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IT D0 36/220-240/24 C

24 V Single-channel Constant Voltage LED driver
Dimmable range 0 / 1% - 100%

Benefits

Dimmable via DALI, 0-10V, touch-dim or corridor
DALI-2 certified
24.2 V nominal output + 1.5 V adjustable
CC mode for 18…24 V output option

Housing material: plastic, white

* image for information purpose only

L	240 mm	Total length
B	60 mm	Width
H	25 mm	Height

Applications

Hospitality, cove lighting, shops.
Suitable for indoor CLASS I and CLASS II luminaires.

Approvals

When not printed on product label, they are under evaluation.

Product Features

- DALI-2 certified
- Single channel
- Lamp Failure detection
- CLASS II independent housing
- Smart Power Supply
- SELV, Vout: 24,2 V
- t_a range -20…+50°C

*10% cumulated failure, 24 h = 14 h ON, 10 h Standby

- Very low min dimming level: 1%
- Mains voltage: 220–240 V_{ac}
- 50’000 h lifetime at max t_C*
- 5 years guarantee*
- IP20 independent housing
- Touch-DIM and corridor compatibility
- Overload/Over temperature and Short circuit protection

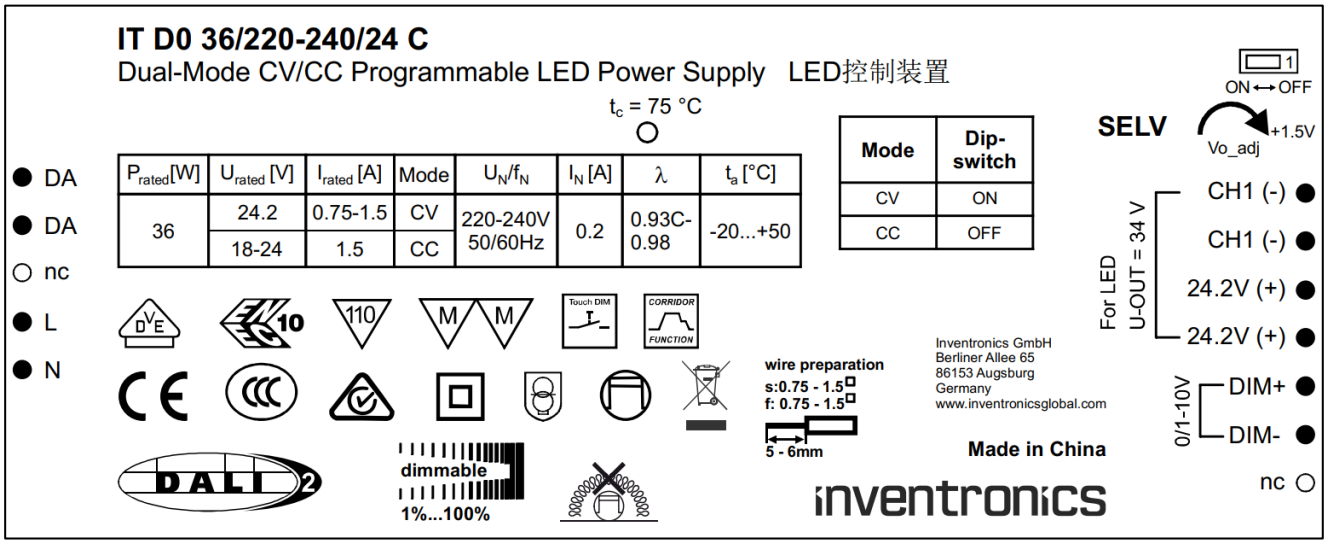
Electrical specification

	Item	Value	Unit	Remarks
INPUT	Nominal line voltage	220 – 240	V	
	Mains line frequency	50 / 60	Hz	
	AC voltage range	198 – 264	V	Max 320 V for 2 h, with no operation.
	Nominal current	0.2	A	Typical @ Full load, 230 Vac, 50 Hz
	Total Harmonic Distortion (THD)	< 10	%	Full load, 230 V_{ac}, 50 Hz. See graphs
	Power factor λ	0.98		Full load, 230 V_{ac}, 50 Hz. See graphs
	Efficiency in full load	87	%	Typical, steady state @ full load, 230 V_{ac}, 50 Hz. See graphs
	Device power loss	5.1	W	Full load, 230 Vac, 50 Hz, Typical
	Networked stand-by power	<0,50	W	230 V_{ac}, 50 Hz.
	Protection class	II		
	Suitable for fixtures with prot. Class	I / II		
	Inrush current	14	A_{pk}	Full Load, 230 V_{ac}, Cold Start Duration = 70 µs 50% / 50% I_{pk}
	Max. units per circuit breaker:			
	Max. ECG no. on circuit breaker 10 A (B)	42		
	Max. ECG no. on circuit breaker 16 A (B)	67		
	Max. ECG no. on circuit breaker 25 A (B)	105		
	Max. ECG no. on circuit breaker 32 A (B)	134		
	Max. ECG no. on circuit breaker 10 A (C)	42		
	Max. ECG no. on circuit breaker 16 A (C)	67		
	Max. ECG no. on circuit breaker 25 A (C)	105		
	Max. ECG no. on circuit breaker 32 A (C)	134		
OUTPUT	Nominal voltage	24,2	V	In CV mode, with + 1.5V via potentiometer
