



## Features & Benefits

- Universal AC Input Voltage(120-277VAC)
- Linear form factor, Metal sheet case(White), Side feed
- Two Isolated 0-10V dimming interfaces, dim down to true 1%, independent dual outputs
- Low standby power: <0.7W@120VAC
- Suitable for indoor use
- Flicker free, excellent camera compatibility, spec-grade smoothness
- UL Class2, Class P
- Operating temperature: -30°C~+55°C
- Comply IEEE1789, UL8750

## USB Programmable:

- ◆ Output current, Dim to off, Min Dimming Level, Output voltage of aux power
- ◆ OTP point , Luminous decay compensation, LED thermal protection(NTC)
- ◆ End-of-life indicator, Fade in time, Over load protection point
- ◆ Log/linear/square dim curves
- ◆ Selectable for dimming mode: warm dim, tunable white,and Solo.

## Model List

| Model Name                  | Rated Input Voltage | Max Output Power(Total) | Output Current(Total)        | Rated Output Voltage | Efficiency | Dimension                        |
|-----------------------------|---------------------|-------------------------|------------------------------|----------------------|------------|----------------------------------|
| PDL-A1-085D2300U-V-AUX-PC-2 | 120-277VAC          | 85W max.                | 2*(230-2300)mA<br>(1mA step) | 2*(10-55)VDC         | 90%        | 380*30*25.4 mm<br>14.9×1.2×1 in. |

## Optional Function

Aux power: 12-24V programmable,1W

## Approvals



## Model name code

|               |   |             |             |          |   |          |   |            |   |           |   |          |
|---------------|---|-------------|-------------|----------|---|----------|---|------------|---|-----------|---|----------|
| <u>PDL-A1</u> | = | <u>085D</u> | <u>2300</u> | <u>U</u> | = | <u>V</u> | = | <u>AUX</u> | = | <u>PC</u> | = | <u>2</u> |
| ①             |   | ②           | ③           | ④        |   | ⑤        |   | ⑥          |   | ⑦         |   | ⑧        |

① Series PDL 2\*10V Series

② Output power Maximum output power: 30W

③ Output Current(max) Output current:1400mA

④ Input voltage U:120-277VAC  
M:120-347VAC

|   |                        |                                                                   |
|---|------------------------|-------------------------------------------------------------------|
| ⑤ | Dimming Control        | 0-10V                                                             |
| ⑥ | AUX                    | BLANK: Without aux power<br>AUX:Aux power: 12-24V programmable,1W |
| ⑦ | Programmable           | USB-PC                                                            |
| ⑧ | Surge protection level | 2-10<br>2=2kV 10=10kV                                             |

## Specification:

| Parameters | Symbols | Test Conditions / Comment | Min | Typ | Max | Units |
|------------|---------|---------------------------|-----|-----|-----|-------|
|------------|---------|---------------------------|-----|-----|-----|-------|

### INPUT

|                     |                 |                                  |     |       |      |          |
|---------------------|-----------------|----------------------------------|-----|-------|------|----------|
| Input Voltage       | $V_{IN}$        |                                  | 108 |       | 305  | $V_{AC}$ |
| Rated Input Voltage | $V_{IN\ RATED}$ |                                  | 120 |       | 277  | $V_{AC}$ |
| Input Frequency     | $f_{line}$      |                                  | 47  | 50/60 | 63   | Hz       |
| Input Current       | $I_{IN}$        | Full Load, $V_{IN} = 120V_{AC}$  |     |       | 0.35 | A        |
| Inrush Current      | $I_{INRUSH}$    | Cold Start, $V_{IN} = 277V_{AC}$ |     |       | 60   | A        |
| Leakage Current     | $I_{Leakage}$   | $V_{IN} = 277V_{AC}$ 60Hz        |     |       | 0.75 | mA       |

Number of Drivers per  
MCB(Circuit Breaker)

