

# Long Life High Quality Driver

## 600W | 120-277Vac Input

### ■ Features

- Absolute Supply Voltage: 108-305Vac or 127-420Vdc, 380Vac for 2 hours
- Horticultural Customizable Configuration
- 95% Efficiency Max.
- Low Inrush Current
- 100,000Hour Life @ Tc=75°C
- NFC Programmability and Isolated Dimming
- +/-2% Output Current Accuracy (Programmable Model)
- 0-10V/PWM/Time/DALI /DMX (Optional) Dimmable
- Dim Off with 0.5W Standby Power
- 12V 300mA Auxiliary Power to Power Controllers and Fans
- UL Class P, ENEC/CB/CCC SELV Output
- Safety according to EN 61347-1, 61347-2-3, 61347-2-13, 623847



### ■ Model List (See appendix for more details about the operation range)

| Model Number     | Input Voltage Range | Output Power | Output Voltage | Full Power Settable Current Min | Full Power Settable Current Max | Certification (To be done) |
|------------------|---------------------|--------------|----------------|---------------------------------|---------------------------------|----------------------------|
| BLD-600-C14A-XYU | 108-305Vac          | 600 W        | 30-55Vdc       | 11A                             | 14A                             | UL/FCC                     |
| BLD-600-C860-XYU | 108-305Vac          | 600 W        | 42-100Vdc      | 6A                              | 8.6A                            | UL/FCC                     |
| BLD-600-C600-XYU | 108-305Vac          | 600 W        | 60-143Vdc      | 4.2A                            | 6A                              | UL/FCC                     |
| BLD-600-C420-XYU | 108-305Vac          | 600 W        | 86-214Vdc      | 2.8A                            | 4.2A                            | UL/FCC                     |
| BLD-600-C14A-XYS | 108-305Vac          | 600 W        | 30-55Vdc       | 11A                             | 14A                             | CB/ENEC/CCC                |
| BLD-600-C860-XYS | 108-305Vac          | 600 W        | 42-100Vdc      | 6A                              | 8.6A                            | CB/ENEC/CCC                |
| BLD-600-C600-XYS | 108-305Vac          | 600 W        | 60-143Vdc      | 4.2A                            | 6A                              | CB/ENEC/CCC                |
| BLD-600-C420-XYS | 108-305Vac          | 600 W        | 86-214Vdc      | 2.8A                            | 4.2A                            | CB/ENEC/CCC                |

| XY= | Dimming Method   | Programmable | 12Vaux | Dim-off                                                         |
|-----|------------------|--------------|--------|-----------------------------------------------------------------|
| NN  | -                | -            | -      | -                                                               |
| DN  | 0-10V            | Cable        | -      | <b>No Dim-off as default status, programmed to have Dim-off</b> |
| EN  | 0-10V            | Cable        | 300mA  | √                                                               |
| TR  | Time/Set Current | NFC Wireless | -      | -                                                               |
| DR  | 0-10V            | NFC Wireless | -      | <b>No Dim-off as default status, programmed to have Dim-off</b> |
| ER  | 0-10V/PWM/Time   | NFC Wireless | 300mA  | √                                                               |
| AR  | DALI             | NFC Wireless | -      | √                                                               |

## ■ Technical Data

|                        |                                                                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage          | 108-305Vac or 127-420Vdc, 380Vac for 2 hours                                                                                                     |
| Input Frequency        | 47~63Hz                                                                                                                                          |
| Power Factor           | >0.9@60-100%load, refer to PF vs. Load curve                                                                                                     |
| THD                    | <15%@60-100%load, refer to THD vs. Load curve                                                                                                    |
| Input Current          | 5.4Amax@120Vac & Full-Load,<br>2.4Amax@277Vac & Full-Load                                                                                        |
| Inrush Current         | 10A peak, 2.2ms duration, <0.15A2s@220Vac, Cold Start<br>15A peak, 2.3ms duration, <0.35A2s@2770Vac, Cold Start                                  |
| Leakage Current        | 1mA max @277Vac 60Hz, UL8750, 0.75mA max @220Vac 50Hz, IEC61347-1                                                                                |
| Input Under Voltage    | Shut down and auto-restart                                                                                                                       |
| Surge Protection       | Line to line 6kV, line to ground 10kV, IEC 61000-4-5                                                                                             |
| Current Accuracy       | ±5%Io for non programmable models, ±2%Io for programmable models                                                                                 |
| Ripple Current         | Ip-p:5%Io max                                                                                                                                    |
| Setup Time             | 1.2s max                                                                                                                                         |
| Overshoot              | 10% Io max & LED Load                                                                                                                            |
| Output Over Voltage    | 110% Vomax, typ.                                                                                                                                 |
| Short Circuit          | Auto recovery. The output recovers when short is removed.                                                                                        |
| Over Temperature       | Lower the output current when $T_c \geq 105 \pm 10^\circ\text{C}$ ; Auto Recovery When $T_c \leq 70 \pm 10^\circ\text{C}$                        |
| Auxiliary Power (Vaux) | 12V+/-5%, 300mA max                                                                                                                              |
| Operating Temperature  | Case Temperature $T_c = -40^\circ\text{C} \sim +90^\circ\text{C}$ ; 10%RH~100%RH                                                                 |
| Storage Temperature    | $-40^\circ\text{C} \sim +85^\circ\text{C}$ ; 5%RH~100%RH                                                                                         |
| MTBF                   | $\geq 320,000$ hours, $75^\circ\text{C}$ case temperature (MIL-HDBK-217F)                                                                        |
| Lifetime               | $\geq 100,000$ hours, $75^\circ\text{C}$ case temperature, refer to life vs. $T_c$ curve                                                         |
| Case Temperature       | $90^\circ\text{C}$ max, marked in the $T_c$ point of label                                                                                       |
| Dimensions             | 9.33x4.92x1.93 by inch (body), 10.3x4.92x1.93 by inch (endcaps included)<br>237 x 125 x 49 by mm (body), 262 x 125 x 49 by mm (endcaps included) |
| Net Weight             | 2600g                                                                                                                                            |
| Packing                | 8pcs/Carton/22.8kg, 490 x 370 x 250 by mm                                                                                                        |

Notes: Unless specified, all the test results are measured in  $25^\circ\text{C}$  room temperature.

## ■ Safety/EMC Compliance

| Safety Standard | Description                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| UL8750          | Light emitting diode(LED) equipment for use in lighting products                                                      |
| UL1012          | Power units other than class 2                                                                                        |
| IEC 61347-1     | Lamp control gear Part 1: general and safety requirements                                                             |
| IEC 61347-2-13  | Lamp control gear Part 2-13: particular requirement for d.c. or a.c. supplied electronic control gear for LED modules |
| EMI Standards   | Description                                                                                                           |
| IEC 55015       | Conducted emission test & radiated emission test                                                                      |
| IEC 61000-3-2   | Harmonic current emissions; Class C                                                                                   |
| IEC 61000-3-3   | Voltage fluctuations & flicker                                                                                        |
| FCC Part 15     | ANSI C63.4:2009 Class B                                                                                               |
| EMS Standards   | Description                                                                                                           |
| IEC 61000-4-2   | Electrostatic discharge (ESD): 8 kV air discharge, 4 kV contact discharge                                             |
| IEC 61000-4-3   | Radio frequency electromagnetic field susceptibility test (RS)                                                        |
| IEC 61000-4-4   | Electrical fast transient (EFT)                                                                                       |
| IEC 61000-4-5   | Surge immunity test                                                                                                   |
| IEC 61000-4-6   | Conducted radio frequency disturbances test (CS)                                                                      |
| IEC 61000-4-8   | Power frequency magnetic field test                                                                                   |
| IEC 61000-4-11  | Voltage dips                                                                                                          |
| IEC 61547       | Electromagnetic immunity requirements applies to lighting equipment                                                   |

