

Product Datasheet



The global certified APD-200-C is a dual stage high efficiency smart LED driver. 10kV surge protection level, 100khour long life and 7-year warranty provide high confidence to luminaire users. It supports not only traditional 0-10V control, but also D4i smart protocols with NFC programmability. All around protections including digital OTP (internal and external by NTC) with auto-recovery secure 24hour non-stop operation for luminaires.

- Street
- Flood
- Tunnel
- Shoe box
- Architectural



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200W, DPAC™ Tech, D4i and NFC Programmable LED Driver

■ Features

- Supply Voltage: 176-264Vac
- Great Surge Immunity 10kV
- **DPAC™ Tech (D4i Plus 0-10V Combo)**
- D4i/DALI2.0 Comply with IEC62386-101,102,150,207,250,251,252,253
- Integrated 16Vdc Bus Power Supply
- $\pm 1\%$ Energy Report Accuracy
- Dim Off with 0.5W Standby Power
- 24V 3W (10W Transient Peak) Aux-Power
- 100,000Hour Life @ $T_c=75^\circ\text{C}$ & 7 Year Warranty @ $T_c \leq 75^\circ\text{C}$
- $\pm 2\%$ Output Current Accuracy
- Airset™ NFC Programmability
- Class II and Class I Combo
- Safety according to EN 61347-1, 61347-2-13, 62384

■ Model List

| Model Number | Input Voltage Range | Output Power | Output Voltage | Full Power Settable Current Min | Full Power Settable Current Max | Dimming | Certification |
|------------------|---------------------|--------------|----------------|---------------------------------|---------------------------------|-----------------|---------------|
| APD-200-C140-ARE | 176-264Vac | 200 W | 86-222Vdc | 900mA | 1400mA | D4i&0-10V Combo | ENEC/CB/EL/CE |
| APD-200-C140-ERE | 176-264Vac | 200 W | 86-222Vdc | 900mA | 1400mA | 0-10V | |

- Note:** 1. For –ARE model, D4i priority is higher than 0-10V if both dimming control signals exist.
2. See the **Output Operation Range Section** for details.

■ Technical Data

| | |
|---------------------|--|
| Input Voltage | 176-264Vac |
| 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 | 1.05Amax@220Vac & Full-Load |
| Inrush Current | See Inrush Current Section in the datasheet |
| Leakage Current | 0.7mA max @240Vac 50/60Hz, IEC60598-1 |
| Input Under Voltage | Shut down and auto-restart |
| Surge Protection | Line to line 6kV, line to ground 10kV, IEC 61000-4-5 |
| Current Accuracy | $\pm 2\%$ lo for programmable model, $\pm 5\%$ lo for non-programmable model |
| Ripple Current | lp-p:5%lo max |
| Setup Time | 1.2s max |
| Overshoot | 10% lo max & LED Load |
| Output Over Voltage | 120% 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 |

200W, DPAC™ Tech, D4i and NFC Programmable LED Driver

| | |
|------------------------|--|
| | $T_c \leq 70 \pm 10^\circ\text{C}$ |
| Auxiliary Power (Vaux) | 24V+/-5%, 3W (10W Transient Peak) |
| Operating Temperature | Case Temperature $T_c = -40^\circ\text{C} \sim +85^\circ\text{C}$; 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°C case temperature (MIL-HDBK-217F) |
| Lifetime | $\geq 100,000$ hours, 75°C case temperature, refer to life vs. T_c curve |
| Case Temperature | 85°C max, marked in the T_c point of label |
| Dimensions | 150.0 x 90.0 x 40.0 by mm |
| Net Weight | 740g |
| Packing | See Package Information Section in the datasheet |

Notes: Unless specified, all the test results are measured in 25°C room temperature.

