

# **USCI-PRO**

#### **Highlights & Features**

- Constant current design
- Universal AC input voltage from 108-305Vac
- High efficiency up to 94%
- Wide operating temperature range -40°C ~ +55°C
- Built-in Active PFC and conforms to harmonic current IEC/EN 61000-3-2, Class C
- Adjustable constant current level through program tool
- Common mode 6kV and differential mode 6kV surge immunity
- Suitable for Dry / Damp location
- UL LISTED, Class P & Type HL

#### **Safety Standards**



CB Certified for worldwide use

#### **General Description**

Delta LED drivers come in different series to suit different application needs. The USCI-PRO series features program output current level. All the models come in metal casing and major international safety certifications. USCI-PRO series offers the capability to achieve different level of LED brightness via built-in 0-10V dimming function to meet various application and energy optimization needs. The products are designed and rigorously tested to work with various indoor and outdoor LED lighting conditions. Featuring high surge immunity (CM: 6kV, DM: 6kV) and complying to IP52 make Delta USCI-PRO series an essential part of an energy efficient LED lighting power solution for both indoor and outdoor applications.

#### **Model Information**

Model Number	Input Voltage Range	Output Voltage	Program Output Current Range	Constant Power Current Range
USCI-075140GA	120-277Vac Typical (108-305Vac) Range	36-107Vdc	500 – 1400mA	700 – 1400mA
USCI-100140GA		47-143Vdc	600 – 1400mA	700 – 1400mA
USCI-150140GC		72-214Vdc	600 – 1400mA	700 – 1400mA
USCI-200140GA		75-190Vdc	600 – 1400mA	1050 – 1400mA
USCI-200175GA		56-133Vdc	700 – 1750mA	1500 – 1750mA
USCI-200175GLA		56-133Vdc	700 – 1750mA	1500 – 1750mA

#### **Model Numbering**

USCI –			G	A/C ,LA
LED Driver	Output Power 075: 75W 100: 100W 150: 150W 200: 200W	Maximum Output Current 140: 1400mA 175: 1750mA	Dimming Type G – Programmable	Variable A or C– 0-10V DIM & +12V/50mA LA: DALI + 12V/100mA (Note: USCI-200175GLA without 12V/100mA)



#### **Specifications**

Model Number		USCI- 075140GA	USCI- 100140GA	USCI- 150140GC	USCI- 200140GA	USCI- 200175GA	USCI- 200175GLA			
Input Ratings / Characteristics										
Nominal Inpu Voltage	ut	120-277Vac (108-305Vac)								
Nominal Inpu Frequency	ut	50-60Hz (47-64H	z)							
Power Facto	r	Full Load: PF>0.9 >70% Load: PF>		.95@230Vac, PF>	0.92@277Vac					
Total Harmo Distortion	nic	THD<20% with lo	oad≧50% at 120/23	0Vac input and loa	d≧75% at 277Vac i	input				
Maximum Input Current	120V ac	0.78A	1.04A	1.53A	2.1A	2.1A	2.1A			
Efficiency <sup>1</sup> at 100%	120V ac	91.0%@0.7A	91.0%@0.7A	91.5%@0.7A	92.0%@1.05A	92% @ 1.5A	92% @1.5A			
Load (Typical)	230V ac	92.5%@0.7A	92.5%@0.7A	93.0%@0.7A	94.0%@1.05A	93.5% @1.5A	93.5% @1.5A			
	277V ac	92.5%@0.7A	92.5%@0.7A	93.0%@0.7A	94.0%@1.05A	93.5% @1.5A	93.5% @1.5A			
Inrush Current (Cold Start) @277Vac, I_Peak & T_width		80A/250uS	80A/250uS	130A/250uS	200A/250uS	200A/250uS	200A/250uS			
Max.	B16	8	8	5	4	4	4			
No.of drivers MCB at 230Vac	C16	14	12	8	6	6	6			
Leakage Cu	rrent	<0.7mA peak @ 277Vac								
Standby Pov	ver	<0.5W @ Dim to	off & 230Vac							
Input Over-voltage		Can survive input over-voltage stress of 320VAC for 48 hours and 350VAC for 2 hours								

1. Efficiency tested after 30 minutes warm up.

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#### **Specifications**

Model Number	USCI- 075140GA	USCI- 100140GA	USCI- 150140GC	USCI- 200140GA	USCI- 200175GA	USCI- 200175GLA			
Output Ratings / Characteristics									
Output Power	75W 100W 150W 200W 200W								
Output Voltage	36-107Vdc	36-107Vdc 47-143Vdc 72-214Vdc 75-190Vdc 56-133Vdc							
Max. No Load Output Voltage	120Vrms	150Vrms	50Vrms 250Vrms 230Vrms 160Vrms		160Vrms				
Adjustable Output	500-1400mA	600-1400mA	600-1400mA	600-1400mA	700 – 1750mA	700 – 1750mA			
Current (AOC)	With steps of 1 mA, configurable via software								
Minimum Output Current	100mA (Min dim level) 70mA (Min dim level)								
Current Accuracy	± 5% (@ Typical	output current rang	ge)						
Line / Load Regulation	$\pm$ 1% (@ 120-277Vac input) / $\pm$ 3% (@ Min-Max output voltage)								
Output Current LF Ripple	5% (ripple = peak-average/average)								
Start-up Time	500ms max. @ 120-277Vac (full load), (1000ms max for USCI-200175GLA)								
Hold-up Time	16ms typ. @ 120-277Vac (full load)								