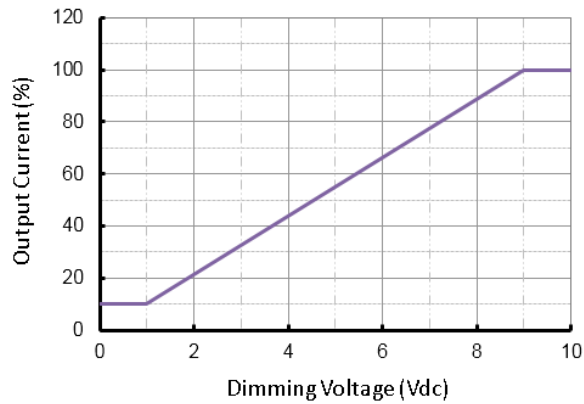
## ■ Dimming

| Parameter                                          | Min.           | Typ.       | Max.                |
|----------------------------------------------------|----------------|------------|---------------------|
| Vdim Sourcing Current                              | 200uA          | 300uA      | 450uA               |
| Vdim Allowed Input Voltage                         | -20 V          |            | 20 V                |
| 0-10V Dimming Range                                | 10% (Vdim=1V)  | Linear     | 100% (Vdim=9~10V)   |
| PWM Dimming Range                                  | 10% (Duty=10%) | Linear     | 100% (Duty=90-100%) |
| Dim off threshold                                  | 0.4V or 4%     | 0.5V or 5% | 0.6V or 6%          |
| Dim on threshold                                   | 0.6V or 6%     | 0.7V or 7% | 0.8V or 8%          |
| PWM High                                           | 3.8V           |            | 10V                 |
| PWM Low                                            | 0V             |            | 0.6V                |
| PWM Frequency                                      | 300Hz          |            | 2kHz                |
| External PWM Controller Current Sinking Capability | 300uA          |            |                     |
| DALI Interface Standard                            |                | IEC62386   |                     |
| DA1,DA2 High Level                                 | 9.5            | 16         | 22.5                |
| DA1,DA2 Low Level                                  | -6.5           | 0          | 6.5                 |
| DA1,DA2 Current                                    | 0              |            | 2mA                 |

