The IT DIG 40/100-240/1A05 R V A04 is a 40W, constant-power, IP65 rated LED driver that operates from 90-264Vac input with excellent power factor. It is created for many lighting applications including explosion-proof lighting and low bay, 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

- Adjustable Output Current (AOC) with T4T(Tuner4TRONIC)
- INV Digital Dimming V2.0, UART Based Communication Protocol Compliant with T/CSA-051
- At Power on, The Default Maximum Digital Dimming Level
- Always-on Auxiliary Power: 4Vdc, 500mA
- Integrated Power Monitoring with High Accuracy up to ±3%
- Flicker Free
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: IUVP, IOVP, OTP, OVP, SCP
- 5 Years Warranty

Application

- IP65
- Suitable for Built-in use and Luminaires with Protection Class I

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)
						120Vac	220Vac	
70-1050	700-1050	1050	24-57	40	88.0%	0.99	0.96	IT DIG 40/100-240/1A05 R V A04

Notes: (1) Output current range with constant power at 40W.
(2) Measured at 100% load and 220Vac input (see below “General Specifications” for details).
(3) Certified input voltage range: 100-240Vac.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage AC	90 Vac	-	264 Vac	
Input Voltage DC	127 Vdc	-	240 Vdc	
Mains Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC 60598-1; 240Vac/60Hz
Nominal Input Current	-	-	0.44 A	Measured at 100% load and 120 Vac input.
	-	-	0.23 A	Measured at 100% load and 220 Vac input.
Power Factor λ	0.9	-	-	At 100-240Vac, 50-60Hz, 75%-100% Load (30-40W)
Total Harmonic Distortion	-	-	20%	
Total Harmonic Distortion Extended Range	-	-	10%	At 220-240Vac, 50-60Hz, 75%-100% Load (30-40W)

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Programmable Output Current	70 mA	-	1050 mA	
Nominal Output Voltage	24 V	-	57 V	
Output Current Tolerance	-8%	-	+8%	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)
$P_{st}LM$	-	-	1.0	
SVM	-	-	0.4	
Startup Overshoot Current	-	-	10%Iomax	At 100% load condition
U_{out}	-	-	80 V	
Line Regulation	-	-	±5.0%	Measured at 120-240Vac input, 100% load
Load Regulation	-	-	±5.0%	Measured at 120-240Vac input
Turn-on Delay Time	-	-	1.5 s	Measured at 120-240Vac input, 75%-100% load
Temperature Coefficient	-	0.06%/°C	-	Case temperature = 0°C ~Tc max
Auxiliary Output Voltage	3.6 V	4 V	4.2 V	Return terminal is “Dim−“
Auxiliary Output Source Current	-	500 mA	-	
Auxiliary Output Transient Peak Current @6W	-	-	1.5 A	Ambient temperature ≥-20℃, 1.5A peak for a maximum duration of 1s in a 10s period, then the output current decrease to 500mA

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120Vac Input IT DIG 40/100-240/1A05 R V A04 Io=700 mA Io=1050 mA	 84.5% 84.0%	 86.5% 86.0%	 - -	Measured at 100% load and Steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 220Vac Input IT DIG 40/100-240/1A05 R V A04 Io=700 mA Io=1050 mA	 86.0% 85.5%	 88.0% 87.5%	 - -	Measured at 100% load and Steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	404,000 Hours	-	Measured at 220Vac 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	-	104,000 Hours	-	Measured at 220Vac input, 100% load and 70°C case temperature; See lifetime vs. Tc curve for the details
Ambient Temperature	-40°C	-	+65°C	Measured at 220Vac 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	IP65			
Dimensions (⌀ × H)	⌀2.95 x 1.26 Inches ⌀75 x 32 mm			
Net Weight	-	280 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	39.4 A	80.0 μs	15	24	30	38	17	28	35	44
220Vac	82.5 A	78.0 μs	12	20	25	31	21	33	42	52