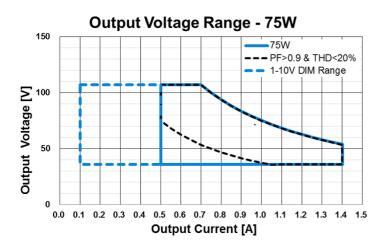
1. Efficiency tested after 30 minutes warm up.

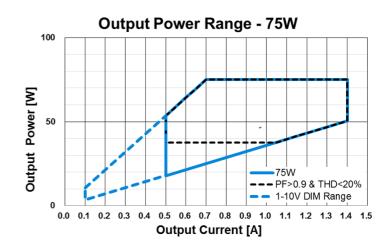
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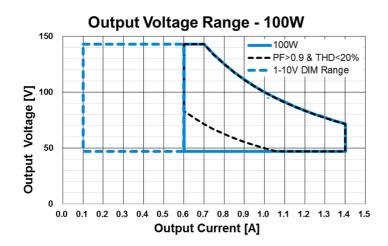


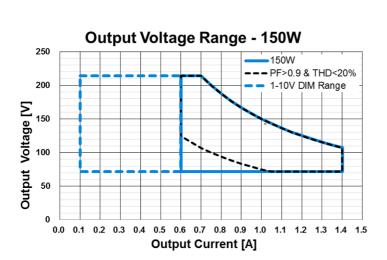
3 <u>www.deltaww.com</u> (May 10, 2020, Rev. 03)

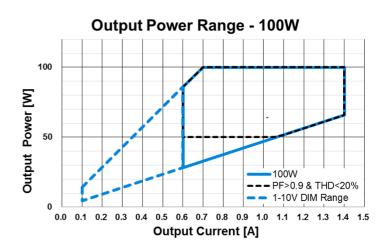
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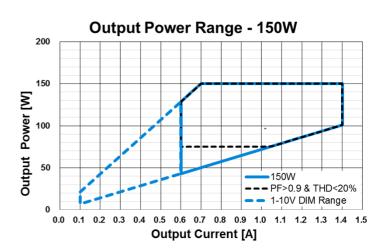