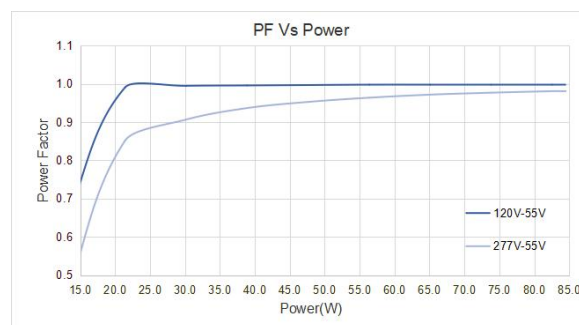
| MCB type           | B10 | C10 | D10 | B13 | C13 | D13 | B16 | C16 | D16 | B20 | C20 | D20 |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 120V <sub>AC</sub> | 13  | 15  | 17  | 17  | 20  | 22  | 21  | 24  | 28  | 26  | 30  | 35  |
| 277V <sub>AC</sub> | 9   | 15  | 31  | 39  | 20  | 40  | 15  | 25  | 50  | 18  | 31  | 62  |

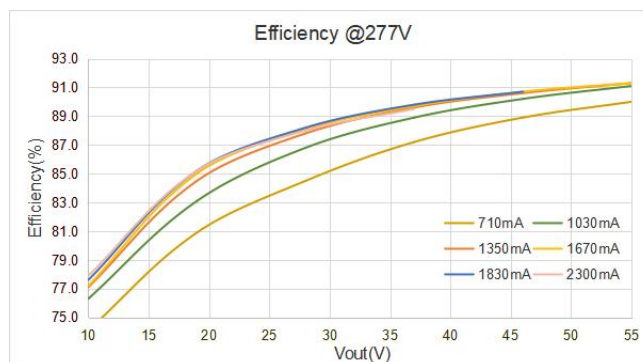
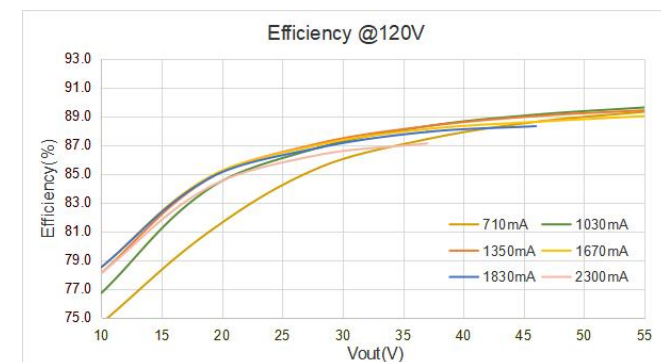


| Input Voltage | Inrush Current | t(us)10%-10% |
|---------------|----------------|--------------|
| 120VAC        | 12.2A          | 186          |
| 277VAC        | 31.2A          | 180          |
| 347VAC        | NA             | NA           |

