INSTALLATION INSTRUCTION
DOTS PER INCH (DPI) RGBWW
A2S-XX-CCWT

SAFETY INSTRUCTION

IMPORTANT: NEVER attempt any work without shutting off the electricity.

- Always turn off power at fuse box prior to installation to prevent electrical shock.
- Intended for indoor use. Dry and damp locations.
- Install in accordance with national electric code, and local regulations.
- Consult with local inspector to assure compliance.
- Do not submerge, or install within 5 feet of a swimming pool.
- Do not connect the DPI directly to high voltage power

CAUTION – TO REDUCE RISK OF FIRE AND ELECTRICAL SHOCK

- Read all instructions before installing.
- Handle product with care.
- Do not conceal or extend exposed conductors through a building wall
- To reduce the risk of fire and burns, do not install this lighting system where the exposed bare conductors can be shorted or contact any conductive materials
- To reduce the risk of overheating and potential fire risk, make sure all connections are tight.
- Do not install any fixture assembly closer than 6 in. from any curtain, or similar combustible material.
- Do not modify or disassemble product beyond instructions or warranty will be void.
- Failure to follow safety warnings, and installation instruction will void the warranty

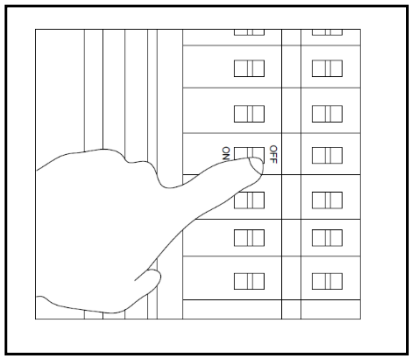
ATTENTION - AFIN DE RÉDUIRE LES RISQUES D'INCENDIE ET DE CHOC ÉLECTRIQUE

- Lire toutes les instructions avant d'installer.
- Manipuler le produit avec soin.
- Ne pas dissimuler et faire passer les conducteurs exposés à travers un mur de bâtiment.
- Afin de réduire les risques d'incendie et de brûlures, ne pas installer ce système d'éclairage là où les conducteurs dénudés peuvent être court-circuités, ou entrer en contact avec des matériaux conducteurs.
- Afin de réduire le risque de surchauffe et d'incendie potentiel, s'assurer que toutes les connexions sont bien serrées.
- Ne pas installer aucun luminaire à moins de 6 pouces d'un rideau ou d'un matériau combustible similaire.
- Ne pas modifier ou démonter le produit au-delà des instructions sous peine d'annuler la guarantie.
- Ne pas respecter les avertissements de sécurité et des instructions d'installation annulera la garantie.

WIRING AND INSTALLATION:

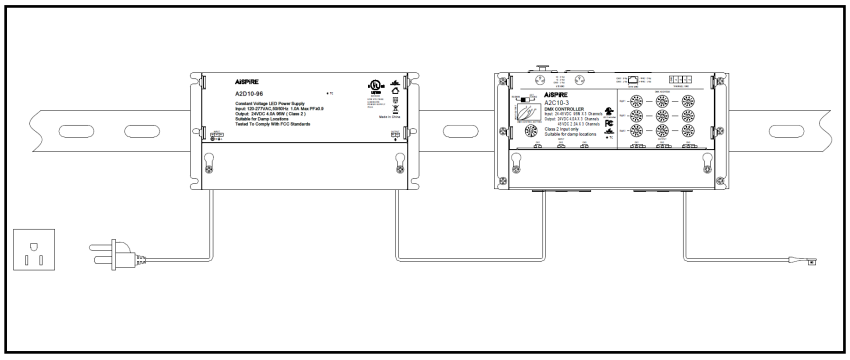
1. Turn Power off at circuit breaker (See FIG. 1)

FIG. 1



2. Mounting 24VDC Class 2 remote power supply and AiSPiRE DMX LED Controller at desired location. (See FIG. 2)

FIG. 2



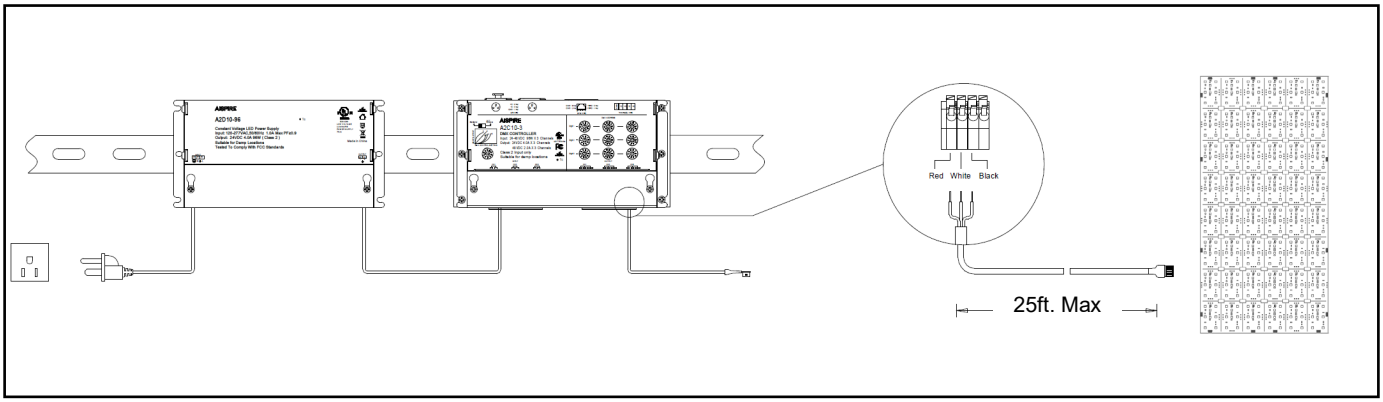
3. Measured a distance between power supply and DMX controller to the beginning of the DPI run. Choose between two options below to wire the power and data communication to the DPI. When choosing wire, factor in voltage drop, amperage rating, shield/unshielded, and type (in-wall rated).