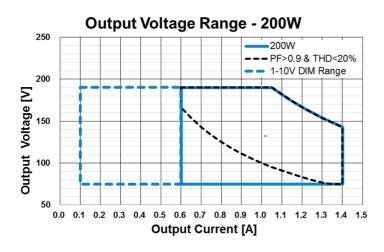




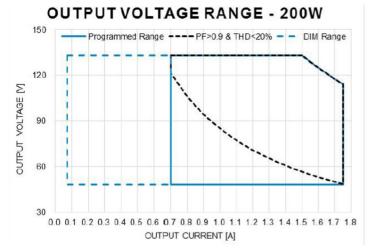


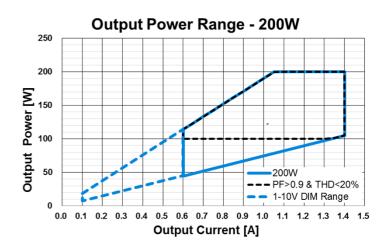
#### **Operational Window**

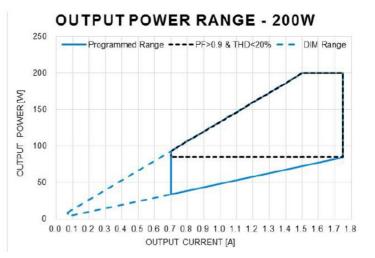
#### USCI-200140GA



#### USCI-200175GA / USCI-200175GLA









#### **Specifications**

Specification	pecifications									
Model Number		USCI- 075140GA	USCI- 100140GA	USCI- 150140GC	USCI- 200140GA	USCI- 200175GA	USCI- 200175GL/			
Mechanical										
Casing		Steel case, color : Black								
Dimensions (L > mm	(W x D) inch	6.6"x2.36"x1.5"9.5"x2.36"x1.5"167.5x60.0x37.5240.5x60.0x38.0								
Unit Weight (gra	am)	730		1100						
Noise (30cm dis	stance)	Sound Pressur	e Level (SPL) < 24	dbA						
Wire	Input	L: Black, N: Wh	nite; UL1316 18AW	/G solid copper wire	s Length 300mm					
	Output			C/PRG: Black; wire USCI-200175GLA;		Imm				
	Dimming			V: Black/White; wire CI-200175GLA; wir						
Environment										
Ambient	Operating	-40°C to +65°C	(+55deg for full loa	ad and +65deg for d	e-rating)					
Temperature	Storage	-40°C to +85°C								
Maximum Case	Temperature	+85°C	+80°C	+85°C	+90°C					
Power De-rating		> 55°C de-rating power & < 120Vac de-rating power "OUTPUT LOAD VS INPUT VOLTAGE" & "OUTPUT LOAD VS AMBIENT TEMPERATURE"								
Humidity	Operating	10 to 90% RH (	(Non-Condensing)							
	Storage	5 to 95% RH (N	Non-Condensing)							
Shock Test (No	n-Operating)	IEC 60068-2-27, Half Sine Wave: 50G for a duration of 11ms, 3 shocks for each 3 directions								
Vibration (Non-0	Operating)	IEC 60068-2-6, Random: 5Hz to 500Hz (2.09G); 20 min per axis for all X, Y, Z direction								
Protections										
Over Voltage		108-120Vdc	144-160Vdc	215-250Vdc	191-230Vdc	56-133Vdc				
		Auto-Recovery when the fault is removed								
Over Load		Reduce output current. Auto-Recovery when the fault is removed								
Over Temperati	ure	Reduce output current. Auto-Recovery when the fault is removed								
Output Short Circuit		Auto-Recovery when the fault is removed								
Suitable for Lun	ninaires Class	Class II. Insulation Class according to IEC60598								
Reliability Data										
Lifetime 50,000 hours at case temp. tc= +75°C & full load. Refer to "LIFETIME VS CASE "LIFETIME VS AMBIENT TEMPERATURE"						VS CASE TEMP	PERATURE"			
MTTF		500 khours at +	-45°C ambient tem	perature, Telcordia	SR-332.					
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#### **Specifications**

Specifica											
Model Number		USCI- 075140GA	USCI- 10014		USCI- 150140GC	USCI- 200140GA	USCI- 200175GA	USCI- 200175GLA			
Certificate	s and standards	•									
Safety		EN 61347-1, EN UL/cUL (cRUus Compliance to I SELV for 75W	CB scheme to IEC 61347-1, IEC 61347-2-13 (Built-in) EN 61347-1, EN 61347-2-13 UL/cUL (cRUus) to UL 8750 Compliance to IEC/EN/UL 60950-1 SELV for 75W UL LISTED, Class P & Type HL								
CE		In conformance	with EN	IC Direc	ctive 2004/108/E0	C and Low Voltage	e Directive 2006/	95/EC			
Galvanic Isolation		Mains (Input)		Earth	(Case)	Output/PROG	DIM - (Or D	-/- & +12V ALI)			
	Mains (Input)	N/A		3750	V	3750V	3750	V			
	Earth (Case)	3750V		N/A		3750V	3750	V			
	Output/PROG	3750V		3750V		N/A	1875	V			
	DIM +/- & +12V (Or DALI)	3750V		3750V		1875V	N/A				
EMC Com	pliance										
EMC / Emis	sions	Compliance to EN 55015:2013 Class B; 47 CFR FCC Part 15, Subpart B, Class B									
Immunity to		Compliance to EN 61547:2009									
Electrosta	atic Discharge	IEC 61000-4-2:2008 ED.2.0				ESD, Criteria A <sup>1</sup> or B <sup>2</sup> Air Discharge: 8kV Contact Discharge: 4kV					
Radiated	Field	IEC 61000-4-3:2010 ED.3.2				RS, Criteria A <sup>1</sup> 80MHz-1GHz, 3V/m with 1kHz Sine Wave / 80% AM Modulation					
Electrical Burst	Fast Transient /	IEC 61000-4-4:2012 ED.3.0			EFT, Crite	EFT, Criteria A <sup>1</sup> or B <sup>2</sup> 1kV					
Surge		IEC 61000-4-5:2014 ED.3.0			6kV,1.2/5	Criteria A <sup>1</sup> or B <sup>2</sup> Common Mode <sup>3</sup> : 6kV; Differential Mode <sup>4</sup> : 6kV,1.2/50µs, 8/20µs Combination Wave with 20hms (L-N), 120hms (L-PE & N-PE) source impedance					
Conducte	d	IEC 61000-4-6:2013 ED.4.0			CS, Crite	CS, Criteria A <sup>1</sup> 150kHz-80MHz, 3Vrms					
Power Frequency Magnetic Fields		IEC 61000-4-8:2009 ED.2.0		PFMF, C	PFMF, Criteria A <sup>1</sup> 3A/Meter						
Voltage Dips		IEC 61000-4-11:2004 ED.2.0			Criteria A <sup>1</sup> or B <sup>2</sup> ; 100% dip; 0.5 cycle; Self Recoverable 30% dip; 10 cycle; Self Recoverable						
Harmonic C	urrent Emission	IEC 61000-3-2:2014			Class C (	Class C (230Vac @ ≥ 50% load)					
Voltage Fluc	tuation & Flicker	IEC 61000-3-3:	2013								
1 Criteria	A · Normal performanc	e within the specific	ation limi	ts							

