

The IT 0-10 75/100-277 P67 is a 75W, constant-current, programmable and IP66/IP67 rated LED driver that operates from 90-305Vac input with excellent power factor. It is created for many lighting applications including street and area, etc. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature.



Features

- Compact Metal Case with Excellent Thermal Performance
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with T4T(Tuner4TRONIC)
- Isolated 1(0)-5V/1(0)-10V/PWM/Resistor/AstroDIM(Timer) Dimmable
- Dim-to-Off with Standby Power ≤ 0.5 W
- Adjustable Dimming Curve
- Always-on Auxiliary Power: 12Vdc, 100mA on Specific Models
- End-of-Life Indicator
- Override Dimming
- Constant Lumen
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OTP, OVP, SCP
- 5 Years Warranty

Application

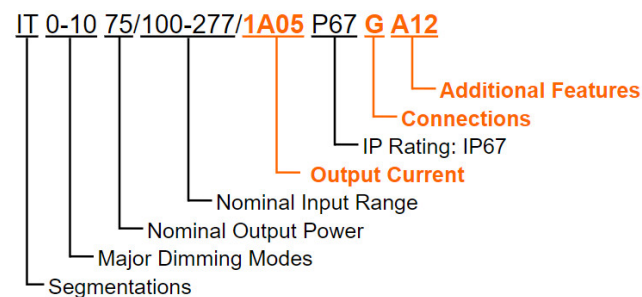
- IP66/IP67 and UL Dry/Damp/Wet Location
- TYPE HL, for use in a Class I, Division 2 Hazardous (Classified) Location
- Suitable for Luminaires with Protection Class I
- Suitable for Luminaires with Protection Class I and II on Specific Models

Models

| Adjustable Output Current Range(mA) | Full Power Current Range (mA) ⁽¹⁾ | Default Output Current (mA) | Nominal Output Voltage Range(Vdc) | Maximum Output Power(W) | Typical Efficiency ⁽²⁾ | Power Factor λ | | Product Name ⁽³⁾⁽⁶⁾ |
|-------------------------------------|--|-----------------------------|-----------------------------------|-------------------------|-----------------------------------|------------------------|--------|--|
| | | | | | | 120Vac | 230Vac | |
| 30-530 | 300-530 | 530 | 70-250 | 75 | 92.0% | 0.99 | 0.96 | IT 0-10 75/100-277/0A53 P67 y |
| 70-1050 | 700-1050 | 700 | 36-107 | 75 | 92.0% | 0.99 | 0.96 | IT 0-10 75/100-277/1A05 P67 y ⁽⁴⁾ |
| 140-2100 | 1400-2100 | 2100 | 17-54 | 75 | 91.0% | 0.99 | 0.96 | IT 0-10 75/100-277/2A1 P67 y ⁽⁵⁾ |

- Notes:** (1) Output current range with constant power at 75W.
 (2) Measured at 100% load and 230Vac input (see below "General Specifications" for details).
 (3) Certified input voltage range: 100-277Vac.
 (4) SELV output.
 (5) LED Class 2, LVLE & SELV Output.
 (6) Definition of y (see below "Product Version Description" for details).

Product Version Description



| Markers | Value | Definition | Notes |
|---------------------|-------|----------------|--|
| Output Current | 0A53 | 0.53A | |
| | 1A05 | 1.05A | |
| | 2A1 | 2.10A | |
| Connections | G | Global Cable | |
| | U | UL Cable | |
| | E | EQUI VDE Cable | Suitable for Luminaires with Protection Class I and II |
| Additional Features | Blank | - | |
| | A12 | Aux-12V | |

Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|--|---------|------|----------|--|
| Input Voltage AC | 90 Vac | - | 305 Vac | |
| Input Voltage DC | 127 Vdc | - | 300 Vdc | |
| Mains Frequency | 47 Hz | - | 63 Hz | |
| Leakage Current | - | - | 0.75 MIU | UL 8750; 277Vac/60Hz |
| | - | - | 0.70 mA | IEC 60598-1; 277Vac/60Hz |
| Nominal Input Current | - | - | 0.77 A | Measured at 100% load and 120 Vac input. |
| | - | - | 0.40 A | Measured at 100% load and 230 Vac input. |
| Power Factor λ | 0.9 | - | - | At 100-277Vac, 50-60Hz, 65%-100% Load (49-75W) |
| Total Harmonic Distortion | - | - | 20% | |
| Total Harmonic Distortion Extended Range | - | - | 10% | At 220-240Vac, 50-60Hz, 75%-100% Load (56-75W) |

Output Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---------------------------------|-------------------------------|----------|----------|---|
| Programmable Output Current | IT 0-10 75/100-277/0A53 P67 y | 30 mA | - | 530 mA |
| | IT 0-10 75/100-277/1A05 P67 y | 70 mA | - | 1050 mA |
| | IT 0-10 75/100-277/2A1 P67 y | 140 mA | - | 2100 mA |
| | | | | |
| Nominal Output Voltage | IT 0-10 75/100-277/0A53 P67 y | 70 V | - | 250 V |
| | IT 0-10 75/100-277/1A05 P67 y | 36 V | - | 107 V |
| | IT 0-10 75/100-277/2A1 P67 y | 17 V | - | 54 V |
| | | | | |
| Output Current Tolerance | -5% | - | +5% | At 100% load condition |
| Total Output Current Ripple HF | - | 5%Iomax | 10%Iomax | At 100% load condition, 20 MHz BW |
| Output Current Ripple LF | - | 2%Iomax | - | At 100% load condition, <200Hz (pk-pk) |
| P _{stLM} | - | - | 1.0 | |
| SVM | - | - | 0.4 | |
| Startup Overshoot Current | - | - | 10%Iomax | At 100% load condition |
| U _{out} | IT 0-10 75/100-277/0A53 P67 y | - | - | 330 V |
| | IT 0-10 75/100-277/1A05 P67 y | - | - | 120 V |
| | IT 0-10 75/100-277/2A1 P67 y | - | - | 60 V |
| | | | | |
| Line Regulation | - | - | ±1.5% | Measured at 100% load |
| Load Regulation | - | - | ±5.0% | |
| Turn-on Delay Time | - | - | 0.5 s | Measured at 120-277Vac input, 65%-100% load |
| Temperature Coefficient | - | 0.06%/°C | - | Case temperature = 0°C ~Tc max |
| Auxiliary Output Voltage | 10.8 V | 12 V | 13.2 V | Return terminal is "Dim-", on specific models |
| Auxiliary Output Source Current | 0 mA | - | 100 mA | |