Option A: Unshielded Cable 25 ft. maximum distance between power supply to the beginning of the DPI
The AiSPiRE In wall rated 20 AWG unshielded cable can be used to wire between a power supply-DMX LED Controller to the beginning of the DPI up to 25 ft. Smaller gauge wire number (bigger conductor) can be used, but the maximum run length limitation remains at 25 ft. due data communication distortion if it's run over 25 ft. (See FIG. 3) Wire color connection is shown in Table 1.

Table. 1

Wire Color Connection		
DMX LED Controller Terminal Color	A2L03 Cable	DPI marking
RED	RED	V+
WHITE	WHITE	DAT
BLACK	BLACK	V-

FIG. 3



Option B: Shielded data Cable 90 ft. maximum distance between power supply to the beginning of the DPI
A shield data cable shall be used to connect between the power supply-DMX LED Controller to the beginning of the DPI up to 90 ft. (See FIG. 4)
ICE cable model number: Control Yellow is recommended. Product information can be found below:
https://www.icecable.com/products/control-yellow
https://icecable.s3.amazonaws.com/uber_products/specs/000/000/078/original/Control_Yellow.pdf?1435595602
For Plenum spaces, ICE cable Control Yellow Plenum is recommended. https://www.icecable.com/products/control-yellow-plenum
Both drain and common conductor wires shall be connected to a black terminal of DMX LED Controller. Another end shall be connected to the black wire of connector cable. The signal conductor shall be connected to the white terminal of DMX LED Controller. Another end shall be connected to the white wire of connector cable. The power carrying cable can be used either shielded or unshielded cable. The bigger conductor yields less voltage drop. The +24VDC polarity shall be connected to the red terminal on DMX LED Controller. Another end shall be connected to the red wire of connector cable. The -24VDC or common conductor wire shall be connected to a black terminal of DMX LED Controller. Another end shall be connected to the black wire of connector cable. (see FIG. 5)
A2L15-WL (5-3 low voltage wiring box) may be used to connect between 5 wires of shield cable to 3 wires of DPI connector.