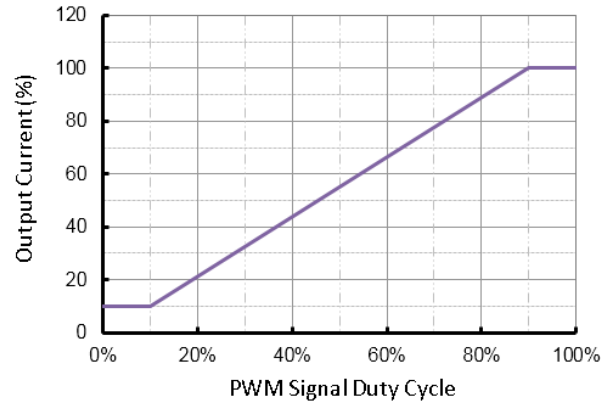
- Dimming Curve

a. Without dim-off

0-10V Dimming Curve

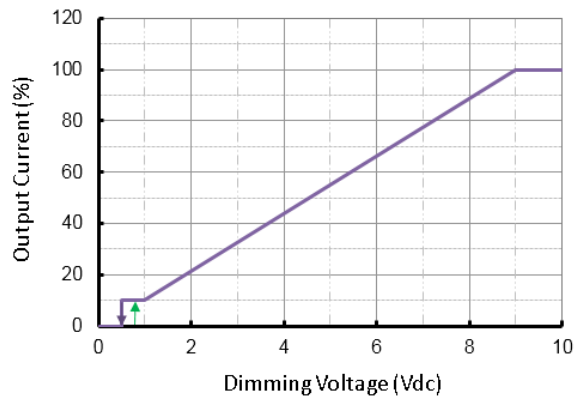


PWM Dimming Curve

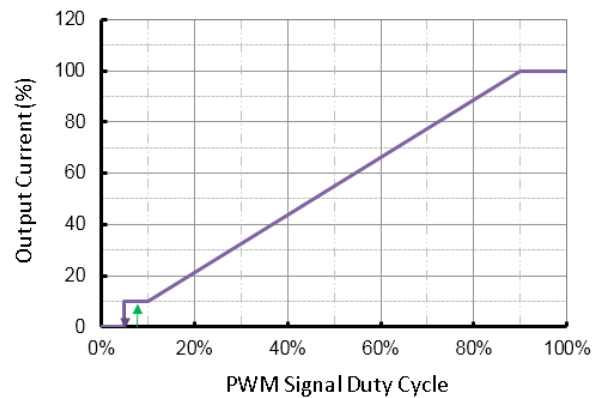


b. With dim-off

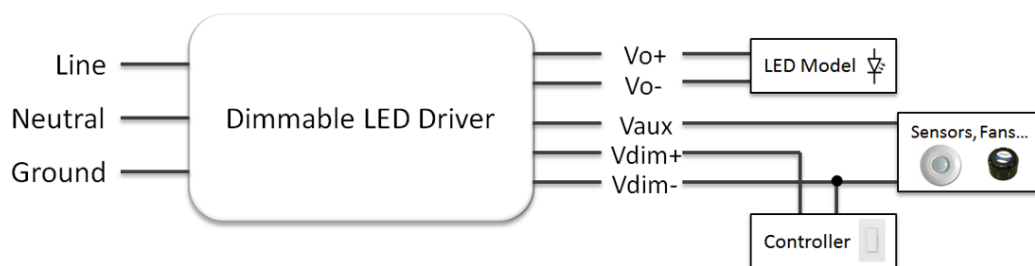
0-10V Dimming Curve



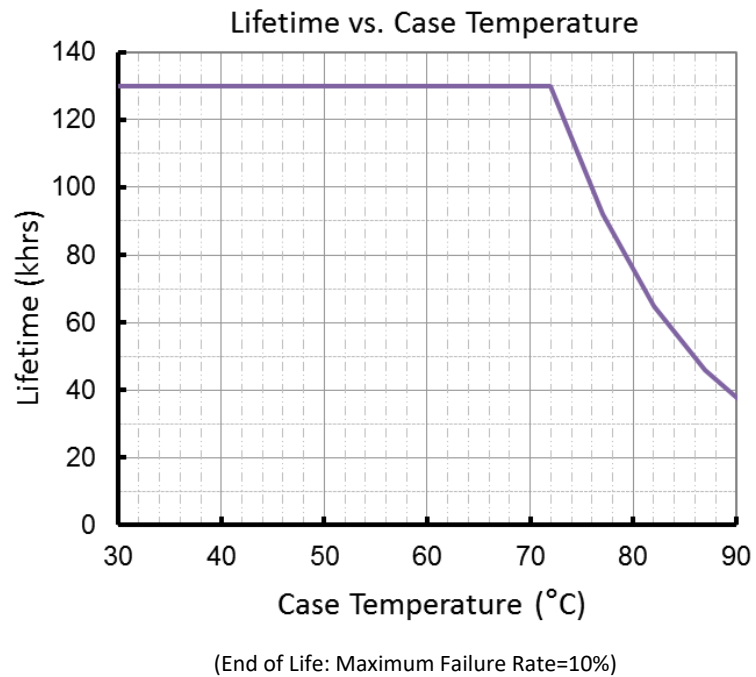
PWM Dimming Curve



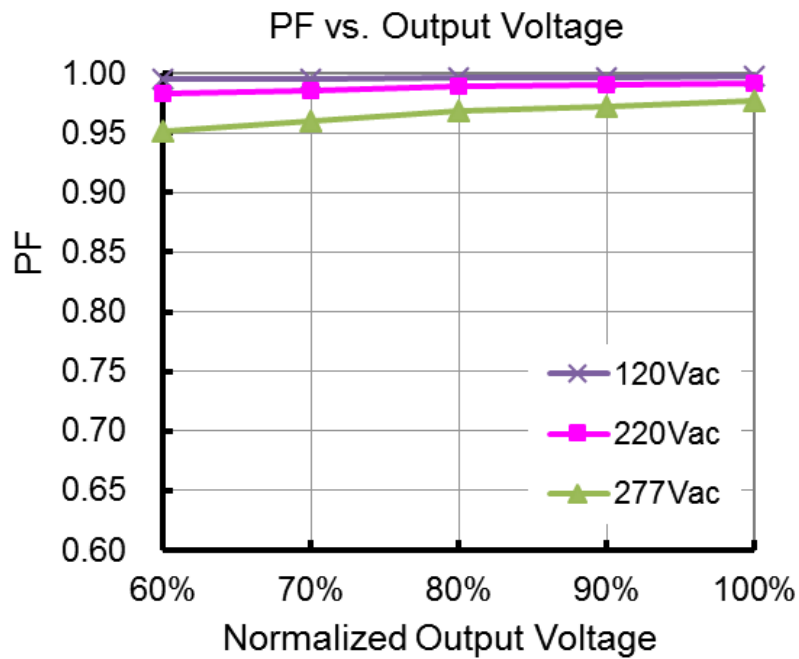
- Dimming Wiring



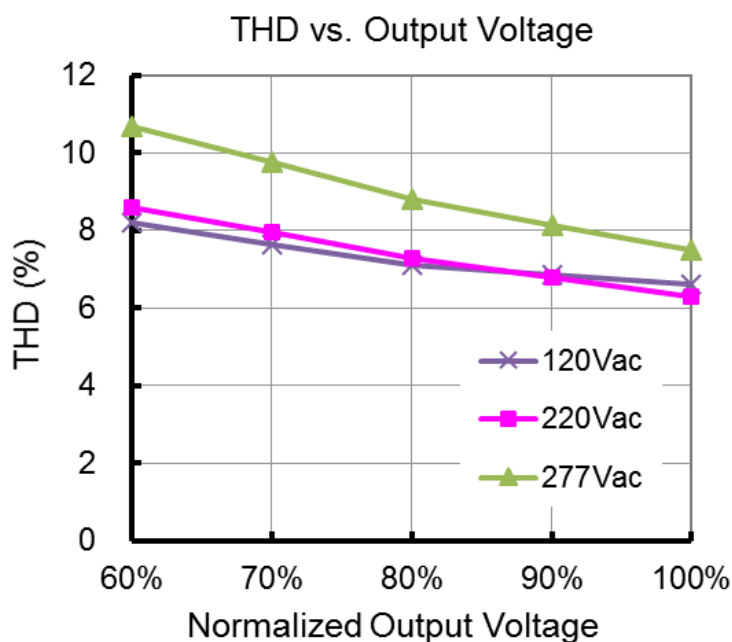
