

## LED Driver

## USCI WT Series / USCI-□□□070XA

## USCI WT

## Highlights &amp; Features

- Constant current design
- Universal AC input voltage from 120-277Vac
- High efficiency up to 91%
- Build-in Active PFC and confirm to harmonic current IEC/EN 61000-3-2, Class C
- Suitable for Dry / Damp location
- 1-10V dimming available

## Safety Standards



## Dimensions (L x W x H):

|               |                                                     |
|---------------|-----------------------------------------------------|
| USCI-075070XA | 240.0 x 43.2 x 31.5 mm<br>(9.45 x 1.70 x 1.24 inch) |
| USCI-100070XA | 241.3 x 60.7 x 41.5 mm<br>(9.50 x 2.39 x 1.63 inch) |
| USCI-150070XA | 241.3 x 60.7 x 41.5 mm<br>(9.50 x 2.39 x 1.63 inch) |

## General Description

Delta LED drivers come in different series to suit different application needs. USCI WT series offers the capability to achieve different level of LED brightness via built-in 1-10V dimming function to meet various application and energy optimization needs. The products are designed and rigorously tested to work with various outdoor LED lighting conditions

## Model Information

## USCI Fixed or 1-10V LED Driver

| Model Number                    | Input Voltage Range                    | Rated Output Voltage | Rated Output Current | Control Interface |
|---------------------------------|----------------------------------------|----------------------|----------------------|-------------------|
| USCI-075070FA<br>(SDHV070C75A)  | 120-277Vac Typical<br>108-305Vac Range | 54-107Vdc            | 700mA                | Fixed             |
| USCI-075070DA<br>(SDHV070D75T)  |                                        | 54-107Vdc            | 700mA                | 1-10V             |
| USCI-100070FA<br>(SDHV070C100T) |                                        | 72-143Vdc            | 700mA                | Fixed             |
| USCI-100070DA<br>(SDHV070D100T) |                                        | 72-143Vdc            | 700mA                | 1-10V             |
| USCI-150070FA<br>(SDHV070C150T) |                                        | 107-214Vdc           | 700mA                | Fixed             |
| USCI-150070DA<br>(SDHV070D150T) |                                        | 107-214Vdc           | 700mA                | 1-10V             |

Remark: ( ) is the original safety application name.

## Model Numbering

| US                           | C                   | I                     | - | □□□                                                   | 070                               | □                                                 | A                                 |
|------------------------------|---------------------|-----------------------|---|-------------------------------------------------------|-----------------------------------|---------------------------------------------------|-----------------------------------|
| Safety Approval<br>– cUL, CE | Constant<br>current | Application<br>Indoor |   | Output Power<br>075 – 75W<br>100 – 100W<br>150 – 150W | Max Output Current<br>070 – 700mA | Function<br>D – 1-10V Dimming<br>F – Fixed Output | Variable<br>A –<br>Delta Standard |

# LED Driver

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### Specifications

| Model Number | USCI-075070FA | USCI-075070DA | USCI-100070FA | USCI-100070DA | USCI-150070FA | USCI-150070DA |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|

### Input Ratings / Characteristics

|                                                     |        |                                                                                                     |                          |                           |
|-----------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------|--------------------------|---------------------------|
| Normal Input Voltage                                |        | 120-277Vac                                                                                          |                          |                           |
| Input Voltage Range                                 |        | 108-305Vac                                                                                          |                          |                           |
| Normal Input Frequency                              |        | 50-60Hz                                                                                             |                          |                           |
| Input Frequency Range                               |        | 47-63Hz                                                                                             |                          |                           |
| Max. Input Current                                  | 120Vac | 0.82A                                                                                               | 1.02A                    | 1.52A                     |
| Efficiency <sup>1)</sup>                            | 230Vac | 89%                                                                                                 | 90%                      | 91%                       |
| Inrush Current<br>(Apk / 50% - $\mu$ S @Cold Start) |        | 50A/50 $\mu$ S @ 230Vac                                                                             | 70A/150 $\mu$ S @ 230Vac | 130A/150 $\mu$ S @ 230Vac |
| Max. no. of LED Drivers circuit breaker at 230Vac   | B16    | 13 pcs                                                                                              | 10 pcs                   | 6 pcs                     |
| Power Factor                                        |        | > 0.9 @ 120- 277Vac input with Load $\geq$ 60% (except to USCI-075070XA with load $\geq$ 70%)       |                          |                           |
| Total Harmonic Distortion                           |        | THD < 20% with load $\geq$ 60% at 120- 277Vac input (except to USCI-075070XA with load $\geq$ 70%,) |                          |                           |
| Leakage Current                                     |        | <0.7mA @ 277Vac                                                                                     |                          |                           |