FIG. 4

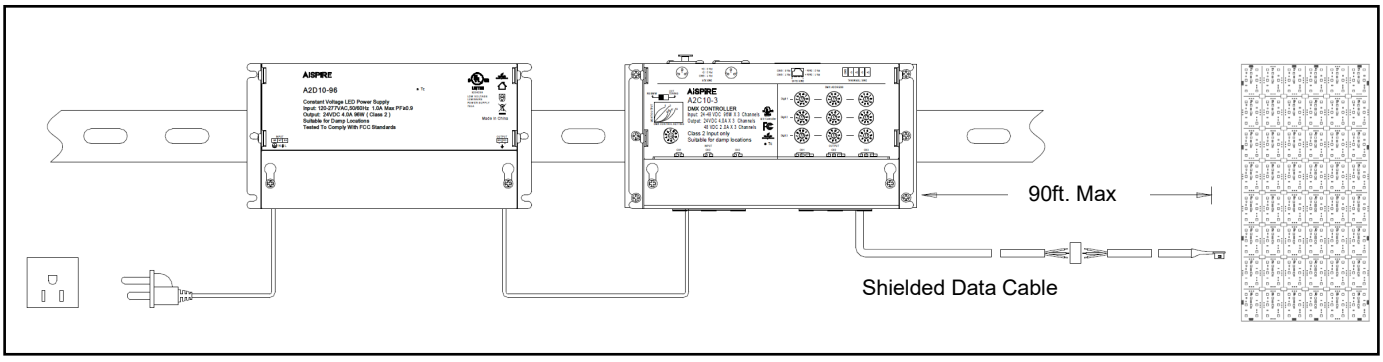
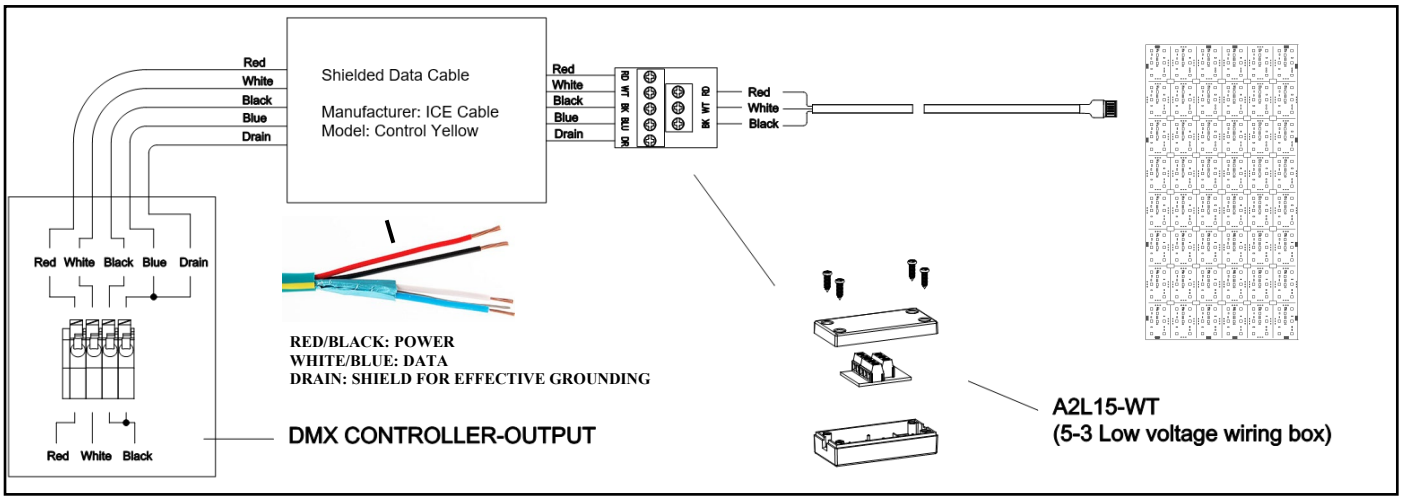
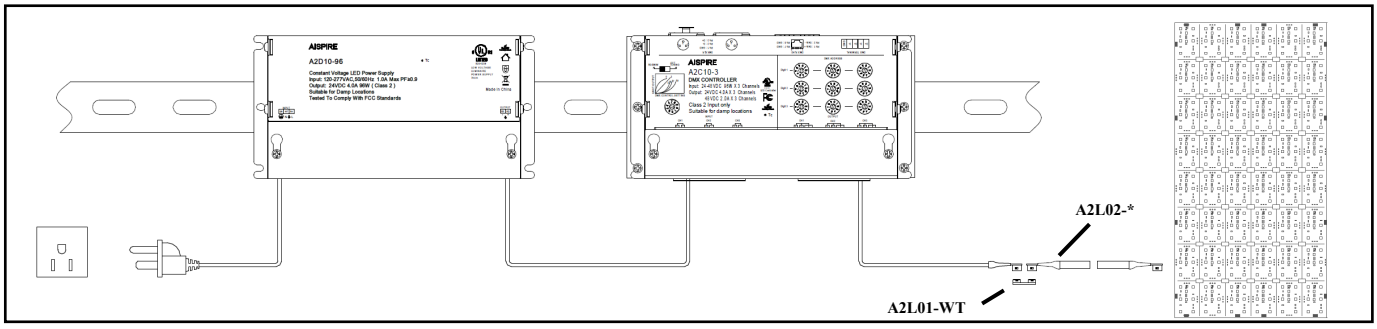


FIG. 5



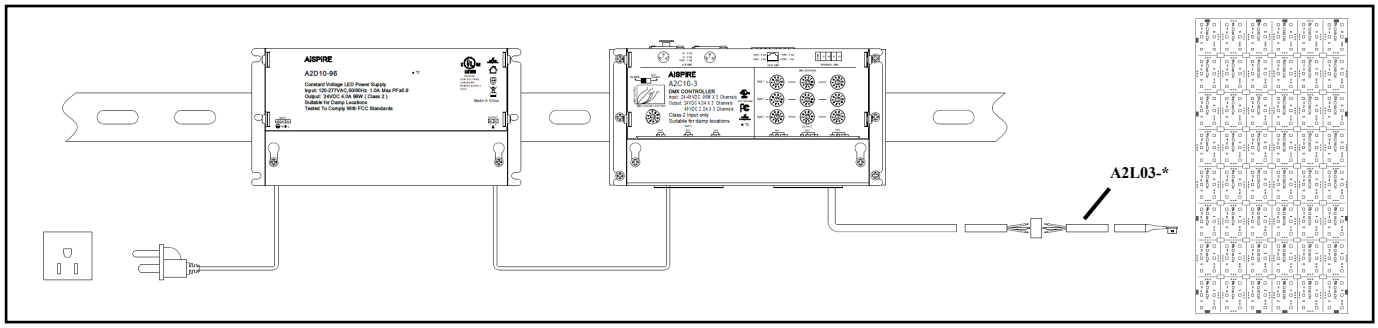
4. To extend an unshielded cable length (if needed), In Wall Rated Joiner Cable (A2L02) and Joiner Cable Extender (A2L01-WT) can be used to join between sections as shown in FIG. 6

FIG. 6



5. To extend the cable length between DMX LED controller cable or a wiring box to a DPI sections, (if needed), In Wall Rated Extension cable (A2L03) can be used to join between sections by soldering as shown in FIG. 7. Wire color connection is shown in the Table 1.

FIG. 7



6. Measure the desired area of DPI light and determine necessary quantities of other accessories and power supply need for each run.

7. Determine the maximum power per square foot according to specific color & CCT range as shown in reference Table 2 & 3. A lower light output can be adjusted by lowering DMX value in the same ratio to keep the same color or CCT.
Note: Setting the maximum DMX value at lower number will increase the maximum coverage area as the DPI consume less power.

