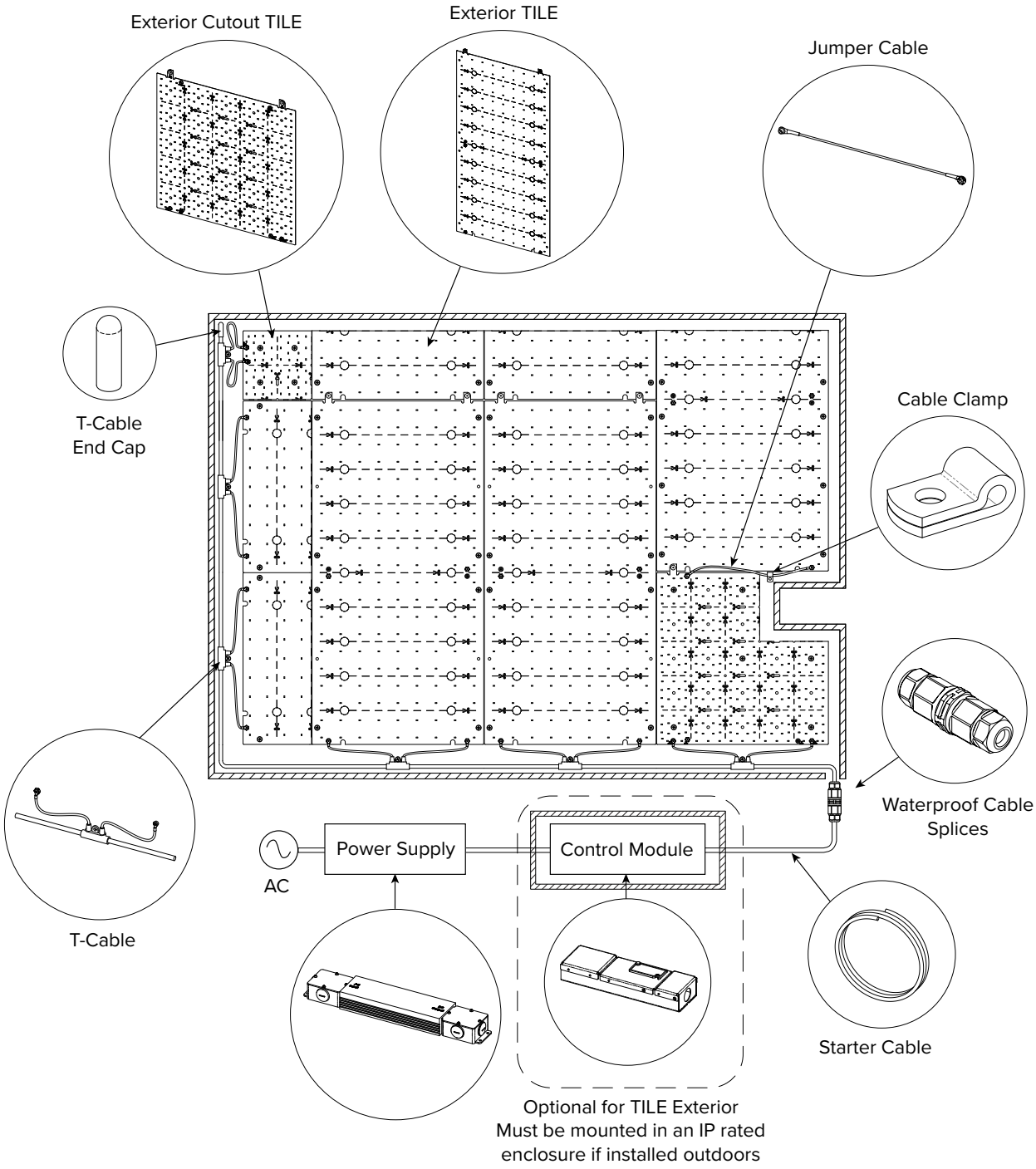
COOLEDGE™

COOLEDGE TILE R3 EXTERIOR INSTALLATION MANUAL



Caution: Observe precautions for handling electrostatic sensitive devices.

CE

c UL us LISTED

In Canada, TILE Exterior must be installed within an enclosure

RoHS

IP65

5 YEAR SYSTEM WARRANTY 5 YEAR SYSTEM WARRANTY

5 Year Limited Warranty:
Parts and workmanship

Cooledge Lighting Inc.
110-13551 Commerce Parkway
Richmond, BC V6V 2L1 Canada

O +1 604 273 2665
F +1 604 273 2660
T +1 844 455 4448
W cooledgelighting.com

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1.0 IMPORTANT INSTALLATION NOTES

Please read instructions prior to installation

Installation must be completed by a quali ed electrician in accordance with all national and local electrical and construction codes.

Ensure power is off prior to installation.

TILE Exterior R3 products are IP65 rated only.

TILE Exterior R3 products must be powered by a Cooledge approved constant voltage Class 2 or LPS LED Driver. Using a non-approved power source could damage the system and will void the warranty.

TILE Exterior R3 should not be mounted where it will be exposed to prolonged direct sunlight. Install behind a suitable transparent or frosted cover to protect from UV damage.

TILE Exterior R3 should not be mounted on conductive surfaces.

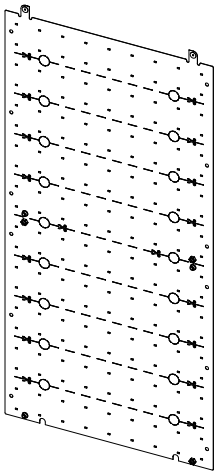
DO NOT CUT Cooledge TILE or Cutout Exterior. Cutting of the TILEs will compromise the protective coating.

⚠ DO NOT DISCARD the contents of the Installation Kit. All components will be needed to perform the installation.

2.0 SYSTEM CONTENTS

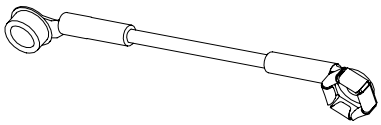
A. TILE Exterior:	Light emitting sheets packaged in quantities of 1–50 pieces.
B. TILE Exterior Starter Kit:	Contains: (1) Quick Start Guide, (2) Splice Connectors, (4) T-cable End Caps, (1) 16AWG (1.3mm^2) Starter Cable, 10ft (3m) long, for connection between Control Module and T-Cable. (4) Cut Tile Reuse Jumper Cables - see Section 7.6 (12) Insulating Patches
C. Power Supply:	Converts incoming AC power to 54VDC output.
D. Control Module:	Converts incoming control signals to dim the TILEs. The Control Module has one input connection from the power supply and up to 4 max. 90W output connections to TILEs.
E. TILE Exterior Cutout Kit (optional):	Contains a Cooledge Exterior Cut-out TILE plus two (2) cable clamps, two (2) jumper cables, and two (2) patches. Note: Cut-out TILEs are factory cut and sealed. Consult submittal documents to match the label on the TILE to the correct install location.
F. TILE T-Cable	16AWG (1.3mm^2) 2-conductor jacketed cable with four (“T-4”) or ten (“T-10”) “T” connections consisting of a splice and two 18AWG (0.8mm^2) conductors with snap connectors. It is used to connect the Starter Cable to the TILEs.
G. TILE Exterior Starter Cables:	10’ (3m) length 16AWG (1.3mm^2) cables for connection of the TILEs to the control module or power supply.
H. TILE Exterior Extension Cables (optional):	14AWG (2.1mm^2) 2-conductor jacketed cable of 10’(3m) or 20’(6m) length to connect the Starter Cable to the Control Module (or power supply for installations less than 100 watts) when a remote mounting distance greater than 10’(3m) is required.

A. TILE EXTERIOR

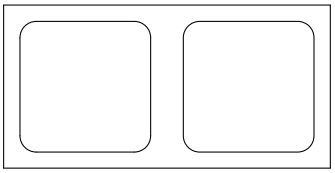


B. TILE EXTERIOR STARTER KIT

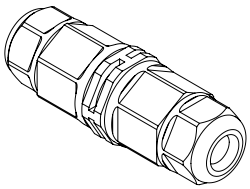
CUT TILE REUSE JUMPER CABLE
X 4



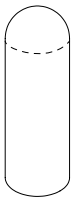
INSULATING PATCHES
X 12



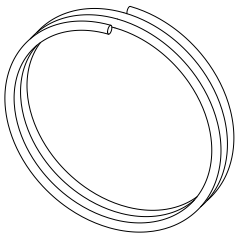
QUICK
START
GUIDE



SPLICE CONNECTOR
X 4



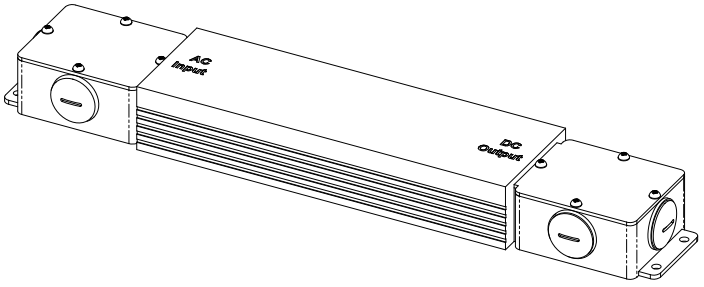
T-CABLE END CAP
X 4



16AWG (1.3mm^2) CONDUCTOR CABLE
10ft (3m) LENGTH
X 2

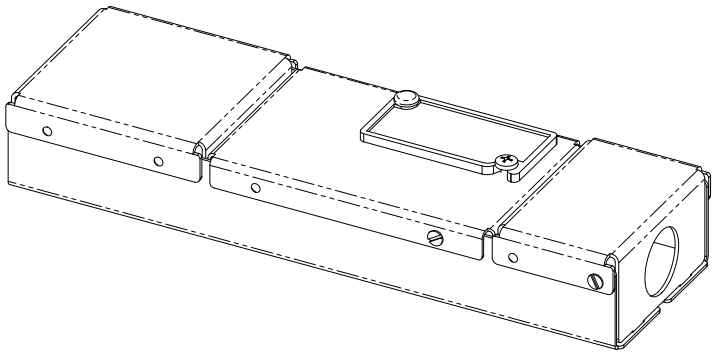
C. POWER SUPPLY

– Converts from line voltage to 54VDC
– Power supply appearance may vary depending on model ordered



D. CONTROL MODULE (OPTIONAL)

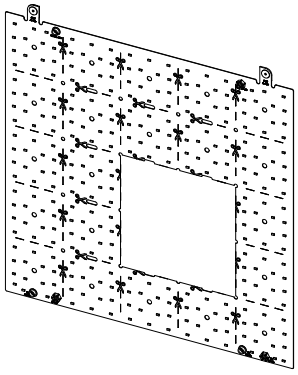
– Uses incoming control signals to dim the TILEs. If the control module is mounted outdoors its needs to be mounted in a suitable IP65 rated enclosure which is not provided by Cooledge.