1) 100% Load (typical) and tested after 30 minutes warm up.

### Output Ratings / Characteristics

|                             |                                                                                                                                                                           |           |           |           |            |            |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|------------|------------|
| Output Voltage Range        | 54-107Vdc                                                                                                                                                                 | 54-107Vdc | 72-143Vdc | 72-143Vdc | 107-214Vdc | 107-214Vdc |
| Max. No Load Output Voltage | 130Vrms                                                                                                                                                                   | 130Vrms   | 165Vrms   | 165Vrms   | 250Vrms    | 250Vrms    |
| Output Power Range          | 75W                                                                                                                                                                       | 75W       | 100W      | 100W      | 150W       | 150W       |
| Rated Output Current        | 700mA                                                                                                                                                                     | 700mA     | 700mA     | 700mA     | 700mA      | 700mA      |
| Current Accuracy            | $\pm$ 10% (@ Typical output current range)                                                                                                                                |           |           |           |            |            |
| Line Regulation             | $\pm$ 2% (@ 120-277Vac input)                                                                                                                                             |           |           |           |            |            |
| Load Regulation             | $\pm$ 1% (@ Min-Max output voltage)                                                                                                                                       |           |           |           |            |            |
| Output Current LF Ripple    | 5% (ripple = peak-average/average) at full load (<100Hz) for USCI-100070XA & USCI-150070XA<br>30% (ripple = peak-average/average) at full load (<100Hz) for USCI-075070XA |           |           |           |            |            |
| Start-up Time               | 1000ms max. @ 120-277Vac (full load)                                                                                                                                      |           |           |           |            |            |

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| Model Number | USCI-075070FA | USCI-075070DA | USCI-100070FA | USCI-100070DA | USCI-150070FA | USCI-150070DA |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|

### Mechanical

|                        |        |                                                  |                   |                     |                   |                   |
|------------------------|--------|--------------------------------------------------|-------------------|---------------------|-------------------|-------------------|
| Casing                 |        | Metal sheet, Color : White                       |                   |                     |                   |                   |
| Dimensions (L x W x H) | [mm]   | 240.0 x 43.2 x 31.5                              |                   | 241.3 x 60.7 x 41.5 |                   |                   |
|                        | [inch] | 9.45 x 1.70 x 1.24                               |                   | 9.50 x 2.39 x 1.63  |                   |                   |
| Unit Weight            | [kg]   | 0.64                                             |                   | 1.10                |                   |                   |
|                        | [lb]   | 1.40                                             |                   | 2.43                |                   |                   |
| Cooling System         |        | Convection                                       |                   |                     |                   |                   |
| Input Wire :           |        | Line: Brown, Neutral: Blue, PE: Yellow/Green     |                   |                     |                   |                   |
|                        |        | Wire Length 280mm                                |                   | Wire Length 450mm   | Wire Length 300mm | Wire Length 450mm |
| Output Wire :          |        | Positive: Red, Negative: Blue, Wire Length 180mm |                   |                     |                   |                   |
| Dimming Wire :         |        | Dim(+): Violet, Dim(-): Gray                     |                   |                     |                   |                   |
|                        |        | N/A                                              | Wire Length 180mm | N/A                 | Wire Length 180mm | N/A               |
| Noise (30cm distance)  |        | Sound Pressure Level (SPL) < 24dBA               |                   |                     |                   |                   |