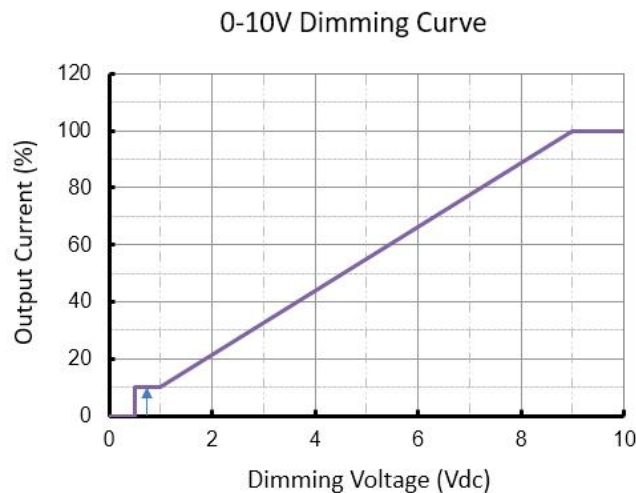
■ Safety/EMC Compliance

| 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

| D4i Related Parameter | Min. | Typ. | Max. |
|--------------------------------|--|--------|-------------------|
| DALI Interface Standard | IEC62386-101,102,150,207,250,251,252,253 | | |
| Dimming Range | 10% | - | 100% |
| DA1,DA2 High Level | 9.5V | 16V | 22.5V |
| DA1,DA2 Low Level | -6.5V | 0 | 6.5V |
| DA1,DA2 Current | 0 | | 2mA |
| Bus Power Supply Voltage | 12Vdc | 16Vdc | 20Vdc |
| Bus Power Supply Current | 52mA | - | 60mA |
| Auxiliary Power Voltage | 21.6V | 24V | 26.4V |
| Auxiliary Power | 3W | - | 4W |
| Auxiliary Power Endurance @6W | 3.8ms/6ms | - | 4.5ms/6ms |
| Auxiliary Power Endurance @10W | 1.8ms/6ms | - | 2.2ms/6ms |
| Bus Power Supply Current | 52mA | - | 60mA |
| 0-10V Related Parameter | Min. | Typ. | Max. |
| Vdim Sourcing Current | 100uA | 150uA | 200uA |
| Vdim Allowed Input Voltage | -20 V | | 20 V |
| 0-10V Dimming Range | 10% (Vdim=1V) | Linear | 100% (Vdim=9~10V) |
| Dim off threshold | 0.4V | 0.5V | 0.6V |
| Dim on threshold | 0.6V | 0.7V | 0.8V |

- Dimming Curve

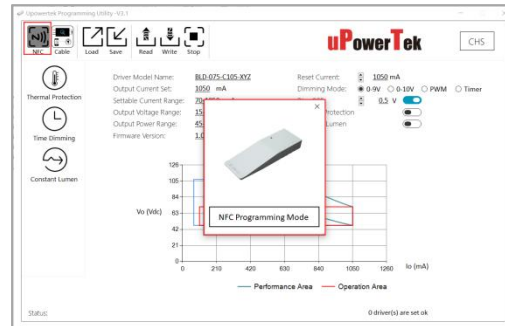
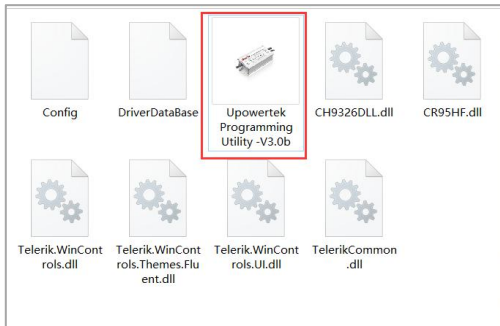


■ Programming

- NFC Programming by PC/Laptop



- Download PC Software at <https://www.upowertek.com/download-2/>
- Click Upowertek Programming Utility.exe
- The GUI start and notify you the programming mode (cable programming or NFC programming)
- Click “NFC” button if it’s not NFC programming mode.



- NFC Programming by Smartphone

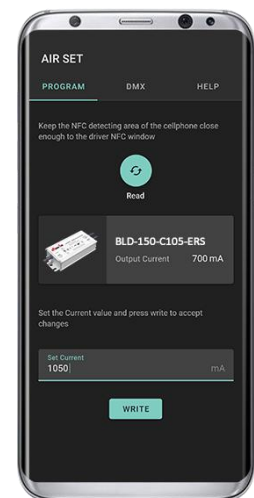
- Download Android APP at <https://www.upowertek.com/download-2/>
- Only available on Android cellphone (iPhone is not supported)
- The cellphone should have NFC function and make sure it is enabled.