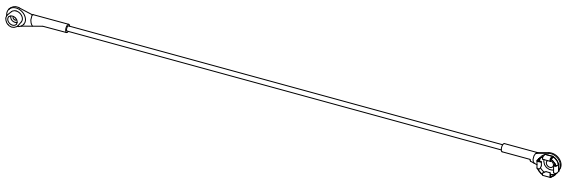
E. CUTOUT KIT (OPTIONAL - DEPENDING ON DESIGN LAYOUT)

– TILE Cut-out Exterior CAN NOT BE CUT. Cutting of the TILEs will compromise the protective coating.
– Jumper cables can be used to feed power between a TILE and a TILE Cut-out when one or more of the corners of the TILE Cut-Out have been removed.
– Cable clamp is used to secure the jumper cables

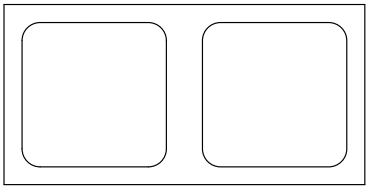
CUT-OUT TILE



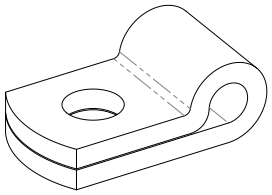
JUMPER CABLE (2)



INSULATING PATCHES (2)

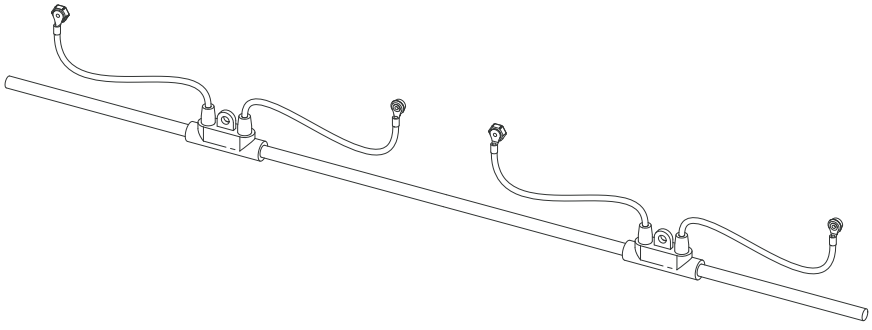


CABLE CLAMP (2)



F. T-CABLE

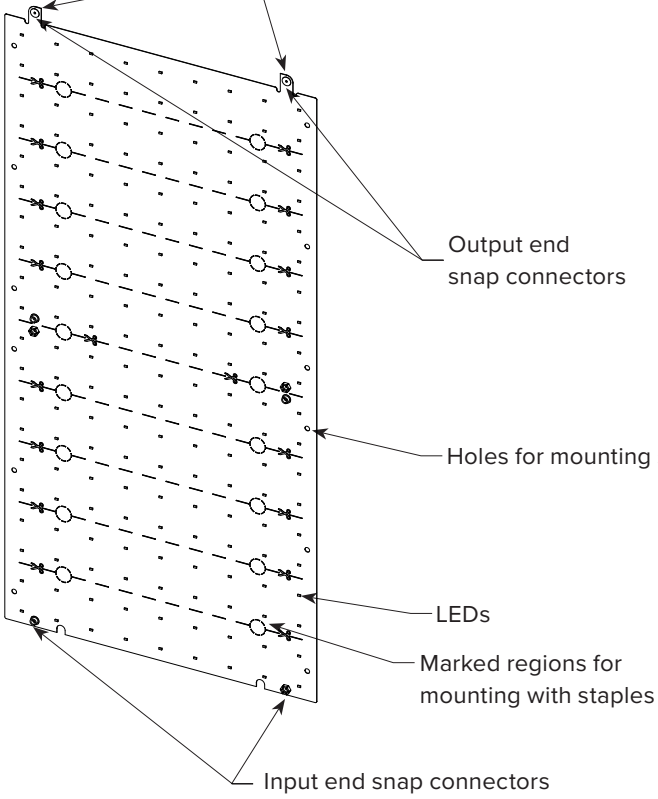
– Makes the power connection between the Starter Cable and the TILEs
– Supplied in 4T and 10T confi urations
– May be cut shorter if required



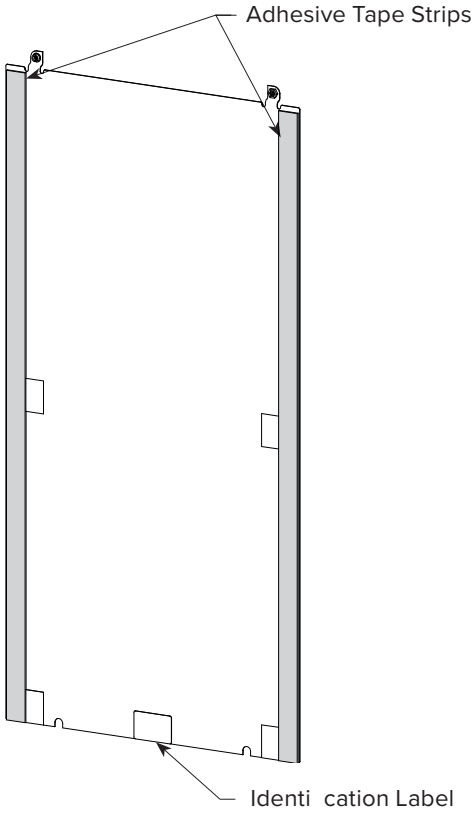
3.0 INTRODUCTION TO TILE EXTERIOR

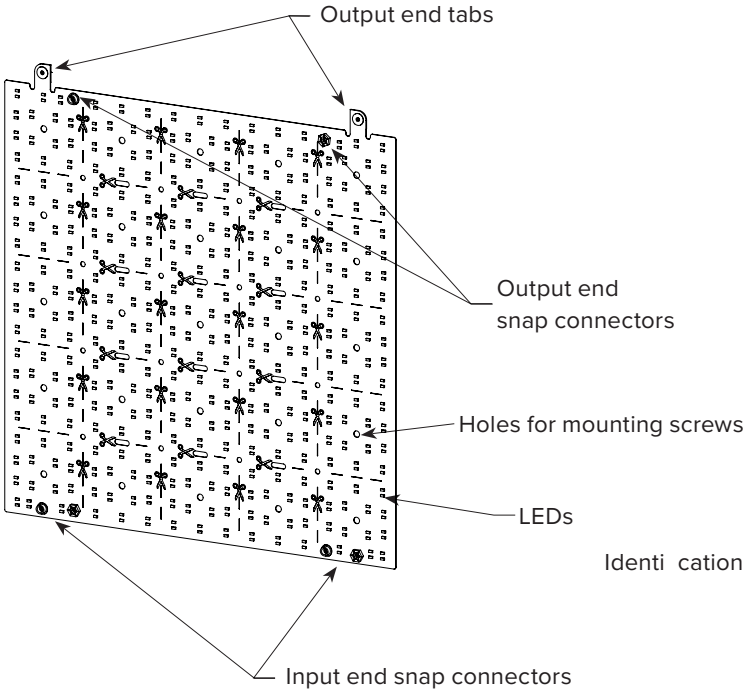
TILE Exterior provides a exible means of illuminating large areas that required an IP65 rated solution. TILEs can be connected in series using snap connectors and can be installed on both at and curved surfaces. Each cut TILE or cutout TILE has and identi cation label corresponding to it's position in the layout in the submittal.

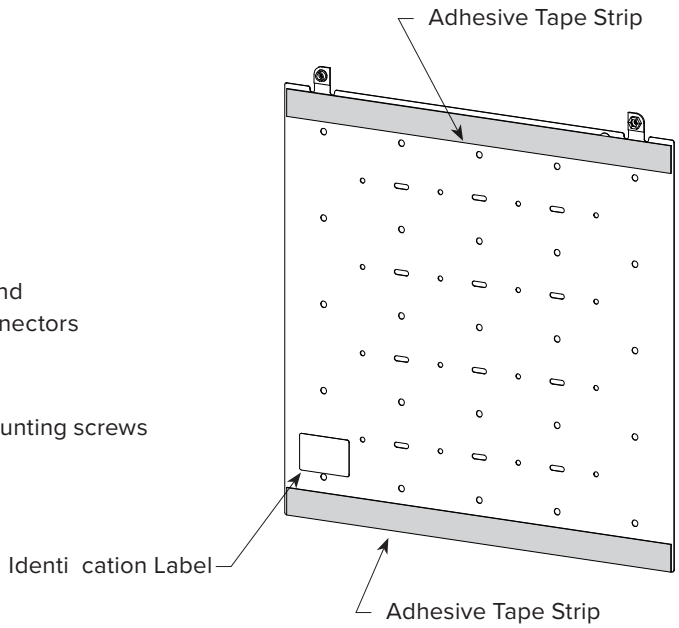
Front View



Rear View







4.0 CARE AND HANDLING GUIDELINES

Always handle TILEs along the outer edges of the sheet.

Avoid scrapping off r damaging the IP65 coating on the TILEs.

Avoid penetrating the sheet at any location other than along the cut lines or in the marked holes for fasteners.

As with all electronics, light sheets are susceptible to damage from Electrostatic Discharge (ESD). Where possible avoid situations that are conducive to creating static.