		18…24	V	In CC mode, nominal current 1,5 A
	Voltage accuracy	± 1	%	At nominal voltage 24,2 V
	Voltage ripple	< 3	%	@ 100 Hz, full load. Typical < 720 mV_{pp}
	Nominal output power	0 – 36	W	Performance and harmonics guaranteed between 18 – 36 W
	Max output power in AC (at steady state)	36	W	Smart Power to manage up to Pout_max + 44%
	Galvanic isolation	SELV		
DIMMINGS	Dimming interface	DALI 2.0 0-10V / 1/10V PWM		Proper DALI diagnostics with a min. load of 20% (7.26 W)
	Dimming range	1 – 100 10 – 100	%	In CV mode, DALI dimming steps (0 – 254) In CC mode
	Dimming method	PWM		Output frequency of 6 kHz
	TLA (Flicker and strobe effects)	P_{ST} < 1	-	For dimming condition >10% @ Full load
		SVM < 0,4		
	Galvanic Isolation	Basic / Supplementary / Double		Basic insulation: DALI to PRI; 0-10V/1-10V/PWM to PRI Supplementary insulation: 0-10V/1-10V/PWM to SEC Double insulation: DALI to SEC
ENVIRONMENTAL	Ambient temperature range	-20…+50	°C	
	Max. temperature at Tc test point	75	°C	Measured on t_c point indicated of the prod label, t_a not exceeded
	Max. case temperature in fault condition	110	°C	
	Storage temperature range	-25…+85	°C	
	Permitted rel. humidity during operation	5 – 85	%	Not condensing
	Surge capability	1	kV	L to N acc. to. EN 61547
		2		L+N to GND plane
	Environmental rating	Indoor		
	IP protection class	IP 20		

	Item	Value	Unit	Remarks
	Mains switching cycles	> 150000	cycles	@ t_a = 25°C
	Expected ECG lifetime	50000	h	@ t_c MAX – failure rate max. 10%
		100000	h	@ t_c MAX -10°C – failure rate max. 10%
	No-load proof	Yes		Auto recovery
	Intended for no-load operation	No		
	Overheating protection	Yes		Auto recovery
	Overload protection	Yes		Auto recovery + Smart Power
	Short-circuit protection	Yes		Auto recovery
DIMENSIONS	Height	25	mm	
	Length	240	mm	Overall including fixing brackets
	Width	60	mm	
	Weight	275	g	
	Mounting holes interaxis	202	mm	
	Casing material	Plastic		White
	Type of connection	Screw terminals		0,75 – 1,5 mm²
	Wire preparation length	5…6	mm	Input and output terminals

Protection

Over temperature, Overload, Short-circuit, Output overvoltage. Reversible.



- Input wires cross section: 0,75 – 1,5 mm². Screw driver: slotted 3.5 mm
- Output wires cross section 0,75 – 1,5 mm². Screw driver: slotted 3.5 mm
- Wire peeling length: input 5…6 mm, output 5…6 mm

