~255 | Fixed blanking |
| **3)picture changing** | 0~255 | 128gobos（0~255） |
| **4) speed** | 0~255 | 12 level speed（0-255）/23=（0-11） |
| **5) reversing** | 0~63 | No reversing |
| | 64~127 | Horizontal reversing |
| | 128~191 | Vertical reversing |
| | 192~255 | Horizontal & vertical reversing |
| **6)rotating/ plotting** | 0~63 | No rotating and no plotting |
| | 64~127 | Rotating |
| | 128~191 | Plotting |
| | 192~255 | Rotating and plotting |
| **7) horizontal/vertical moving** | 0~63 | No moving |
| | 64~127 | Horizontal moving |
| | 128~191 | Vertical moving |
| | 192~255 | Horizontal & vertical moving |
| **8) Level stretching** | 0~63 | No stretching |
| | 64-255 | Horizontal stretching |
| **9) vertical stretching** | 0~63 | No stretching |
| | 64-255 | Vertical stretching |
| **10) zoom** | 0~85 | No magnifying and no contract |
| | 86-169 | Magnify and contract from small to large |
| | 170-255 | Magnify and contract from large to small |
| **11)Gradually draw** | (0~255)/21 | 13 level speed *(0-255）/21 <0-12> the speed is quicker, the draw is quicker.* |