Avoid creasing or repeated exing of TILE as this may cause separation in the traces of the electrical circuits located on the surface of the sheets.

DO NOT CUT TILE Exterior or TILE Cutout Exterior, products are cut and sealed in factory. Cutting of the TILEs after sealing will compromise the protective coating.

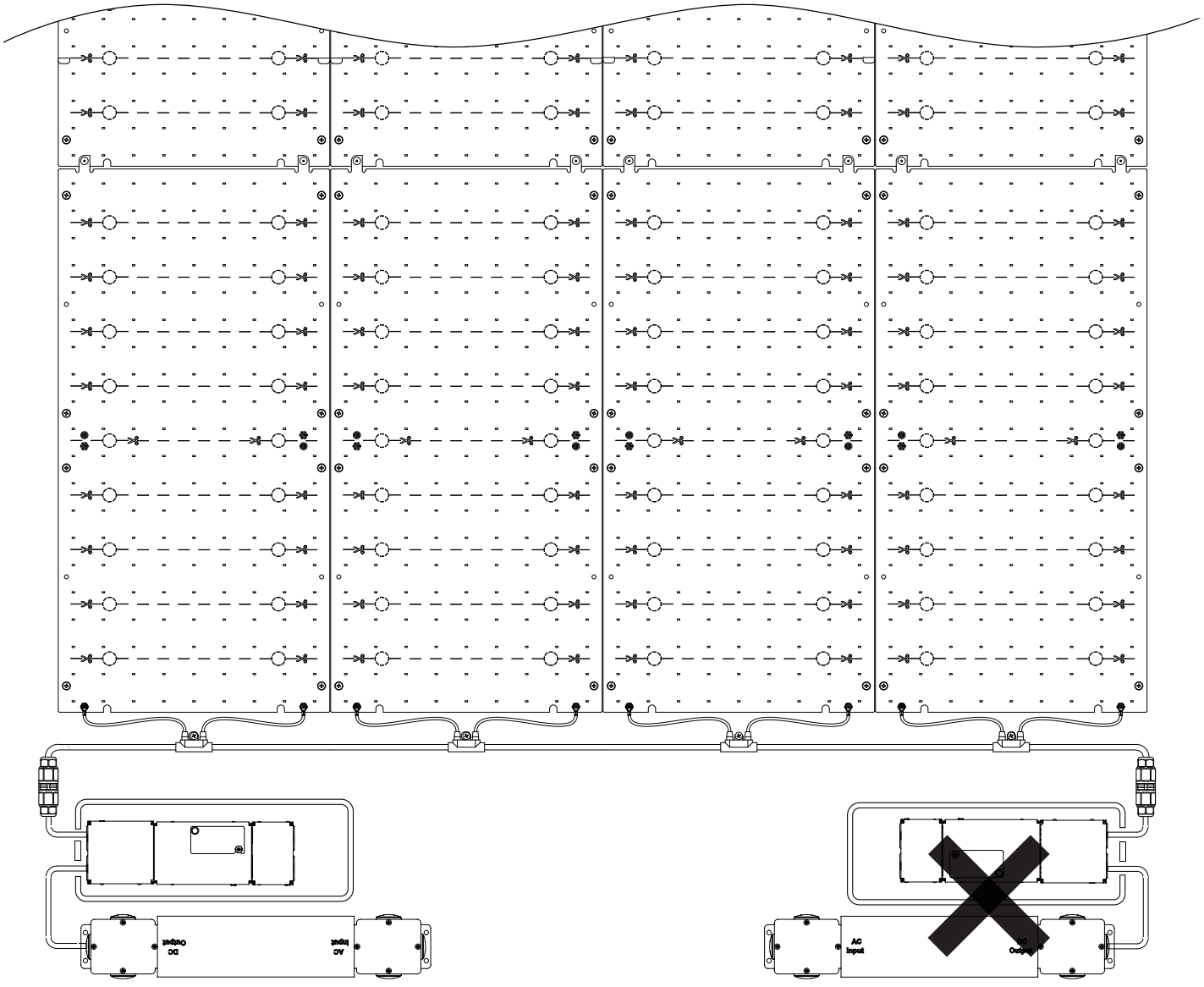
DO NOT CUT

5.0 SYSTEM LAYOUT

⚠ BEFORE STARTING installation carefully consider your system layout by reading the job specifi submittal package:

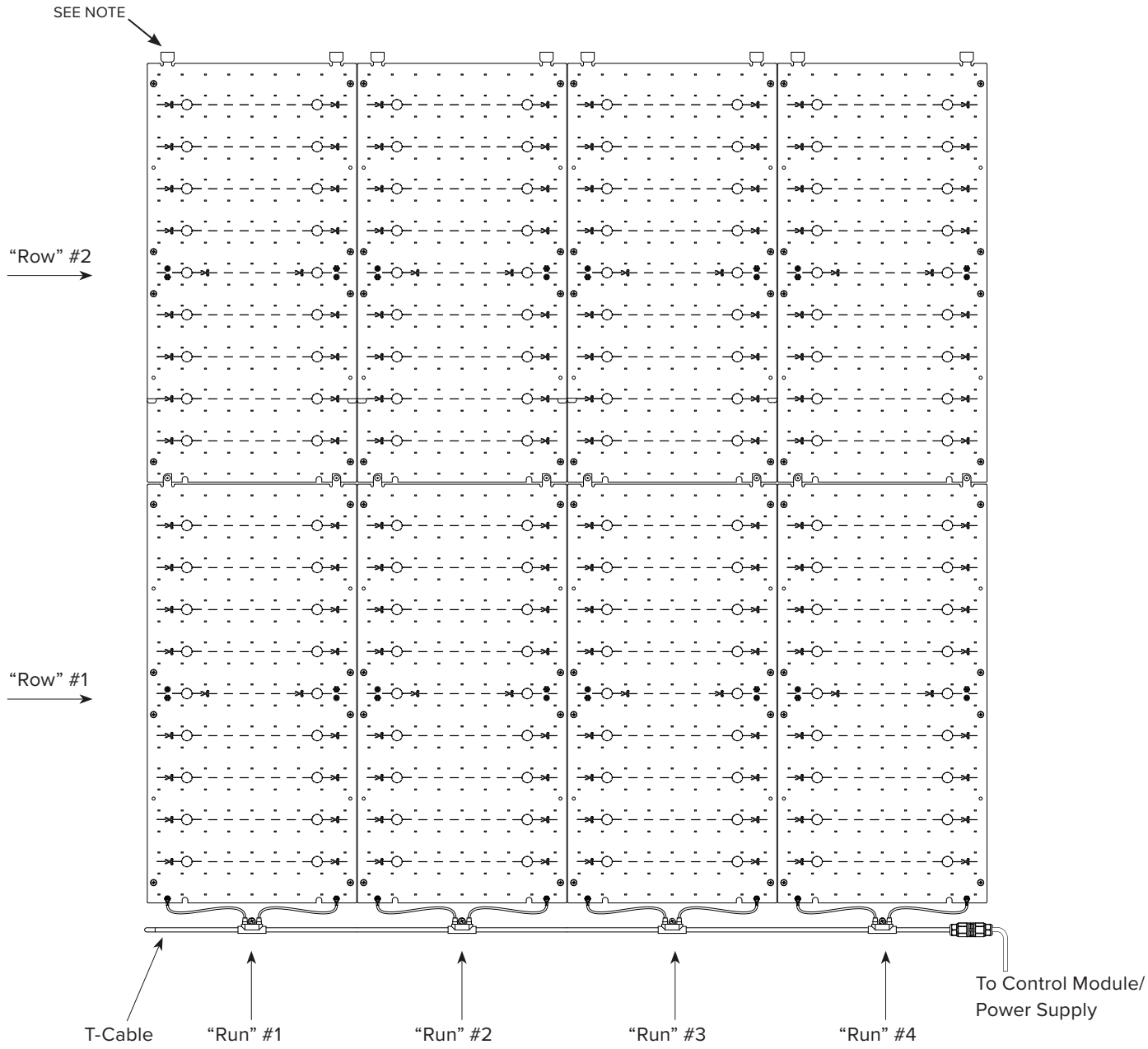
– Refer to section 8 “TILE Exterior Layout Guidelines” for details regarding the maximum number of TILEs per power supply. This number is also dependent on the arrangement of the sheets.
– Each TILE illuminates a 300mm x 600mm (approx 1’ x 2’) area.
– TILEs are joined electrically by attaching the two (2) sets of snap connectors.
– Each TILE has and identi cation label on the back side of it with and “S###” number eg. S24, S36. This number correlates to the job layout in the sumbittal package.

⚠ DO NOT CONNECT more than one (1) power supply to one (1) light sheet electrical circuit. A light sheet electrical circuit includes any TILEs that are in electrical contact with each other on the output side of the control module or power supply. Circuits must be 90W maximum.



6.0 EXAMPLE INSTALLATION

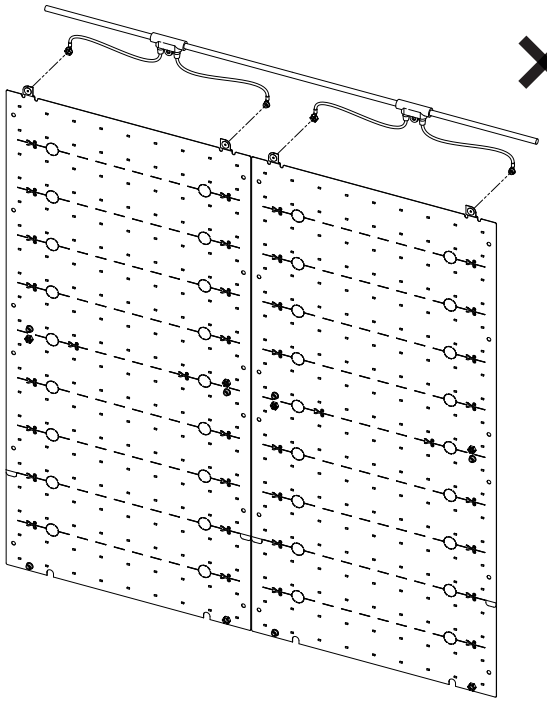
The installation below shows four (4) runs of TILE. Each run consists of two (2) TILE sheets connected in series. The Power Supply or Control Module is connected to the system via the T-Cable and Starter Cable.