### General Characteristics

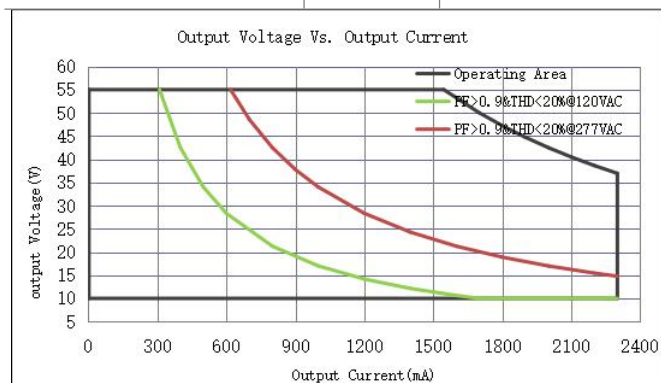
|                           |                 |                                                                                |     |    |     |    |
|---------------------------|-----------------|--------------------------------------------------------------------------------|-----|----|-----|----|
| Power Factor              | PF              | 20-100% load, $V_{IN} = 120V_{AC}$                                             | 0.9 |    |     | PF |
|                           |                 | 40-100% load, $V_{IN} = 277V_{AC}$                                             | 0.9 |    |     |    |
| Total Harmonic Distortion | THD             | 20-100% load, $V_{IN} = 120V_{AC}$                                             |     |    | 20  | %  |
|                           |                 | 40-100% load, $V_{IN} = 277V_{AC}$                                             |     |    | 20  |    |
| Efficiency                | $\eta$          | Full load, $V_{IN}=120V_{AC}$ , $I_{OUT}=545mA$ , $V_{OUT}=55V$ , Steady state | 86  | 88 |     | %  |
|                           |                 | Full load, $V_{IN}=277V_{AC}$ , $I_{OUT}=545mA$ , $V_{OUT}=55V$ , Steady state | 88  | 90 |     | %  |
| Turn On Delay Time        | $T_{on\_delay}$ | Cold Start, 400-1400mA                                                         |     |    | 0.5 | S  |
|                           |                 | Cold Start, 140-399mA                                                          |     |    | 1   | S  |





## OUTPUT

|                             |                  |                                                      |     |   |      |    |
|-----------------------------|------------------|------------------------------------------------------|-----|---|------|----|
| Programmable Output Current | $I_{OUT}$        | One Channel                                          | 230 |   | 2300 | mA |
| Number of Output            | N                | Independent                                          |     | 2 |      |    |
| Output current tolerance    | t                | $I_{OUT}=400-1400mA$                                 |     |   | 5    | %  |
|                             |                  | $I_{OUT}=140-399mA$                                  |     |   | 7    | %  |
| Output Current Range        | $I_{OUT}$        | Amplitude Control.                                   | 2.3 |   | 2300 | mA |
| Output Voltage              | $V_{OUT}$        |                                                      | 10  |   | 55   | V  |
| Output Power                | $P_{OUT}$        | See "Operating window"                               |     |   | 85   | W  |
| Line Regulation             | $V_{OUT-LINE}$   |                                                      |     |   | 1    | %  |
| Load Regulation             | $I_{OUT-LOAD}$   | $V_{OUT}$ from MIN. to MAX.                          |     |   | 5    | %  |
| Ripple Current              | $I_{OUT-RIPPLE}$ | Full Load, $(I_{omax}-I_{omin})/(I_{omax}+I_{omin})$ |     |   | 10   | %  |
| Output Current Overshoot    | $I_{OVERSHOOT}$  | Turning Power ON                                     |     |   | 10   | %  |

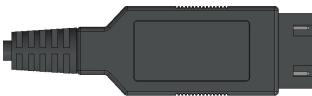


## Programming (Optional)

The driver can be programmed through USB.

- Output current for each channel(1mA step)
- Dim to off, Min Dimming Level
- Output voltage of aux power
- OTP point of driver
- LED thermal protection
- Luminous decay compensation
- End-of-life indicator
- Fade in time
- Over load protection point
- Log/linear/square dim curves

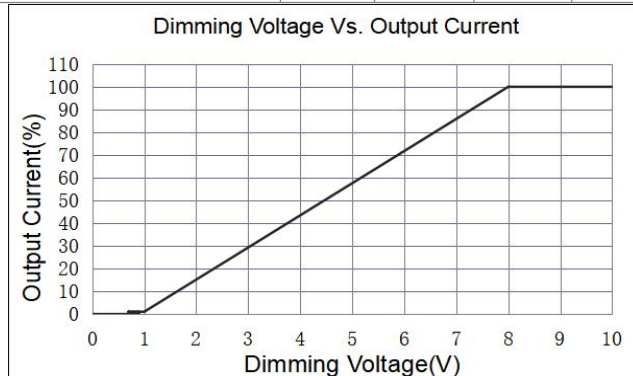
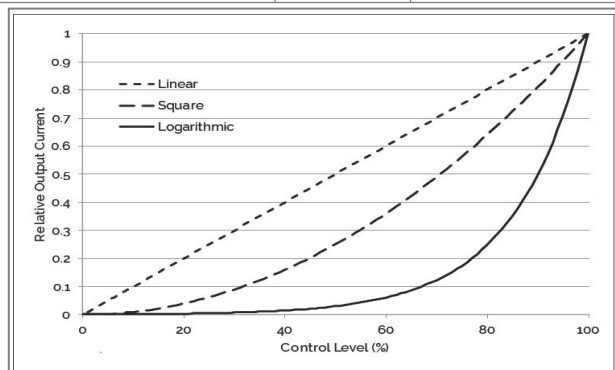
- Selectable for dimming mode: warm dim, tunable white, and solo.