1. Criteria A: Normal performance within the specification limits

2. Criteria B: Temporary degradation or loss of function which is self-recoverable

3. Asymmetrical: Common mode (Line to earth)

4. Symmetrical: Differential mode (Line to line) All information and specifications are subject to change without prior notice. All parameters are specified at 25°C ambient unless otherwise indicated. 7



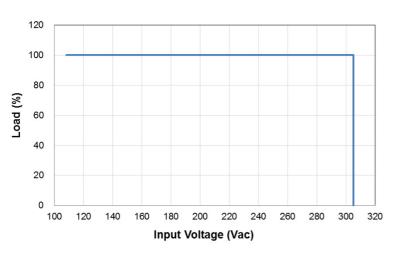


#### **Specifications**

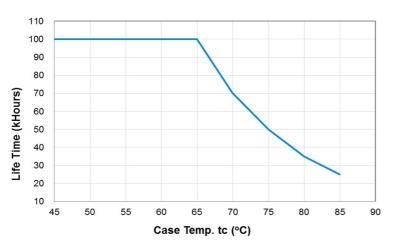
Model Number	USCI- 075140GA	USCI- 100140GA	USCI- 150140GC	USCI- 200140GA	USCI- 200175GA	USCI- 200175GLA			
0-10V Dimming Specification (except to USCI-200175GLA)									
Absolute Maximum Voltage	+/- 20V								
Source Current	200uA +/- 50uA								
Dimming Input Range	<ol> <li>0-10V, 1.2V (+/-0.1V) is 10% of lo_set or 100mA minimum,≥8.5V is 100% of lo_set.</li> <li>Lower than 1.1V (+/-0.1V) → Dim to off is programmable. 0.1V Hysteresis.</li> <li>Short is 0% (dim to off)</li> <li>Open is 100%</li> <li>See 0-10V Dimming Curve</li> </ol>								
Dimming Current Tolerance	+/- 10% of maximum setting output current. Ex. lo_set=1000mA, tolerance is +/-100mA.								
Default settings of the driver	Default settings of the driver (can be changed with programmer tools, except to USCI-200175GLA by DALI)								
Adjustable Output Current (AOC)	700mA	700mA	700mA	1050mA	1500mA	1500mA			
0-10V DIM	Enabled (DIM te	o OFF). Selecta	able for Min. Din	n Level and Min. &	Max. Dim Voltaç	ge though Tools			
Smart Time DIM	Disabled (Only	one function wi	II be enabled be	etween 0-10V & Sr	mart Time Dim)				
Module Temperature Protection (MTP)	Disabled. Setta	ble though prog	grammable tools	<u> </u>					
Constant Lumen Output (CLO)	Disabled. Setta	ble though prog	grammable tools	3.					
End of Life indication (EOL)	Disabled. Settable though programmable tools								
DALI	DALI-2, IEC 62	386-101 ,IEC62	2386-102						
Auxiliary Output Voltage (exc	cept to USCI-2	00175GLA)							
+12V Output Range	+12Vdc (10.8 -	- 13.2Vdc)							
+12V Output Current	50mA								
Maximum Output Power	0.6W	0.6W							



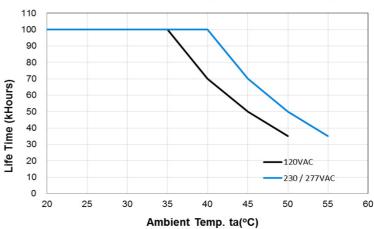
#### OUTPUT LOAD VS INPUT VOLTAGE



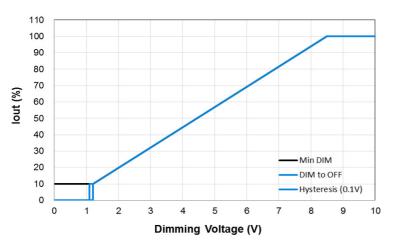
#### LIFETIME VS CASE TEMPERATURE



Lifetime vs. Ambient Temp. w/o Load Derating



#### DIMMING CURVE

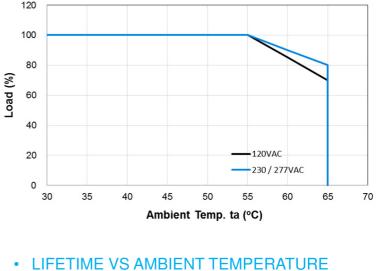


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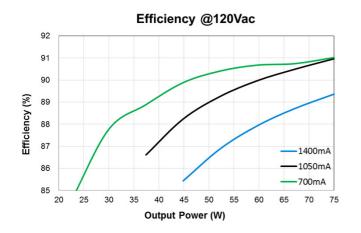