Table 2. : A2S-05-CCWT

					DMX Value						
Color & CCT(K)	Current (A)	Power (W)	Lumen		CH1:RED	CH2:GREEN	CH3:BLUE	CH4:2700K	CH5:5000K	CH5:R/G/B	CH5:27/50
RGB	0.9924	23.82	708		255	255	255	0	0	255	0
RED	0.5348	12.84	135		255	0	0	0	0	255	0
GREEN	0.5356	12.85	462		0	255	0	0	0	255	0
BLUE	0.5368	12.88	119		0	0	255	0	0	255	0
2700K	0.5337	12.81	427		0	0	0	255	0	0	255
2800K	0.5642	13.54	484		0	0	0	255	1	0	255
2900K	0.5715	13.72	498		0	0	0	255	2	0	255
3000K	0.5936	14.25	538		0	0	0	255	8	0	255
3100K	0.6186	14.85	588		0	0	0	255	20	0	255
3200K	0.6325	15.18	616		0	0	0	255	30	0	255
3300K	0.6536	15.69	659		0	0	0	255	50	0	255
3400K	0.6867	16.48	721		0	0	0	255	90	0	255
3500K	0.7190	17.26	788		0	0	0	255	150	0	255
3600K	0.7645	18.35	871		0	0	0	255	250	0	255
3700K	0.7326	17.58	813		0	0	0	170	255	0	255
3800K	0.7070	16.97	768		0	0	0	120	255	0	255
3900K	0.6786	16.29	715		0	0	0	75	255	0	255
4000K	0.6573	15.78	675		0	0	0	50	255	0	255
4100K	0.6419	15.41	648		0	0	0	35	255	0	255
4200K	0.6209	14.9	609		0	0	0	20	255	0	255
4300K	0.6080	14.59	585		0	0	0	13	255	0	255
4400K	0.5959	14.3	564		0	0	0	8	255	0	255
4500K	0.5828	13.99	539		0	0	0	4	255	0	255
4600K	0.5737	13.77	522		0	0	0	2	255	0	255
4700K	0.5665	13.6	509		0	0	0	1	255	0	255
5000K	0.5375	12.9	456		0	0	0	0	255	0	255

The RGBWW DPI are comprised of two main color groups that yield different light results.

Group A: RGB (Red/Green/Blue)

RGB or any color mixing in between will maintain the light output as long as the DPI voltage is higher than 20VDC. The light output (Lumens) starts to degrade as a DPI voltage gets lower as shown in FIG. 9

Group B: WW (2700K & 5000K)

WW or any color mixing in between will maintain the light output as long as the DPI voltage is higher than 21VDC. The light output (Lumens) starts to degrade as a DPI voltage gets lower as shown in FIG. 9
The DPI voltage can be checked using voltage meter probe to measure the DC voltage between soldering point of V+ and V- on the DPI.
In order to maintain a voltage or having less voltage drop on the DPI, bigger conductor wire or lower gauge wire number is recommended.

Table 3. : A2S-10-CCWT

					DMX Value						
Color & CCT (K)	**Current (A)**	**Power (W)**	**Lumen**		**CH1:RED**	**CH2:GREEN**	**CH3:BLUE**	**CH4:2700K**	**CH5:5000K**	**CH5:R/G/B**	**CH5:27/50**
RGB	1.85	44.4	1353		255	255	255	0	0	255	0
RED	0.83	19.8	314		255	0	0	0	0	255	0
GREEN	0.83	19.8	839		0	255	0	0	0	255	0
BLUE	0.83	19.9	235		0	0	255	0	0	255	0
2700K	0.83	19.9	964		0	0	0	255	0	0	255
2800K	0.89	21.4	1094		0	0	0	255	1	0	255
2900K	0.91	21.8	1126		0	0	0	255	2	0	255
3000K	0.96	23.0	1227		0	0	0	255	8	0	255
3100K	1.02	24.4	1342		0	0	0	255	20	0	255
3200K	1.05	25.2	1408		0	0	0	255	30	0	255
3300K	1.10	26.3	1504		0	0	0	255	50	0	255
3400K	1.17	28.0	1646		0	0	0	255	90	0	255
3500K	1.25	29.9	1796		0	0	0	255	150	0	255
3600K	1.34	32.2	1986		0	0	0	255	250	0	255
3700K	1.27	30.4	1853		0	0	0	170	255	0	255
3800K	1.21	29.0	1749		0	0	0	120	255	0	255
3900K	1.17	28.0	1672		0	0	0	90	255	0	255
4000K	1.10	26.3	1545		0	0	0	50	255	0	255
4100K	1.06	25.5	1480		0	0	0	35	255	0	255
4200K	1.02	24.4	1393		0	0	0	20	255	0	255
4300K	0.99	23.7	1338		0	0	0	13	255	0	255
4400K	0.96	23.0	1288		0	0	0	8	255	0	255
4500K	0.93	22.3	1230		0	0	0	4	255	0	255
4600K	0.91	21.8	1193		0	0	0	2	255	0	255
4700K	0.89	21.4	1163		0	0	0	1	255	0	255
4800K	0.82	19.6	1020		0	0	0	15	240	0	255
4900K	0.82	19.6	1021		0	0	0	10	245	0	255
5000K	0.83	19.9	1043		0	0	0	0	255	0	255

The RGBWW DPI are comprised of two main color groups that yield different light results.