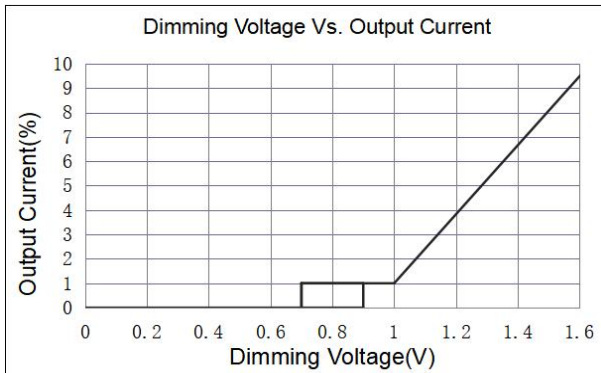
|                       |                                                                                                                                                                                                                                                                                           |                                                                                    |  |     |     |     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--|-----|-----|-----|
| USB port              | The USB port can recognize the type of input signal, analog or digital. So the driver can be easily connected to a digital control system, or can be connected to an external NTC / rheostat / current selection switch to set the driver(eg: output current , dimming level, and so on). |                                                                                    |  |     |     |     |
|                       | Programming software                                                                                                                                                                                                                                                                      | “LUMIGEAR Programming Tool”                                                        |  |     |     |     |
|                       | Programming tool                                                                                                                                                                                                                                                                          | “Lumigear tool box”                                                                |  |     |     |     |
|                       | Operating voltage                                                                                                                                                                                                                                                                         |                                                                                    |  | 3.3 | 3.6 | V   |
|                       | Pull up resistor                                                                                                                                                                                                                                                                          | TX is pulled up to +3.3V                                                           |  | 62K |     | Ohm |
|                       |                                                                                                                                                                                                                                                                                           | RX is pulled up to +3.3V                                                           |  | 15K |     | Ohm |
|                       | +3.3V Aux power                                                                                                                                                                                                                                                                           |                                                                                    |  |     | 10  | mA  |
| Programming Interface | PGT-USB-TPAC-A                                                                                                                                                                                                                                                                            |  |  |     |     |     |
| Programming Cables    | PGT-USB-P254                                                                                                                                                                                                                                                                              |  |  |     |     |     |

## 0~10V

The 0~10V dimming can be used to dim the output current via a standard commercial wall dimmer (0~10V<sub>DC</sub>) or an external control voltage source (0~10V<sub>DC</sub>).