NOTE: Any connector tabs on the TILE or Cutout that are not connecting to another TILE or Cutout need to be covered with an insulating tape Patch. Please refer to Section 7.1 step 7 for detailed instructions.

7.0 INSTALLATION

DO NOT CONNECT the T-Cable at the output (tab) end of the TILE. The T-Cable can only be connected at the input end of the sheet.

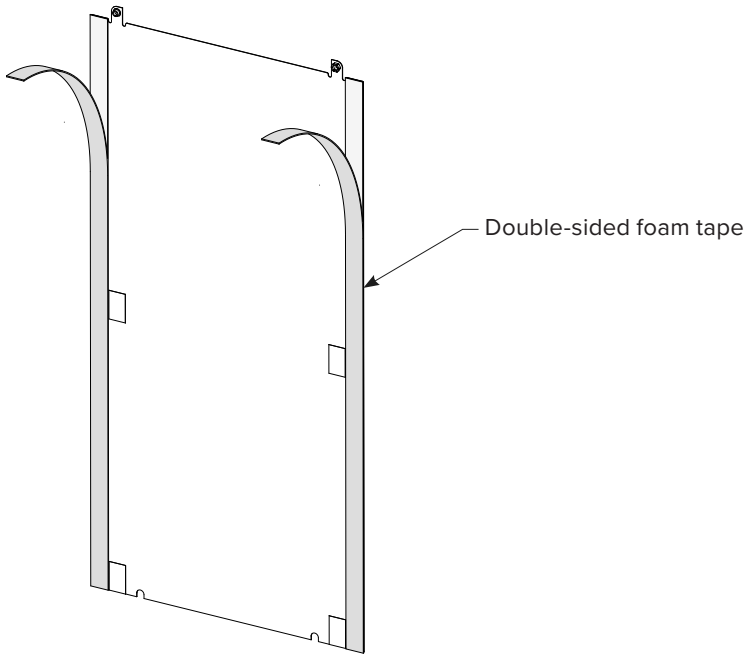


DO NOT connect T-Cables to TILE tabs.

7.1 MOUNT THE 1ST RUN OF EXTERIOR TILES

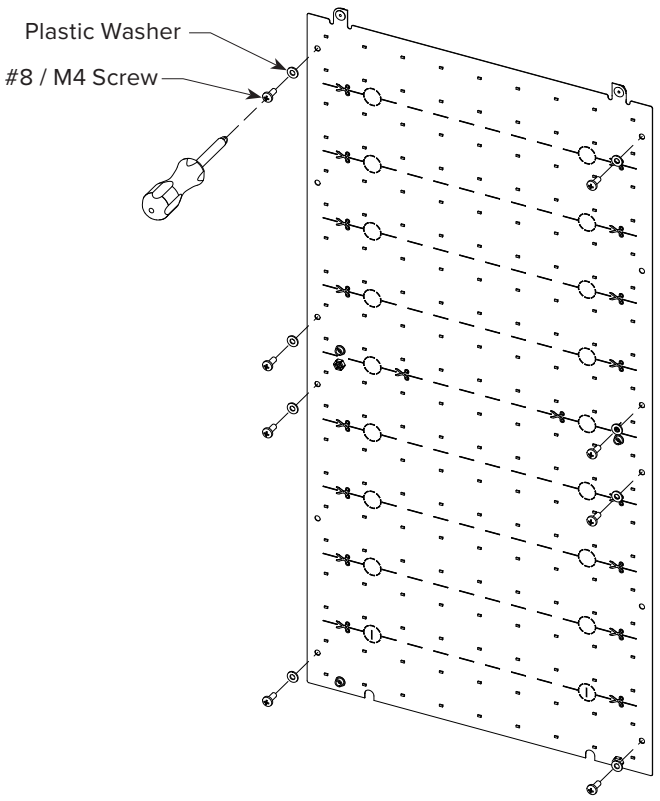
1.	Mechnical fasteners are required for installation of TILE. Either screws or staples may be used in speci c locations. For ceiling mounted applications or where atness is critical it is recommended to also use the double sided tape which has been applied to the back of the sheets prior to applying the mechanical fasteners. If using the tape, remove the liner from the tape and carefully place the TILE in position, one side at a time. The tape is pressure sensitive and must be pressed down rmly along its entire length in order to form a strong bond with the mounting surface.

This step must be performed with great care because it is not possible to reposition the sheet once it has been taped down.



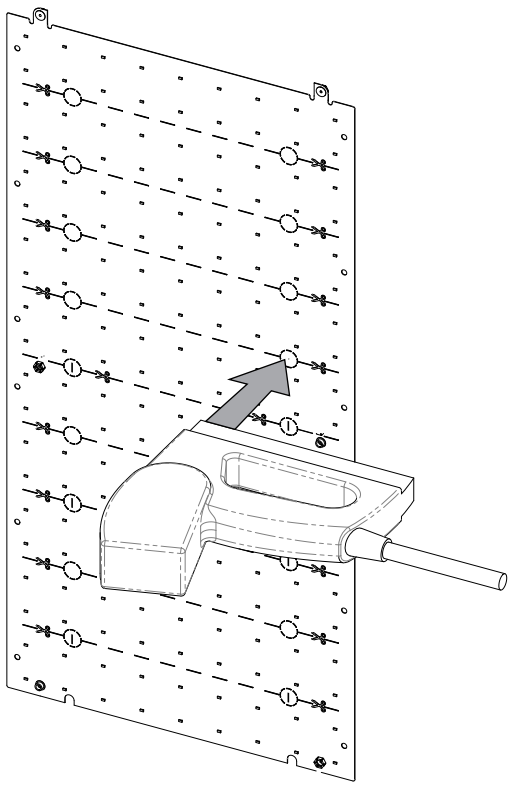
2.	Beginning at the input end of a run, position the rst TILE where required. Fasten the sheet to the mounting surface using #8 (or M4) fasteners appropriate for the mounting surface. It is recommended to use nylon washers to prevent damage to TILE.

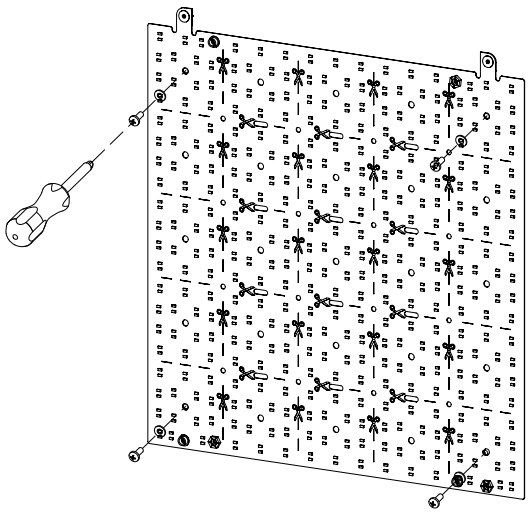
Mount Using Screws

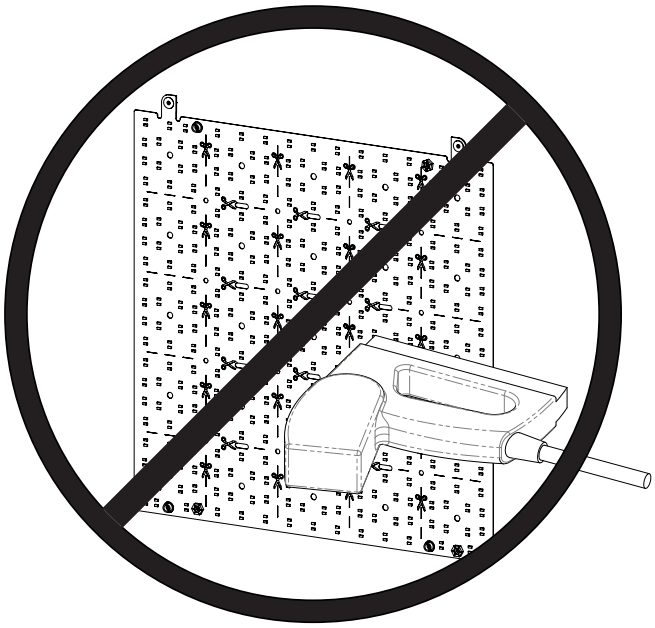


or

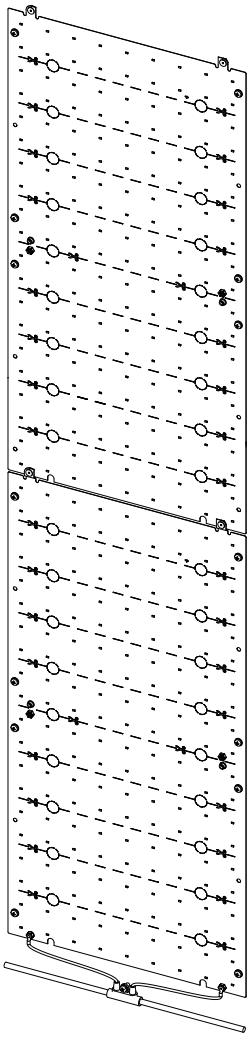
Mount Using Staples
- An electric staple gun is recommended
- Maximum staple width = 1/2” (13mm)