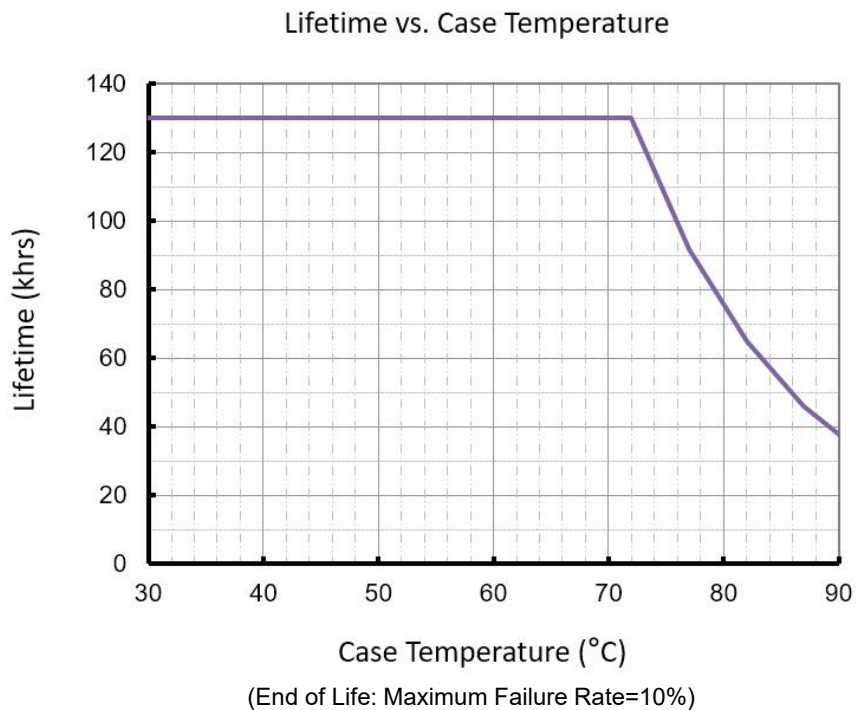
- Turn on NFC switch of cellphone, then open the APP by icon below.