|                                       |                                                              |                                  |     |     |     |                 |
|---------------------------------------|--------------------------------------------------------------|----------------------------------|-----|-----|-----|-----------------|
| Dimming Curve                         | Selectable: LOG, Linear, Square. please see “Dimming curve”. |                                  |     |     |     |                 |
| Dimming Mode                          | Selectable: warm dim, tunable white, and Solo.               |                                  |     |     |     |                 |
| Absolute Maximum Voltage on 0~10V Pin | V <sub>DIM</sub>                                             |                                  | 0   |     | 300 | V               |
| Source Current on 0~10V Dimming Pin   | I <sub>DIM</sub>                                             |                                  | 200 |     | 500 | uA              |
| Light On                              | V <sub>DIM-on</sub>                                          | Settable                         |     | 0.7 |     | V               |
| Light Off                             | V <sub>DIM-off</sub>                                         | Settable                         |     | 0.9 |     | V               |
| Clamp Voltage                         | V <sub>DIM-Clamp</sub>                                       | Settable                         |     | 1   |     | V               |
| Dimming Voltage for Full Bright       | V <sub>DIM-MAX</sub>                                         | Settable                         |     |     | 8   | V               |
| Leakage Voltage                       | V <sub>Leak-rms</sub>                                        | Voltage between DIM- and Ground  |     |     | 20  | V <sub>AC</sub> |
| Standby power                         | P <sub>STANDBY</sub>                                         | Light Off, V <sub>IN</sub> =120V |     |     | 0.6 | W               |





## Auxiliary source (Optional)

|                      |                    |                 |    |    |     |     |
|----------------------|--------------------|-----------------|----|----|-----|-----|
| Max.power            | $P_{AUX}$          |                 |    |    | 1   | W   |
| Voltage range        | $V_{AUX}$          | Programmable    | 12 |    | 24  | Vdc |
|                      | $V_{AUX\_DEFAULT}$ | Default voltage |    | 12 |     | Vdc |
| Voltage tolerance    | $t_{AUX}$          |                 |    |    | 8   | %   |
| Over load Protection | $P_{OLP\_AUX}$     | Foldback mode   |    |    | 1.5 | W   |

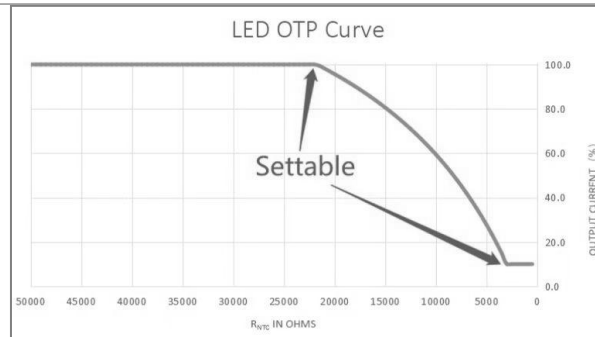
## LED Thermal Protection (NTC) Characteristic

The LED thermal protection feature of the driver helps reduce the temperature of the LED module by reducing dual output current together in case of abnormal temperature conditions.

In the end application, care must be taken to place the NTC thermistor close to the hottest spot on the LED module.

If LED thermal protection is not required the NTC port on the LED power supply connector can be left open.

Graphs for reference. The derating limits can be programmed using the Light Touch. Please contact lumigear for details.



## Protection

|                          |                                                          |                                                                        |     |    |     |    |
|--------------------------|----------------------------------------------------------|------------------------------------------------------------------------|-----|----|-----|----|
| Over Voltage Protection  | $V_{OVP}$                                                | The unit will recover automatically after fault conditions is removed. |     |    | 60  | V  |
| Over load Protection     | $P_{OLP}$                                                | Programmable. CC/CV mode                                               | 34  |    | 85  | W  |
| OLP tolerance            | $t_{OLP}$                                                |                                                                        | 100 |    | 110 | %  |
| Over Temp. Protection    | $T_{OTP}$                                                | Programmable.<br>Current foldback at hotspot greater than $T_{OTP}$    |     | 90 |     | °C |
| Short Circuit Protection | Recover automatically after fault conditions is removed. |                                                                        |     |    |     |    |

