Acrich
semiconductor eco lighting

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RoHS

Preliminary

Specification

Acrich2 – Candle

8.7W

SMJC-3V08W2P4

SSC		Customer
Drawn	Approval	Approval

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Acrich2 - 8.7W Candle

Acrich2

Description

The Acrich 2 series, which are designed for AC drive(or operation), do not need the standard converter essential for a conventional general lighting product.

The modules also have a high power factor which can contribute to high energy savings in many lighting applications.

Since there is no need for a converter, the Acrich 2 series life-time can be estimated

closer to the LED because it is not as dependent on the other electronics in the system.

It also allows for better utilization of space without the converter.

Features

• Connect using a AIC directly to AC power
• High Power Efficiency
• High Power Factor
• Low THD
• Long Life Time
• Simplest BOM
• Miniaturization
• Lead Free product
• RoHS compliant

Applications

• Candle light
• Pendant

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1. Characteristics of 8.7W

1-1-1. Electro-Optical characteristics of SMJC-3V08W2P4 − 2700K

Parameter	Symbol	Value			Unit
		Min	**Typ**	**Max**	
Luminous Flux [1][2]	Φ_V [3]	610	660		lm
Correlated Color Temperature [4]	CCT		2700		K
CRI	R_a	80	-	-	-
Operating Voltage [5]	v_{opt}		220		V[RMS]
Power Dissipation	P_D		8.7		W
Operating Frequency	Freq		50 / 60		Hz
Power Factor	PF		Over 0.97		-
View Angle	2Θ 1/2		120		deg.

1-1-2. Electro-Optical characteristics of SMJC-3V08W2P4 − 3000K

Parameter	Symbol	Value			Unit
		Min	**Typ**	**Max**	
Luminous Flux [1][2]	Φ_V [3]	620	670		lm
Correlated Color Temperature [4]	CCT		3000		K
CRI	R_a	80	-	-	-
Operating Voltage [5]	v_{opt}		220		V[RMS]
Power Dissipation	P_D		8.7		W
Operating Frequency	Freq		50 / 60		Hz
Power Factor	PF		Over 0.97		-
View Angle	2Θ 1/2		120		deg.

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1-2 Absolute Maximum Ratings of 8.7W Candle

Parameter	Symbol	Value	Unit
Max. Voltage	v_{opt}	264	V[RMS]
Power Dissipation	P_d	11.5	W
Operating Temperature	T_{opr}	-30 ~ 85	ºC
Storage Temperature	T_{stg}	-40 ~ 100	ºC
ESD Sensitivity	-	±4,000V HBM	-