General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---------------|-------|---|
| Efficiency at 120Vac Input IT 0-10 75/100-277/0A53 P67 y | | | | Measured at 100% load and Steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Io=300 mA | 87.5% | 89.5% | - | |
| Io=530 mA | 88.0% | 90.0% | - | |
| IT 0-10 75/100-277/1A05 P67 y | | | | |
| Io=700 mA | 87.5% | 89.5% | - | |
| Io=1050 mA | 87.5% | 89.5% | - | |
| IT 0-10 75/100-277/2A1 P67 y | | | | |
| Io=1400 mA | 87.0% | 89.0% | - | |
| Io=2100 mA | 86.0% | 88.0% | - | |
| Efficiency at 230Vac Input IT 0-10 75/100-277/0A53 P67 y | | | | Measured at 100% load and Steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Io=300 mA | 90.0% | 92.0% | - | |
| Io=530 mA | 90.0% | 92.0% | - | |
| IT 0-10 75/100-277/1A05 P67 y | | | | |
| Io=700 mA | 90.0% | 92.0% | - | |
| Io=1050 mA | 89.5% | 91.5% | - | |
| IT 0-10 75/100-277/2A1 P67 y | | | | |
| Io=1400 mA | 89.0% | 91.0% | - | |
| Io=2100 mA | 88.0% | 90.0% | - | |
| Efficiency at 277Vac Input IT 0-10 75/100-277/0A53 P67 y | | | | Measured at 100% load and Steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Io=300 mA | 89.5% | 91.5% | - | |
| Io=530 mA | 90.0% | 92.0% | - | |
| IT 0-10 75/100-277/1A05 P67 y | | | | |
| Io=700 mA | 89.5% | 91.5% | - | |
| Io=1050 mA | 89.5% | 91.5% | - | |
| IT 0-10 75/100-277/2A1 P67 y | | | | |
| Io=1400 mA | 88.5% | 90.5% | - | |
| Io=2100 mA | 88.0% | 90.0% | - | |
| Networked Standby Power | - | - | 0.5 W | Measured at 230Vac/50Hz; Dimming off |
| MTBF | - | 482,000 Hours | - | Measured at 230Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |
| Operating Case Temperature for Safety Tc_s | -40°C | - | +90°C | |
| Operating Case Temperature for Warranty Tc_w | -40°C | - | +80°C | Case temperature for 5 years warranty Humidity: 10% RH to 95% RH |
| Lifetime | - | 115,000 Hours | - | Measured at 230Vac input, 80%Load and 70°C case temperature; See lifetime vs. Tc curve for the details |
| Ambient Temperature | -40°C | - | +65°C | Measured at 230Vac input, 100% load |
| Permitted rel. Humidity During Operation | 5% | - | 95% | |
| Temperature at Storage | -40°C | - | +85°C | Humidity: 5%RH to 95%RH |
| Mains Switching Cycles | 100,000 | - | - | |
| IP Rating | IP66/IP67 | | | |
| Dimensions (L × W ×H) | 4.92 x 2.36 x 1.31 Inches 125 x 60 x 33.4 mm | | | With mounting ear 5.59 x 2.36 x 1.31 Inches 142 x 60 x 33.4 mm |
| Net Weight | - | 525 g | - | |

Inrush Current Waveform

| Input AC Voltage | Inrush Current I _{peak} | Inrush Current Width t _{width} (@ 50% I _{peak}) | The Number of LED Driver can be Configured (MCB) | | | | | | | |
|------------------|-------------------------------------|---|--|------|------|------|------|------|------|------|
| | | | B10A | B16A | B20A | B25A | C10A | C16A | C20A | C25A |
| 120Vac | 29.0A | 168μs | 8 | 13 | 17 | 21 | 10 | 16 | 20 | 25 |
| 230Vac | 78.5A | 108μs | 9 | 15 | 19 | 24 | 16 | 25 | 32 | 40 |
| 277Vac | 96.0A | 108μs | 7 | 12 | 15 | 19 | 13 | 21 | 26 | 32 |

Notes: The maximum number of units per circuit breaker is an indicative value.

Dimming Specifications

| Parameter | | Min. | Typ. | Max. | Notes |
|--|--|--------------------------|-------------|-------------|---|
| Absolute Maximum Voltage on the Vdim (+) Pin | | -20 V | - | 20 V | |
| Source Current on Vdim (+)Pin | | 95 μ A | 100 μ A | 105 μ A | Vdim(+) = 0 V |
| Dimming Output Range | IT 0-10 75/100-277/0A53 P67 y IT 0-10 75/100-277/1A05 P67 y IT 0-10 75/100-277/2A1 P67 y | 10% loiset | - | loiset | 300 mA \leq loiset \leq 530 mA 700 mA \leq loiset \leq 1050 mA 1400 mA \leq loiset \leq 2100 mA |
| | IT 0-10 75/100-277/0A53 P67 y IT 0-10 75/100-277/1A05 P67 y IT 0-10 75/100-277/2A1 P67 y | 30 mA 70 mA 140 mA | - | loiset | 30 mA \leq loiset < 300 mA 70 mA \leq loiset < 700 mA 140 mA \leq loiset < 1400 mA |
| | AstroDIM (Timer) | 10% | - | 100% | |
| Dimming for 1(0)-5V | | 0.5 V | - | 4.5V | Dimming mode set to 1(0)-5V in T4T. |
| Recommended Dimming for 1(0)-10V | | 1 V | - | 9 V | Default 1-10V dimming mode with positive logic. |
| Dimming Curve Adjustable | | 0 V | - | 10V | Dimming mode set to Adjustable Dimming Curve in T4T. |
| PWM_in High Level | | 3 V | - | 10 V | Dimming mode set to PWM Dimming in T4T. |
| PWM_in Low Level | | -0.3 V | - | 0.6 V | |
| PWM_in Frequency | | 200 Hz | - | 3 KHz | |
| PWM_in Duty Cycle | | 1% | - | 99% | |
| PWM Dimming off (Positive Logic) | | 3% | 5% | 8% | |
| PWM Dimming on (Positive Logic) | | 5% | 7% | 10% | |
| PWM Dimming off (Negative Logic) | | 92% | 95% | 97% | |
| PWM Dimming on (Negative Logic) | | 90% | 93% | 95% | |
| Hysteresis | | - | 2% | - | |