## Form 3

# DMX Address Chart

| DMX:DIPSWITCH SET | | | | | #9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0=OFF | | | | | #8 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 1=ON | | | | | #7 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| X=OFF or ON | | | | | #6 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| #1 | #2 | #3 | #4 | #5 | | | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 0 | | 32 | 64 | 96 | 128 | 160 | 192 | 224 | 256 | 288 | 320 | 352 | 384 | 416 | 448 | 480 | |
| 1 | 0 | 0 | 0 | 0 | 1 | 33 | 65 | 97 | 129 | 161 | 193 | 225 | 257 | 289 | 321 | 353 | 385 | 417 | 449 | 481 | |
| 0 | 1 | 0 | 0 | 0 | 2 | 34 | 66 | 98 | 130 | 162 | 194 | 226 | 258 | 290 | 322 | 354 | 386 | 418 | 450 | 482 | |
| 1 | 1 | 0 | 0 | 0 | 3 | 35 | 67 | 99 | 131 | 163 | 195 | 227 | 259 | 291 | 323 | 355 | 387 | 419 | 451 | 483 | |
| 0 | 0 | 1 | 0 | 0 | 4 | 36 | 68 | 100 | 132 | 164 | 196 | 228 | 260 | 292 | 324 | 356 | 388 | 420 | 452 | 484 | |
| 1 | 0 | 1 | 0 | 0 | 5 | 37 | 69 | 101 | 133 | 165 | 197 | 229 | 261 | 293 | 325 | 357 | 389 | 421 | 453 | 485 | |
| 0 | 1 | 1 | 0 | 0 | 6 | 38 | 70 | 102 | 134 | 166 | 198 | 230 | 262 | 294 | 326 | 358 | 390 | 422 | 454 | 486 | |
| 1 | 1 | 1 | 0 | 0 | 7 | 39 | 71 | 103 | 135 | 167 | 199 | 231 | 263 | 295 | 327 | 359 | 391 | 423 | 455 | 487 | |
| 0 | 0 | 0 | 1 | 0 | 8 | 40 | 72 | 104 | 136 | 168 | 200 | 232 | 264 | 296 | 328 | 360 | 392 | 424 | 456 | 488 | |
| 1 | 0 | 0 | 1 | 0 | 9 | 41 | 73 | 105 | 137 | 169 | 201 | 233 | 265 | 297 | 329 | 361 | 393 | 425 | 457 | 489 | |
| 0 | 1 | 0 | 1 | 0 | 10 | 42 | 74 | 106 | 138 | 170 | 202 | 234 | 266 | 298 | 330 | 362 | 394 | 426 | 458 | 490 | |
| 1 | 1 | 0 | 1 | 0 | 11 | 43 | 75 | 107 | 139 | 171 | 203 | 235 | 267 | 299 | 331 | 363 | 395 | 427 | 459 | 491 | |
| 0 | 0 | 1 | 1 | 0 | 12 | 44 | 76 | 108 | 140 | 172 | 204 | 236 | 268 | 300 | 332 | 364 | 396 | 428 | 460 | 492 | |
| 1 | 0 | 1 | 1 | 0 | 13 | 45 | 77 | 109 | 141 | 173 | 205 | 237 | 269 | 301 | 333 | 365 | 397 | 429 | 461 | 493 | |
| 0 | 1 | 1 | 1 | 0 | 14 | 46 | 78 | 110 | 142 | 174 | 206 | 238 | 270 | 302 | 334 | 366 | 398 | 430 | 462 | 494 | |
| 1 | 1 | 1 | 1 | 0 | 15 | 47 | 79 | 111 | 143 | 175 | 207 | 239 | 271 | 303 | 335 | 367 | 399 | 431 | 463 | 495 | |
| 0 | 0 | 0 | 0 | 1 | 16 | 48 | 80 | 112 | 144 | 176 | 208 | 240 | 272 | 304 | 336 | 368 | 400 | 432 | 464 | 496 | |
| 1 | 0 | 0 | 0 | 1 | 17 | 49 | 81 | 113 | 145 | 177 | 209 | 241 | 273 | 305 | 337 | 369 | 401 | 433 | 465 | 497 | |
| 0 | 1 | 0 | 0 | 1 | 18 | 50 | 82 | 114 | 146 | 178 | 210 | 242 | 274 | 306 | 338 | 370 | 402 | 434 | 466 | 498 | |
| 1 | 1 | 0 | 0 | 1 | 19 | 51 | 83 | 115 | 147 | 179 | 211 | 243 | 275 | 307 | 339 | 371 | 403 | 435 | 467 | 499 | |
| 0 | 0 | 1 | 0 | 1 | 20 | 52 | 84 | 116 | 148 | 180 | 212 | 244 | 276 | 308 | 340 | 372 | 404 | 436 | 468 | 500 | |
| 1 | 0 | 1 | 0 | 1 | 21 | 53 | 85 | 117 | 149 | 181 | 213 | 245 | 277 | 309 | 341 | 373 | 405 | 437 | 469 | 501 | |
| 0 | 1 | 1 | 0 | 1 | 22 | 54 | 86 | 118 | 150 | 182 | 214 | 246 | 278 | 310 | 342 | 374 | 406 | 438 | 470 | 502 | |
| 1 | 1 | 1 | 0 | 1 | 23 | 55 | 87 | 119 | 151 | 183 | 215 | 247 | 279 | 311 | 343 | 375 | 407 | 439 | 471 | 503 | |
| 0 | 0 | 0 | 1 | 1 | 24 | 56 | 88 | 120 | 152 | 184 | 216 | 248 | 280 | 312 | 344 | 376 | 408 | 440 | 472 | 504 | |
| 1 | 0 | 0 | 1 | 1 | 25 | 57 | 89 | 121 | 153 | 185 | 217 | 249 | 281 | 313 | 345 | 377 | 409 | 441 | 473 | 505 | |
| 0 | 1 | 0 | 1 | 1 | 26 | 58 | 90 | 122 | 154 | 186 | 218 | 250 | 282 | 314 | 346 | 378 | 410 | 442 | 474 | 506 | |
| 1 | 1 | 0 | 1 | 1 | 27 | 59 | 91 | 123 | 155 | 187 | 219 | 251 | 283 | 315 | 347 | 379 | 411 | 443 | 475 | 507 | |
| 0 | 0 | 1 | 1 | 1 | 28 | 60 | 92 | 124 | 156 | 188 | 220 | 252 | 284 | 316 | 348 | 380 | 412 | 444 | 476 | 508 | |
| 1 | 0 | 1 | 1 | 1 | 29 | 61 | 93 | 125 | 157 | 189 | 221 | 253 | 285 | 317 | 349 | 381 | 413 | 445 | 477 | 509 | |
| 0 | 1 | 1 | 1 | 1 | 30 | 62 | 94 | 126 | 158 | 190 | 222 | 254 | 286 | 318 | 350 | 382 | 414 | 446 | 478 | 510 | |
| 1 | 1 | 1 | 1 | 1 | 31 | 63 | 95 | 127 | 159 | 191 | 223 | 255 | 287 | 319 | 351 | 383 | 415 | 447 | 479 | 511 | |