* Notes :
 [1] At 220V RMS, Ta=25ºC
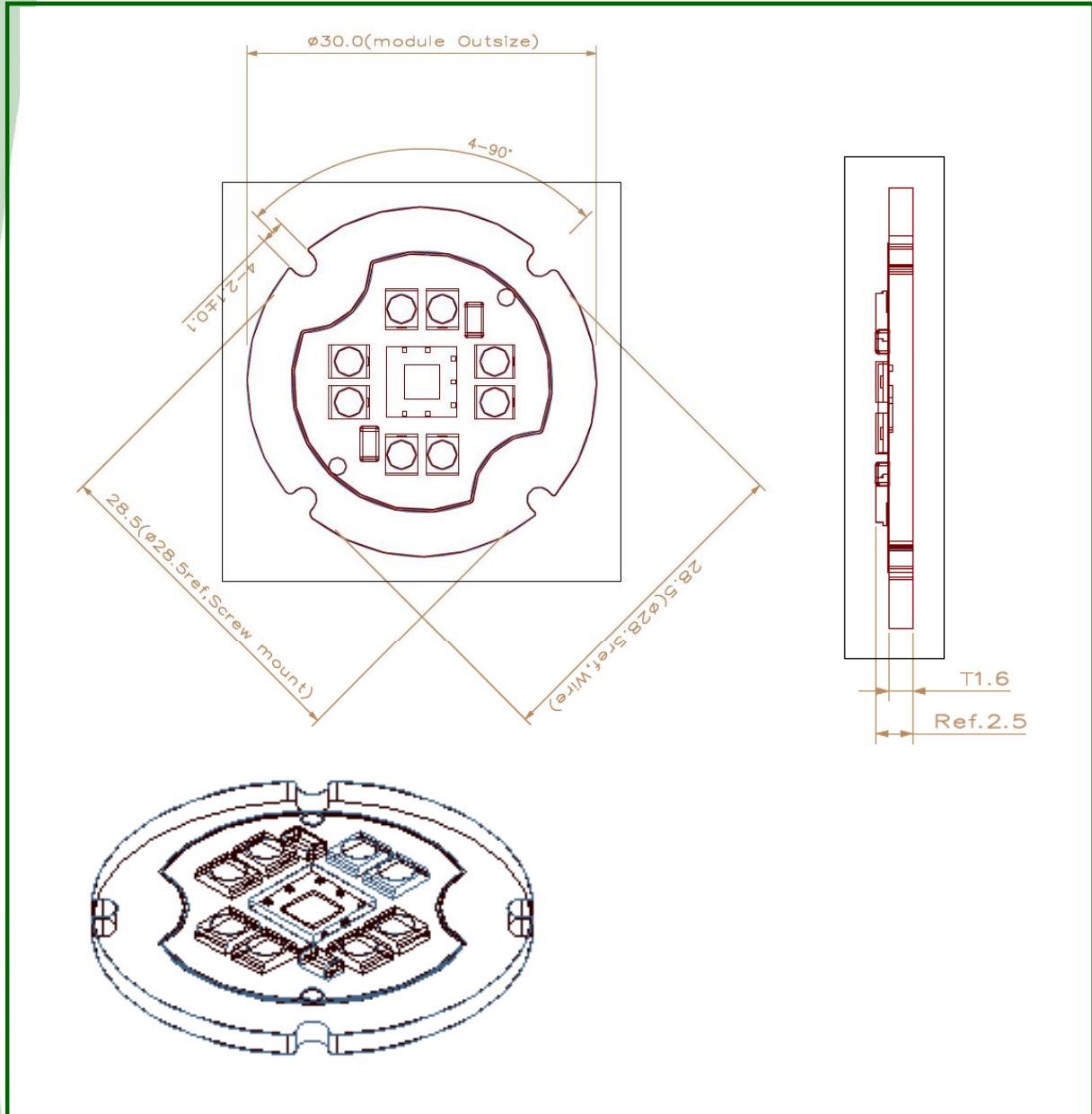 [2] Acrich 2 series maintain the tolerance of 10% on flux and power measurements.
 [3] Φ_V is the total luminous flux output measured with an integrated sphere.
 [4] Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.
 [5] Operating Voltage doesn't indicate the maximum voltage which customers use but
    means tolerable voltage according to each country's voltage variation rate.
    It is recommended that the solder pad temperature should be below 70℃.

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2. Outline Dimensions

Ø30.0(module Outsize)

4~90°

28.5(ø28.5ref.Screw mount)

28.5(ø28.5ref.Wire)