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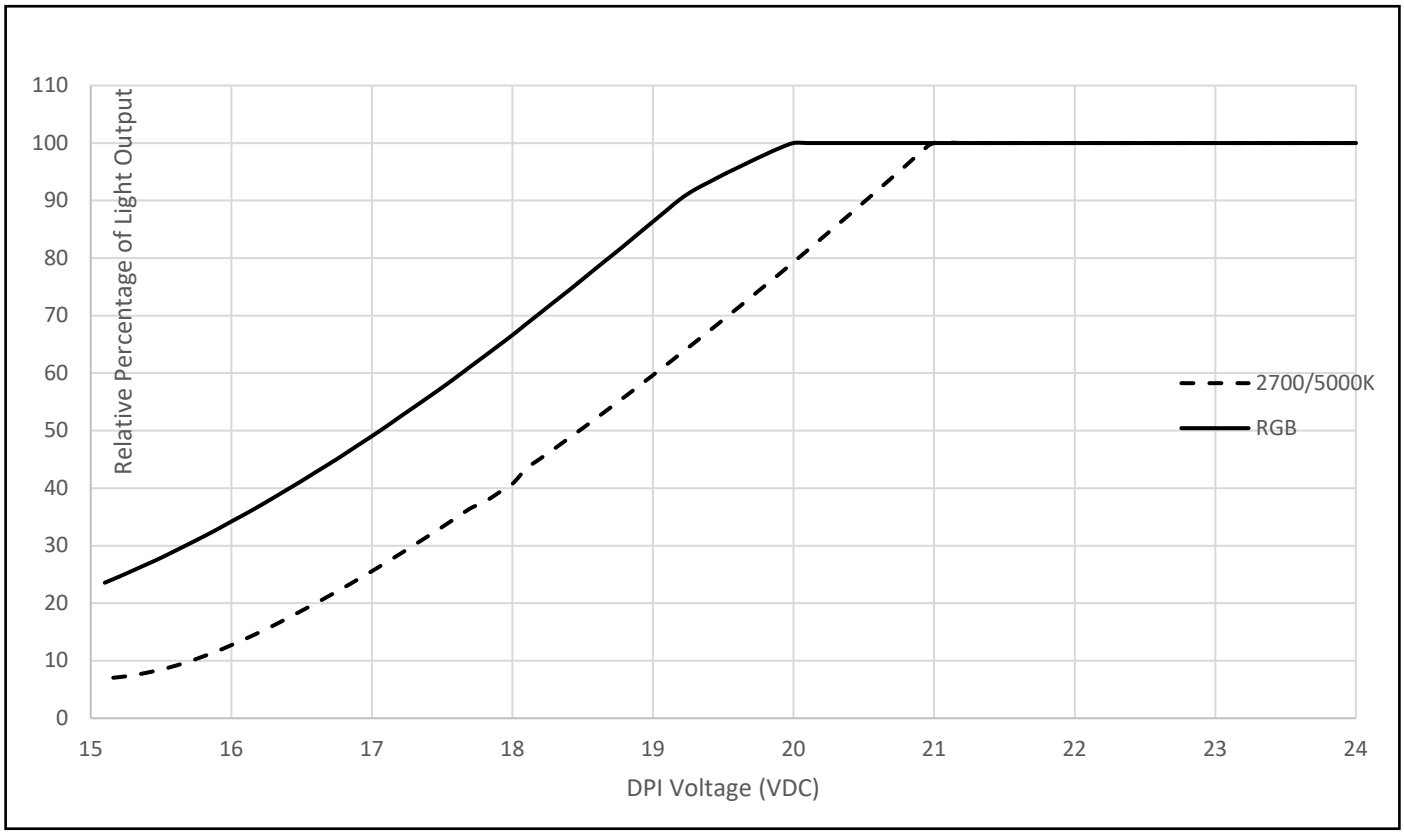
Group B: WW (2700K & 5000K)