### Environment

|                           |           |                               |       |       |
|---------------------------|-----------|-------------------------------|-------|-------|
| Ambient Temperature       | Operating | -40°C to +55°C                |       |       |
|                           | Storage   | -40°C to +85°C                |       |       |
| Maximum Case Temperature  |           | +85°C                         | +80C  | +85°C |
| Lifetime Case Temperature |           | +85°C                         | +75°C | +75°C |
| Relative Humidity         | Operating | 10 to 90% RH (Non-Condensing) |       |       |
|                           | Storage   | 5 to 95% RH (Non-Condensing)  |       |       |
| Environmental Locations   |           | Dry / Damp                    |       |       |

### Protections

|                               |                                                   |         |         |
|-------------------------------|---------------------------------------------------|---------|---------|
| Over Voltage                  | 130Vrms                                           | 165Vrms | 250Vrms |
|                               | Auto-Recovery when the fault is removed           |         |         |
| Overload / Overcurrent        | Auto-Recovery when the fault is removed           |         |         |
| Short Circuit                 | Auto-Recovery when the fault is removed           |         |         |
| Over Temperature              | Auto-Recovery when the fault is removed           |         |         |
| Suitable for Luminaires Class | Class II. Insulation Class according to IEC 60598 |         |         |

### Reliability Data

|          |                                                                            |           |           |
|----------|----------------------------------------------------------------------------|-----------|-----------|
| Lifetime | 50,000 hrs. @ lifetime case temperature                                    |           |           |
| MTTF     | ta: +55°C                                                                  | ta: +45°C | ta: +45°C |
|          | 500,000 hrs. (as per Telcordia SR-332 , total failure rate less than 10% ) |           |           |

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### Safety Standards / Directives

|                    |                                                             |               |              |        |       |
|--------------------|-------------------------------------------------------------|---------------|--------------|--------|-------|
| Electrical Safety  | CB scheme to IEC 61347-1, IEC 61347-2-13<br>UL 8750         |               |              |        |       |
| CE                 | In conformance with EMC Directive and Low Voltage Directive |               |              |        |       |
| Material and Parts | RoHS Directive Compliant                                    |               |              |        |       |
| Galvanic Isolation |                                                             | Mains (Input) | Earth (Case) | Output | DIM ± |
| USCI-075070FA      | Mains (Input)                                               | N/A           | 3750V        | 3750V  | N/A   |
| USCI-100070FA      | Earth (Case)                                                | 3750V         | N/A          | 3750V  | N/A   |
| USCI-075070DA      | Output                                                      | 3750V         | 3750V        | N/A    | 1875V |
| USCI-100070DA      | DIM ±                                                       | N/A           | N/A          | 1875V  | N/A   |
| Galvanic Isolation |                                                             | Mains (Input) | Earth (Case) | Output | DIM ± |
| USCI-150070FA      | Mains (Input)                                               | N/A           | 3750V        | 3750V  | N/A   |
| USCI-150070DA      | Earth (Case)                                                | 3750V         | N/A          | 3000V  | N/A   |
|                    | Output                                                      | 3750V         | 3000V        | N/A    | 3000V |
|                    | DIM ±                                                       | N/A           | N/A          | 3000V  | N/A   |