## ■ Lifetime vs. Case Temperature



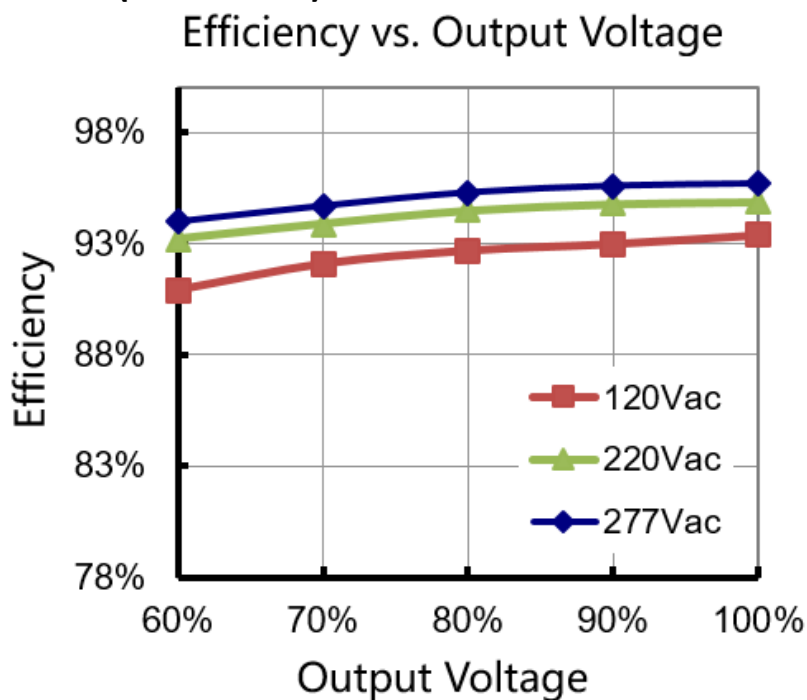
## ■ Power Factor vs. Load



## ■ THD vs. Load

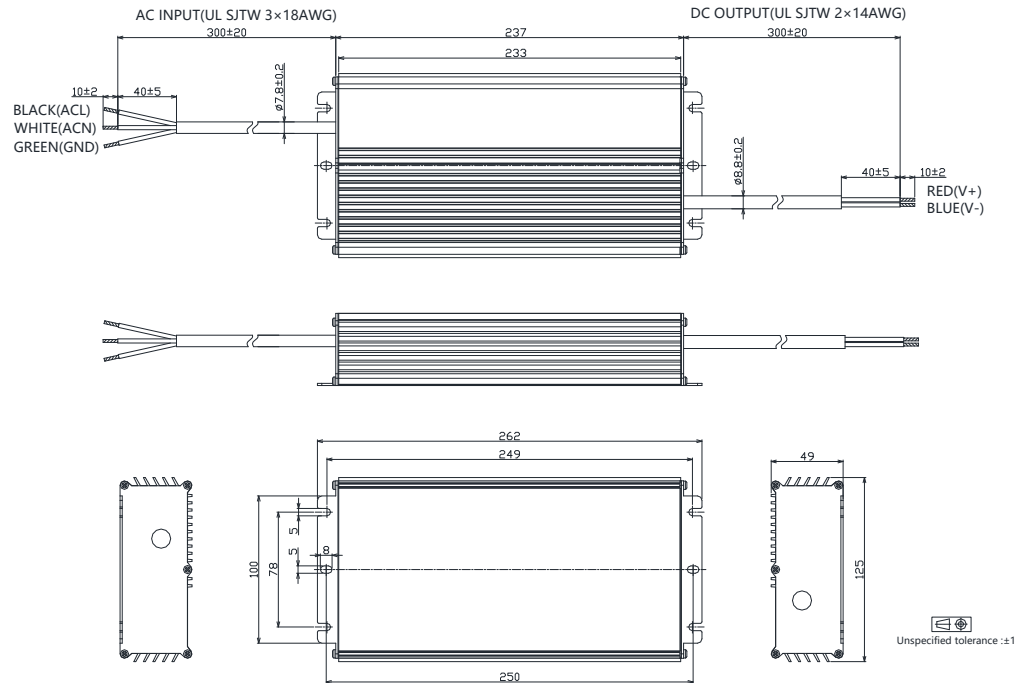


## ■ Efficiency vs. Load (14A Model)

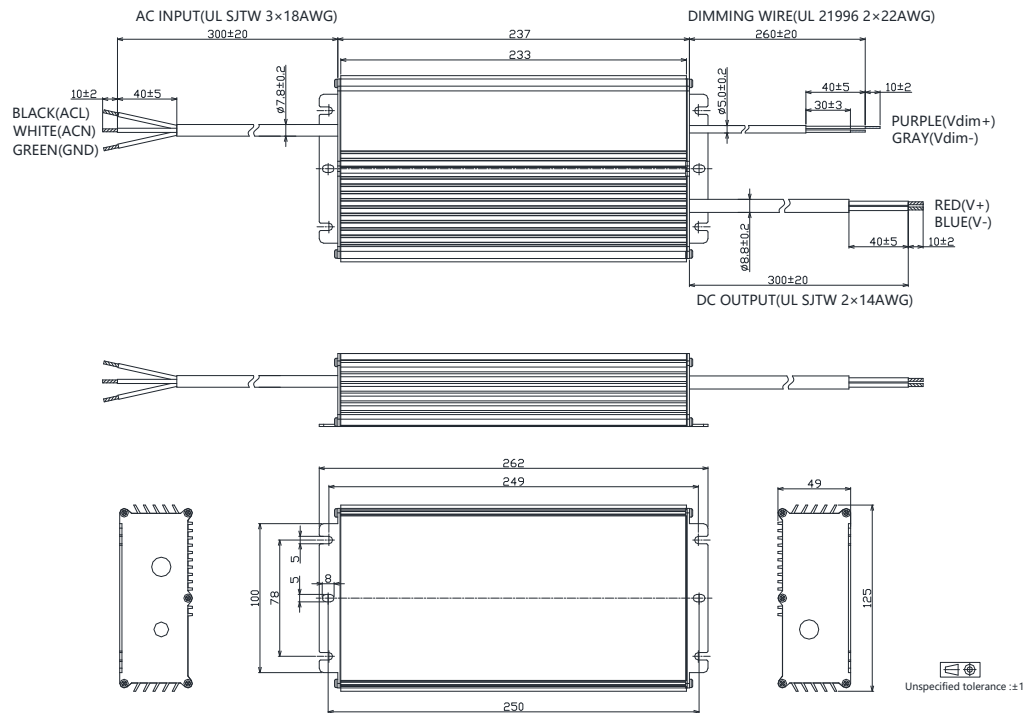


## ■ Mechanical Design

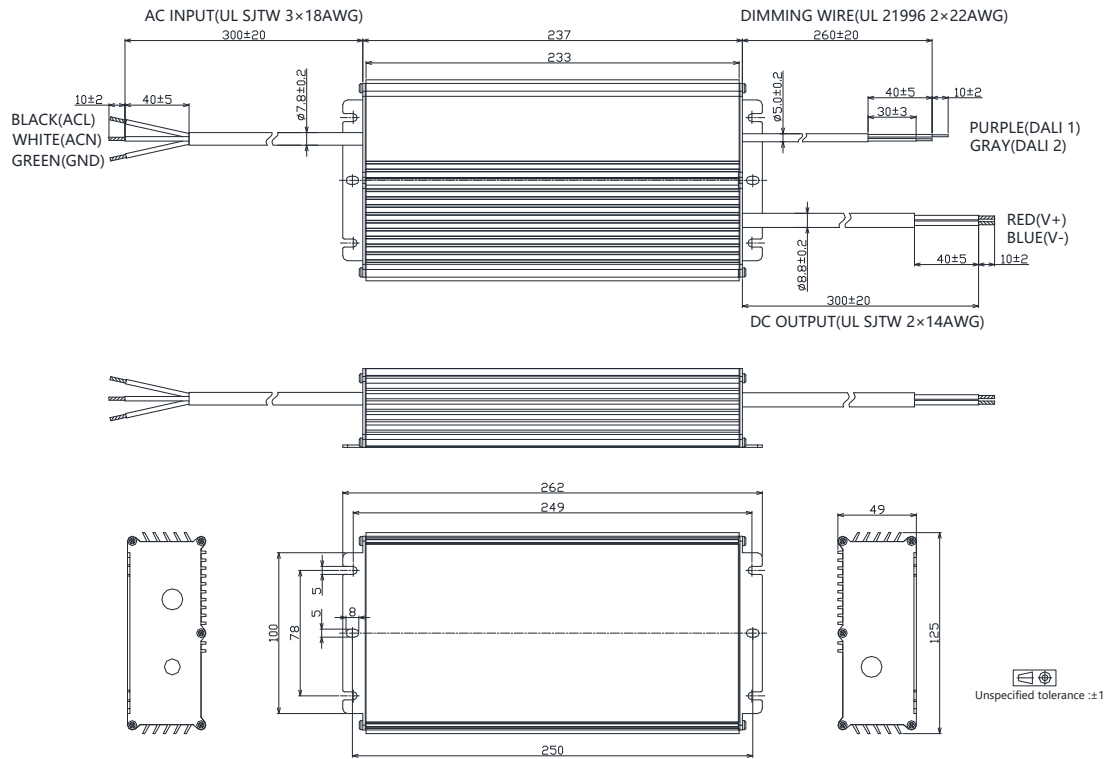
### - BLD-600-Cxxx-NNU/TRU



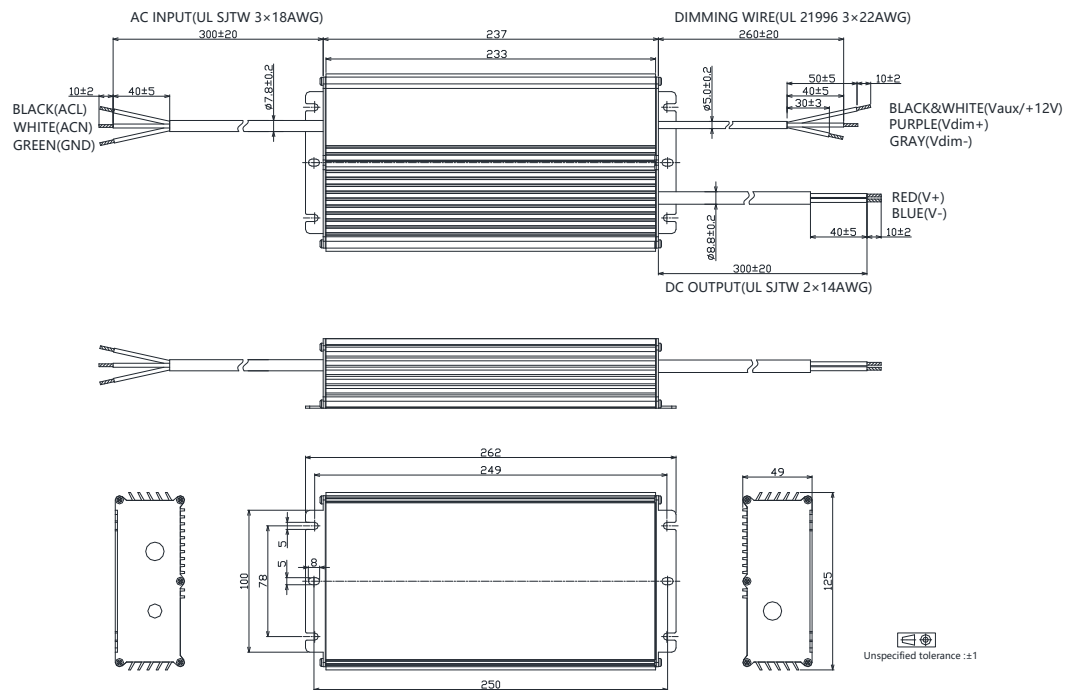