Certificates & Standards

| Safety Category | Standard |
|-----------------|---|
| UL/CUL | UL 8750, CAN/CSA-C22.2 No. 250.13 |
| FCC Part 15 | ANSI C63.4 Class B |
| | This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired Operation. |
| ENEC | EN 61347-1, EN 61347-2-13, EN IEC 62384 |
| CE | EN 61347-1, EN 61347-2-13, EN IEC 55015, EN 61547, EN IEC 61000-3-2, EN 61000-3-3 |
| CB | IEC 61347-1, IEC 61347-2-13 |
| CCC | GB/T 19510.1, GB/T 19510.213, GB/T 17743, GB 17625.1 |
| KS | KS C 7655 |

- Note:** (1) This product meets the requirements for IEC/EN 61347-1(Class II), when the driver is energized, the allowed leakage current is perceptible but harmless. (For the versions of luminaires with protection Class II)
- (2) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

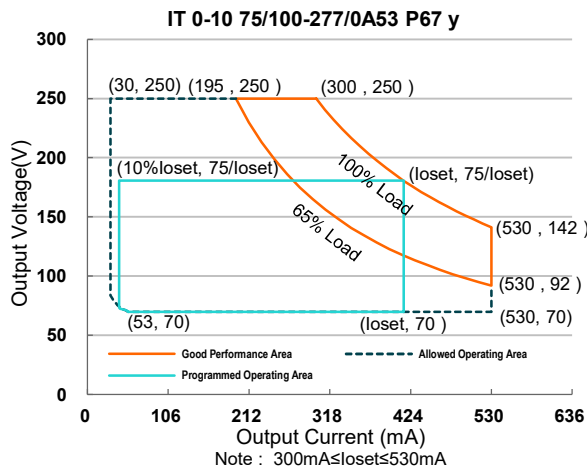
Isolation Levels (For the versions of luminaires with protection Class I)

| | Input | Output | Dimming | Aux | Housing |
|---------|------------|------------|------------|------------|---------|
| Input | N/A | Reinforced | Reinforced | Reinforced | Basic |
| Output | Reinforced | N/A | Reinforced | Reinforced | Basic |
| Dimming | Reinforced | Reinforced | N/A | N/A | Basic |
| Aux | Reinforced | Reinforced | N/A | N/A | Basic |
| Housing | Basic | Basic | Basic | Basic | N/A |

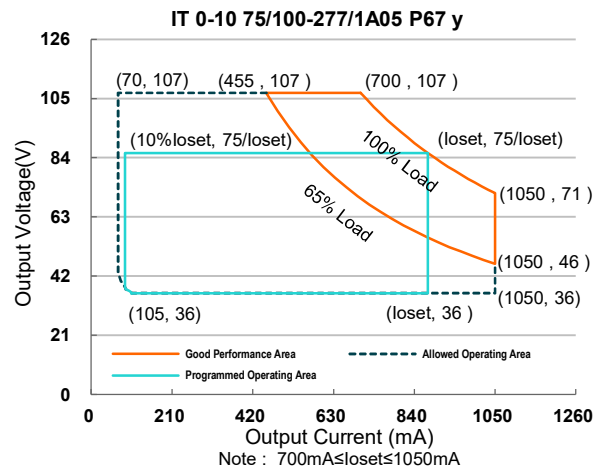
Isolation Levels (For the versions of luminaires with protection Class I and II)

| | Input | Output | Dimming | Aux | EQUI |
|---------|------------|------------|------------|------------|------------|
| Input | N/A | Reinforced | Reinforced | Reinforced | Reinforced |
| Output | Reinforced | N/A | Reinforced | Reinforced | Reinforced |
| Dimming | Reinforced | Reinforced | N/A | N/A | Basic |
| Aux | Reinforced | Reinforced | N/A | N/A | Basic |
| EQUI | Reinforced | Reinforced | Basic | Basic | N/A |