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

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Dimming Output Range	10%Ioset	-	Ioset	700 mA ⩽ Ioset ⩽ 1050 mA
	70 mA	-	Ioset	70 mA ⩽ Ioset ＜ 700 mA

Certificates & Standards

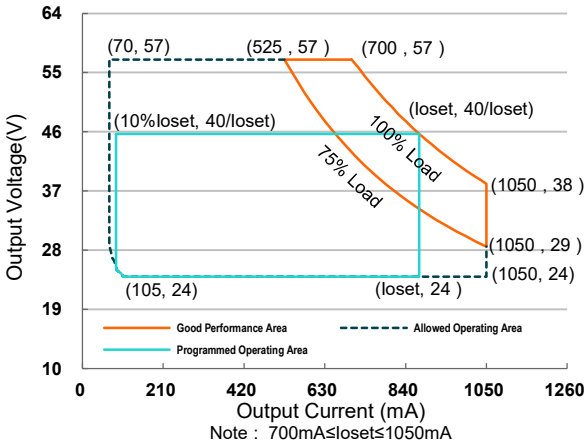
Safety Category	Standard
CCC	GB/T 19510.1, GB/T 19510.213, GB/T 17743, GB 17625.1

Note: (1) 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.
(2) The dimming port of the LED control gear is a non-controlled dimming interface, and dimming functionality is achieved by connecting a wireless module. This wireless module is powered by the auxiliary power supply (Vaux/4V) provided by the LED control gear itself and must not be connected to any other power supply network.