### - BLD-600-CXXX-DNU/DRU



## - BLD-600-CXXX-ANU/ARU

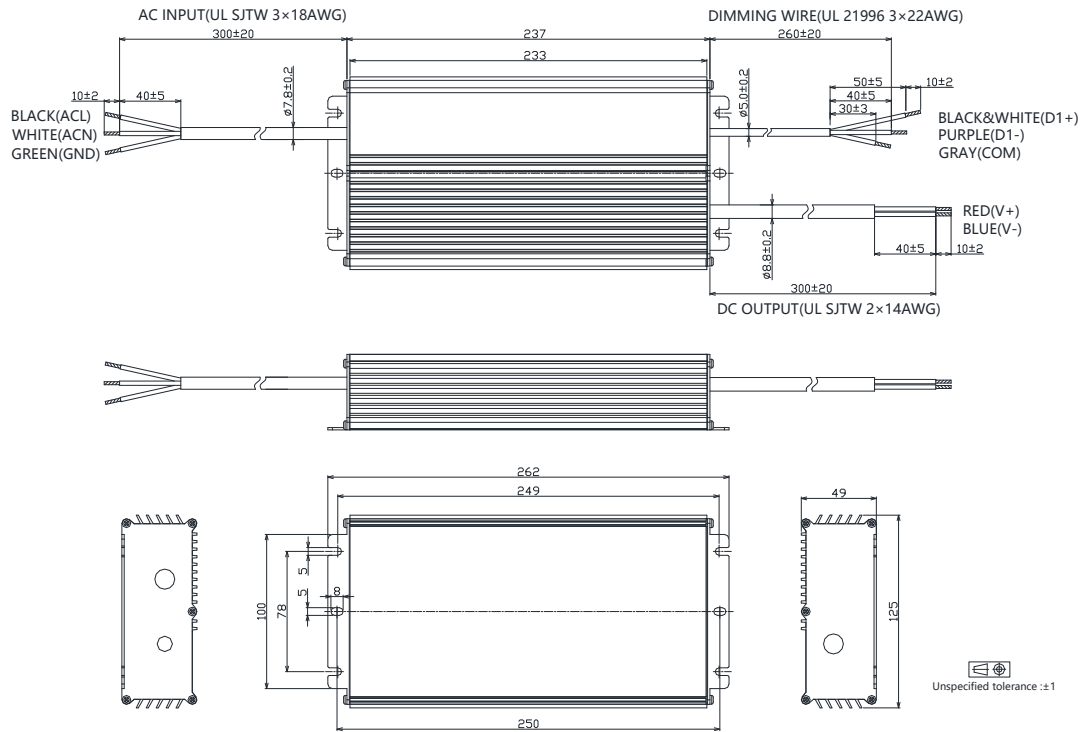


## - BLD-600-CXXX-ENU/ERU

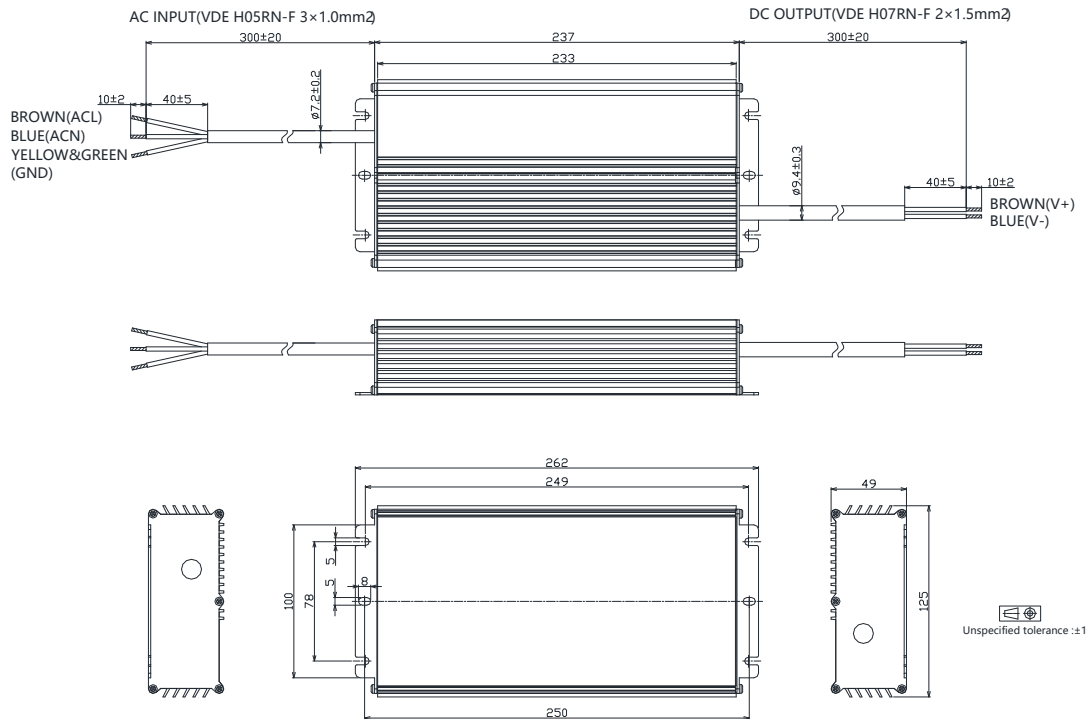




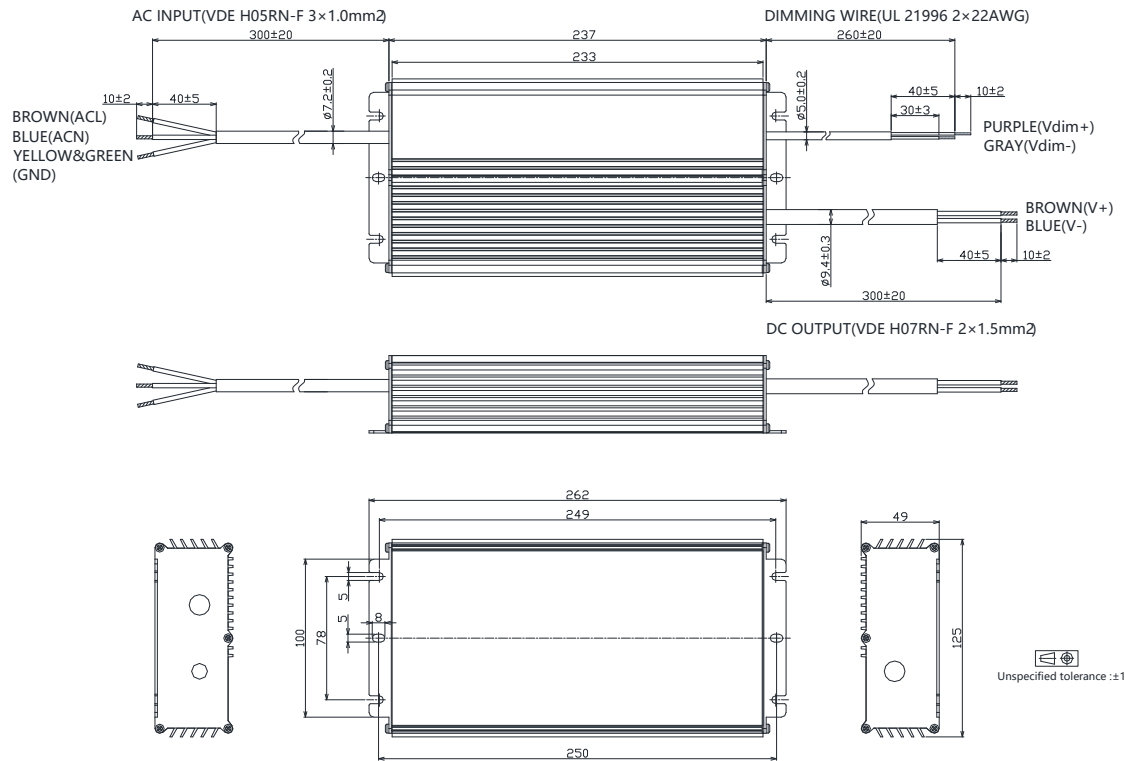
- BLD-600-CXXX-MRU



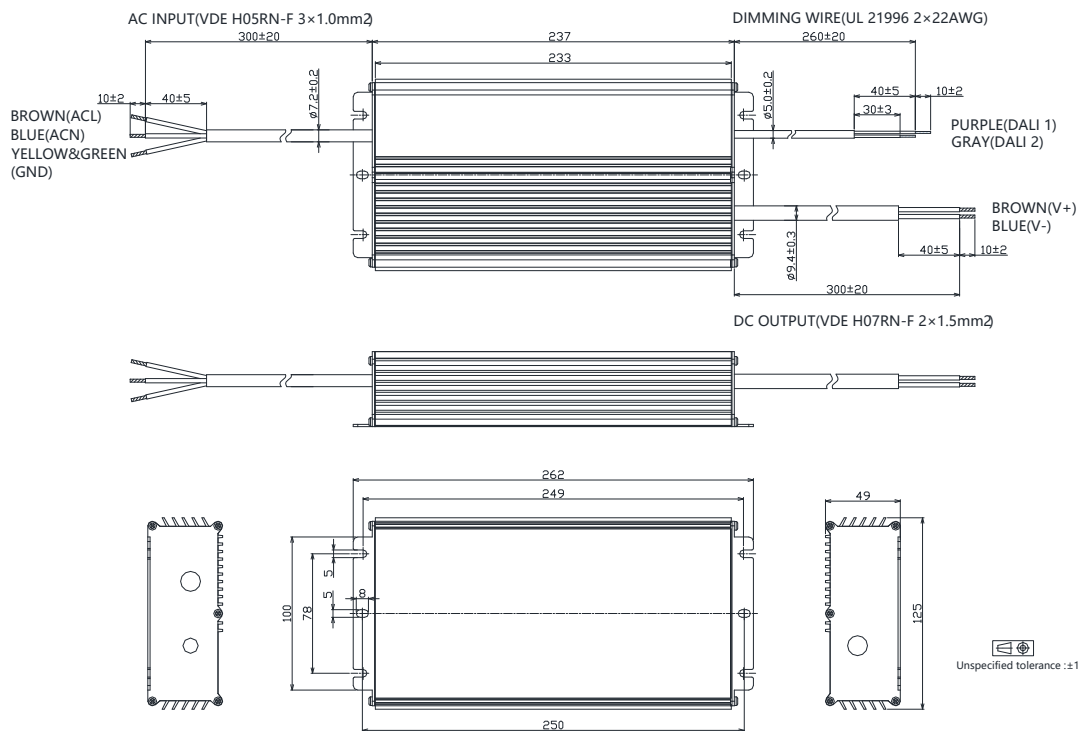
- BLD-600-CXXX-NNS/TRS (MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



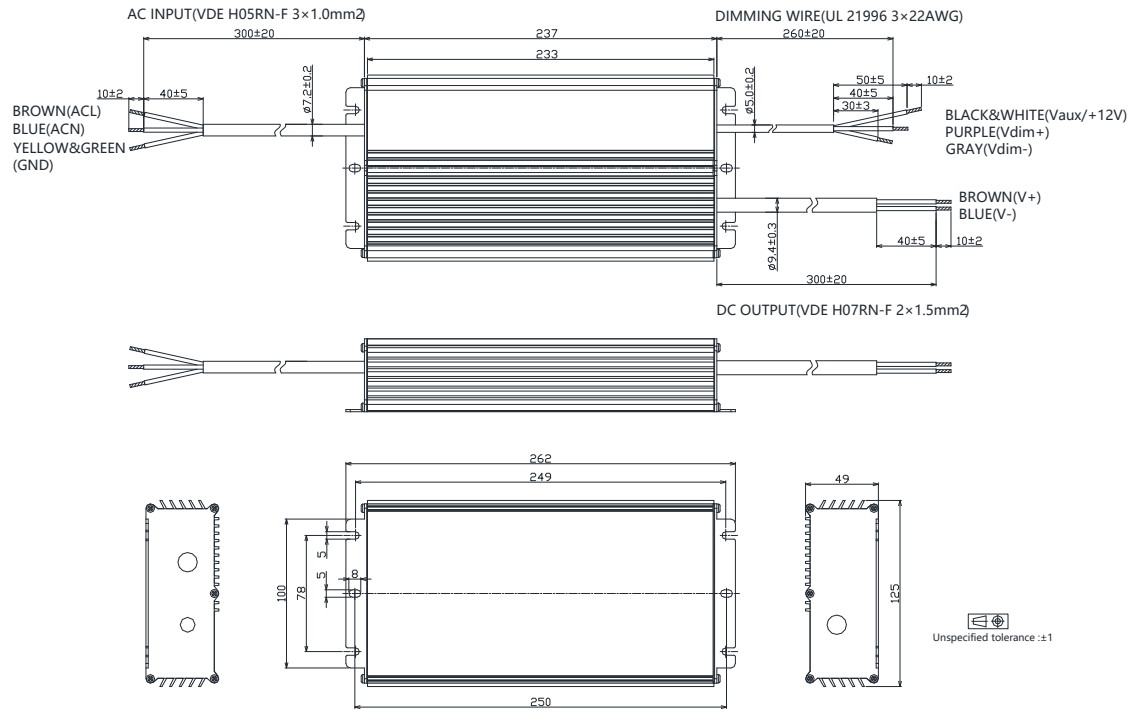
## - BLD-600-CXXX-DNS/DRS (MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