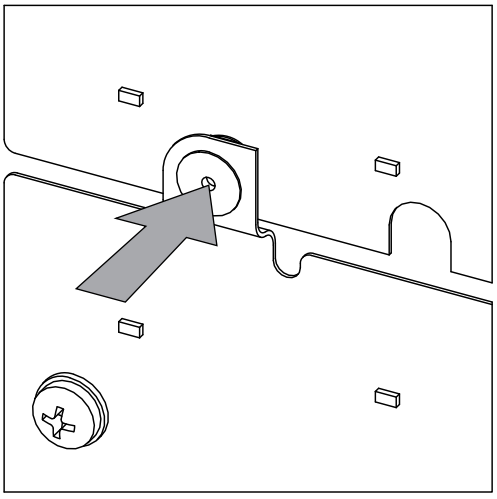




3.	Slide the next TILE under the tabs of the rst. Ensure that the exible tabs on the rst TILE sit on top of the second.

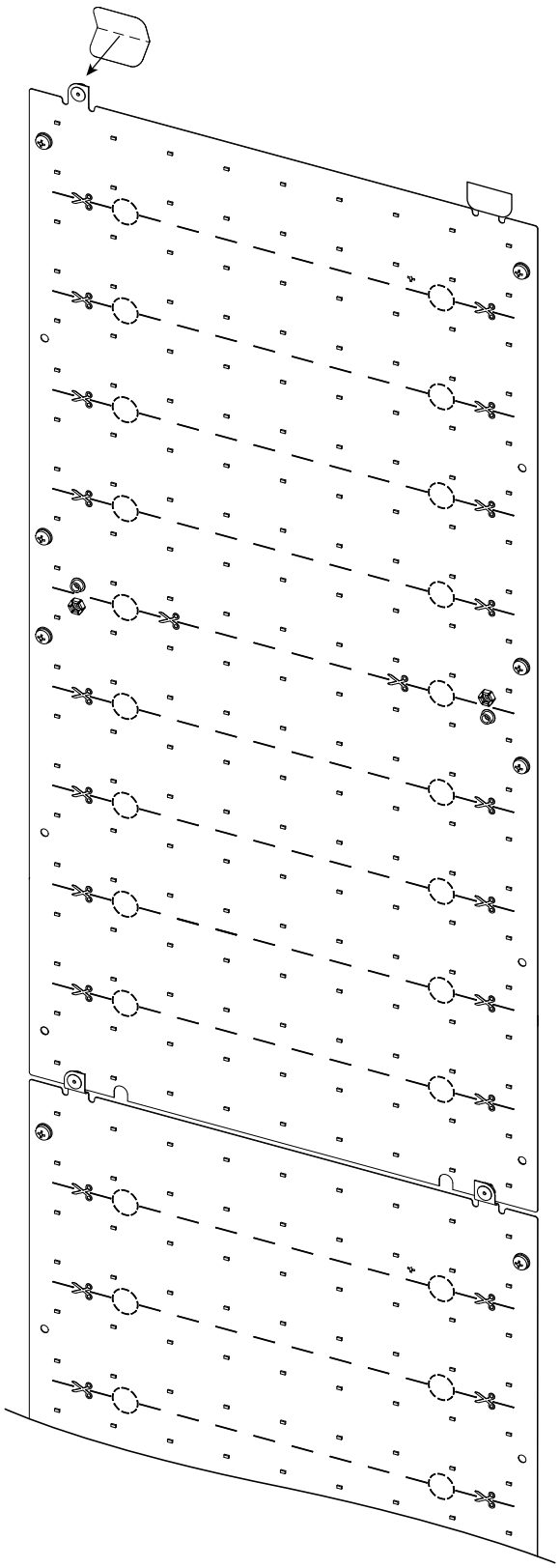


4.	Make the electrical connection between the two (2) TILEs by gently pressing the snap connectors on the overhanging tabs down until they click together.



⚠ CAUTION: Disconnecting and reconnecting jumpers may damage the connectors on the sheets if repeated multiple times. See Section 7.5 for recommended method.

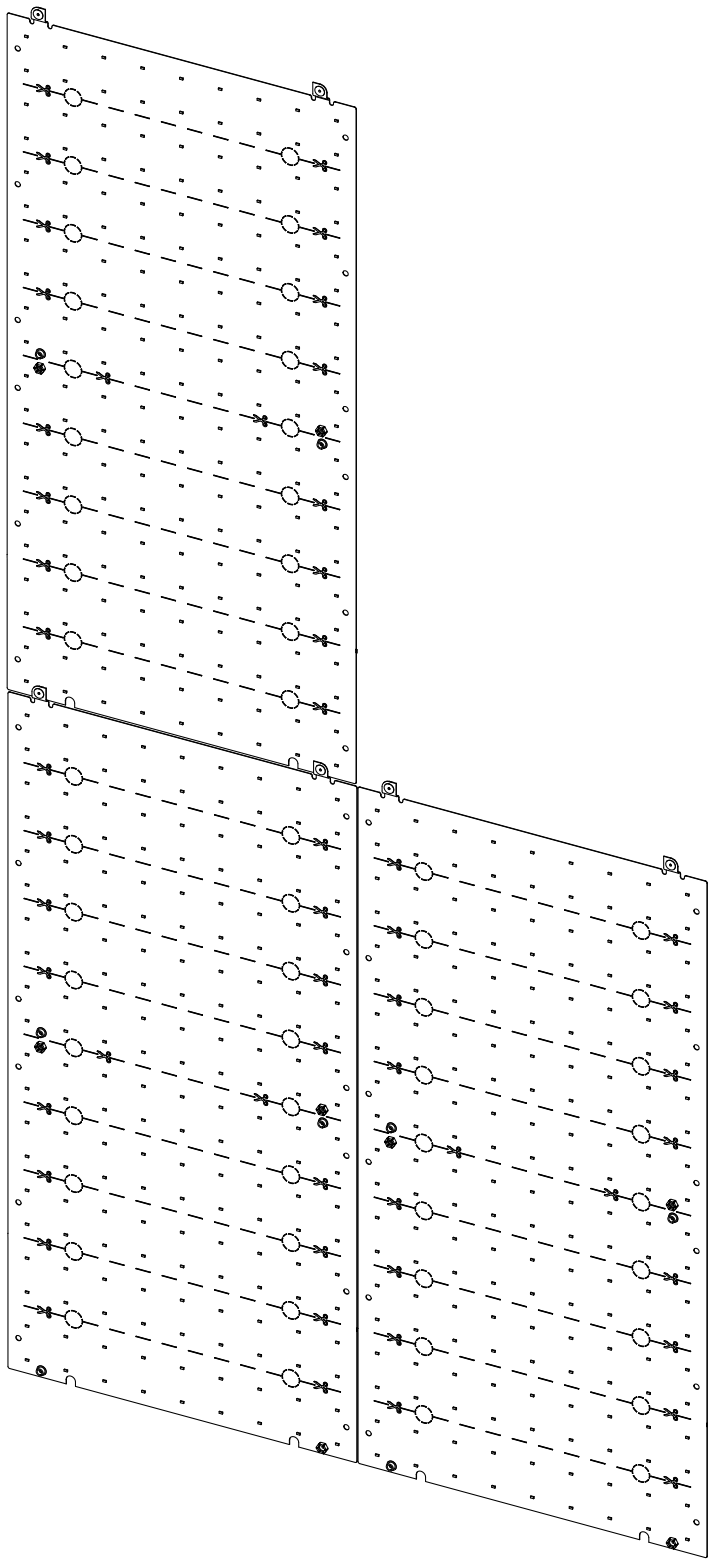
5.	Once the second TILE is aligned correctly, attach it in place as in Steps 1 and 2.
6.	Repeat steps 3, 4 and 5 until the run is complete. For runs that terminate in a full length TILE, please refer to Step 7 .
7.	At the termination end of the run, place insulating tape patches on all the exposed connector tabs.



7.2 MOUNT ADDITIONAL RUNS OF TILE EXTERIOR

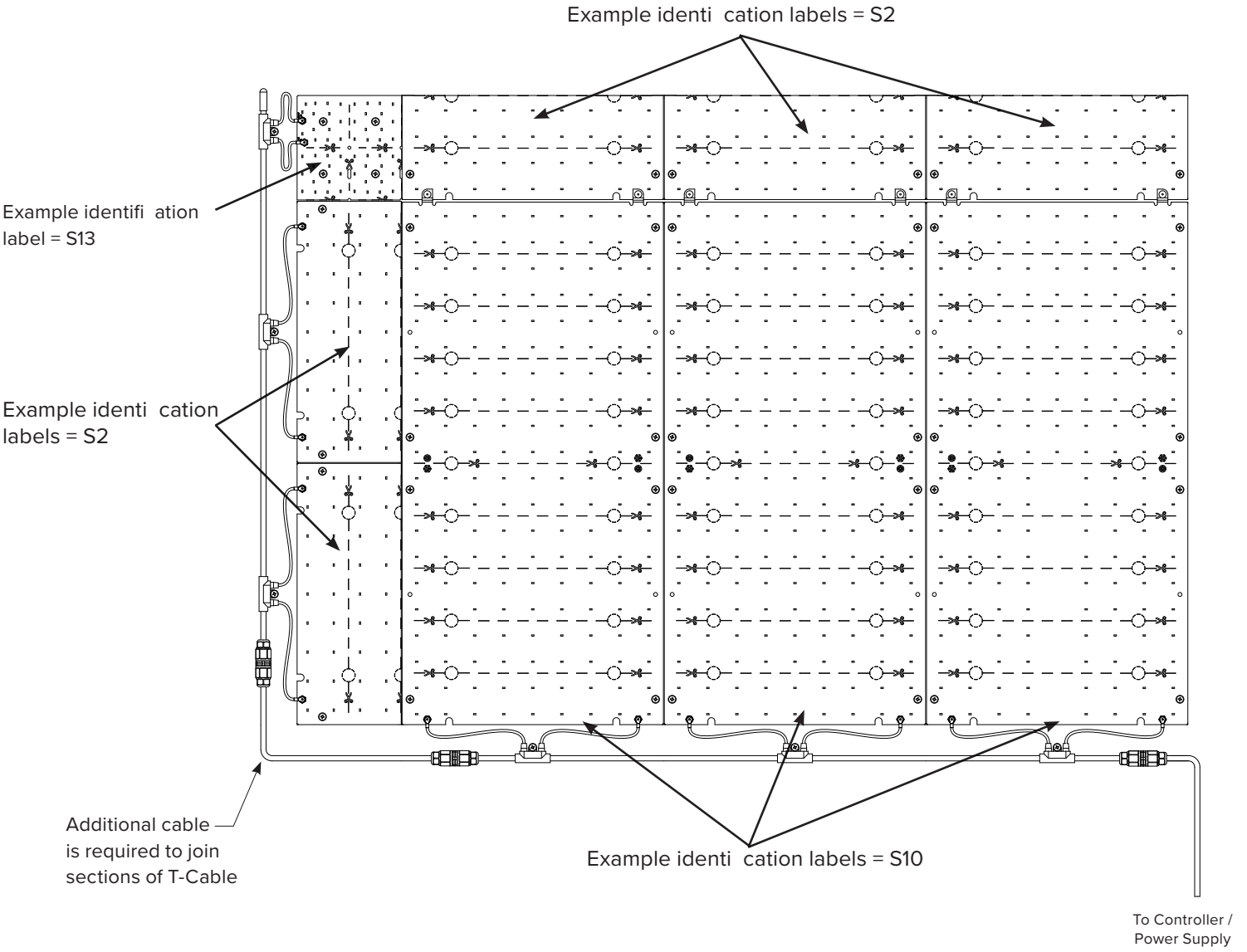
NOTE: The following procedure assumes that runs of TILE are to be mounted on 11.8” (300mm) center-to-center spacing to ensure optimal uniformity of illumination. If the design requires di erent spacing, other methods of alignment may be required.