LED wire length

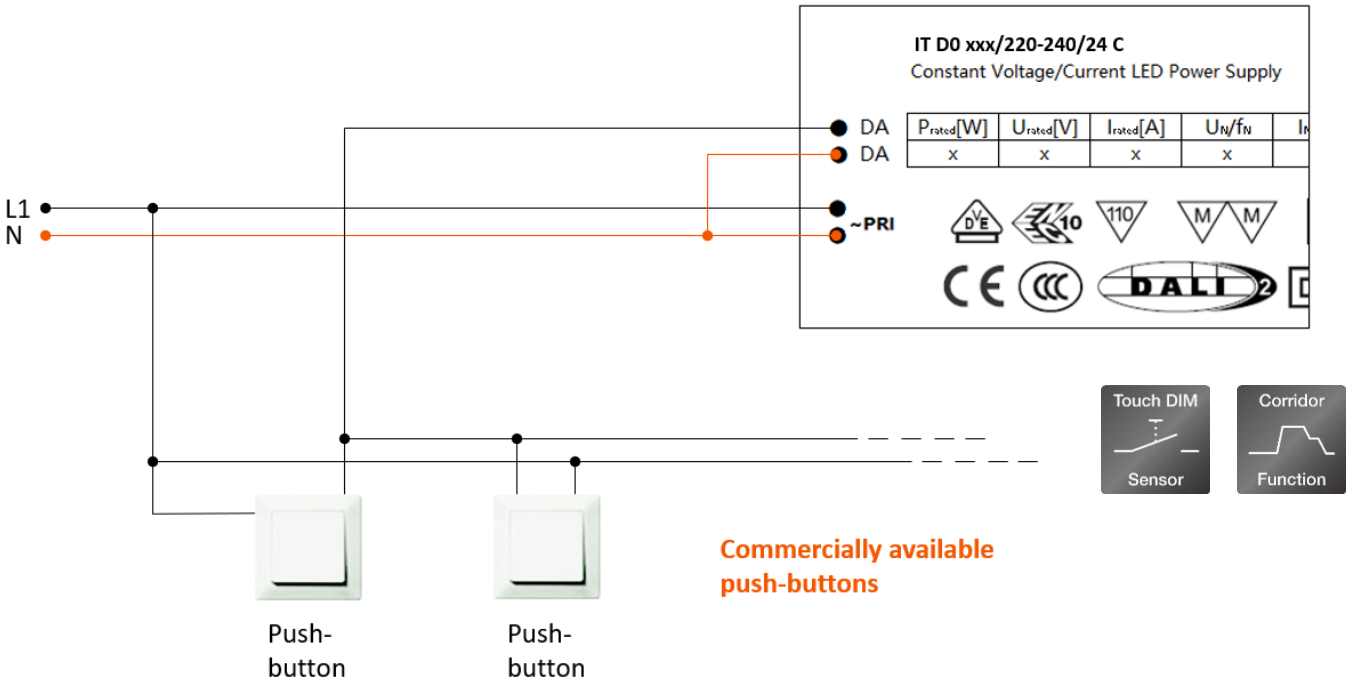
The wire length from the ECG to the LED module with verified EMI is less than 3 m.

Wiring longer than 3 m from ECG to LED module is possible, but site installation conditions may interfere with EMI with these longer cables. EMI is therefore not verified in this condition.

For longer lengths than 3 m, appropriate cable cross section must be carefully selected to reduce voltage drop.

Touch DIM

This driver supports Touch DIM operation, which enables easy control of light by means of a push-button and additional Presence Sensors and/or Light Sensor directly connected to the DALI terminals. No further programming is necessary, unless additional functions are to be implemented, like Corridor Function, fading time, dimming limit levels and so on. For these additional features, the Tuner for Tronic (T4T) is suggested as a convenient tool. For more information, please refer to Inventronics on-line documentation like application guides.



ADDITIONAL INFORMATION

- The Touch DIM input voltage ranges from 10 Vac to 264 Vac and has single insulation from mains.
- DALI and Touch DIM must never be used at the same time: control is achieved either with DALI controller or with the Touch DIM function (self-recognized and stored at the first Long Press following 5 s without DALI frames after last turn-on or previously programmed via DALI).
- Up to 20 ECGs can be controlled via direct push-button use. The number of push-buttons is limited by the sum of the overall cable length between switch(es) and the connected ECGs: maximum length should not exceed 25 m. In case of longer distances, a small 12 V transformer (AC buttons only) or a DALI repeater must be used to overcome line capacitance.