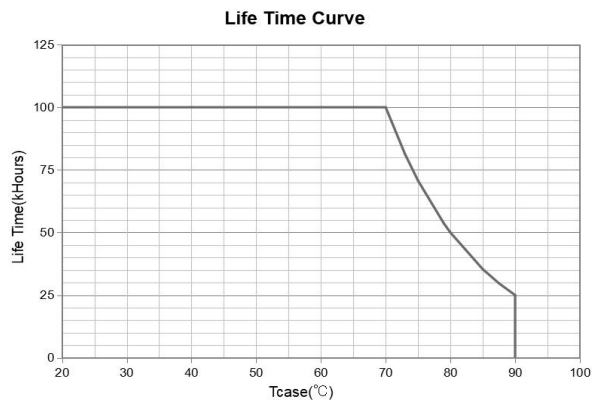
## Environment

|                               |               |                           |     |   |     |    |
|-------------------------------|---------------|---------------------------|-----|---|-----|----|
| Storage Temperature           | $T_{Storage}$ | Humidity: 5% RH to 95% RH | -40 | - | +85 | °C |
| Ambient Operating Temperature | $T_a$         |                           | -30 | - | +55 | °C |
| Max. Case Temperature         | $T_c$         | Hot spot on case          |     |   | 90  | °C |
| Operating Relative Humidity   | $H_a$         | Non-Condensing            | 10  |   | 90  | %  |

|                |                          |                               |  |  |    |     |
|----------------|--------------------------|-------------------------------|--|--|----|-----|
| Acoustic Noise |                          | Measured from 1 m w/o dimmer. |  |  | 24 | dBA |
| Cooling        | Convection Cooling       |                               |  |  |    |     |
| IP Rating      | Dry and damp UL approved |                               |  |  |    |     |

## Others

|            |                                           |                                                                 |     |     |  |      |
|------------|-------------------------------------------|-----------------------------------------------------------------|-----|-----|--|------|
| Life Time  | $T_{Life}$                                | Full Load, 80°C case temperature,<br>$V_{IN} = 120/277V_{AC}$   | 50  |     |  | kHrs |
| MTBF       | $T_{MTBF}$                                | Full Load, 25°C ambient temperature<br>$V_{IN} = 120/277V_{AC}$ | 200 |     |  | kHrs |
| Net Weight | $W_{NET}$                                 |                                                                 |     | 410 |  | g    |
| Warranty   | 5 Years Warranty at $T_c \leq 80^\circ C$ |                                                                 |     |     |  |      |
| Flicker    | IEEE 1789                                 |                                                                 |     |     |  |      |