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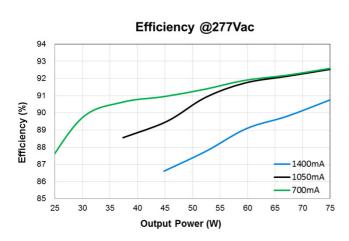
#### OUTPUT LOAD VS AMBIENT TEMPERATURE



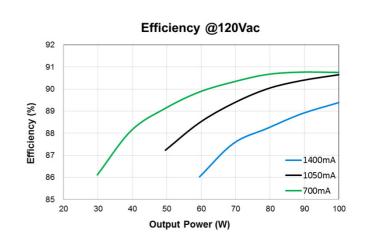




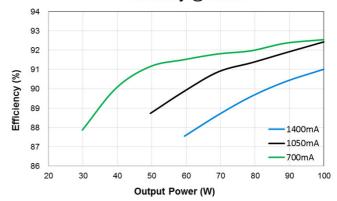
Efficiency @230Vac Efficiency (%) 1400mA 1050mA 700mA **Output Power (W)** 



USCI-100140GA-100W



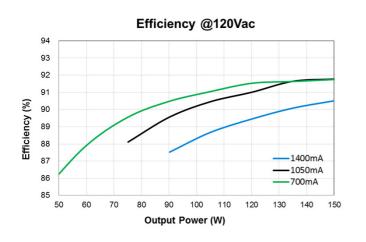
Efficiency @230Vac



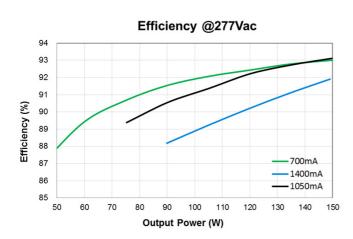
Efficiency @277Vac Efficiency (%) 1400mA 1050mA 700mA **Output Power (W)** 



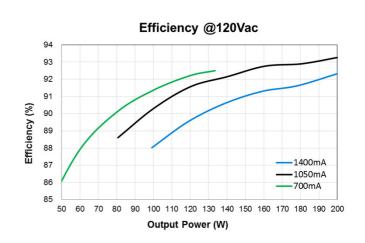
#### • EFFICIENCY versus OUTPUT POWER USCI-150140GC – 150W



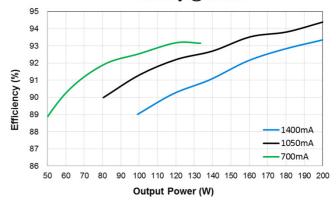
Efficiency @230Vac 94 93 92 91 Efficiency (%) 90 89 88 1400mA 87 1050mA 86 700mA 85 50 60 70 80 90 100 110 120 130 140 150 **Output Power (W)** 



#### USCI-200140GA - 200W



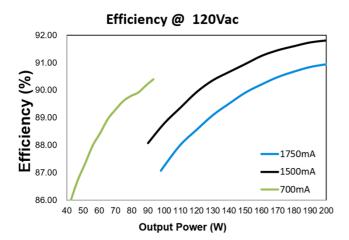
Efficiency @230Vac

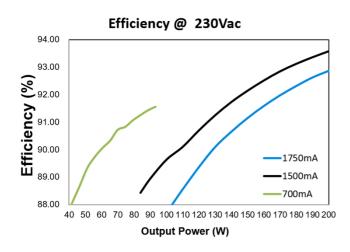


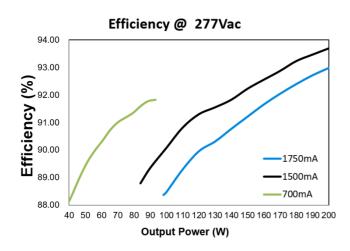
Efficiency @277Vac 95 94 93 92 Efficiency (%) 91 90 89 700mA 88 1400mA 87 -1050mA 86 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 **Output Power (W)** 

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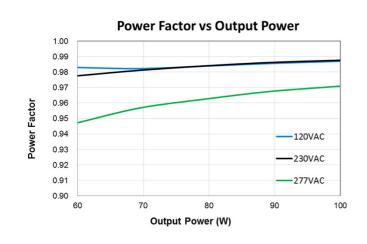








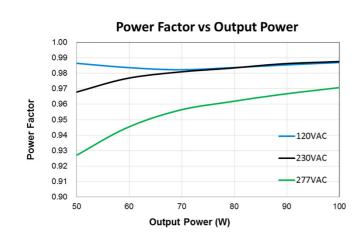
- POWER FACTOR versus OUTPUT POWER
- USCI-100140GA 1400mA