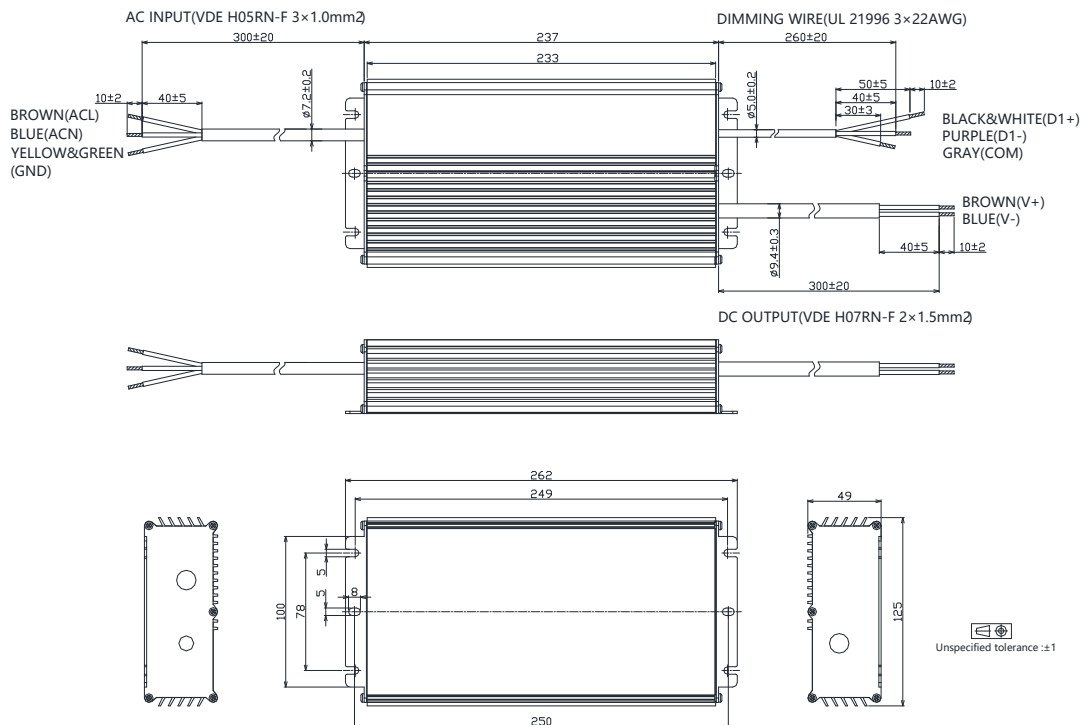
## - BLD-600-CXXX-ANS/ARS (MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



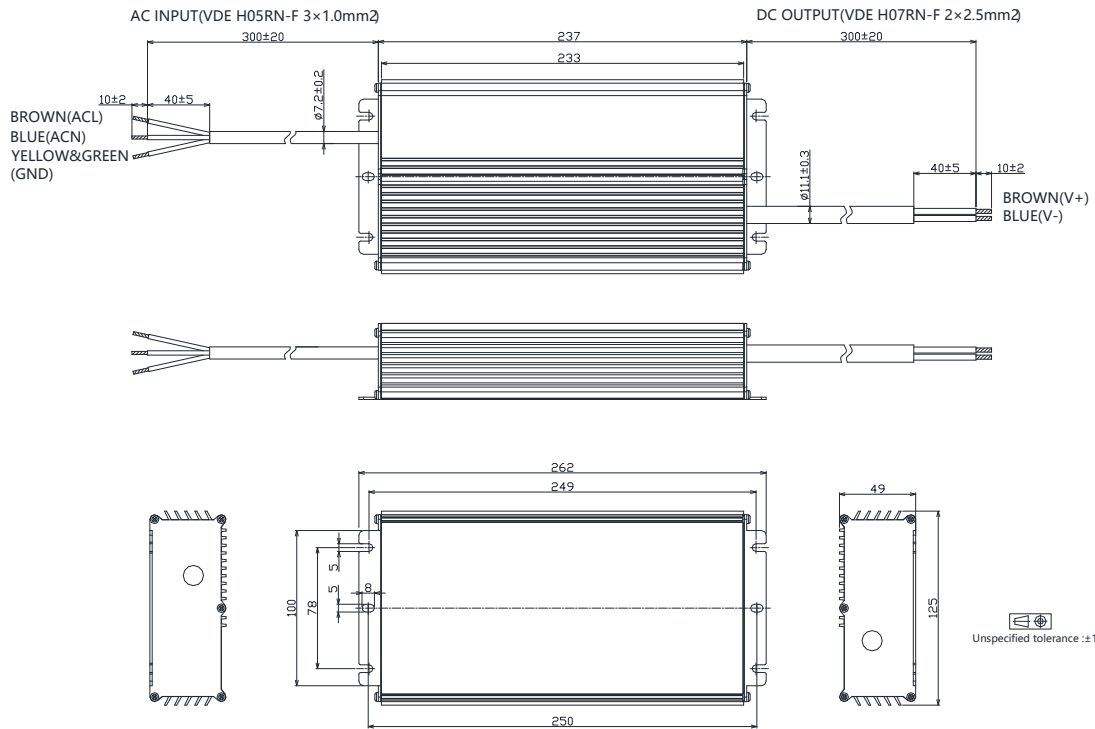
## - BLD-600-CXXX-ENS/ERS (MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



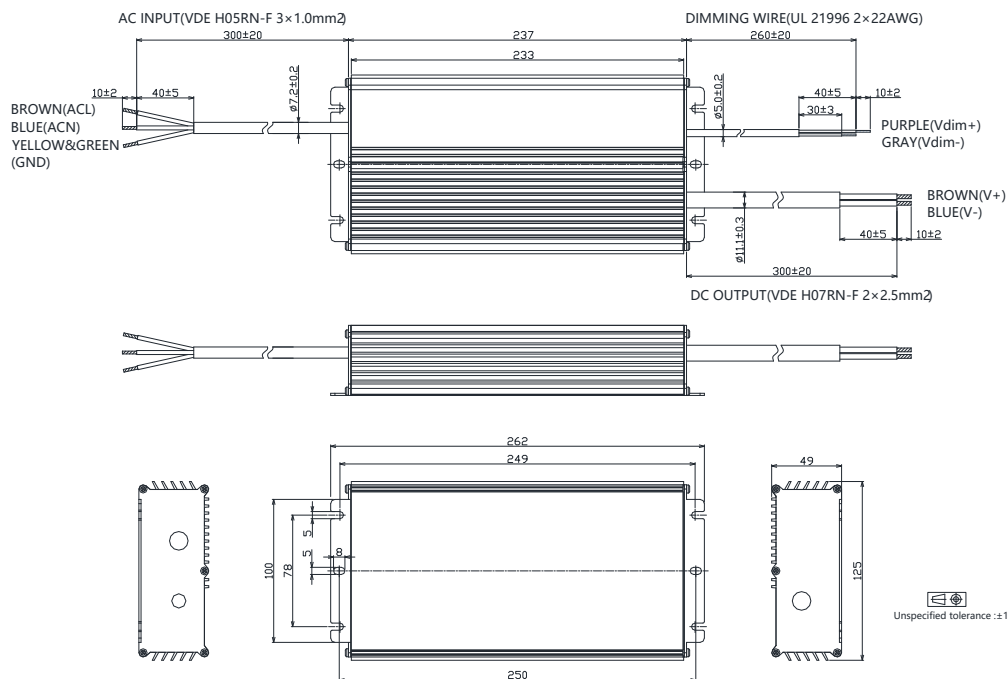
## - BLD-600-CXXX-MRS (MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