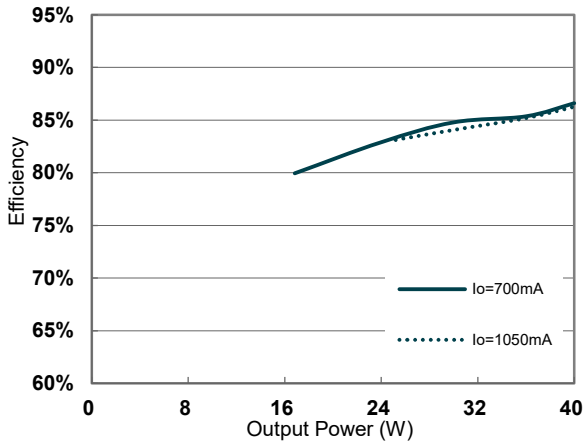
Isolation Levels

	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

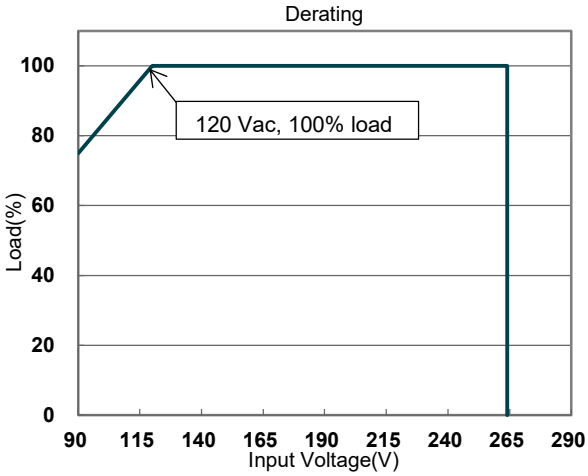
Operating Window



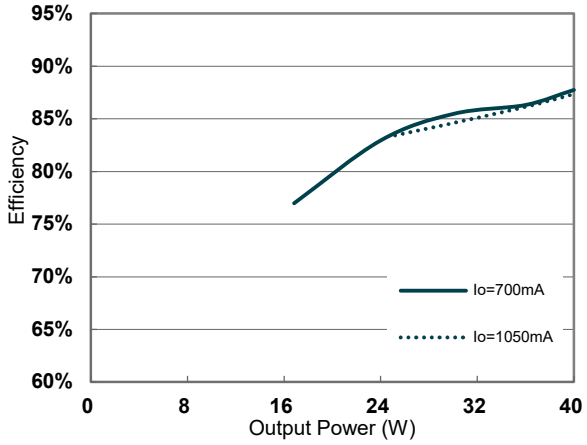
Efficiency vs. Load@120Vac



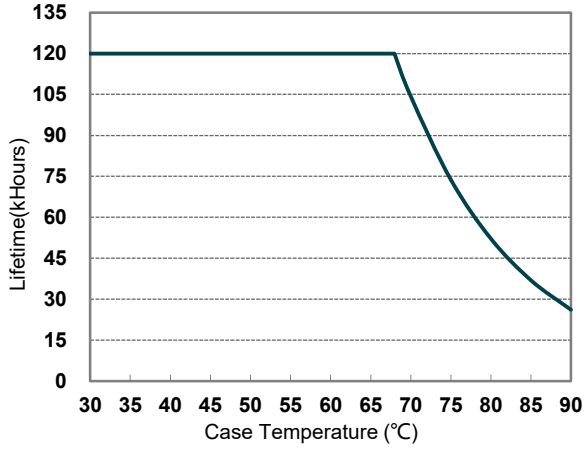
Derating



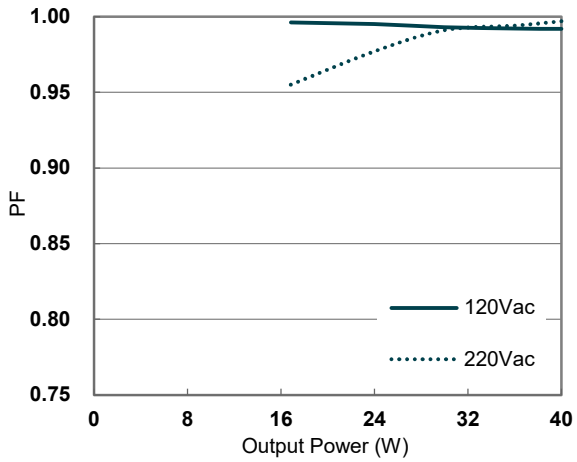
Efficiency vs. Load@220Vac



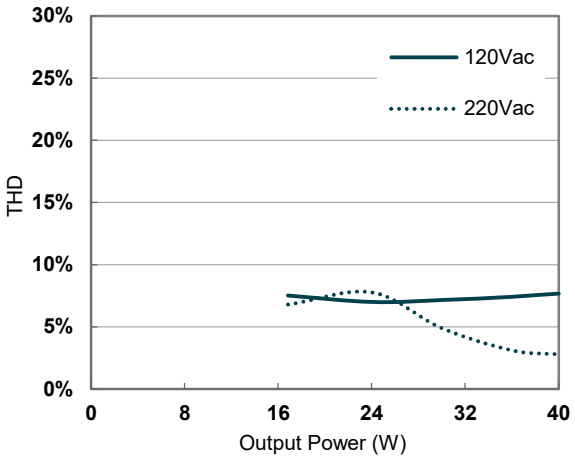
Lifetime vs. Case Temperature



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.

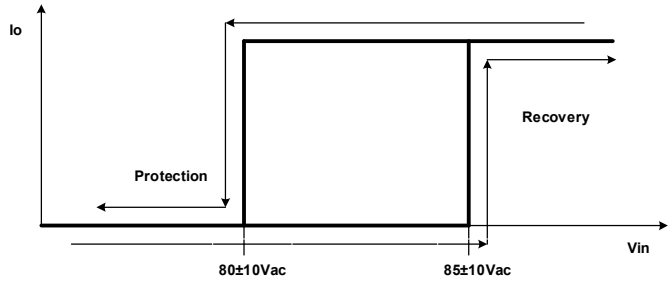
Over Voltage Protection(OVP)