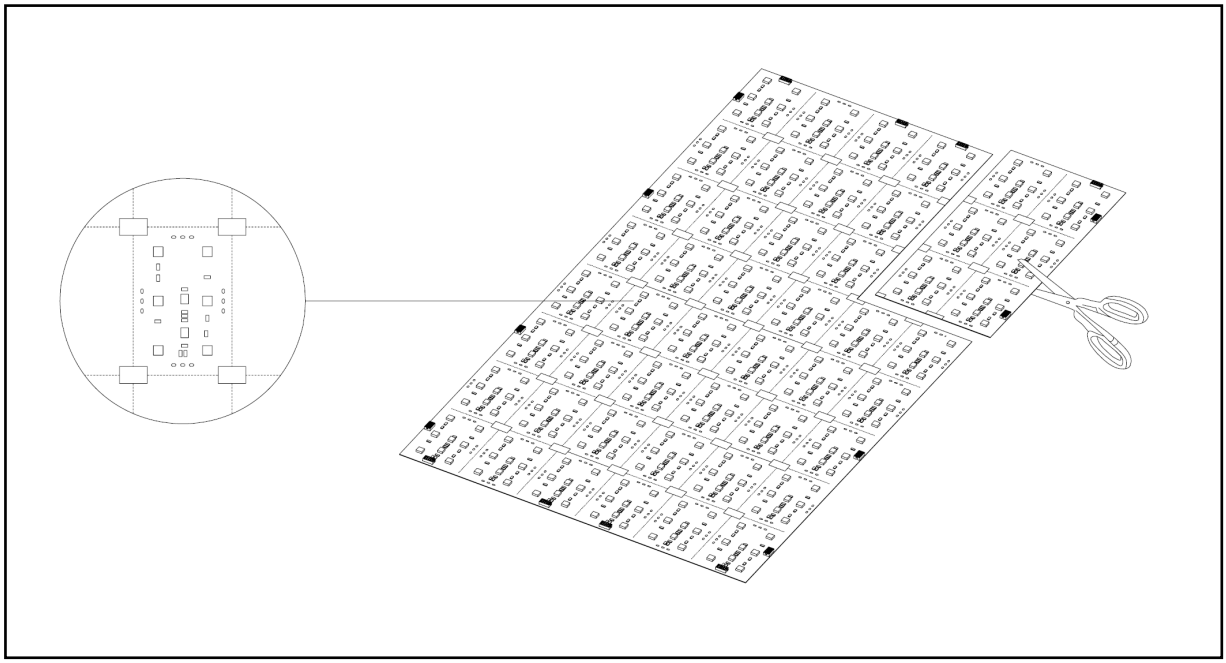
WW or any color mixing in between will maintain the light output as long as the DPI voltage is higher than 21VDC. The light output (Lumens) starts to degrade as a DPI voltage gets lower as shown in FIG. 9
The DPI voltage can be checked using voltage meter probe to measure the DC voltage between soldering point of V+ and V- on the DPI.
In order to maintain a voltage or having less voltage drop on the DPI, bigger conductor wire or lower gauge wire number is recommended.

FIG. 9



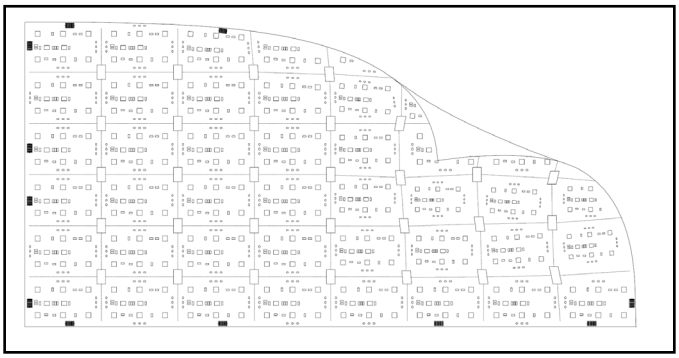
8. Follow the dotted line cutting guides and cut the DPI to desired size. DPI is field cuttable vertically or horizontally anywhere to a group of six LEDs increment (**Fig.10**).

FIG. 10



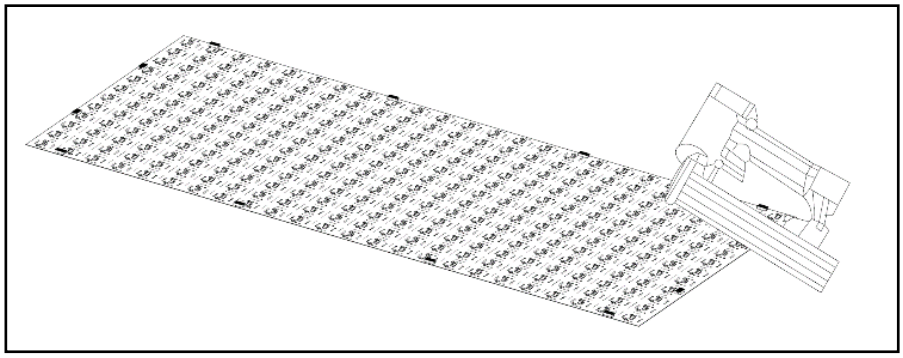
9. DPI is flexible and is adaptable for flat or curved surfaces. The included 3M adhesive is sufficient in most applications for smooth surfaces (see FIG. 11)

FIG. 11



If mounting surface is a porous or textured surface, a staple gun or nails may be required to secure the DPI after wiring (See Fig. 12)

FIG. 12

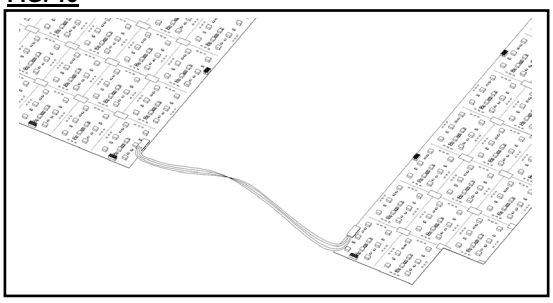


10. Joining between DPI RGBWW lights

the following accessories can be used to join between DPIs section depending on your application:

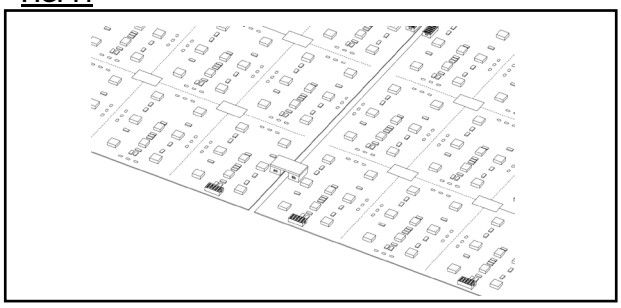
Joiner Cable 2" & 6" (A2L14-XXX-WT), See FIG. 13