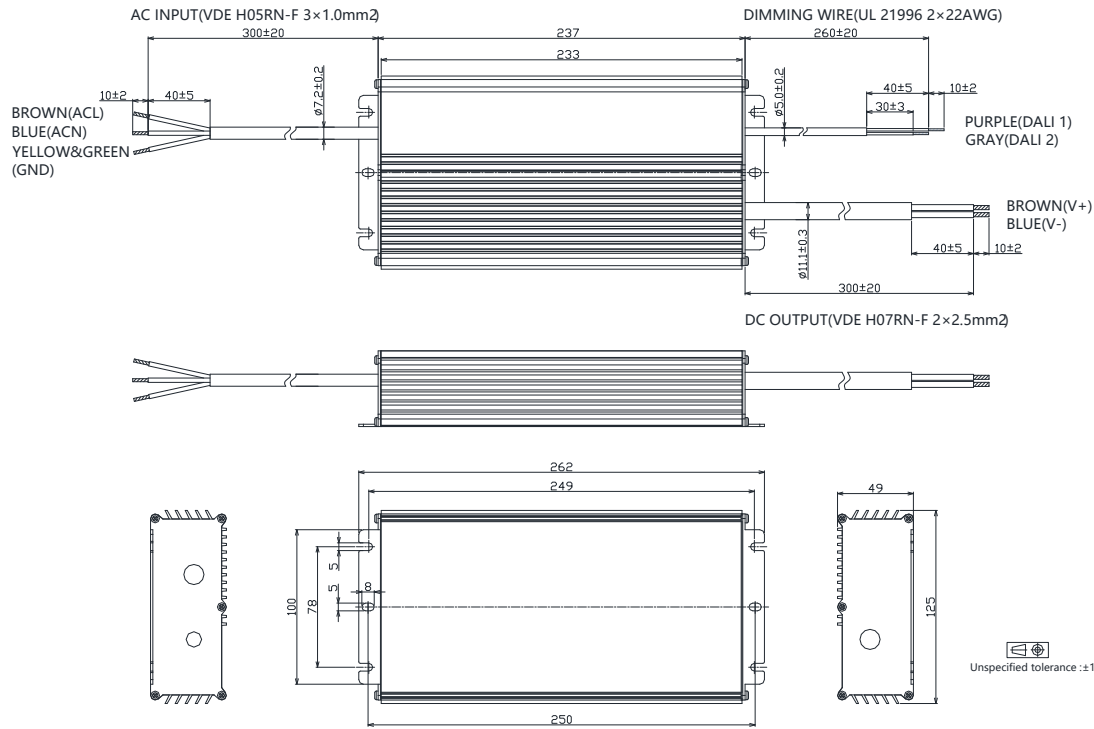
## - BLD-600-CXXX-NNS/TRS (MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



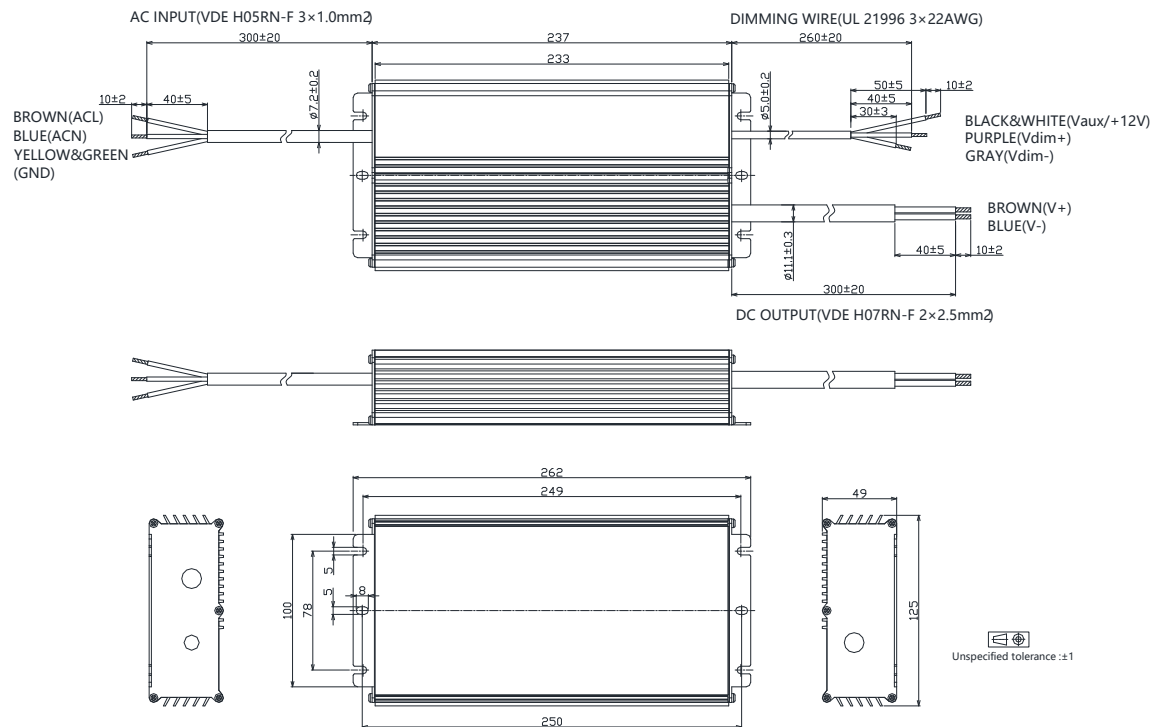
## - BLD-600-CXXX-DNS/DRS (MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



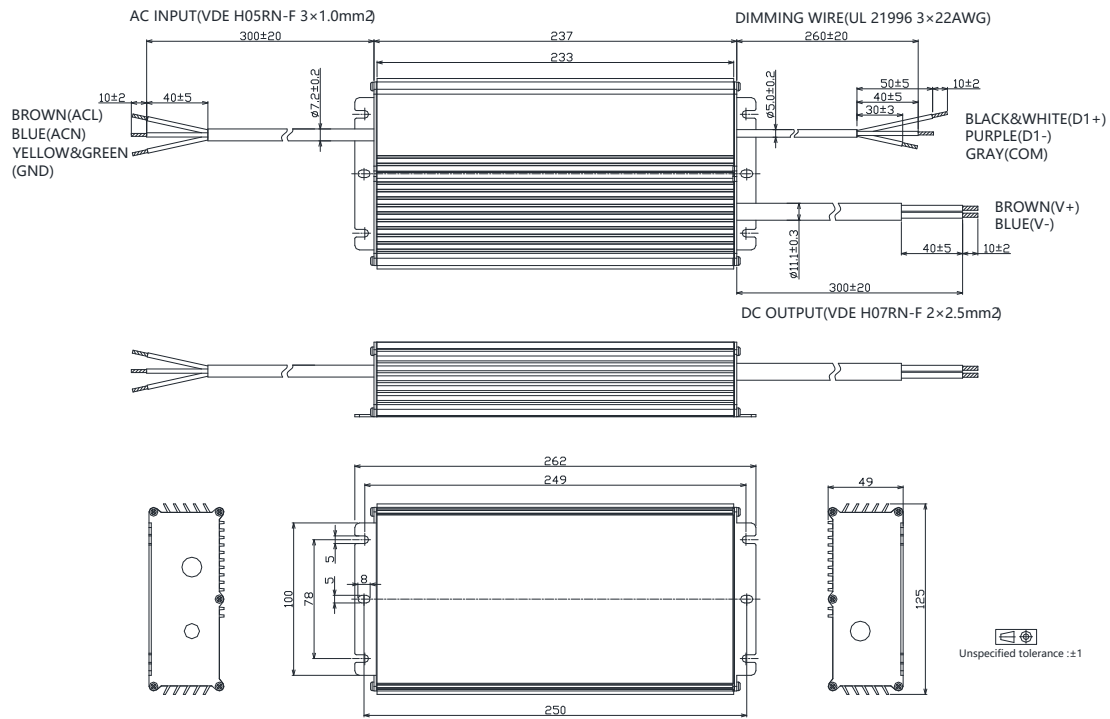
- BLD-600-CXXX-ANS/ARS (MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