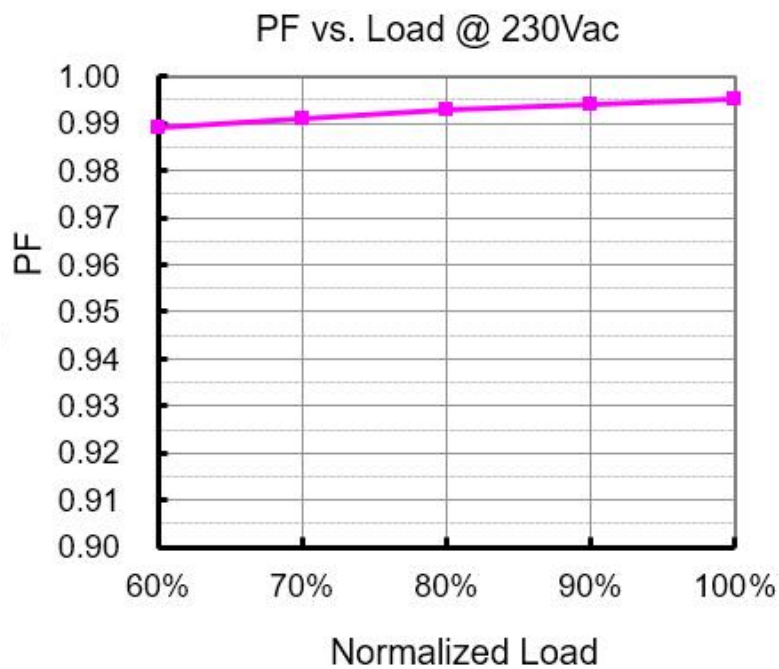
uPowerTek
Airset



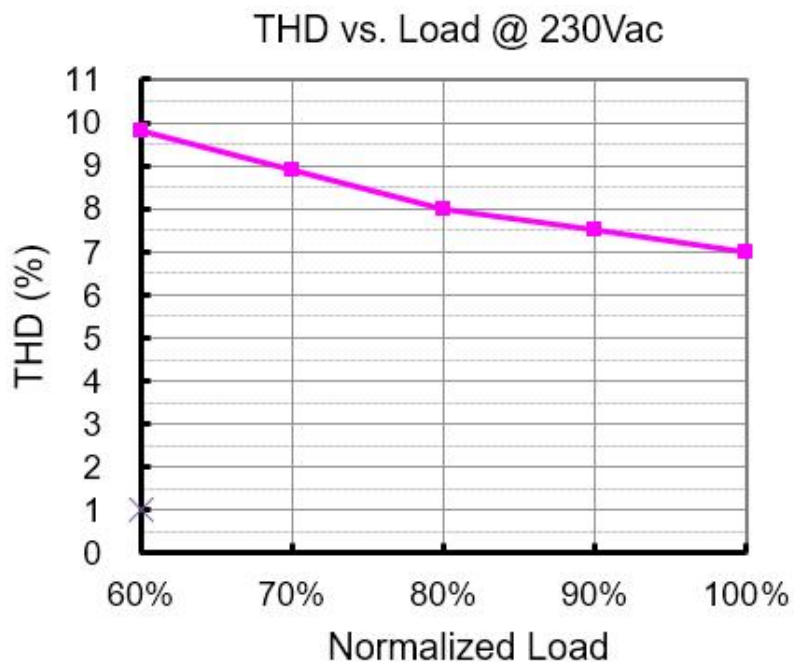
■ Lifetime vs. Case Temperature



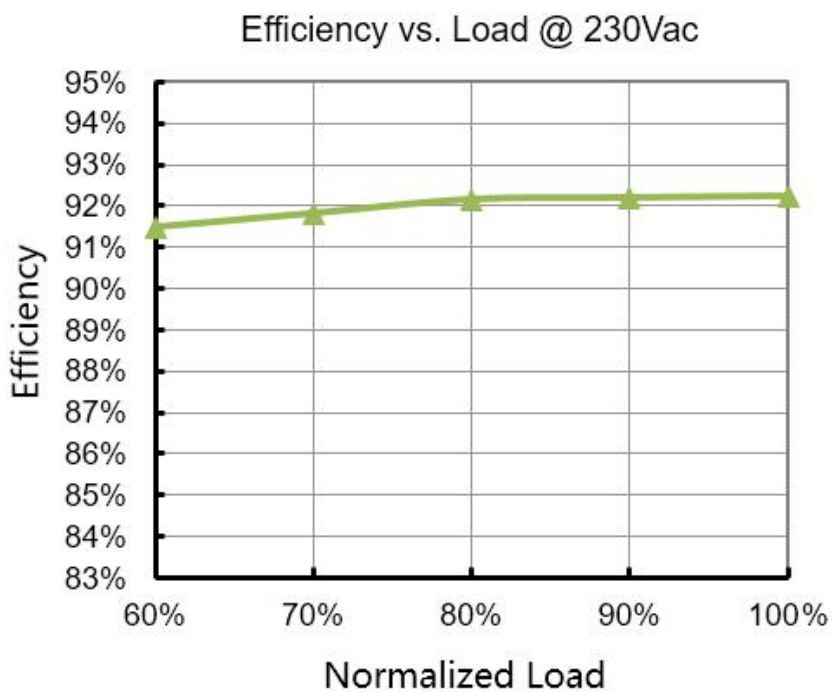
■ Power Factor vs. Load



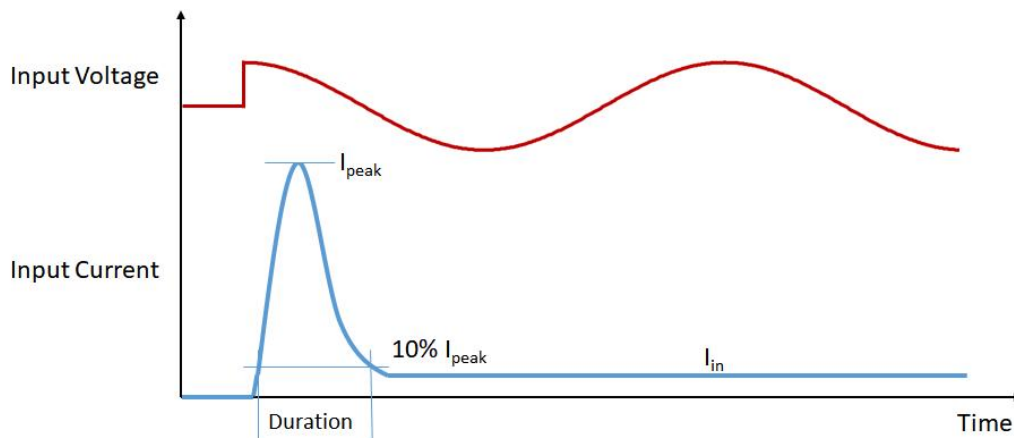
THD vs. Load



Efficiency vs. Load



■ Inrush Current



| Input Voltage | I_{peak} | Duration |
|---------------|------------|----------|
| 230Vac | 62.8A | 809us |