T1.6

Ref.2.5
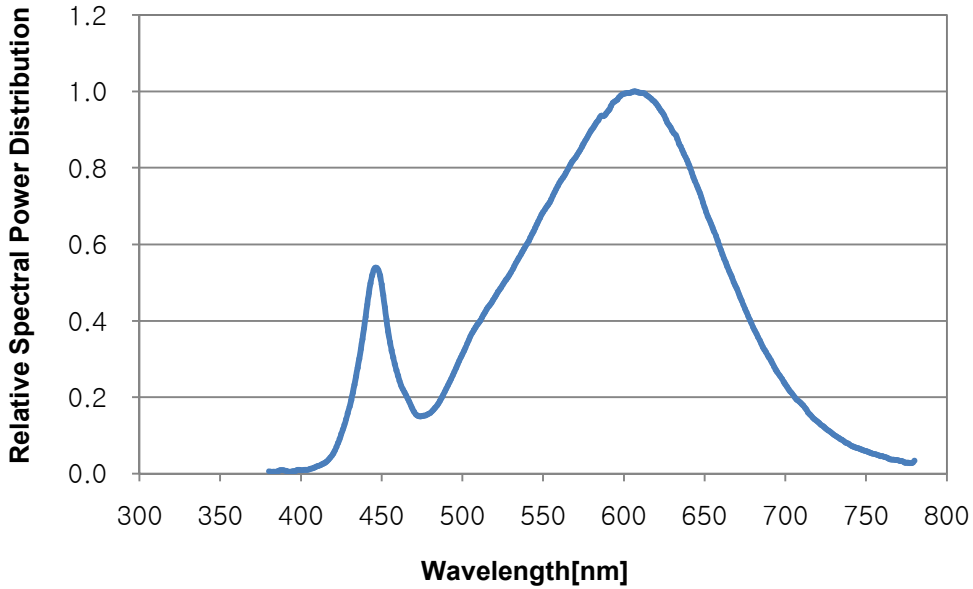
* Notes :

[1] All dimensions are in millimeters.
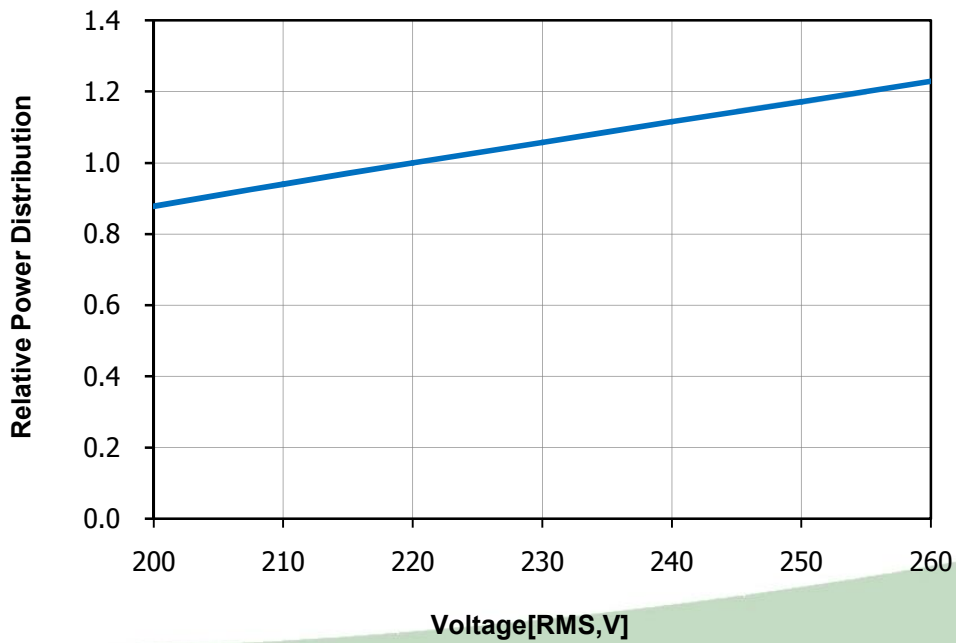[2] Scale : none