Additional runs of TILE should be placed immediately adjacent to the preceeding run.



7.3 INSTALLING PRE-CUT EXTERIOR TILES AND CUTOUTS

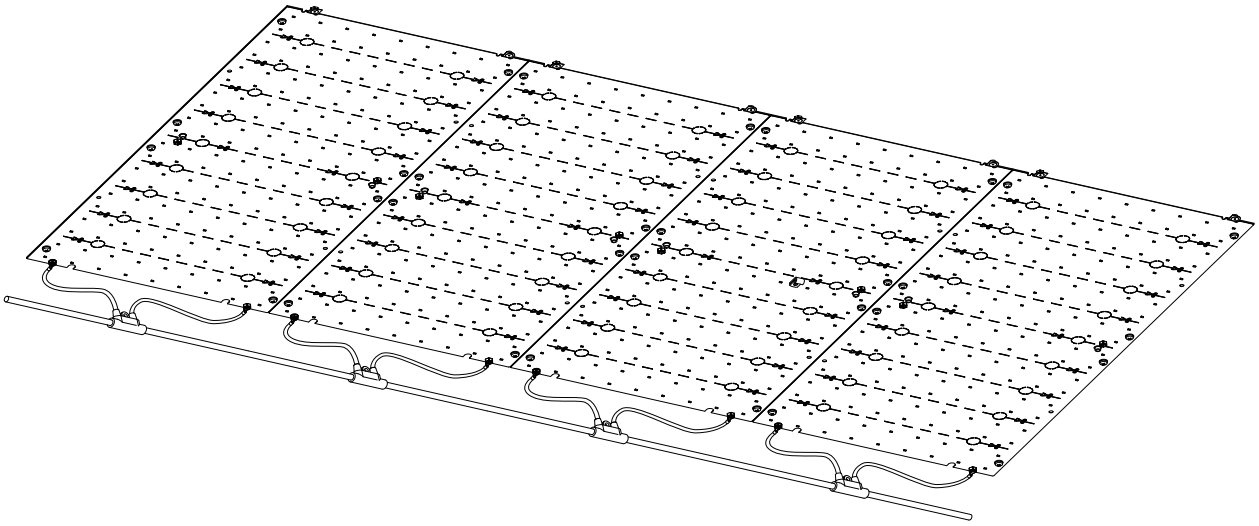
TILEs and TILE Cutouts are labeled on the back side with an identi cation number, S#### eg. S24, S36, etc. When installing any pre-cut Cooledge TILEs it is important to refer to the submittal package and identi cation label to know install locations.



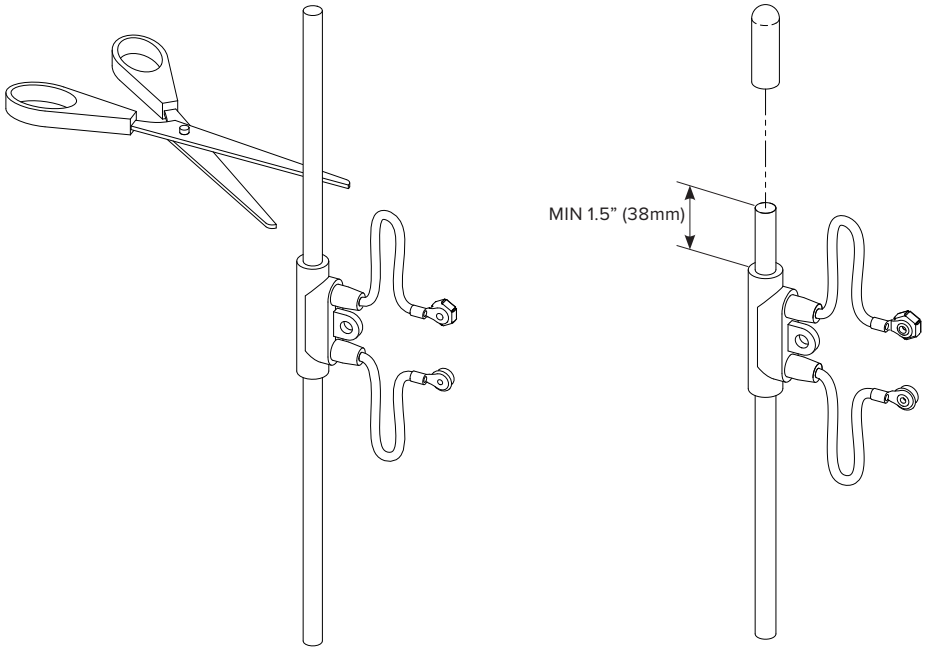
7.4 INSTALL T-CABLES

1.	Refer to the submittal package to locate the input end of the TILE runs. T-Cables are to be mounted adjacent to the input end of the sheets.
2.	T-cables are mounted with M4 (#8) screws. These cables can be installed very close to the TILE and in some cases, it may be required that the input end of the TILEs overlaps the cables.

TIP: T-Cables may be mounted either to the TILE mounting surface or to an adjacent surface if preferred.



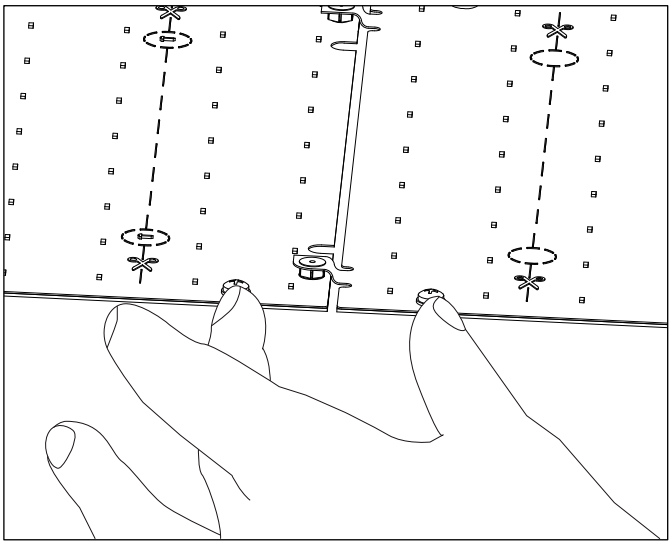
3.	At the end of the T- cable not connected to the PSU, slide on an end cap to seal of the cable. T-cables can be cut to length as required. Cutting can be done anywhere on the cables except at the T junctions, there must be at least 1.5” or 38mm of cable after the T junction for the T-cable end cap. After cutting, the end of the cable must be insulated using the T-cable end cap. Slide the end cap over the cable until the cable is fully inserted.



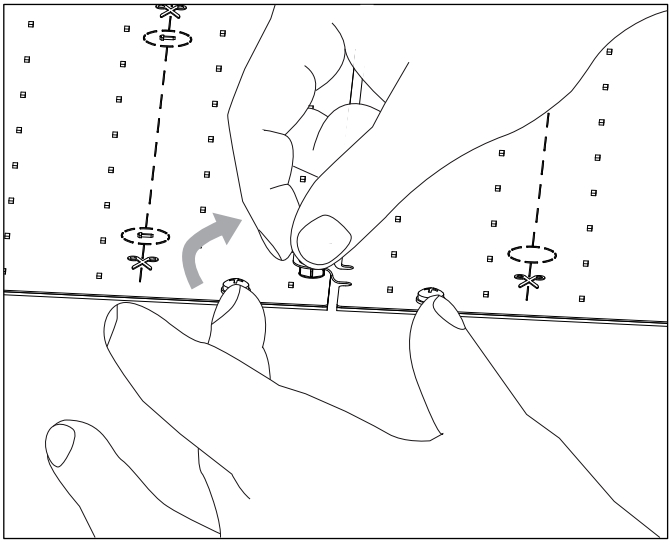
7.5 DISASSEMBLING TILES (IF REQUIRED)

⚠ Caution - the snap connectors are not intended for repeated connections. If it is necessary to separate the sheets after the snap connectors have been mated together, it can be done as follows:

1.	Use one hand to restrain the TILE sheets as shown.



2.	Grip the tab between the thumb and index nger. Gently separate the sheets while keeping the sheets restrained.

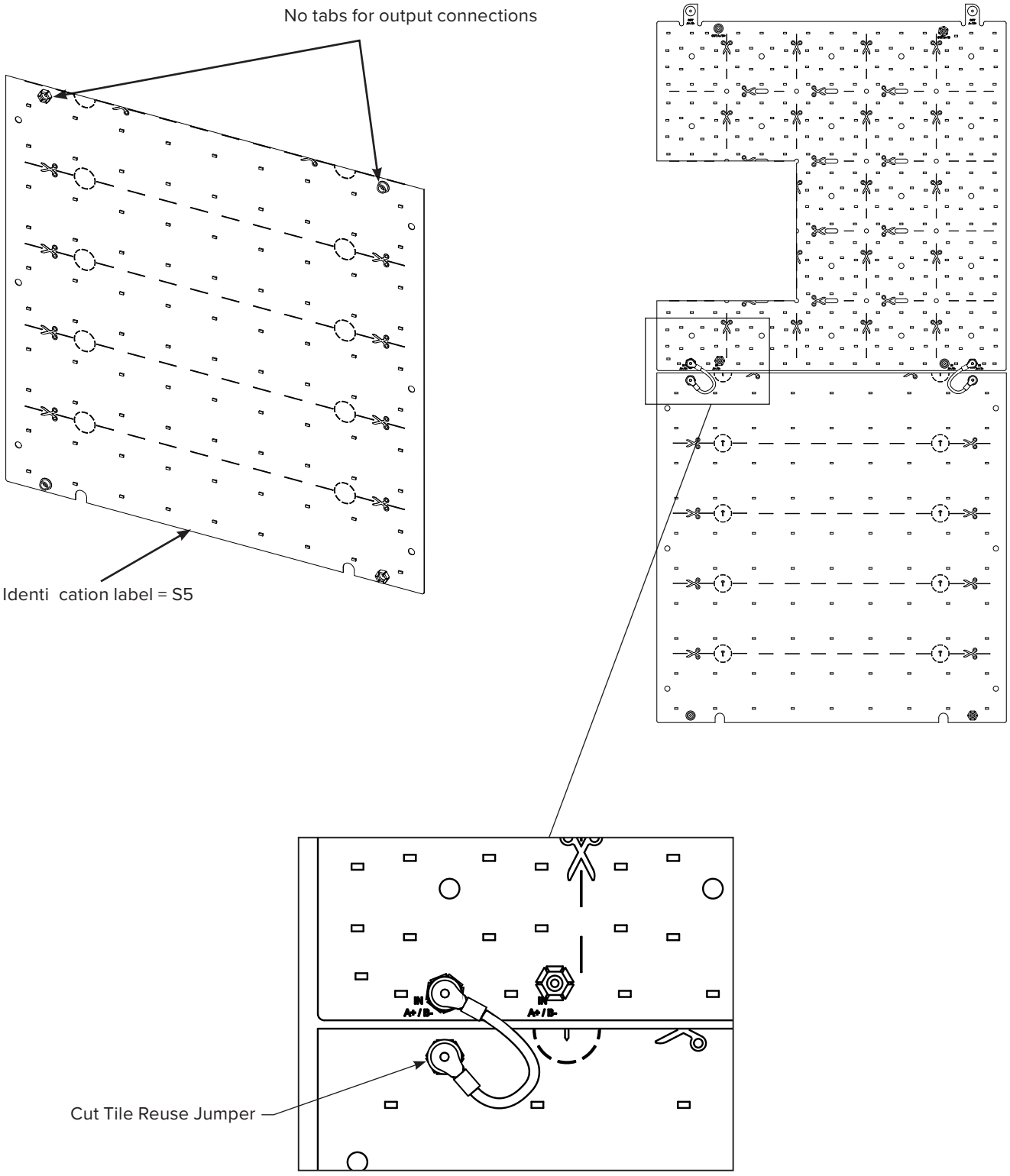


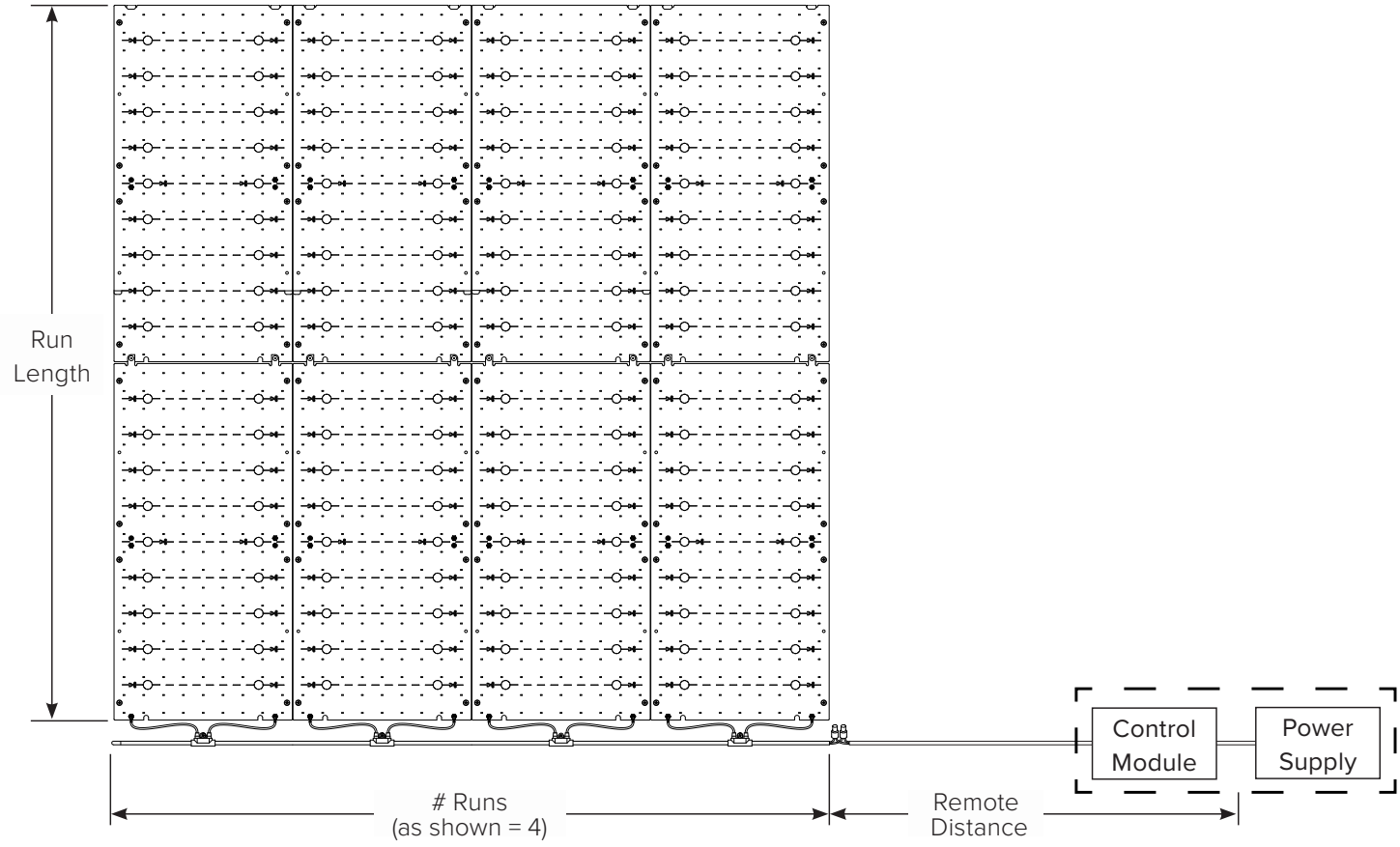
3.	Similarly, when disconnecting T-cables from the TILE Exterior, the sheet should be restrained while gently separating the connectors.

7.6 ALTERNATIVE CONNECTING (IF REQUIRED)

The output half of the TILE retains the output tabs and can be incorporated into the layout just like a standard TILE.

The input half of the TILE will have snap connectors at its output end, but no tabs. The Cut TILE Reuse Jumper cable can be used to connect these snap connectors to another light sheet.




Run
Length
Control
Module
Power
Supply
Runs
(as shown = 4)
Remote
Distance

8.1 CALCULATNG MAXIMUM RUN LENGTH

Use the following table to determine the maximum run length possible based on the number of runs, the light output of the TILEs, and the CCT for one (1) 90W channel. The values shown correspond to the nearest cut increment of the TILE.

MAXIUMUM RUN LENGTH - VALUES IN FEET												
	900lm						600lm					
# of Runs	2200K	2700K	3000K	3500K	4000K	5700K	2200K	2700K	3000K	3500K	4000K	5700K
1	N/A	11.40	12.00	12.00	12.00	12.00	13.60	14.00	14.40	14.80	14.80	14.80
2		5.50	6.00	6.20	6.20	6.20	7.80	8.30	8.90	9.00	9.00	9.00
3		3.70	3.90	4.10	4.10	4.10	5.10	5.50	5.80	6.00	6.00	6.00
4		2.70	3.00	3.00	3.00	3.00	3.90	4.10	4.40	4.40	4.40	4.40
5		2.10	2.30	2.50	2.50	2.50	3.00	3.20	3.50	3.50	3.50	3.50
6		1.80	1.90	1.90	1.90	1.90	2.50	2.70	2.80	3.00	3.00	3.00
7		1.60	1.60	1.80	1.80	1.80	2.10	2.30	2.50	2.50	2.50	2.50
8		1.20	1.40	1.40	1.40	1.40	1.90	1.90	2.10	2.10	2.10	2.10

	300lm						150lm					
# of Runs	2200K	2700K	3000K	3500K	4000K	5700K	2200K	2700K	3000K	3500K	4000K	5700K
1	19.70	20.70	21.30	21.90	21.90	21.90	27.80	28.90	29.70	30.30	30.30	30.90
2	18.30	19.30	19.70	20.10	20.10	20.30	25.80	27.00	27.60	28.00	28.00	28.50
3	10.30	11.30	12.00	12.40	12.40	12.60	21.80	25.80	26.20	26.60	26.60	27.40
4	7.80	8.50	9.00	9.40	9.40	9.40	15.40	16.80	17.70	18.20	18.20	18.80
5	6.20	6.70	7.10	7.40	7.40	7.60	12.20	13.50	14.20	14.50	14.50	15.10
6	5.10	5.70	6.00	6.20	6.20	6.20	10.30	11.20	11.90	12.20	12.20	12.40
7	4.40	4.80	5.10	5.30	5.30	5.30	8.70	9.60	10.10	10.50	10.50	10.60
8	3.90	4.30	4.40	4.60	4.60	4.60	7.60	8.30	8.90	9.00	9.00	9.40

Example 1: 3000K; 600lm/sqft; 4 Runs (as shown in the diagram above)

- Using the table, the corresponding value for this configuration is 4.4ft. This means that more than two full regular TILEs may be used without being cut for each of the 4 runs.