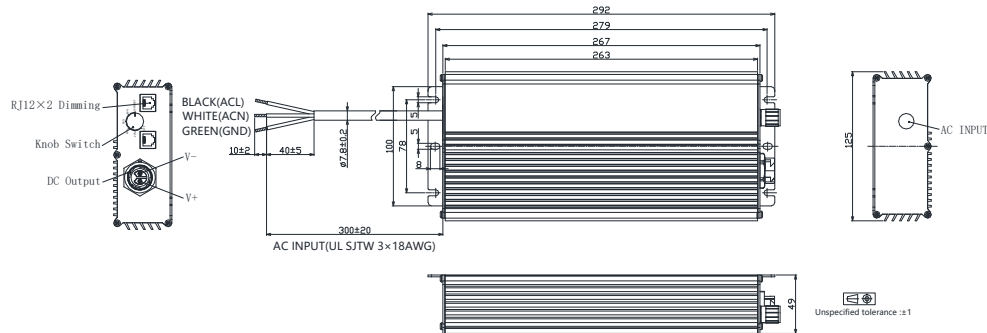
- BLD-600-CXXX-ENS/ERS (MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



## - BLD-600-CXXX-MRS (MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



- Customized Functional End Cap Version

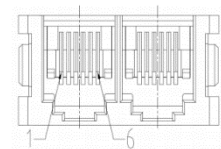


- Add suffix #abcd00 to the end of part number to indicate different configuration.

| Item    | Value Definition | Description                                                                                                  |
|---------|------------------|--------------------------------------------------------------------------------------------------------------|
| Input   | a                | F: M19 waterproof connector<br>P: C14 plug<br>N: Same cable as standard version                              |
| Output  | b                | F: M19 waterproof connector, 2 pin<br>N: Same cable as standard version                                      |
| Dimming | c                | F: M12 waterproof connector<br>R: RJ12 x 2<br>S: 3.5mm multi-media plug<br>N: Same cable as standard version |
| Knob    | d                | K: Knob with steps<br>B: Knob without steps<br>N: No knob                                                    |

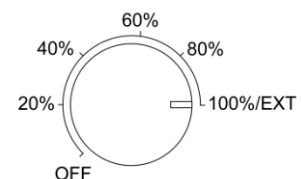
- RJ12 Pin Description

| Pin | Description   |
|-----|---------------|
| 1,6 | 12V Aux-power |
| 2,5 | Dim+          |
| 3,4 | Dim-/RTN      |



- Knob Description:

| Position            | Description                                                                                                             |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|
| 100%/EXT            | If there is no external control, 100% output.<br>If there is external control, output is controlled by external signal. |
| Off,20%,40%,60%,80% | External signal invalid.                                                                                                |



## ■ Appendix – Operation Range

| Model | Typical Set Output Current (mA) | Max Output Power (W) | Output Voltage Min (V) | Output Voltage Max(V) | Minimum Dimming Current (mA) |
|-------|---------------------------------|----------------------|------------------------|-----------------------|------------------------------|
| -C14A | 14000                           | 600                  | 30                     | 44                    | 1400                         |
|       | 13000                           | 600                  | 30                     | 47                    | 1300                         |
|       | 12500                           | 600                  | 30                     | 49                    | 1250                         |
|       | 12000                           | 600                  | 31                     | 51                    | 1200                         |
|       | 11500                           | 600                  | 32                     | 53                    | 1150                         |
|       | 11000                           | 600                  | 33                     | 55                    | 1100                         |
|       | 10500                           | 578                  | 33                     | 55                    | 1100                         |
|       | 10000                           | 550                  | 33                     | 55                    | 1100                         |
|       | ...                             | ...                  | ...                    | ...                   | ...                          |
|       | 1100                            | 61                   | 33                     | 55                    | 1100                         |

| Model | Typical Set Output Current (mA) | Max Output Power (W) | Output Voltage Min (V) | Output Voltage Max(V) | Minimum Dimming Current (mA) |
|-------|---------------------------------|----------------------|------------------------|-----------------------|------------------------------|
| -C860 | 8600                            | 600                  | 42                     | 70                    | 860                          |
|       | 8500                            | 600                  | 42                     | 71                    | 850                          |
|       | 8400                            | 600                  | 43                     | 71                    | 840                          |
|       | 8200                            | 600                  | 44                     | 73                    | 820                          |
|       | 8000                            | 600                  | 45                     | 75                    | 800                          |
|       | 7800                            | 600                  | 46                     | 77                    | 780                          |
|       | 7600                            | 600                  | 47                     | 79                    | 760                          |
|       | 7400                            | 600                  | 49                     | 81                    | 740                          |
|       | 7200                            | 600                  | 50                     | 83                    | 720                          |
|       | 7000                            | 600                  | 51                     | 86                    | 700                          |
|       | 6800                            | 600                  | 53                     | 88                    | 680                          |
|       | 6600                            | 600                  | 55                     | 91                    | 660                          |
|       | 6400                            | 600                  | 56                     | 94                    | 640                          |
|       | 6200                            | 600                  | 58                     | 97                    | 620                          |
|       | 6000                            | 600                  | 60                     | 100                   | 600                          |
|       | 5800                            | 580                  | 60                     | 100                   | 600                          |
|       | 5600                            | 560                  | 60                     | 100                   | 600                          |
|       | ...                             | ...                  | ...                    | ...                   | ...                          |
|       | 600                             | 60                   | 60                     | 100                   | 600                          |



| Model | Typical Set Output Current (mA) | Max Output Power (W) | Output Voltage Min (V) | Output Voltage Max(V) | Minimum Dimming Current (mA) |
|-------|---------------------------------|----------------------|------------------------|-----------------------|------------------------------|
| -C600 | 6000                            | 600                  | 60                     | 100                   | 600                          |
|       | 5800                            | 600                  | 62                     | 103                   | 580                          |
|       | 5600                            | 600                  | 64                     | 107                   | 560                          |
|       | 5400                            | 600                  | 67                     | 111                   | 540                          |
|       | 5200                            | 600                  | 69                     | 115                   | 520                          |
|       | 5000                            | 600                  | 72                     | 120                   | 500                          |
|       | 4800                            | 600                  | 75                     | 125                   | 480                          |
|       | 4600                            | 600                  | 78                     | 130                   | 460                          |
|       | 4400                            | 600                  | 82                     | 136                   | 440                          |
|       | 4200                            | 600                  | 86                     | 143                   | 420                          |
|       | 4000                            | 571                  | 86                     | 143                   | 420                          |
|       | 3800                            | 543                  | 86                     | 143                   | 420                          |
|       | 3600                            | 514                  | 86                     | 143                   | 420                          |
|       | 3400                            | 486                  | 86                     | 143                   | 420                          |
|       | 3200                            | 457                  | 86                     | 143                   | 420                          |
|       | 3000                            | 429                  | 86                     | 143                   | 420                          |
|       | ...                             | ...                  | ...                    | ...                   | ...                          |
|       | 420                             | 60                   | 86                     | 143                   | 420                          |

| Model | Typical Set Output Current (mA) | Max Output Power (W) | Output Voltage Min (V) | Output Voltage Max(V) | Minimum Dimming Current (mA) |
|-------|---------------------------------|----------------------|------------------------|-----------------------|------------------------------|
| -C420 | 4200                            | 600                  | 86                     | 143                   | 420                          |
|       | 4100                            | 600                  | 88                     | 146                   | 410                          |
|       | 4000                            | 600                  | 90                     | 150                   | 400                          |
|       | 3900                            | 600                  | 92                     | 154                   | 390                          |
|       | 3800                            | 600                  | 95                     | 158                   | 380                          |
|       | 3700                            | 600                  | 97                     | 162                   | 370                          |
|       | 3600                            | 600                  | 100                    | 167                   | 360                          |
|       | 3500                            | 600                  | 103                    | 171                   | 350                          |
|       | 3300                            | 600                  | 109                    | 182                   | 330                          |
|       | 3200                            | 600                  | 113                    | 188                   | 320                          |
|       | 3100                            | 600                  | 116                    | 194                   | 310                          |
|       | 3000                            | 600                  | 120                    | 200                   | 300                          |
|       | 2900                            | 600                  | 124                    | 207                   | 290                          |
|       | 2800                            | 600                  | 129                    | 214                   | 280                          |
|       | 2700                            | 579                  | 129                    | 214                   | 280                          |
|       | 2600                            | 557                  | 129                    | 214                   | 280                          |
|       | ...                             | ...                  | ...                    | ...                   | ...                          |
|       | 280                             | 60                   | 129                    | 214                   | 280                          |