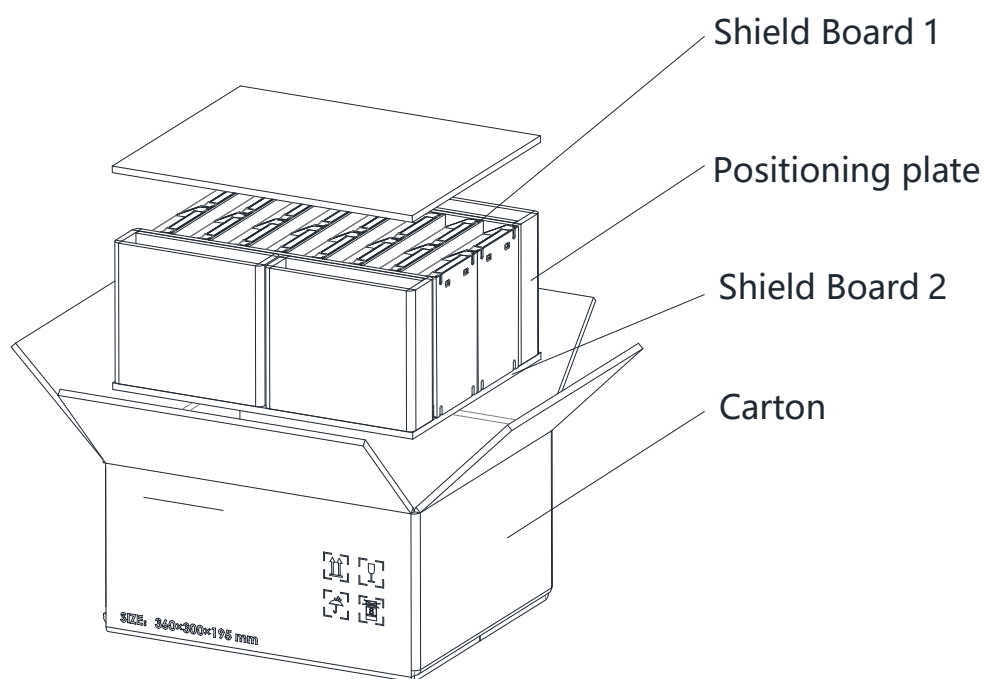
Please contact with us for MCB calculation and waveforms.

■ Dielectric Strength

| Unit: Vac | Input | Output | NTC/Dimming/Vaux (SELV) | Case/PE |
|-------------------------|-------|--------|-------------------------|---------|
| Input | - | 3750 | 3750 | 1554 |
| Output | 3750 | - | 1554 | 1554 |
| Dimming/Vaux/NTC (SELV) | 3750 | 1554 | - | 1554 |
| Case/PE | 1554 | 1554 | 1554 | - |