### EMC Compliance

|                                   |                                |                                                                                                                                                                                                                 |
|-----------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Emissions (CE & RE)               | Compliance to EN 55015 Class B |                                                                                                                                                                                                                 |
| Immunity                          | Compliance to EN 61547         |                                                                                                                                                                                                                 |
| Electrostatic Discharge           | IEC 61000-4-2                  | Air Discharge: 8kV ; Contact Discharge: 4kV<br>Criteria A <sup>1)</sup> or B <sup>2)</sup>                                                                                                                      |
| Radiated Disturbances             | IEC 61000-4-3                  | 80MHz-1GHz, 3V/m with 1kHz Sine Wave / 80% AM Modulation<br>Criteria A <sup>1)</sup>                                                                                                                            |
| Electrical Fast Transient / Burst | IEC 61000-4-4                  | 1kV; Criteria A <sup>1)</sup> or B <sup>2)</sup>                                                                                                                                                                |
| Surge                             | IEC 61000-4-5                  | 1.2/50µs, 8/20µs Combination Wave with 2ohms (L-N), 12ohms (L-PE & N-PE) source impedance Criteria A <sup>1)</sup> or B <sup>2)</sup><br>Common Mode <sup>3)</sup> : 4kV; Differential Mode <sup>4)</sup> : 4kV |
| Conducted Disturbances            | IEC 61000-4-6                  | 150kHz-80MHz, 3Vrms; Criteria A <sup>1)</sup>                                                                                                                                                                   |
| Power Frequency Magnetic Fields   | IEC 61000-4-8                  | 3A/Meter; Criteria A <sup>1)</sup>                                                                                                                                                                              |
| Voltage Dips                      | IEC 61000-4-11                 | 100% dip; 0.5 cycle; Self Recoverable<br>30% dip; 10 cycle; Self Recoverable<br>Criteria A <sup>1)</sup> or B <sup>2)</sup>                                                                                     |
| Harmonic Current Emission         | IEC 61000-3-2                  | Class C (230Vac @ 100% load)                                                                                                                                                                                    |
| Voltage Fluctuation and Flicker   | IEC 61000-3-3                  | P <sub>st</sub> ≤ 1.0 ; d <sub>max</sub> ≤ 4% ; P <sub>It</sub> ≤ 0.65 ; d <sub>c</sub> ≤ 3.3% ; T <sub>max</sub> ≤ 500ms                                                                                       |

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)

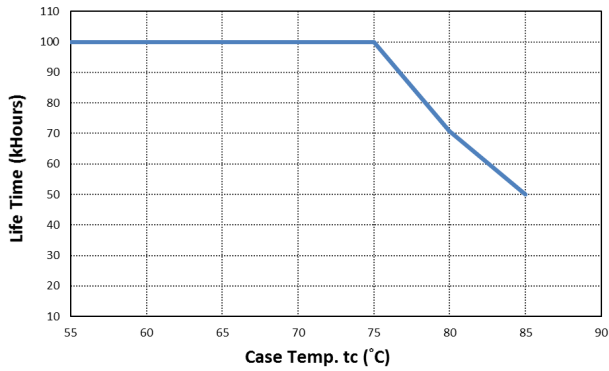
4) Symmetrical: Differential mode (Line to line)