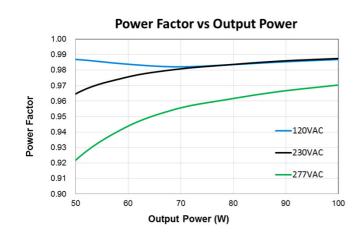
USCI-100140GA – 1050mA

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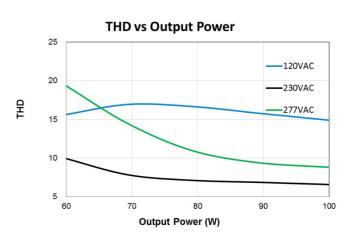
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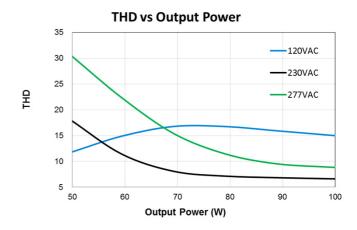


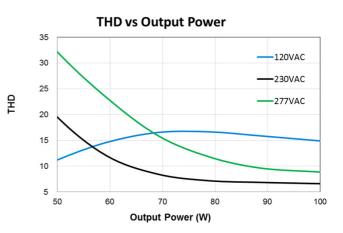
USCI-100140GA - 700mA



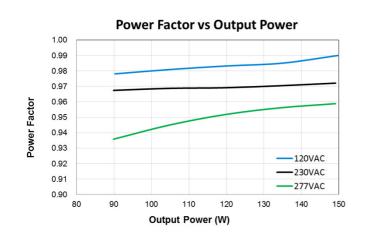
# TOTAL HARMONIC DISTORTION versus OUTPUT POWER



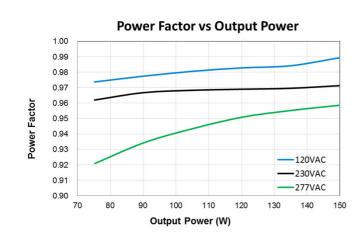




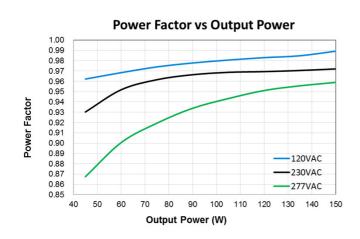
- POWER FACTOR versus OUTPUT POWER
- USCI-150140GC 1400mA



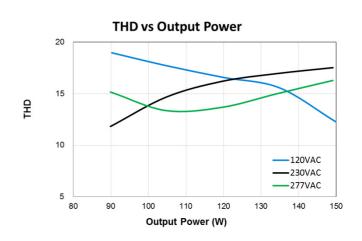
• USCI-150140GC - 1050mA

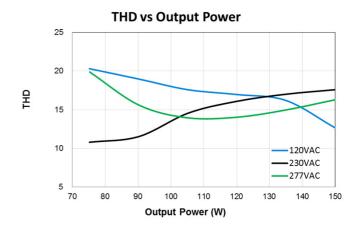


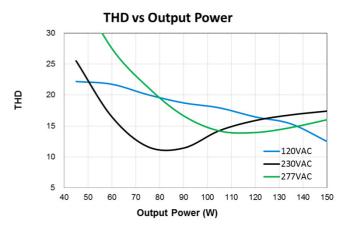
• USCI-150140GC - 700mA



TOTAL HARMONIC DISTORTION versus
 OUTPUT POWER



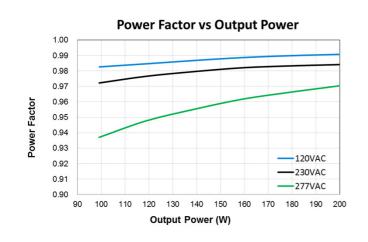




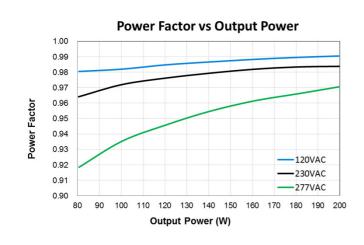
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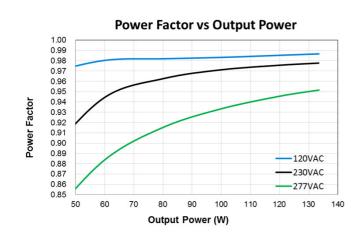
- POWER FACTOR versus OUTPUT POWER
- USCI-200140GA 1400mA



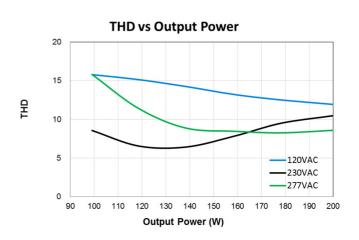
• USCI-200140GA - 1050mA

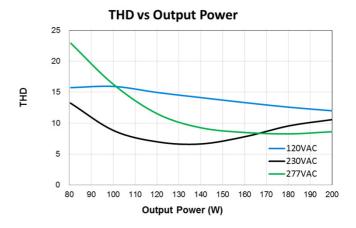


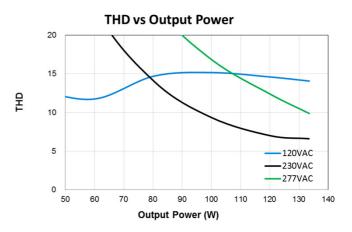
USCI-200140GA - 700mA



TOTAL HARMONIC DISTORTION versus
 OUTPUT POWER







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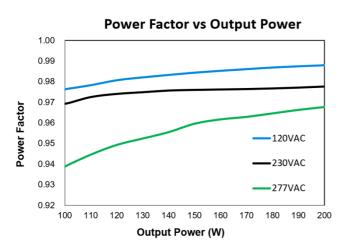