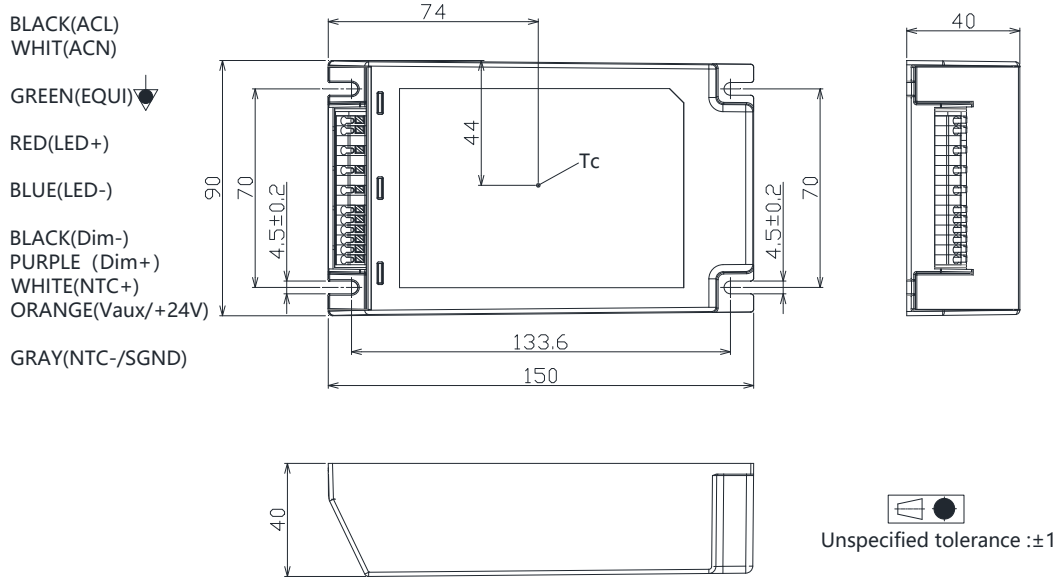
■ Packaging Information

| | |
|---------------------------------|----------------|
| Typical Carton Dimension(L×W×H) | 360×300×195 mm |
| Shield Board 1 | 7pcs/carton |
| Positioning plate | 2pcs/carton |
| Shield Board | 2pcs/carton |
| LED Drivers | 16pcs/carton |
| Net Weight | 12.6kg/carton |
| Gross Weight | 11.8kg/carton |

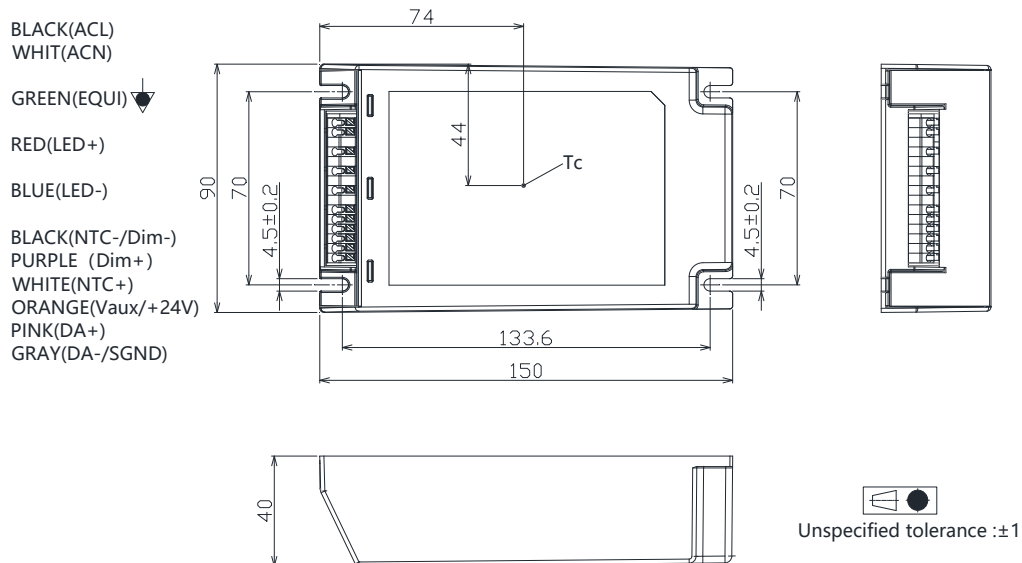


Mechanical Design and Tc Point

- APD-200-Cxxx-ARE



- APD-200-Cxxx-ERE



■ Output Operation Range

| Model | Typical Set Output Current (mA) | Max Output Power (W) | Output Voltage Min (V) | Output Voltage Max(V) | Minimum Dimming Current (mA) |
|-------|---------------------------------|----------------------|------------------------|-----------------------|------------------------------|
| -C140 | 1400 | 200 | 86 | 143 | 140 |
| | 1350 | 200 | 89 | 148 | 135 |
| | 1300 | 200 | 92 | 154 | 130 |
| | 1250 | 200 | 96 | 160 | 125 |
| | 1200 | 200 | 100 | 167 | 120 |
| | 1150 | 200 | 104 | 174 | 115 |
| | 1100 | 200 | 109 | 182 | 110 |
| | 1050 | 200 | 114 | 190 | 105 |
| | 1000 | 200 | 120 | 200 | 100 |
| | 950 | 200 | 126 | 211 | 95 |
| | 900 | 200 | 133 | 222 | 90 |
| | 850 | 189 | 133 | 222 | 90 |
| | 800 | 178 | 133 | 222 | 90 |
| | 750 | 167 | 133 | 222 | 90 |
| | 700 | 156 | 133 | 222 | 90 |
| | 650 | 144 | 133 | 222 | 90 |
| | ... | ... | ... | ... | ... |
| | 90 | 20 | 133 | 222 | 90 |

■ Revision History

| Revision | Date | Contents |
|----------|------------|---|
| A | 2022-07-22 | 1. New release |
| B | 2022-10-27 | 1. Mechanical design and Tc point updated. 2. Packaging information updated. |
| C | 2022-12-09 | 1. Mechanical data updated. |
| D | 2023-07-14 | 1. Update leakage current |