# LED Driver

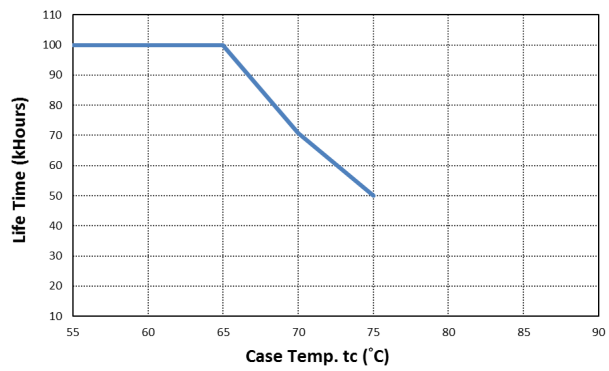
## USCI WT Series / USCI-□□□070XA

Lifetime VS Case Temperature

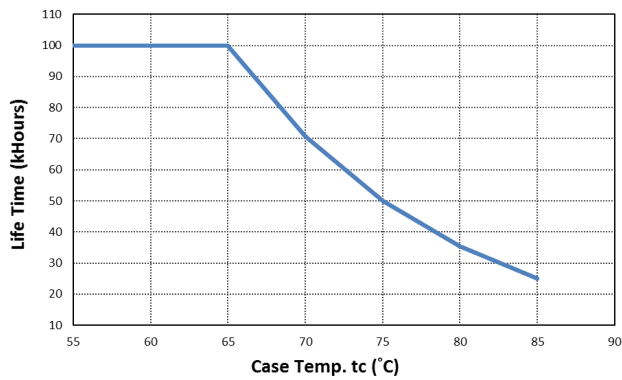
USCI-075070FA / USCI-075070DA



USCI-100070FA / USCI-100070DA



USCI-150070FA / USCI-150070DA

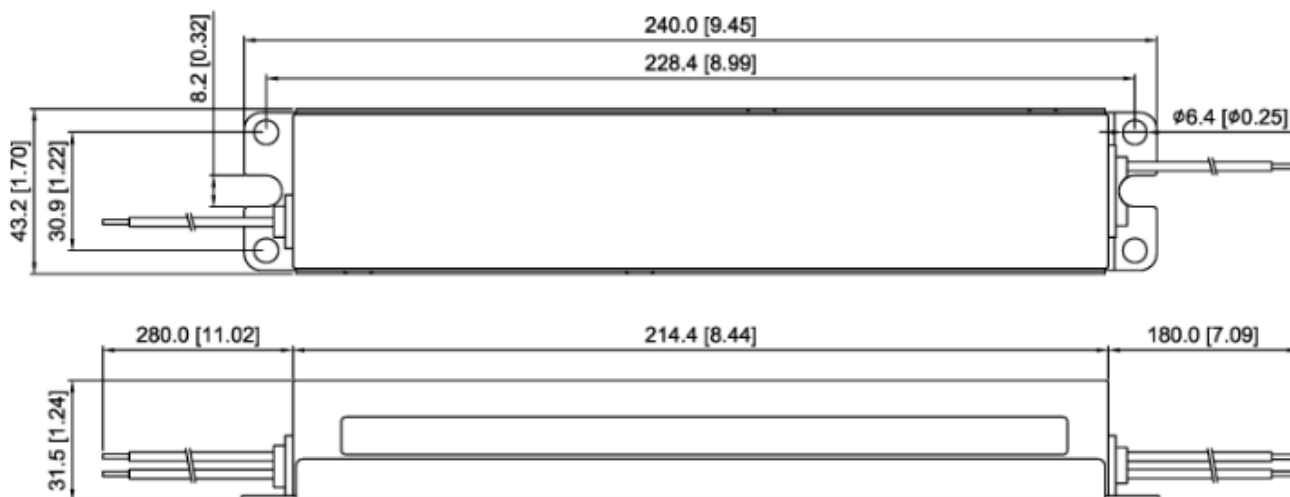


# LED Driver

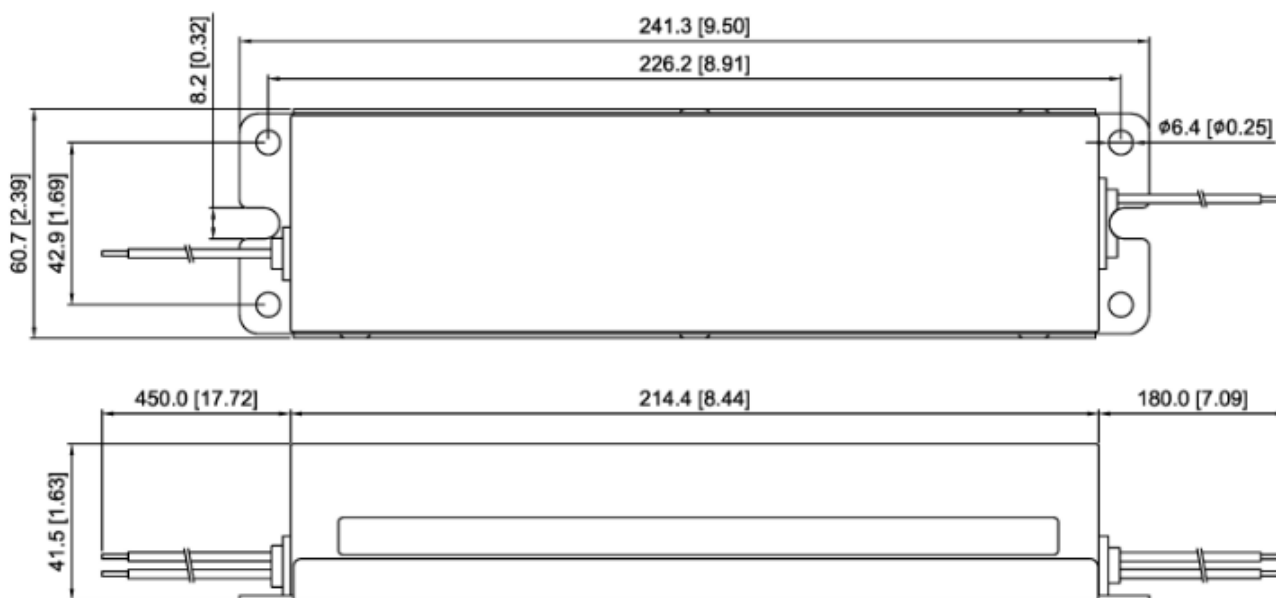