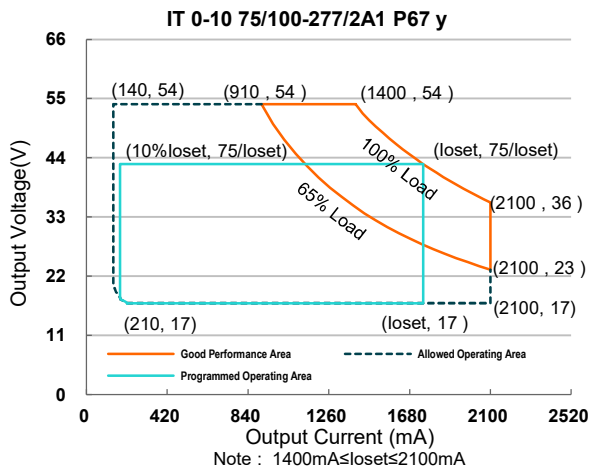
Operating Window



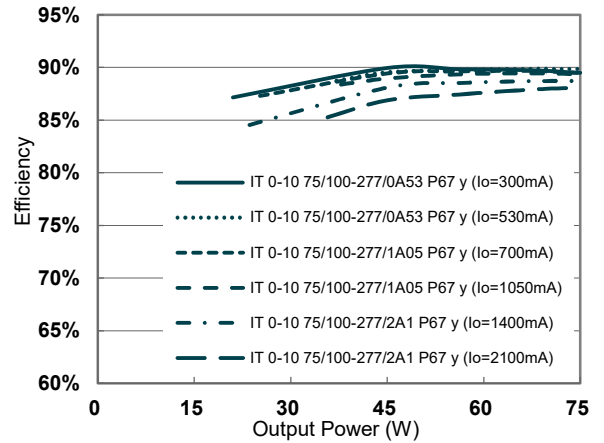
Operating Window



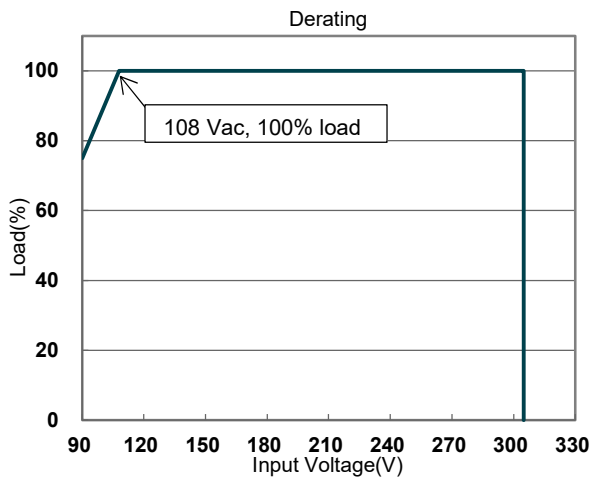
Operating Window



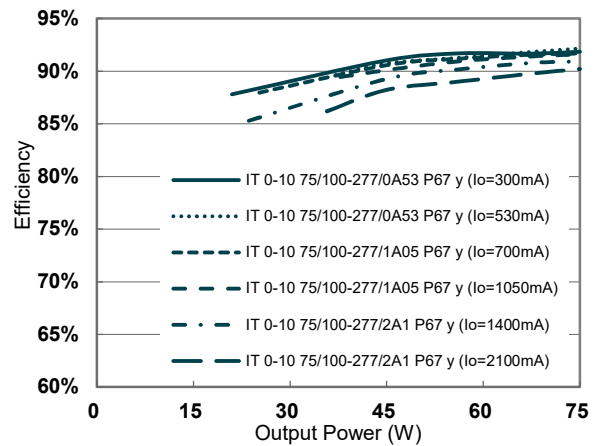
Efficiency vs. Load@120Vac



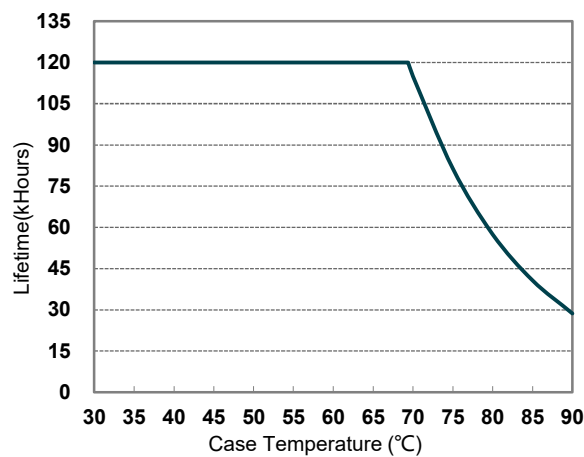
Derating



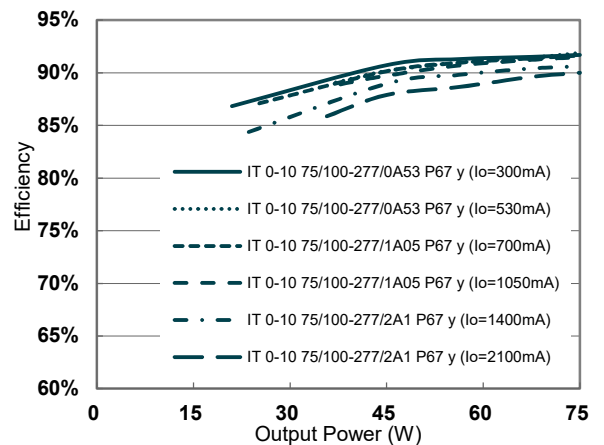
Efficiency vs. Load@230Vac



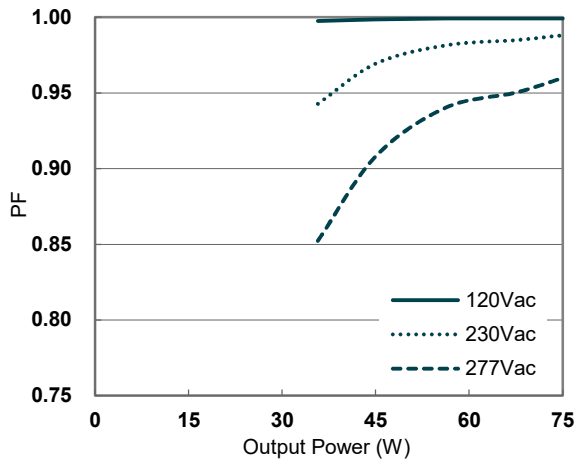
Lifetime vs. Case Temperature



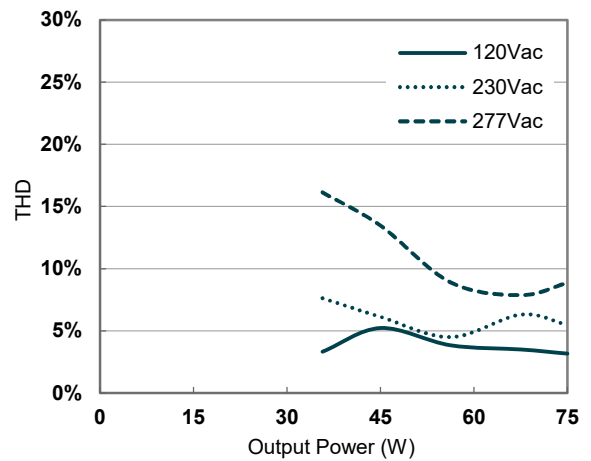
Efficiency vs. Load@277Vac



Power Factor



Total Harmonic Distortion



Protection Functions

Over Temperature Protection(OTP)

Protection based on safety: decreases output current if maximum internal temperature is reached, returning to normal value after over temperature is removed.

When output current reaches 20%, switch-off until over temperature is removed.

Driver Guard

Default setting: disabled.

Protection based on lifetime: It can be activated via T4T. Set a lower internal temperature threshold (Thermal Settings: reduce the temperature threshold by 5°C, 10°C, 15°C or 20°C) to activate the over temperature protection.

The driver is protected against temporary overheating by automatically reduction of the output current.

Over Voltage Protection(OVP)

Limits output voltage at no load and in case the normal voltage limit fails.

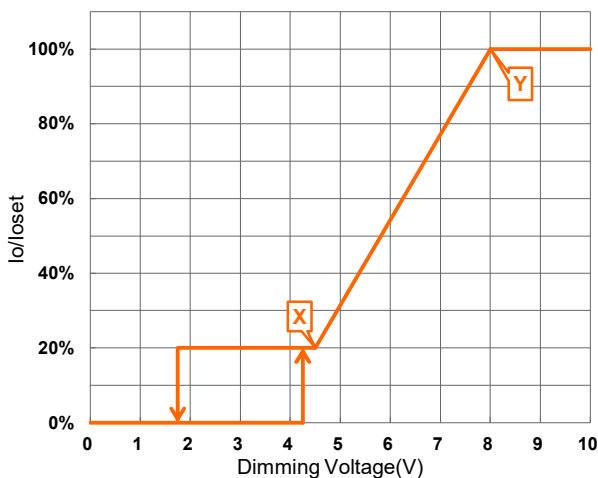
Short Circuit Protection(SCP)

Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.