Example 2: 2700K; 150 lm/sqft; 4 Runs

- Using the table, the corresponding value for this configuration is 16.8ft. This means that approximately 8.5 regular TILEs may be used.

MAXIUMUM RUN LENGTH - VALUES IN M												
	900lm						600lm					
# of Runs	2200K	2700K	3000K	3500K	4000K	5700K	2200K	2700K	3000K	3500K	4000K	5700K
1	N/A	3.48	3.66	3.66	3.66	3.66	4.14	4.26	4.38	4.50	4.50	4.50
2		1.67	1.84	1.89	1.89	1.89	2.38	2.54	2.70	2.75	2.75	2.75
3		1.13	1.19	1.24	1.24	1.24	1.57	1.67	1.78	1.84	1.84	1.84
4		0.81	0.92	0.92	0.92	0.92	1.19	1.24	1.35	1.35	1.35	1.35
5		0.65	0.70	0.76	0.76	0.76	0.92	0.97	1.08	1.08	1.08	1.08
6		0.54	0.59	0.59	0.59	0.59	0.76	0.81	0.86	0.92	0.92	0.92
7		0.49	0.49	0.54	0.54	0.54	0.65	0.70	0.76	0.76	0.76	0.76
8		0.38	0.43	0.43	0.43	0.43	0.59	0.59	0.65	0.65	0.65	0.65

	300lm						150lm					
# of Runs	2200K	2700K	3000K	3500K	4000K	5700K	2200K	2700K	3000K	3500K	4000K	5700K
1	6.00	6.30	6.48	6.66	6.66	6.66	8.46	8.82	9.06	9.24	9.24	9.42
2	5.58	5.88	6.00	6.12	6.12	6.18	7.86	8.22	8.40	8.52	8.52	8.70
3	3.13	3.46	3.67	3.78	3.78	3.83	6.64	7.86	7.98	8.10	8.10	8.34
4	2.38	2.59	2.75	2.86	2.86	2.86	4.70	5.13	5.40	5.56	5.56	5.72
5	1.89	2.05	2.16	2.27	2.27	2.32	3.73	4.10	4.32	4.43	4.43	4.59
6	1.57	1.73	1.84	1.89	1.89	1.89	3.13	3.40	3.62	3.73	3.73	3.78
7	1.35	1.46	1.57	1.62	1.62	1.62	2.65	2.92	3.08	3.19	3.19	3.24
8	1.19	1.30	1.35	1.40	1.40	1.40	2.32	2.54	2.70	2.75	2.75	2.86

Example 1: 3000K; 6450lm/m^2; 4 Runs (as shown in the diagram above)

- Using the table, the corresponding value for this configuration is 1.35m. This means that approximately 2.5 full regular TILEs may be used without being cut for each of the 4 runs.

Example 2: 2700K; 1600lm/m^2; 4 Runs

- Using the table, the corresponding value for this configuration is 5.13m. This means that approximately 8.5 regular TILEs may be used.

8.2 CALCULATING REMOTE POWER & CONTROL DISTANCE

Due to a voltage drop caused by the resistance of the cable carrying power between the Power Supply/Control Module and the TILEs, there is a maximum distance from the TILEs at which the power and control units may be mounted.
The maximum distance is dependent upon the size of the conductors used and the total load (# of TILEs x power per TILE as determined by lumen rating)

Use the tables below to determine the size of the conductors required to achieve the maximum "remote distance" – the distance between the Control Module and TILEs if the Control Module is located near the power supply OR the total distance between the Power Supply and TILEs if the Control Module is located near the TILEs.

MAXIMUM REMOTE DISTANCE - TILE 150LM (VALUES IN FT)

	Con guration (# Runs x Maximum Length per Run)							
Conductor Size (AWG)	1 x max length (ft)	2 x max length (ft)	3 x max length (ft)	4 x max length (ft)	5 x max length (ft)	6 x max length (ft)	7 x max length (ft)	8 x max length (ft)
16	15	16	16	33	44.5	50.5	53	54
14	24	25	26	53	71	80.5	84.5	86
12	38.5	40	41	84	113	128.5	134	137
10*	61.5	64	65.5	134	180	204.5	213.5	217.5

MAXIMUM REMOTE DISTANCE - TILE 300LM (VALUES IN FT)

	Con guration (# Runs x Maximum Length per Run)				
Conductor Size (AWG)	1 x max length (ft)	2 x max length (ft)	3 x max length (ft)	4 x max length (ft)	5 x max length (ft)
16	13	13	38.5	51.5	57
14	20.5	21	61.5	82	91
12	33	33.5	97.5	130.5	144.5
10*	52.5	53.5	155	207.5	230

MAXIMUM REMOTE DISTANCE - TILE 600LM (VALUES IN FT)

	Con guration (# Runs x Maximum Length per Run)			
Conductor Size (AWG)	1 x max length (ft)	2 x max length (ft)	3 x max length (ft)	4 x max length (ft)
16	14	38.5	58	64
14	22.5	61.5	92.5	102
12	35.5	98	147.5	162.5
10*	57	156.5	234.5	258.5

MAXIMUM REMOTE DISTANCE - TILE 900LM (VALUES IN FT)

	Con guration (# Runs x Maximum Length per Run)			
Conductor Size (AWG)	1 x max length (ft)	2 x max length (ft)	3 x max length (ft)	4 x max length (ft)
16	11.5	49.5	63	66
14	18.5	79	100.5	105.5
12	29.5	125.5	160	167.5
10*	47	199.5	254.5	267

*The control module accepts wire gauges in the range of 12-26AWG. The 10AWG numbers in the chart are based on connecting on short length of 12AWG wire to the control module and then splicing on a subsequent length of 10AWG wire to supply the TILEs.

Example

- Required "remote distance" = 50ft
- TILE Light Output = 600lm/sqft
- # Runs = 3 (assumes maximum run length)

Therefore, conductor size required = 14AWG (or larger)

MAXIMUM REMOTE DISTANCE - TILE 150LM (VALUES IN M)

	Con guration (# Runs x Maximum Length per Run)							
Conductor Size (mm2)	1 x max length (m)	2 x max length (m)	3 x max length (m)	4 x max length (m)	5 x max length (m)	6 x max length (m)	7 x max length (m)	8 x max length (m)
1.3	4.6	4.9	4.9	10.1	13.6	15.4	16.2	16.5
2.1	7.3	7.6	7.9	16.2	21.6	24.5	25.8	26.2
3.3	11.7	12.2	12.5	25.6	34.4	39.2	40.8	41.8
5.3	18.7	19.5	20	40.8	54.9	62.3	65.1	66.3

MAXIMUM REMOTE DISTANCE - TILE 300LM (VALUES IN M)

	Con guration (# Runs x Maximum Length per Run)				
Conductor Size (mm2)	1 x max length (m)	2 x max length (m)	3 x max length (m)	4 x max length (m)	5 x max length (m)
1.3	4	4	11.7	15.7	17.4
2.1	6.2	6.4	18.7	25	27.7
3.3	10.1	10.2	29.7	39.8	44
5.3	16	16.3	47.2	63.2	70.1

MAXIMUM REMOTE DISTANCE - TILE 600LM (VALUES IN M)

	Con guration (# Runs x Maximum Length per Run)			
Conductor Size (mm2)	1 x max length (m)	2 x max length (m)	3 x max length (m)	4 x max length (m)
1.3	4.3	11.7	17.7	19.5
2.1	6.9	18.7	28.2	31.1
3.3	10.8	29.9	45	49.5
5.3	17.4	47.7	71.5	78.8

MAXIMUM REMOTE DISTANCE - TILE 900LM (VALUES IN M)

	Con guration (# Runs x Maximum Length per Run)			
Conductor Size (mm2)	1 x max length (m)	2 x max length (m)	3 x max length (m)	4 x max length (m)
1.3	3.5	15.1	19.2	20.1
2.1	5.6	24.1	30.6	32.2
3.3	9	38.3	48.8	51.1
5.3	14.3	60.8	77.6	81.4

*The control module accepts wire sizes in the range of 0.13mm^2 to 3.3mm^2. The 5.3mm^2 numbers in the chart are based on connecting on short length of 3.3mm^2 wire to the control module and then splicing on a subsequent length of 5.3mm^2 wire to supply the TILEs.

Example

- Required “remote distance” = 15m
- TILE Light Output = 6450lm/m^2
- # Runs = 3 (assumes maximum run length)

Therefore, conductor size required = 3.3mm^2 (or larger)

COOLEDGE CABLES

– Cooledge supplies Starter Cables 16AWG (1.3mm^2) of length = 10ft (3m). These cables can also be purchased individually.

– 14AWG (1.5mm^2) extension cables in 10’(3m) and 20’(6m) lengths are also available.

– Other cable sizes (if required) are supplied by installer.

9.0 TROUBLESHOOTING

If the TILE Interior does not illuminate when power is applied:

– Check to ensure all electrical connections have been made.

If a single LED or one (1) section of LEDs on a TILE does not illuminate:

– The circuit for those LEDs has likely been damaged and the TILE Interior should be replaced.

10.0 PRODUCT SUPPORT

Contact Cooledge Technical Support at:

E: apps.engineering@cooledgelighting.com
O: +1.781.899.0317
T: 1.844.455.4448 (toll free – North America)

11.0 WARRANTY

Cooledge warrants that the products manufactured, distributed or sold by it will:

1.	Be free of any claim of ownership by third parties.
2.	Be conforming to the Speci cations and free from defects in materials and workmanship under normal use, handling, warehousing and service.

The warranty period speci ed in the Cooledge Warranty Terms and Conditions for the products will be for a period of ve (5) years from the shipment date of any products sold by Cooledge.

CE

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5 YEAR WARRANTY 5 5 YEAR WARRANTY

5 Year Limited Warranty:
Parts and workmanship

Cooledge Lighting Inc.
120-13551 Commerce Parkway
Richmond, BC V6V 2L1 Canada

O +1 6 04 273 2 665
F +1 6 04 273 2 660
T +1 8 44 455 4448
W cooledgelighting.com