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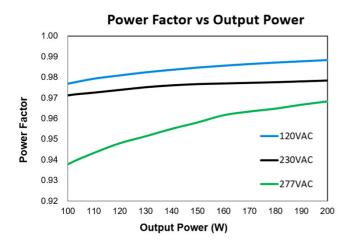
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#### POWER FACTOR versus OUTPUT POWER

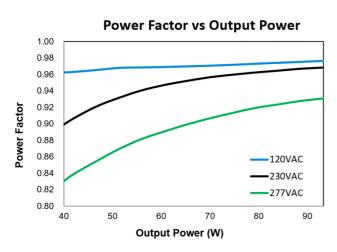
#### • USCI-200175GA /GLA - 1750mA



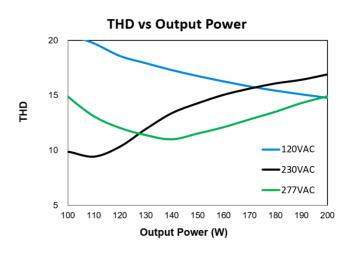
#### • USCI-200175GA /GLA - 1500mA

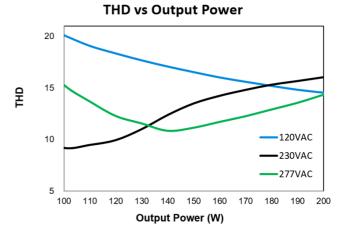


#### USCI-200175GA /GLA – 700mA

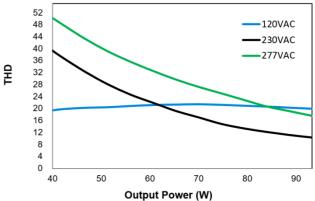


#### TOTAL HARMONIC DISTORTION versus OUTPUT POWER





#### THD vs Output Power

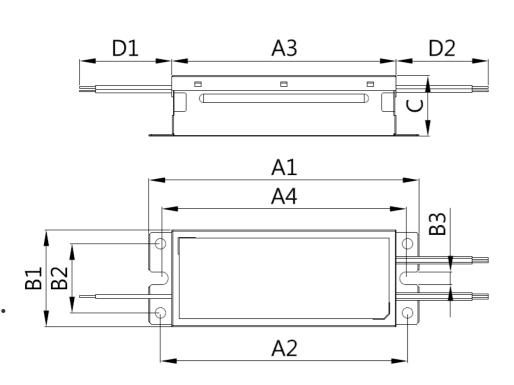


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•

- Dimensions
- 75W / 100W / 150W / 200W



Length (A1): 9.5", 240.5mm (200W/150W) 6.6", 167.5mm (100W/75W)

Width (B1): 2.36", 60mm

Height (C): 1.5", 38.0mm (200W/150W) 1.5", 37.5mm (100W/75W)

Fixing hole distance (A2): 8.9", 226.0mm (200W/150W) 6.0", 153.2mm (100W/75W)

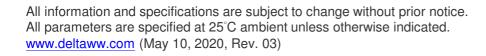
Fixing hole distance (B2): 1.7", 43.0mm (200W/150W) 1.7", 42.9mm (100W/75W)

Fixing hole distance (B3): 0.3", 8mm

Fixing hole distance (A4): 8.9", 226mm (200W/150W) 6.0", 151.6mm (100W/75W)

Body length (A3): 8.4", 212mm (200W/150W) 5.5", 139.2mm (100W/75W)

Input wire (D1): 11.8", 300mm Output wire (D2): 11.8", 300mm Dimming wire (D2): 11.8", 300mm

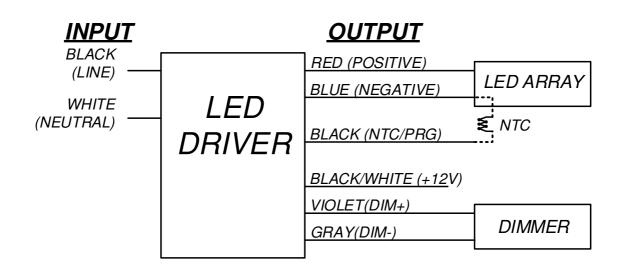




#### Wiring Connection

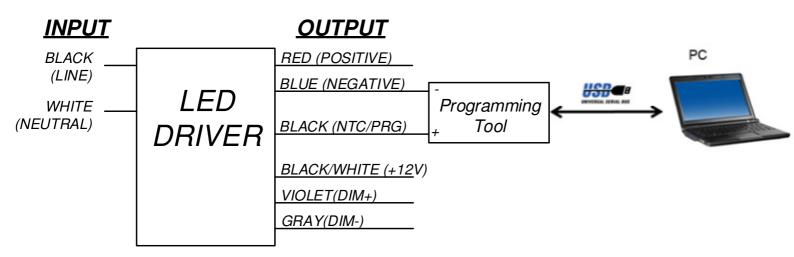
• Module Temperature Protection (MTP)

The LEDs are thermally protected by the driver's NTC (Negative Temperature Coefficient resistor) interface, which ensures the output current will be reduced when a critical temperature is reached. Connect an NTC on the LED module to the LED driver associated wires as shown in the wiring diagram below.