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

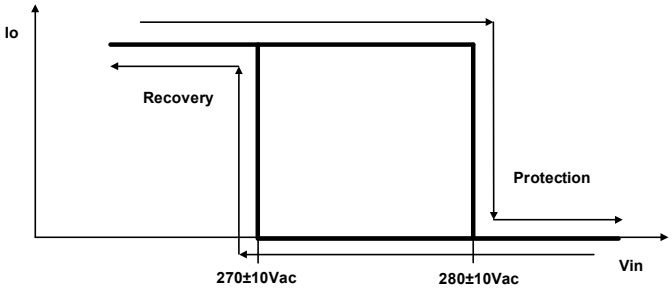
Short Circuit Protection(SCP)

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

Input Under Voltage Protection(IUVP)



Input Over Voltage Protection(IOVP)



Dimming

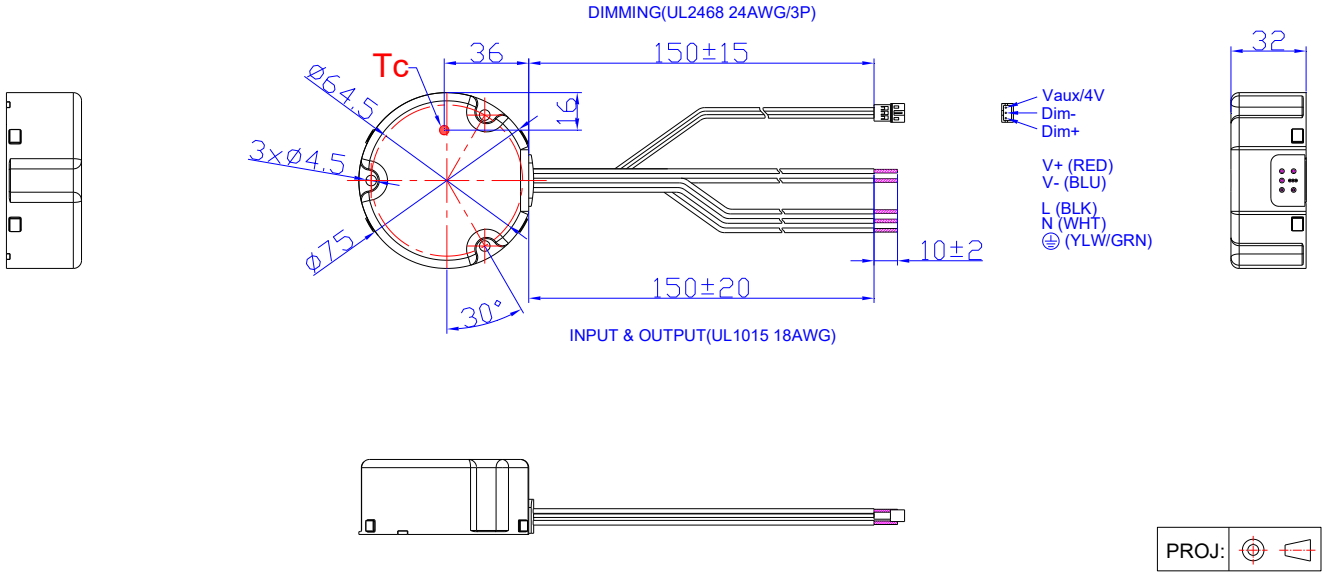
Digital Dimming

Inventronics Digital Dimming is a UART (Universal Asynchronous Receive Transmitter) based communication protocol and is compliant with T/CSA-051 standard. Please refer to Inventronics Digital Dimming file for details.

Programming Connection Diagram

Note: (1) The driver needs to be powered on during the programming process.
(2) Please refer to PRG-MUL2 (programmer) datasheet for details.
(3) Supports both T4T and Tuner4TRONIC Field App functionality.

Mechanical Outline



PROJ:

Unspecified tolerance:±1

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 × W × H)(mm)
6937186158727	IT DIG 40/100-240/1A05 R V A04	CCC	40	540 x 355 x 310