FIG. 13



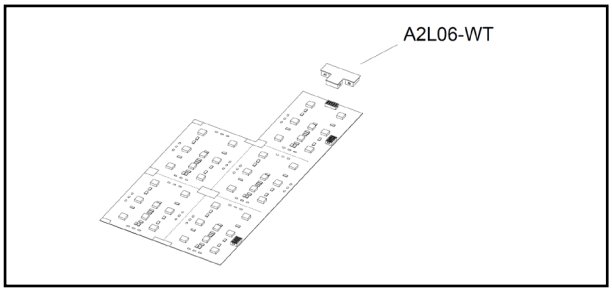
I Connector (A2L04-WT), See FIG. 14

FIG. 14



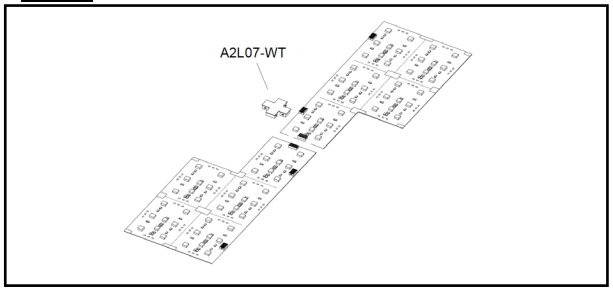
T Connector (A2L06-WT), See FIG. 15

FIG. 15



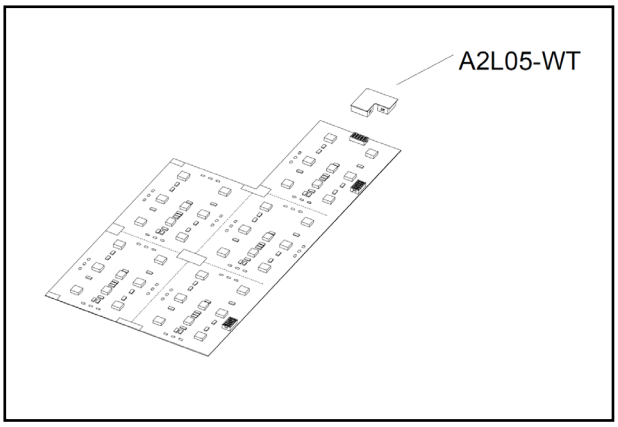
X Connector (A2L07-WT), See FIG. 16

FIG. 16



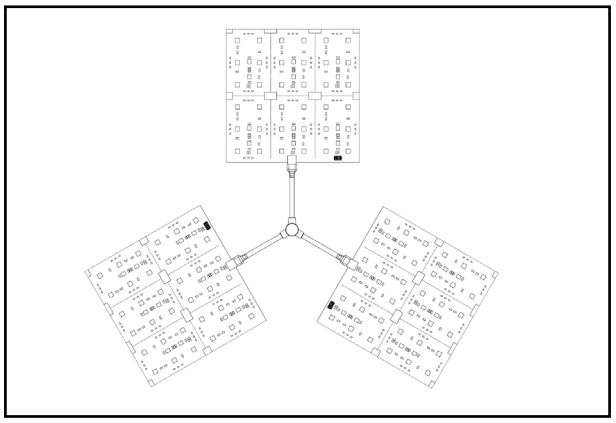
L Connector (A2L05-WT), See FIG. 17

FIG. 17



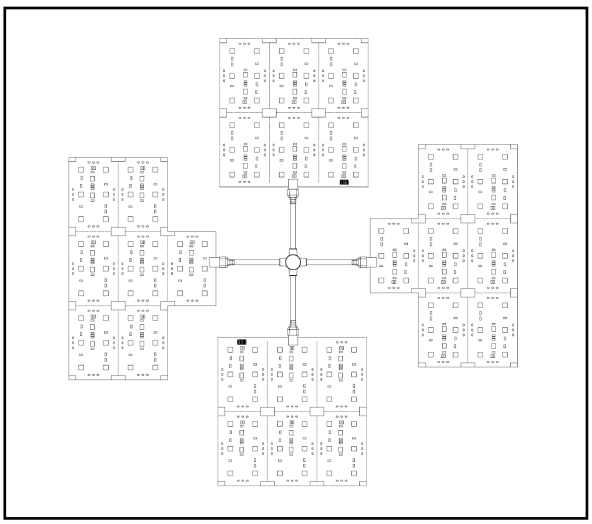
Flex Y Connector (A2L08-WT), See FIG. 18