3. Color spectrum

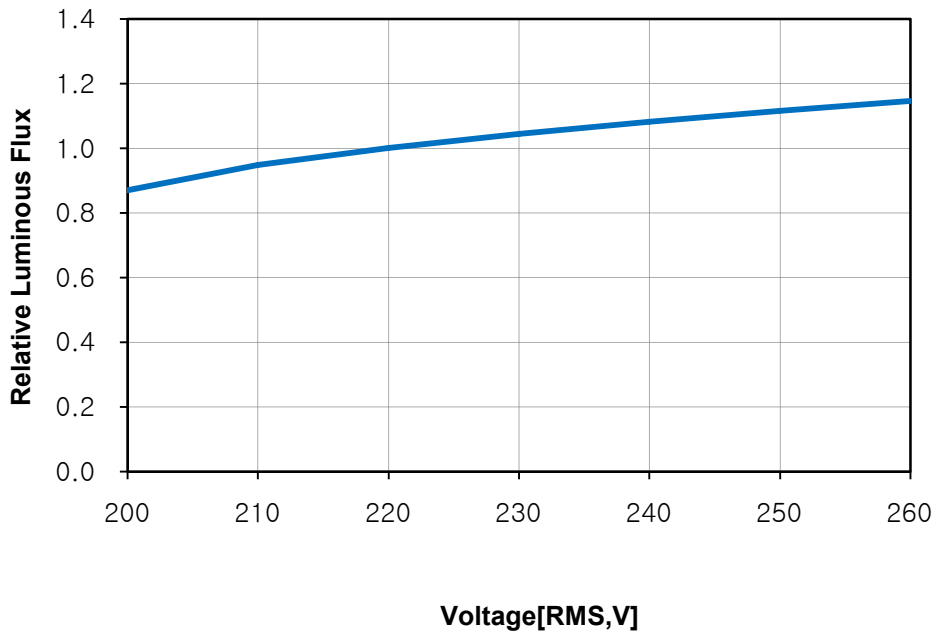**Relative Spectral Power Distribution at Ta=25℃ - 2700K, 3000K**

4. Power characteristics
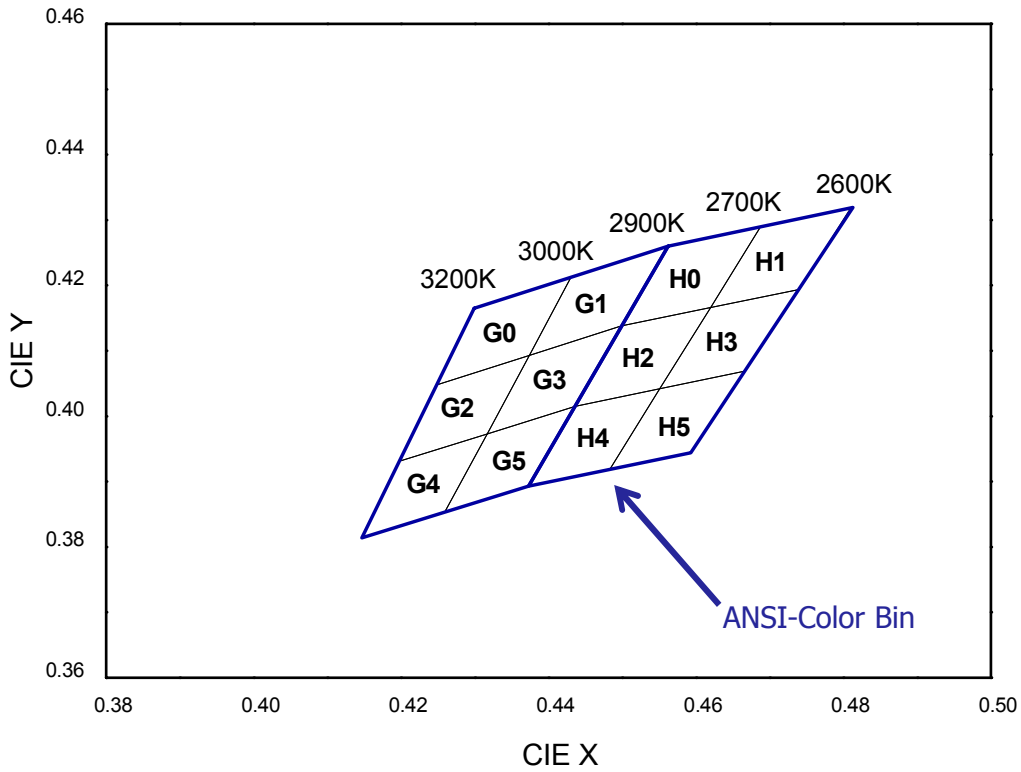
Relative Power Distribution vs. Voltage at Ta=25℃

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Relative Luminous Flux vs. Forward Voltage at Ta=25℃