#### • Programming Setup by NTC/PRG

Programming doesn't require powering up input voltage or connecting the LED Module to the driver



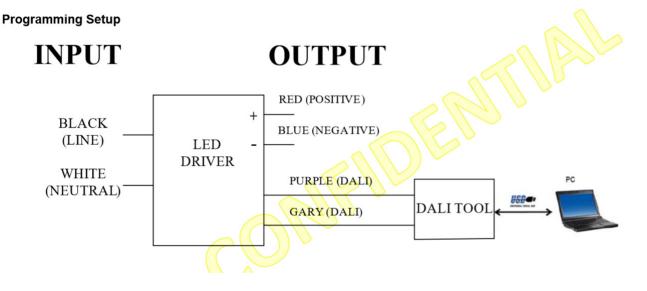
Software and latest version check can be obtained at : http://www.deltaww.com/Products/CategoryListT1.aspx?CID=0103&hl=zh-TW

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#### Wiring Connection

• Programming Setup and control by DALI interface Programming require powering up input voltage or connecting the LED Module to the driver

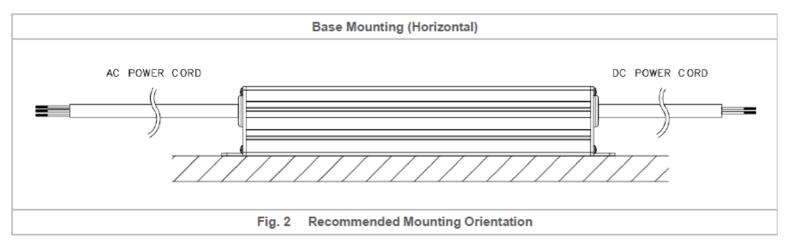


Software and latest version check can be obtained at : http://www.deltaww.com/Products/CategoryListT1.aspx?CID=0103&hl=zh-TW



#### Assembly & Installation

The device is not recommended to be placed on low thermal conductive surfaces. For example, plastics.



#### Safety Instructions

- ALWAYS switch mains of input power OFF before connecting and disconnecting the input voltage to the device. If mains are not turned OFF, there is risk of explosion / severe damage.
- To guarantee sufficient convection cooling, keep a distance of 50mm above and lateral distance to other units.
- DO NOT insert any objects into the device.
- When the PE terminal is not connected, the device must be installed on a metal plate with PE connection.
- The current rating for the output cable must be rated higher than or equal to the output current of the power supply. Please refer to the product specifications.
- For device with dimming function, always ensure the dimming control is working properly. "Dimming 0-10V" shall be insulated from AC mains by reinforced insulation.



#### **Functions**

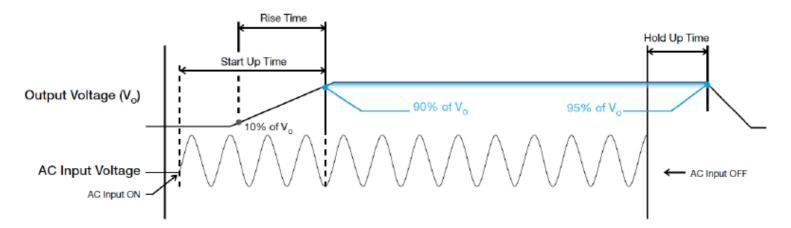
• Start-up Time

The time required for the output voltage to reach 90% of its set value, after the input voltage is applied. Rise Time

- The time required for the output voltage to change from 10% to 90% of its set value.
- Hold-up Time

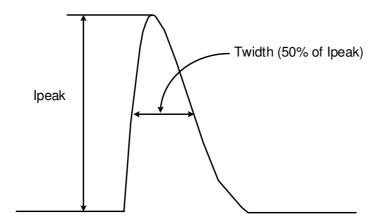
Hold up time is the time when the AC input collapses and output voltage retains regulation for a certain period of time. The time required for the output to reach 95% of its set value, after the input voltage is removed.

Graph illustrating the Start-up Time, Rise Time, and Hold-up Time



#### **Inrush Current**

Inrush current is the peak, instantaneous, input current measured and, occurs when the input voltage is first applied. For AC input voltages, the maximum peak value of inrush current will occur during the first half cycle of the applied AC voltage. This peak value decreases exponentially during subsequent cycles of AC voltage.



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