## Safety Compliance

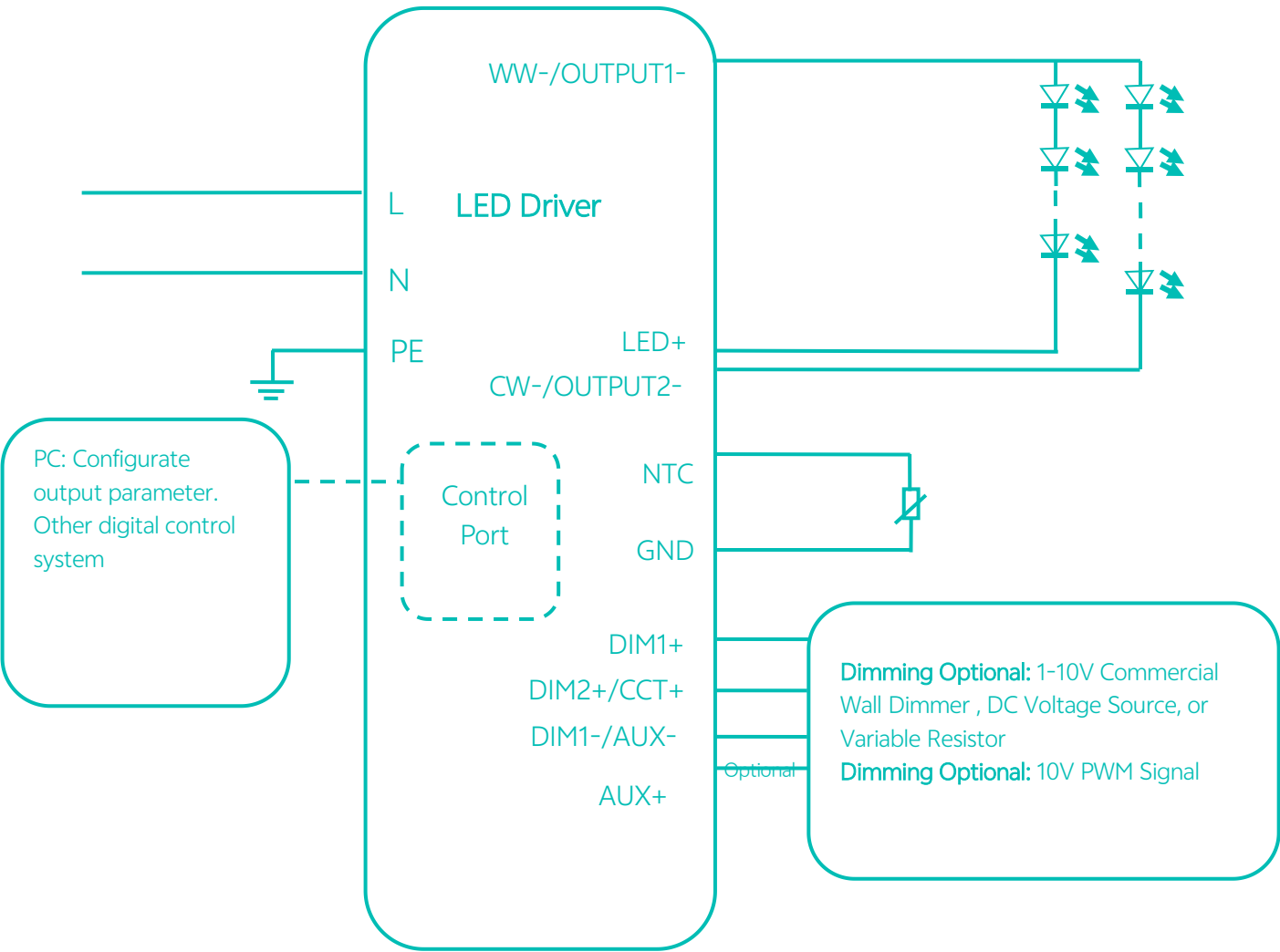
|        |                                  |
|--------|----------------------------------|
| CUL/UL | UL8750, CAN/CSA-C22.2 No. 250.13 |
|--------|----------------------------------|

## Electromagnetic Compliance

| EMC Requirements                 | Standard              | Conditions                                                                                                                                        |
|----------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI Emissions                    | FCC Title 47 Part 15B | Class B at 120V <sub>AC</sub> , Class A at 277V <sub>AC</sub>                                                                                     |
| Voltage Fluctuations and Flicker | IEC61000-3-3          |                                                                                                                                                   |
| Immunity Compliance              | IEC 61000-4-2         | ±8kV air Discharge, ±6kV Contact Discharge                                                                                                        |
|                                  | ANSI C62.41           | ± 2kV Common and Differential Mode, test at 2 Ω, 5 strikes/1minute interval (40 total strikes)                                                    |
|                                  | ANSI C62.41.1         | 2.5kV Ring Wave, test at 30Ω 7 Strikes/1 minute interval, Common and Differential mode, 56 total strikes                                          |
|                                  | IEC 61000-4-11        | >95% dip, .5 period; 30% dip, 25 periods; 95% reduction, 250 periods                                                                              |
|                                  | IEC 61000-4-4         | ± 2kV Direct couple to Line input, 5kHz repetition rate, 15mS duration, 300mS period. 7 coupling paths, 1 minute per path (14 total combinations) |

Note: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and rated voltage.

Typical Application:



Packaging

| Driver quantity<br>(pcs) | Layer | Weight (kg) | Outer dimensions of Carton<br>L*W*H(mm) |
|--------------------------|-------|-------------|-----------------------------------------|
| 35                       | 5     | 14.5        | 400 X 275 X 180                         |