FIG. 18



Flex X Connector (A2L09) , See FIG. 19

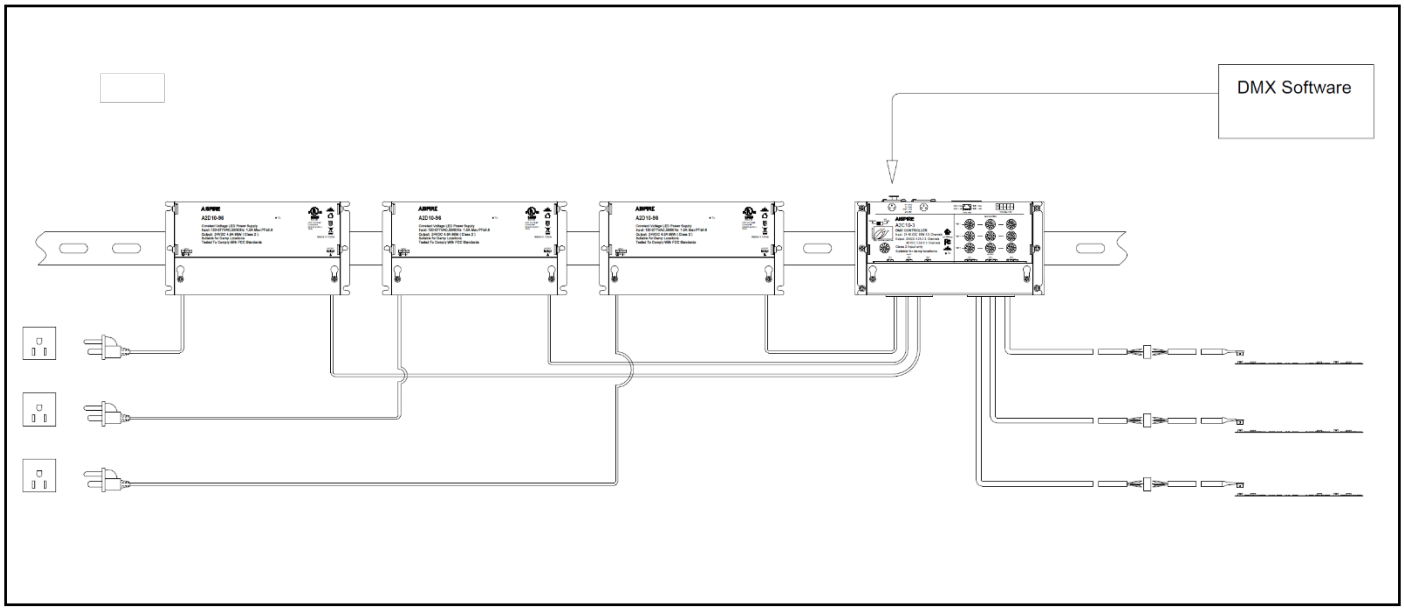
FIG. 19



SYSTEM DIAGRAM:

DPI RGBWW shall be used with AiSPiRE DMX LED Controller at all times. Using other DMX controller brands will result in losing an ability to control DPI RGBWW light. The following diagram is provided as example system design. (See FIG. 21)

FIG. 20



TROUBLESHOOTING

Symptom	Common Cause and Solution
Light Output turns on/off repeatedly or flashing	The DPI consume too much power than a capacity of power supply. AiSPiRE power supply has an overload protection that will trip the internal auto-reset. Exceeding power capacity will repeatedly reset the power supply until an overload condition is removed.
Light output flashes wildly with different color	The data signal communication between DMX LED Controller and DPI RGBWW has a high distortion due to a long run of wires between Power Supply-DMX LED Controller and DPI. The shield data cable is recommended to use to maintain a good quality data signal. Reducing the run length between DMX LED controller to the DPI will help solving the problem.
No light from one section of DPI/ Light output flashes wildly with different color from one section of DPI	The DPI RGBWW may be damaged due to high degree of bending angle and cause an electrical component soldering on the DPI to crack and lose electrical connection. To solve this issue quickly is by cutting and remove that section out.
Light output at the end of the run is dim High contrast between beginning and the end of run.	This is the voltage drop effects. Using a thicker conductor wire or smaller gauge wire number yields less voltage drop and boost light output up. Another way is to lower a maximum DMX value to reduce the current consumption to DPI RGBWW. Thus, a contrast between beginning and the end of DPI run will be smaller. Make sure that no ELV/TRIAC dimmer is connected to power supply. DPI RGBWW is only control through DMX LED Controller
DPI RGBWW light overheats	Incorrect voltage pairing, ensure 24V DPI light are not paired with a power supply with higher voltage Incorrect ambient temperature. Ensure DPI light is installed in environment -4° - 104°F (-20°C - 40°C) Lower the maximum light output down to acceptable ranges
DPI RGBWW does not illuminate	Power Supply Failure, using voltage meter to check. Incorrect wiring, polarity of positive and negative are reversed. Incorrect DMX Channel setup, Check the DMX channel setup and properly activate the right channel.
Sudden Loss control over DPI RGBWW	This scenario may happen when you lose control over DPI RGBWW suddenly as you ramp up the brightness or increase the power to the DPI. This cause by a combination of voltage drop and data quality loss. To regain control over DPI light, please remove the power to the DPI, lower the DMX value, and use shield data cable. Make sure that both common and drain wires are all connected on both ends. Or reduce the run length between DMX LED controller to the DPI.
Unable to light up both RGB and 2700K/5000K at the same time	This feature has been designed in the DMX LED Controller A2C10-3 to prevent an overflow of power to DPI RGBWW that will cause an overheat. Thus, either RGB or WW can be operated at the same time by controlling CH6 (Dimming for RGB) and CH7 (Dimming for WW). CH6 has higher priority than CH7.