Dimming

Adjustable Dimming Curve

0-10V curve can be set as corresponding dimming voltage by T4T. Take the 0-10V positive logic dimming mode as an example, the recommended implementation of the dimming control is provided below:



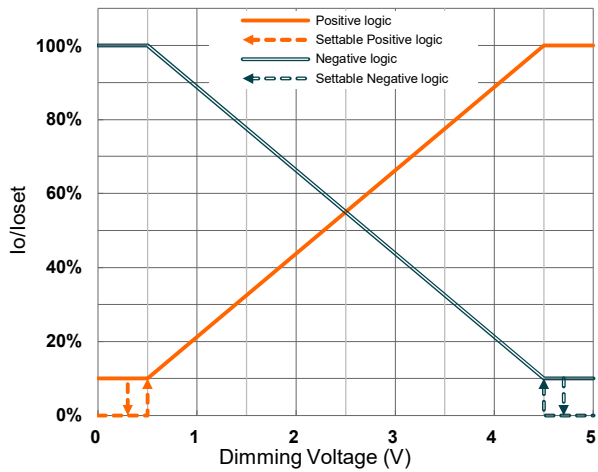
Notes:

1. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.

2. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like zener.
3. When dimming voltage X point is set to be smaller than Y point, the dimming curve is positive logic; conversely, when X point is set to be bigger than Y point, the dimming curve is negative logic.
4. For best dimming accuracy, the difference between X point and Y point is advised not less than 4V.

1(0)-5V Dimming

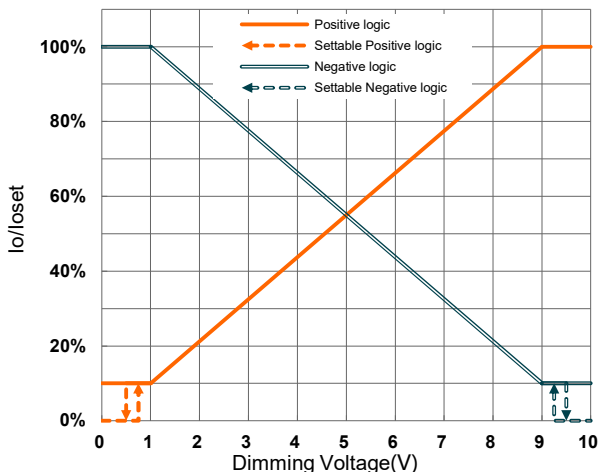
The recommended implementation of the dimming control is provided below:



- Notes:**
1. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.
 2. The dimmer can also be replaced by an active 1-5V voltage source signal or passive components like Zener.

1(0)-10V Dimming

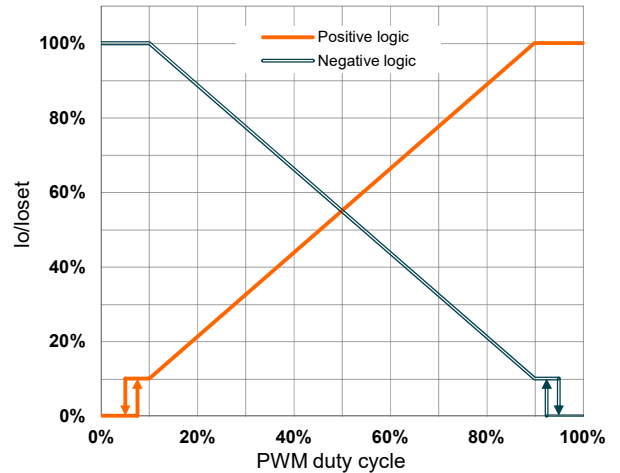
The recommended implementation of the dimming control is provided below:



- Notes:**
1. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.
 2. The dimmer can also be replaced by an active 1-10V voltage source signal or passive components like zener.

PWM Dimming

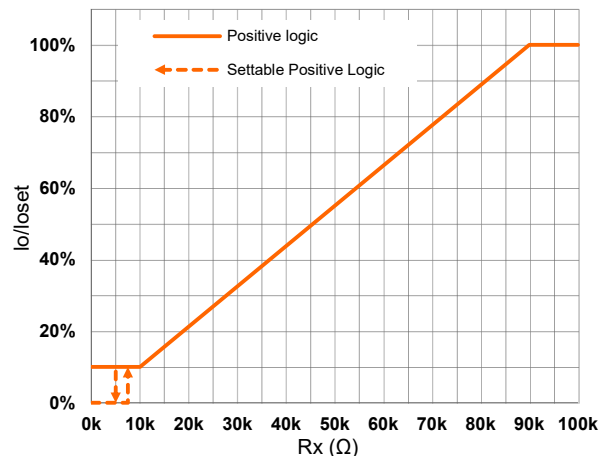
The recommended implementation of the dimming control is provided below:



- Notes:**
1. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.
 2. When PWM negative logic dimming mode and Dim+ is open, the driver will dim to off and be standby.

Resistor Dimming

The recommended implementation of the dimming control is provided below:



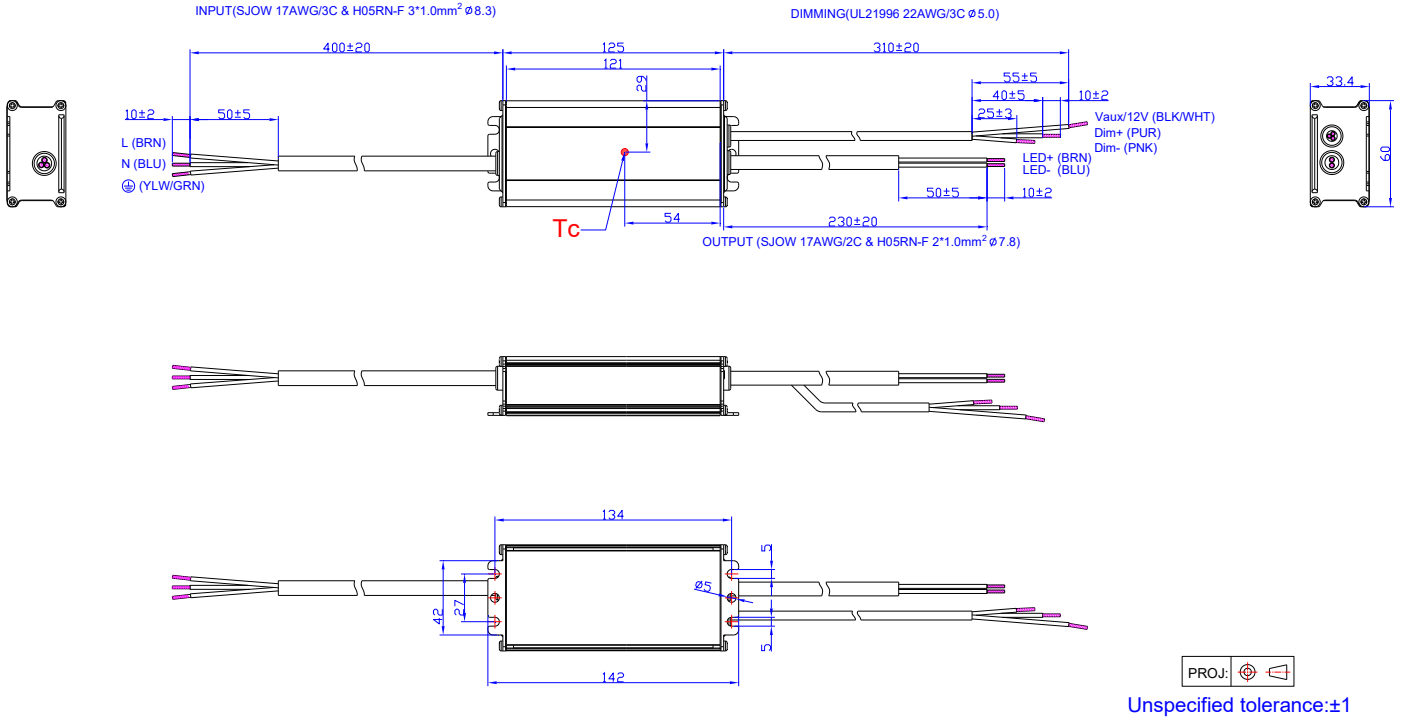
- Notes:**
1. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.

AstroDIM(Timer)

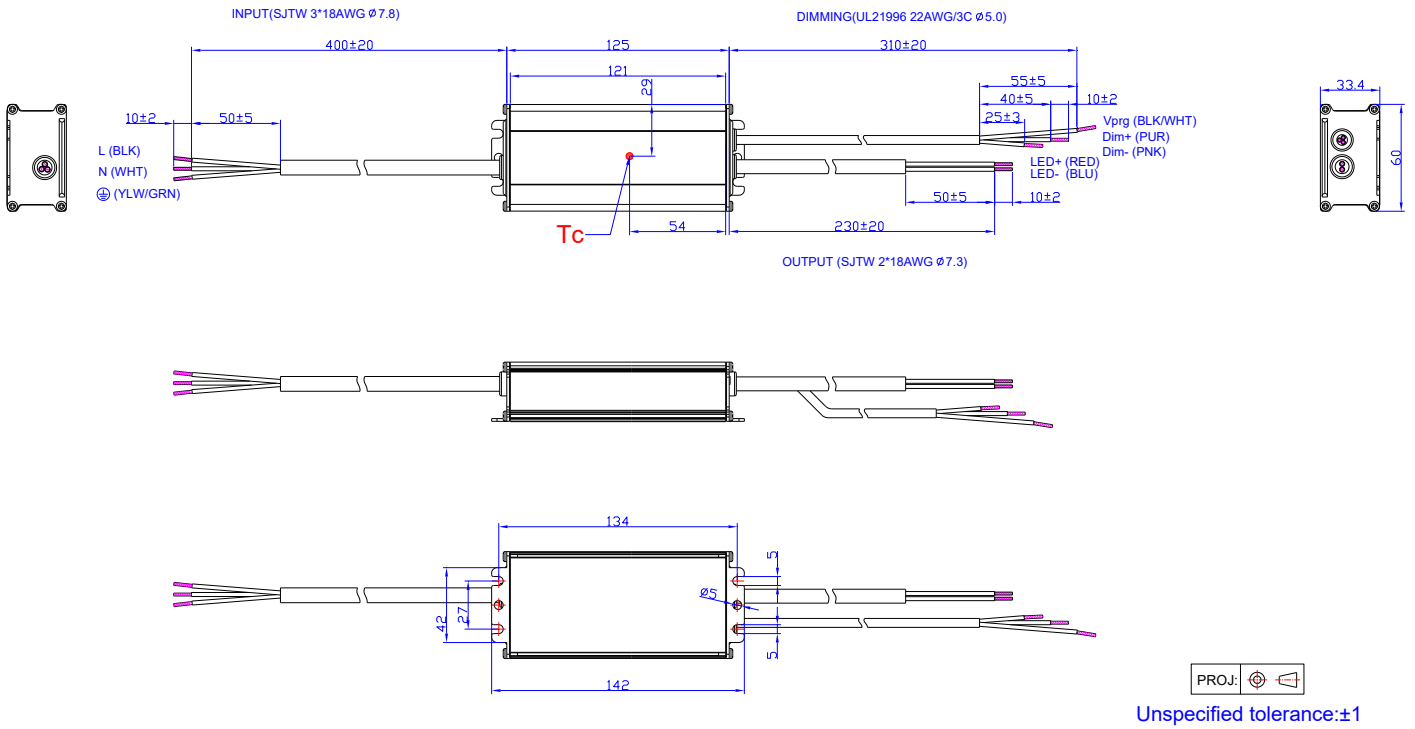
AstroDIM (Timer) includes 2 kinds of modes, they are Astro Based and Time Based.