## USCI WT Series / USCI-□□□070XA

### Dimensions

#### USCI-075070FA & USCI-075070DA



#### USCI-100070FA & USCI-150070FA

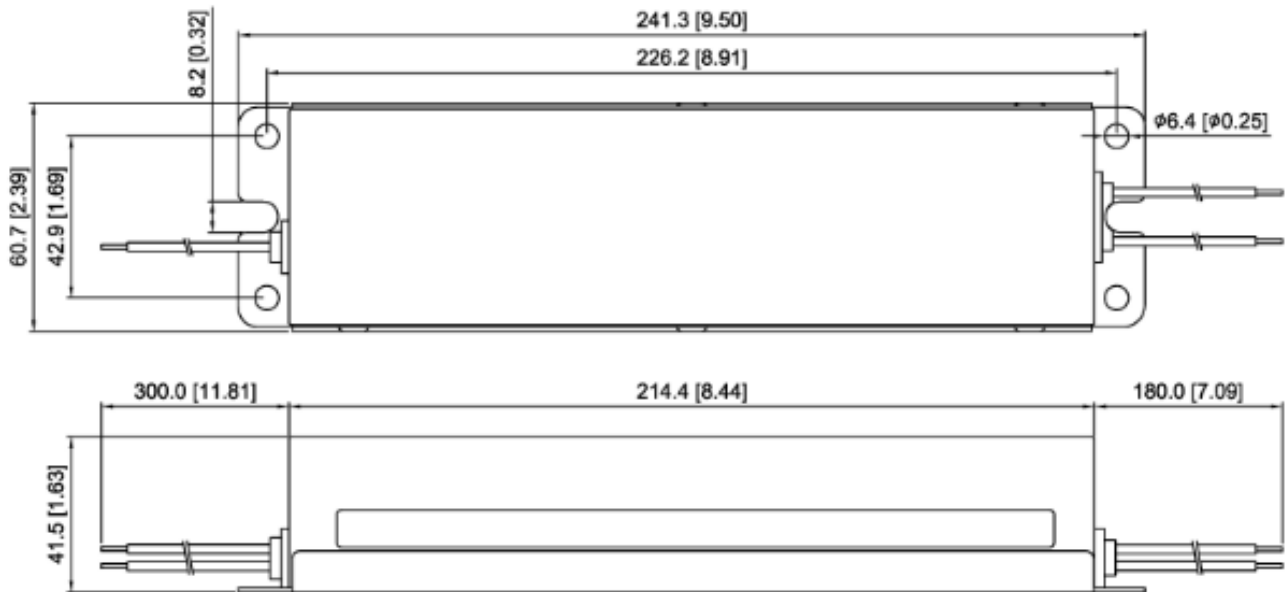


Unit: mm [inch]

# LED Driver

## USCI WT Series / USCI-□□□070XA

USCI-100070DA & USCI-150070DA



Unit: mm [inch]

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