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5. Color & Binning

▷ **COLOR RANK**

Bin code	X	Y	Bin code	X	Y	Bin code	X	Y
G0	0.4299	0.4165	G1	0.4430	0.4212	G2	0.4248	0.4048
	0.4248	0.4048		0.4374	0.4093		0.4198	0.3931
	0.4374	0.4093		0.4499	0.4138		0.4317	0.3973
	0.4430	0.4212		0.4562	0.4260		0.4374	0.4093
G3	0.4374	0.4093	G4	0.4198	0.3931	G5	0.4317	0.3973
	0.4317	0.3973		0.4147	0.3814		0.4259	0.3853
	0.4436	0.4015		0.4259	0.3853		0.4373	0.3893
	0.4499	0.4138		0.4317	0.3973		0.4436	0.4015
H0	0.4562	0.4260	H1	0.4687	0.4289	H2	0.4499	0.4138
	0.4499	0.4138		0.4620	0.4166		0.4436	0.4015
	0.4620	0.4166		0.4740	0.4194		0.4551	0.4042
	0.4687	0.4289		0.4810	0.4319		0.4620	0.4166
H3	0.4620	0.4166	H4	0.4436	0.4015	H5	0.4551	0.4042
	0.4551	0.4042		0.4373	0.3893		0.4483	0.3919
	0.4666	0.4069		0.4483	0.3919		0.4593	0.3944
	0.4740	0.4194		0.4551	0.4042		0.4666	0.4069

* Measurement Uncertainty of the Color Coordinates : ± 0.01

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6. Circuit Drawing

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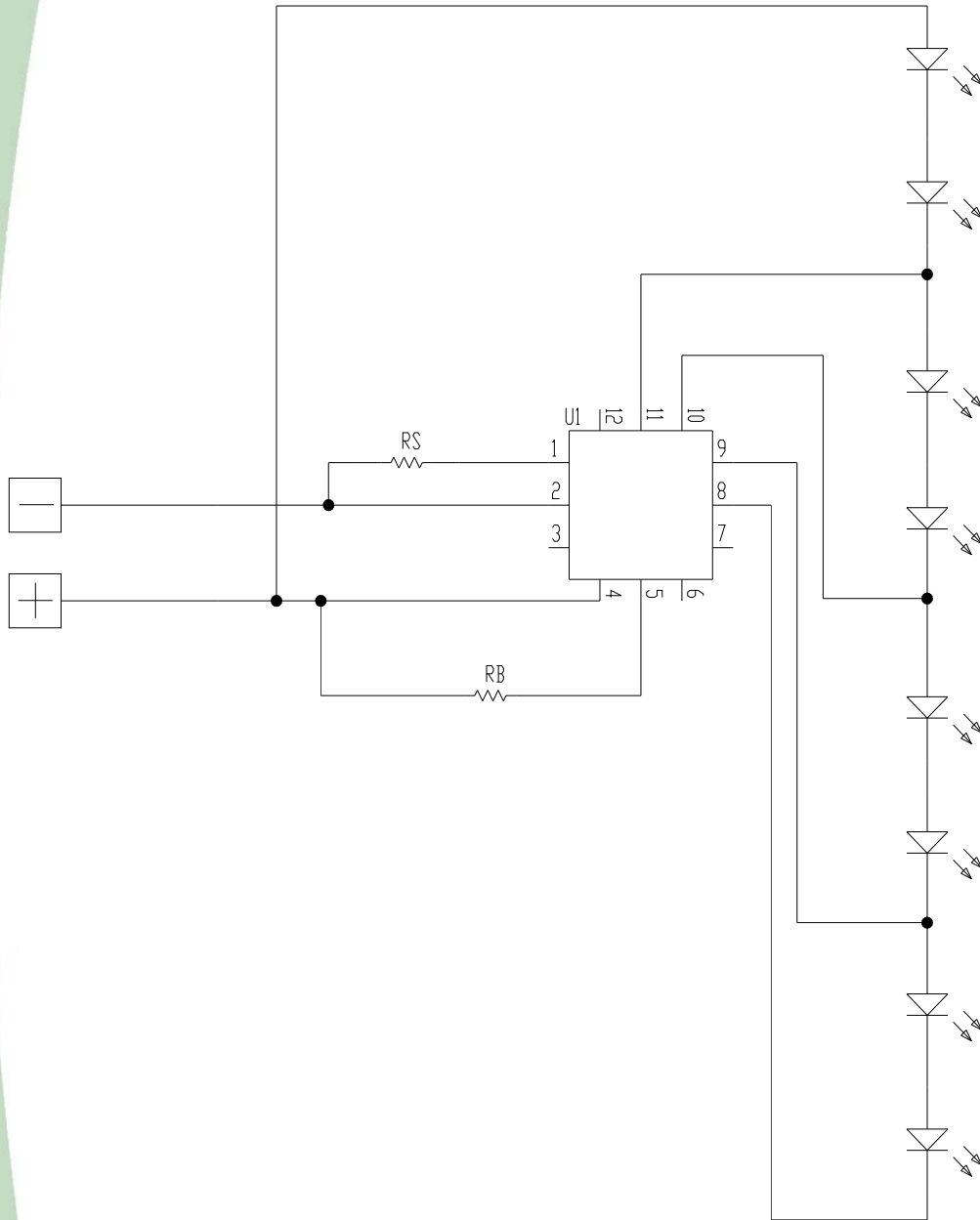
7. Usage precautions