CV and CC mode

The ECG can operate in either constant voltage or constant current mode by changing the setting of the DIP-switch. Operation compatibility table:

	DIMMING MODE (T4T)				
Operating Mode (DIP-Switch)	DIP-Switch	Touch-DIM	DALI	0-10V/ PWM/R	1-10V/ PWM/R
CV MODE	ON	Yes	Yes	Yes *	Yes
CC MODE	OFF	Yes	Yes	Yes	Yes

*: default factory mode

CC MODE: 10…100% of maximum output current DIP-switch setting: 0

CV MODE: 1…100% PWM duty cycle output DIP-switch setting: 1

0-10V/PWM/R Dimming

For single port:
Sink current ≤ 50 µA
Source current = 260 µA ± 10%

Signal requirement:

0-10V	9V < V_max < 11V
PWM	V_{low} < 0.3V, 9.5 V < V_{high} < 10.5 V, frequency 1~10KHz, min duty > 10%
Resistor	recommented using a 39 kOhm potentiometer to achieve full-range dimming

0-10V Dimming curve at CC mode (fig.1):
Only CH1 supports CC mode,
please connect dimming signal to DIM1+.
V_{off} = 0.8V
V_{on} = 1.0V
$V_{control\_Lo}$ = 1.2V
$V_{control\_Hi}$ = 9.0V

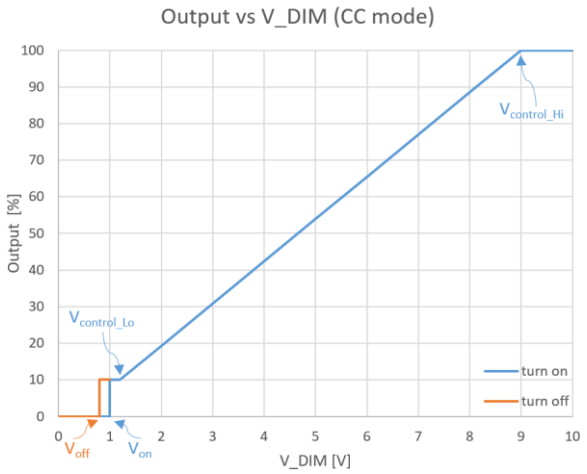


fig.1

0-10V Dimming curve at CV mode (fig.2):
V_{off} = 0.8V
V_{on} = 1.0V
$V_{control\_Lo}$ = 1.2V
$V_{control\_Hi}$ = 9.0V

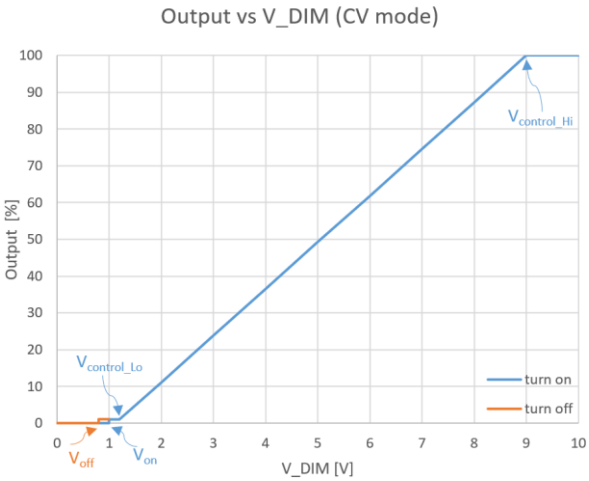
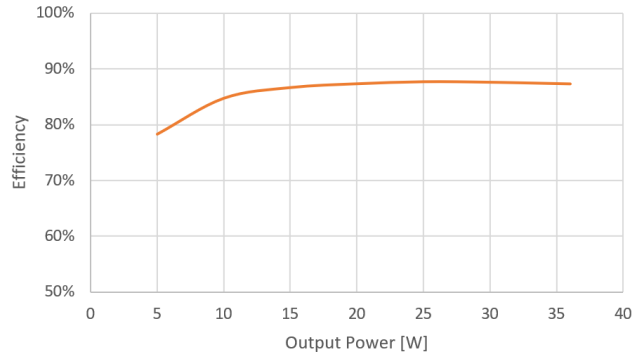
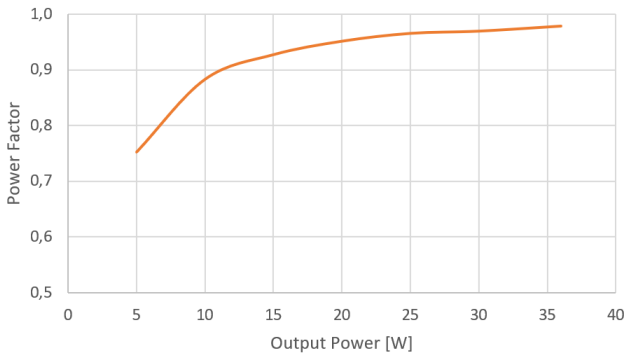