- **Astro Based:** The benchmark for the dimming profile is based on the average midnight each year, which is precisely calculated using theoretical sunrise and sunset times. The LED driver strictly adheres to daily power-on and power-off times to execute the corresponding dimming configuration file. Furthermore, the adjustment of the dimming schedule is dynamic, automatically adapting according to the actual length of the night to ensure that the lighting effect aligns with nighttime environmental needs.
- **Time Based:** The dimming profile defined in the reference schedule is referenced to the switch-on time of the LED driver.
- **Override Dimming:** When the integrated "AstroDIM(Timer)+Override" is enabled, it is possible to override the dimming mode from 'AstroDIM' into 'Adjustable Dimming Curve' mode by applying a voltage of 1(0)-10V between DIM+ and DIM-. Once a voltage ≤ 10.5 Vdc is detected the output current will coincide with the dimming voltage. By opening the

IT 0-10 75/100-277/0A53 P67 G A12
 IT 0-10 75/100-277/1A05 P67 G A12
 IT 0-10 75/100-277/2A1 P67 G A12



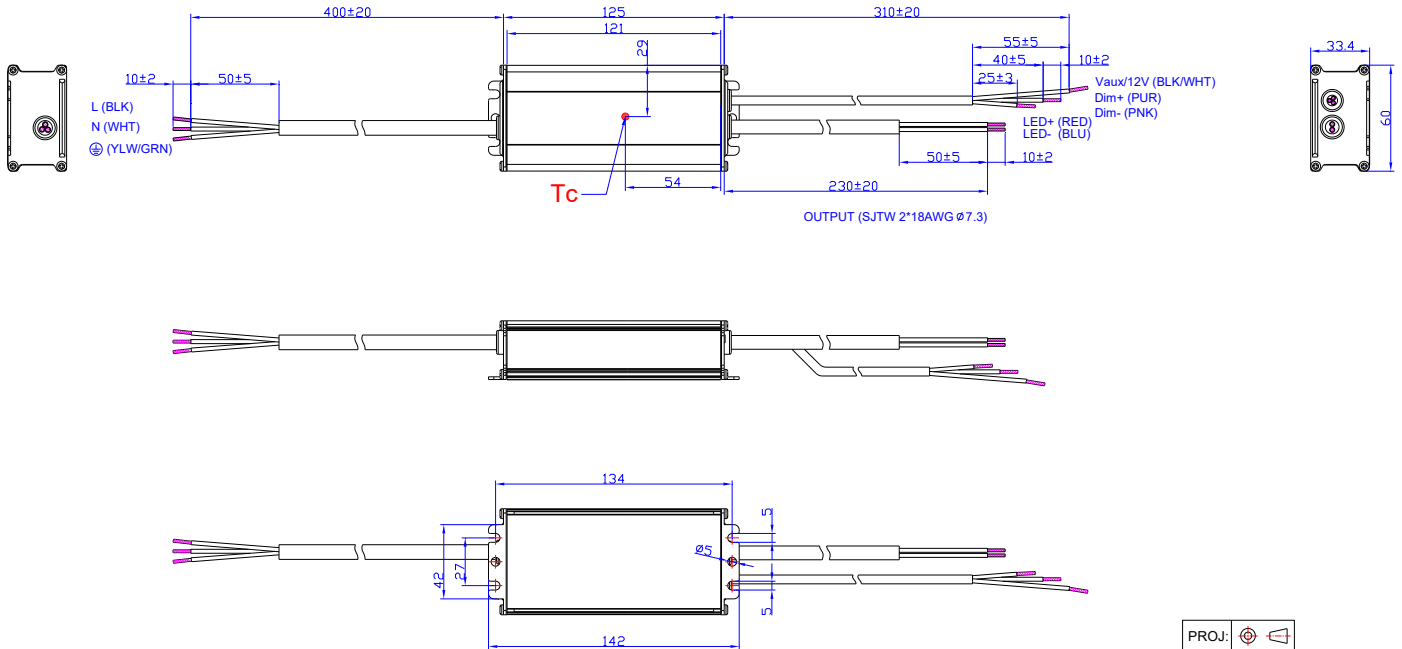
IT 0-10 75/100-277/1A05 P67 U
 IT 0-10 75/100-277/2A1 P67 U



IT 0-10 75/100-277/1A05 P67 U A12
 IT 0-10 75/100-277/2A1 P67 U A12

INPUT(SJTW 3*18AWG ϕ 7.8)

DIMMING(UL21996 22AWG/3C ϕ 5.0)

