

## NOTES FOR CERTIFICATE AND APPLICATION

### 1. Introduction

It is our pursuit to make LED drivers that comply with all major, global safety standards and certificate requirements. This note provides high level guidance for suitability of LED driver use for end products, such as luminaires, and for finding unique product information related to safety and certificates. It is intended to serve as a supplemental technical summary for safety certifications. Electrical specifications and other critical product features are issued in other documents.

### 2. Scope

This file is focused on suitability of LED drivers for general lighting use.

### 3. Certificate and application notes for NA standard.

#### 3.1 NA standard

US	CN
UL 8750	CAN/CSA-C22.2 No. 250.13
Note : The Conditions of Acceptability (CoA) provides detailed conditions in which the LED driver has been approved for use in the end product.	

#### 3.2 Class 2 Output

LED Drivers marked with Class 2 outputs have been evaluated to meet Class 2 LED driver requirements. Refer to the CoA for details to ensure suitable use in the end product.

#### 3.3 LVLE Output

LED Drivers marked with LVLE outputs have been evaluated to meet LVLE LED driver requirements. Refer to the CoA for details to ensure suitable use in the end product.

#### 3.4 Control Circuit

Isolated and non-isolated dimming control circuits are both eligible for UL 8750, but have different end use installation requirements.

##### 3.4.1 Non-isolated Control Dimming

Refer to the technical file « Application Note : Dimming Control Circuit » issued by INVENTRONICS for details.

##### 3.4.2 Isolated Control Dimming

Refer to the LED driver CoA for details.

Isolated control circuits for dimming are Class 2 circuits if (1) The adjacent or external circuit is also Class 2 or LVLE (2) the control circuit offering auxiliary power meets Class 2 circuit requirements.

#### 3.5 Class P LED Driver

The wire temperature rating used with Class P LED drivers shall be at least 90°C. And the Class P LED driver must be installed inside an enclosure if sourced with field-wiring leads, field-wiring terminals, or push-in terminals.

FOR CONNECTIONS, USE WIRE RATED FOR AT LEAST 90 °C; POUR LES CONNEXIONS, UTILISER

DES CONDUCTEURS D’ALIMENTATION CONVENANT 90 °C [For Canada use only]  
 USE ONLY WITHIN AN ENCLOSURE; DOIT ÊTRE INSTALLÉ DANS UNE ENCEINTE [For Canada use only]

### 3.6 Touch current

Refer to the LED driver CoA for the specific touch current test value which is tested in an ungrounded state. Conformity is evaluated within the end product and luminaire standard as the design is impacted by other components in the luminaire.

Note: If the driver provides a protection earth terminal, it must be connected to the ground of the power grid or of the building.

### 3.7 Environment

The LED driver meets the requirement of Dry, Damp, or Wet location for different constructions. Refer to the CoA for details.

## 4. Certificate and application notes for IEC standard or equivalent

### 4.1 Standard of CB or ENEC certificate.

IEC Standard	EN Standard
IEC 61347-1	EN 61347-1
IEC 61347-2-13	EN 61347-2-13
	EN 62384
Note : refer to detail certificate for the standard version.	

### 4.2 Control Circuit

Isolated and non-isolated dimming control circuits are both eligible for standard, but have different end use installation requirements.

#### 4.2.1 Non-isolated Control Dimming

For details, refer to the “Dimming Control Circuit Application Note”, issued by Inventronics.

#### 4.2.2 Isolated Control Dimming

The isolated dimming circuit is evaluated as a SELV circuit and has reinforced insulation with hazardous live part. It is considered safe to touch when there are no wires connected to this circuit or when the connected wires also have reinforced insulation and the controller is also evaluated as a SELV circuit. Once connected to wires with basic insulation or a system that is not SELV, the wires are no longer considered safe to touch.

### 4.3 Insulation Types

See 4.3.1 and 4.3.2 for insulation construction of LED driver.

#### 4.3.1 LED Driver without Isolated Output

Insulation type between	Input (LV supply)	Output	Control circuit (Dimming)	Enclosure (PE)	Enclosure (FE)
Input	--	--	R or D	B	R or D
Output	--	--	R or D	B	R or D
Control circuit (Dimming)	R or D	R or D	--	B	B
Enclosure (PE)	B	B	B	--	--

Enclosure (FE)	R or D	R or D	B	--	--
Note: R=reinforced insulation; D=[double insulation] ; B=[basic insulation] ;					

#### 4.3.2 LED Driver With Isolated Output

Insulation type between	Input(LV supply)	Output(SELV)	Output (Non-SELV)	Control Circuit(Dimming)	Enclosure (PE)	Enclosure (FE)
Input(LV supply)	--	R	R	R	B	R
Output(SELV)	R	--	R	B	B	B
Output (Non-SELV)	R	R	--	R	B	R
Control circuit(Dimming)	R	B	R	--	B	B
Enclosure (PE)	B	B	B	B	--	--
Enclosure (FE)	R	B	R	B	--	--
Note: R=reinforced insulation; D=[double insulation] ; B=[basic insulation] ;						

#### 4.4 Touch Current

The touch current complies with the standard requirements.

Note: For Class I LED drivers, it is critical to maintain permanent and reliable connection to the protective earth wire of the building or AC mains.

#### 4.5 Operation Environment

Products meet various ingress protection requirements with ratings such as IP20, IP66, IP67.

Refer to the certificate for details.

Note: Although these products have passed the IP test in line with IEC 60529, it may be necessary to add further protection against dust and water ingress, depending on the environment, such as extreme weather or water conditions.

***For other matters that are not mentioned above, please refer to other technical documents corresponding to the product. Please feel free to contact us for feedback and communication if you have any questions.***