• Please review the Acrich2 Module Application Note for protective circuitry component usage.

•Please note, the Acrich products run on high voltage so use caution when near the device which the circuit is active.

•DO NOT touch any of the circuit board, components or terminals with body or metal while circuit is active.

•Please do not add or change wires while Acrich circuit is active

• Long time exposure of sunlight or occasional UV exposure will cause lens discoloration.

• Please do not use adhesives to attach the LED that outgas organic vapor.

• Please do not use together with the materials containing Sulfur

• Please do not assemble under the condition of moisture and oxidizing gas in the air(Cl, H2S,NH3,SO2,NOX,etc)

• Please do not make any modification on module.

• Please be cautious as soldering in order to avoid short between different patterns.

8. Handling of silicone resin for LEDs

•Acrich series is encapsulated with silicone resin for high optical efficiency.

•Please do not touch the silicone resin area with sharp objects such as pincette(tweezers).

•Finger prints on silicone resin area may affect the performance.

•Please store LEDs in covered containers as it is dust sensitive.

•Excessive force more than 3000gf to the silicone lens can result in fatal or permanent damage with LEDs.

•Please do not cover the silicone resin area with any other resins such as epoxy, urethane, etc.

9. Handling with regards to static electricity

• The Acrich2 modules use an integrated circuit (IC) which can be damaged
  when exposed to static electricity. Please handle using equipment that
  prevents static electricity. Do not touch unless ESD protection is used.
• The Acrich2 modules should also not be installed in end equipment with out
  ESD protection.

10. Storage before use

• Do not impact or place pressure on this product because even a small
amount of pressure can damage the product. The product should also not be
placed in high temperatures, high humidity or direct sunlight since the device is
sensitive to these conditions.

  - Please, confirm to next lists, when storing it in a long term.
      *It should be stored in the anti-static bag that Seoul-Semiconductor packed
        without opening it.
      * If you opened it in order to prevent humidity, you should seal it and not let
        the air and humidity into the bag.

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11. Guidelines for Acrich module work

- Discharge the lighting system minimum 2~3 times prior to starting work.
- Use only the tested instruments, and insulated tools rated for the voltage and current specified.
- Wear rubber made gloves and rubber bottom shoes or sneakers.
- Do not wear any conductive items (such as jewelry) which could accidentally contact electric circuits.
- Perform several tests with power off and the lighting system unplugged.
- Faults, lightning, or switching transients can cause voltage surges in excess of the normal ratings.
- Internal component failure can cause excessive voltages.
- Stored or residual electricity in long wire could be hazardous. Make sure proper discharge prior to starting work.