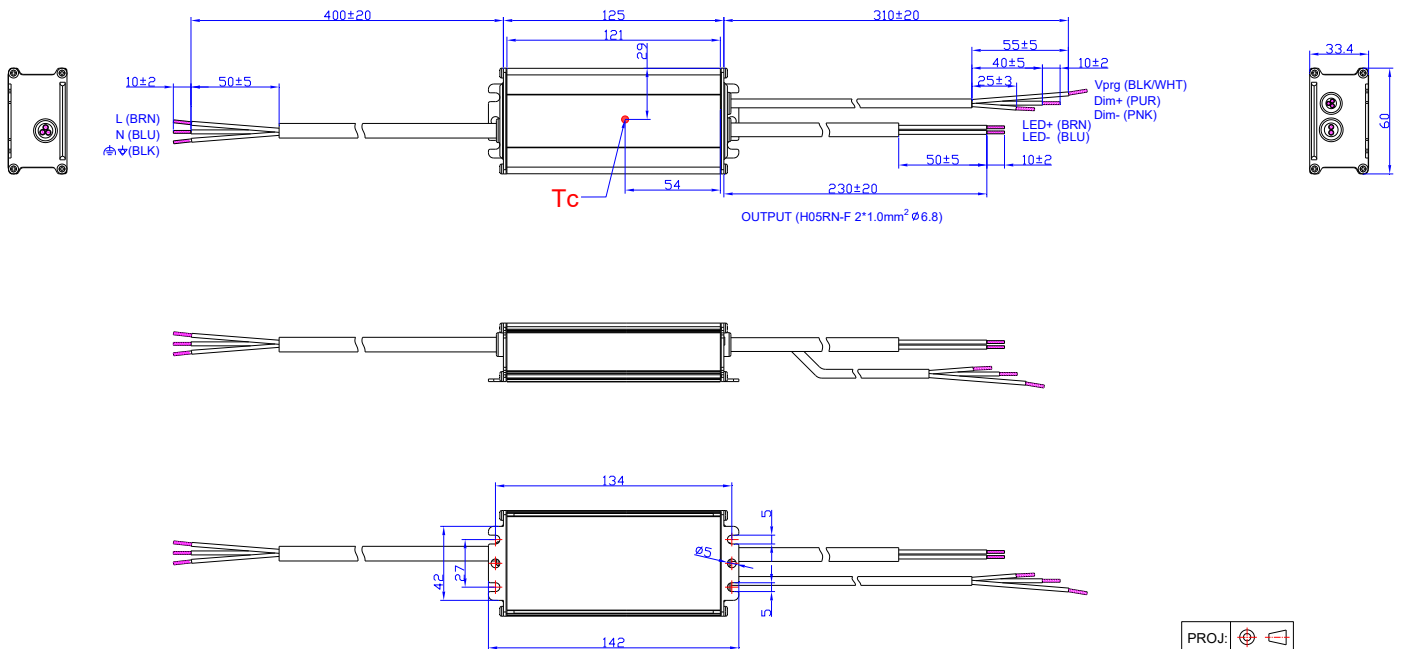


Unspecified tolerance: ± 1

IT 0-10 75/100-277/1A05 P67 E
 IT 0-10 75/100-277/2A1 P67 E

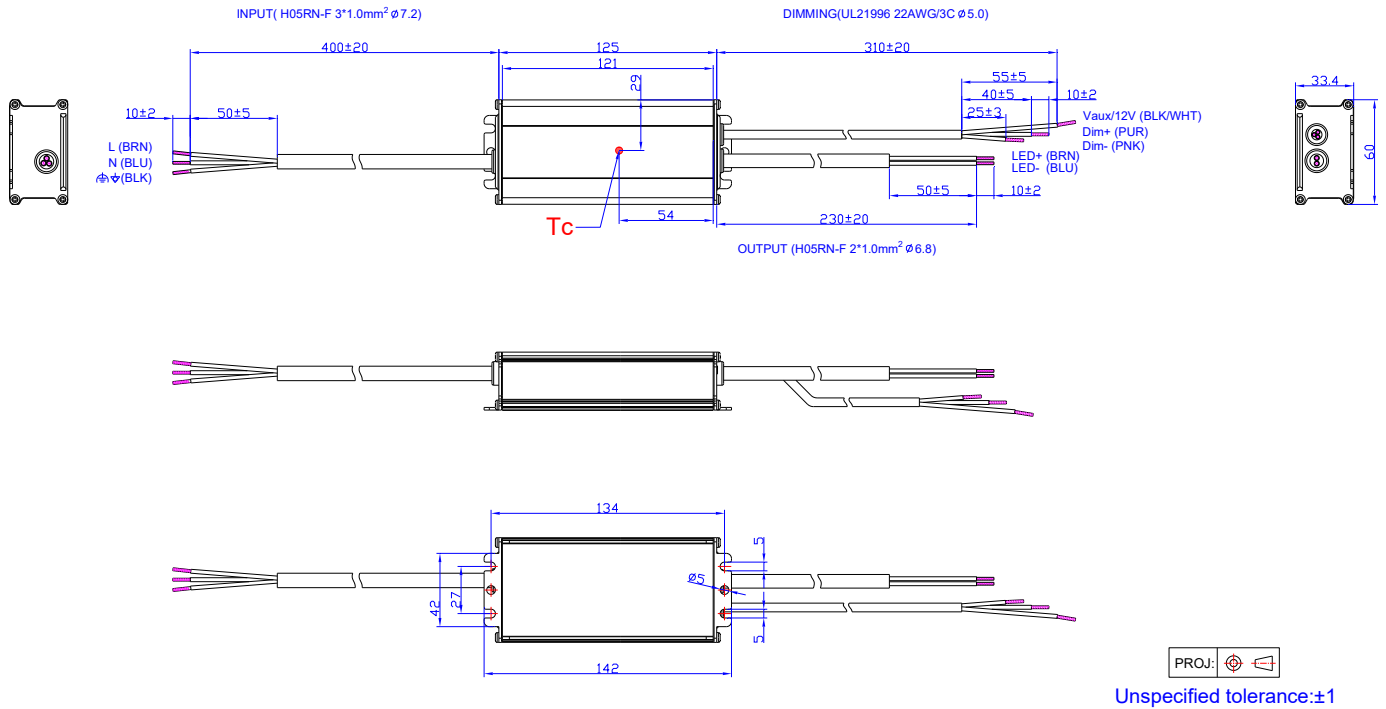
INPUT(H05RN-F 3*1.0mm² ϕ 7.2)

DIMMING(UL21996 22AWG/3C ϕ 5.0)



Unspecified tolerance: ± 1

IT 0-10 75/100-277/1A05 P67 E A12
 IT 0-10 75/100-277/2A1 P67 E A12



Environmental Compliance

RoHS

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

Product Order Overview

Order Code & Packaging

| Order Code (EAN) | Product Version Name | Certification Markings on Product | Packaging unit (Pieces/Box) | Packing Dimensions (L x W x H)(mm) |
|------------------|-----------------------------------|-----------------------------------|-----------------------------|------------------------------------|
| 6937186132772 | IT 0-10 75/100-277/0A53 P67 G | UL, CE, ENEC, CCC | 25 | 490 x 300 x 305 |
| 6937186132796 | IT 0-10 75/100-277/0A53 P67 G A12 | UL, CE, ENEC, CCC | 25 | 490 x 300 x 305 |
| 6937186132819 | IT 0-10 75/100-277/1A05 P67 G | UL, CE, ENEC, CCC | 25 | 490 x 300 x 305 |
| 6937186132833 | IT 0-10 75/100-277/1A05 P67 G A12 | UL, CE, ENEC, CCC | 25 | 490 x 300 x 305 |
| 6937186132857 | IT 0-10 75/100-277/2A1 P67 G | UL, CE, ENEC, CCC | 25 | 490 x 300 x 305 |
| 6937186132871 | IT 0-10 75/100-277/2A1 P67 G A12 | UL, CE, ENEC, CCC | 25 | 490 x 300 x 305 |
| 6937186132895 | IT 0-10 75/100-277/1A05 P67 U | UL Class P, CE | 25 | 490 x 300 x 305 |
| 6937186132918 | IT 0-10 75/100-277/1A05 P67 U A12 | UL Class P, CE | 25 | 490 x 300 x 305 |
| 6937186132932 | IT 0-10 75/100-277/2A1 P67 U | UL Class P, CE | 25 | 490 x 300 x 305 |
| 6937186132956 | IT 0-10 75/100-277/2A1 P67 U A12 | UL Class P, CE | 25 | 490 x 300 x 305 |
| 6937186133113 | IT 0-10 75/100-277/1A05 P67 E | ENEC, CE | 25 | 490 x 300 x 305 |
| 6937186133137 | IT 0-10 75/100-277/1A05 P67 E A12 | ENEC, CE | 25 | 490 x 300 x 305 |
| 6937186133151 | IT 0-10 75/100-277/2A1 P67 E | ENEC, CE | 25 | 490 x 300 x 305 |
| 6937186133175 | IT 0-10 75/100-277/2A1 P67 E A12 | ENEC, CE | 25 | 490 x 300 x 305 |