fig.2

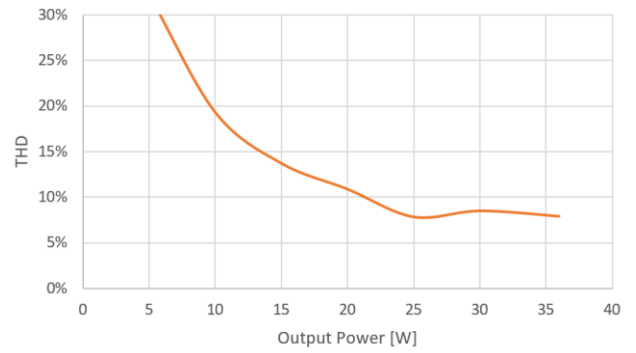
Typical Efficiency vs Load (230V/50Hz)



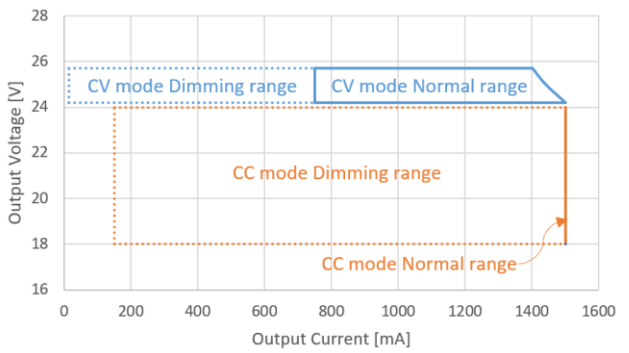
Typical PF vs Load (230V/50Hz)



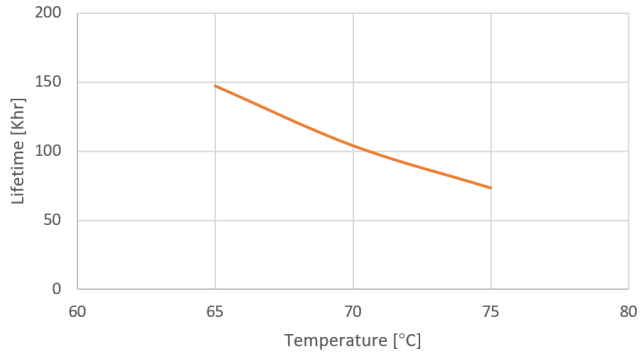
Typical THD vs Load (230V/50Hz)



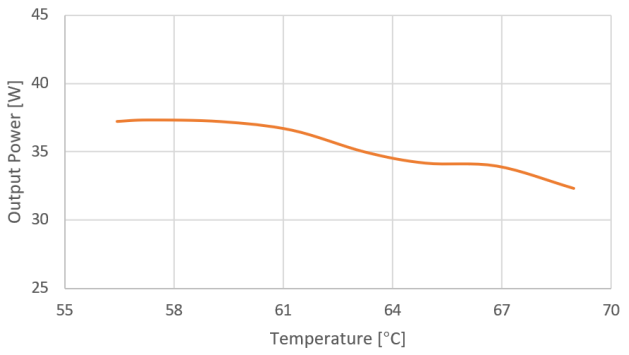
Operating window



Lifetime vs Temperature t_c (230V/50Hz)



Load vs Temperature t_a (230V/50Hz)



Remarks

- **Product performances below minimal load condition**: the output power is still generated if the load is below the minimum output power of 18 W, without any safety risk, but performances regarding THD, PF, etc. are not guaranteed. See typical operation window graph for details.
- **Output terminals**: the positive terminals are tied together.
- **Output short circuit protection**: the short circuit current is limited without damaging the unit. The short circuit protection is self-restoring.
- **Output overload protection**: in case of overload (< 144%), the device automatically dims down the output to keep the power within 36 W and let the LED load warm-up. When the overload exceeds the 144% of maximum nominal output power, the LED load will blink 8 times to manifest a fault condition and latch.
- **Input over voltage protection**: the ECG is capable of having input of max 320Vac for 2 hours without operation.
- **Lamp failure detection**: the minimum load that doesn't trigger open circuit detection is 3 W.
- **No load operation**: do not put a switch between ECG and load.
- **Over temperature protection**: the driver is protected against temporary overheating, so it automatically dims down when t_c is exceeded, and eventually turns off. The protection is self-restoring.
- **Ecodesign regulation information:**
  Intended for use with LED modules. Separated control gear and light sources must be disposed of at certified disposal companies in accordance with Directive 2012/19/EU (WEEE) in the EU and with Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 in the UK. For this purpose, collection points for recycling centers and take-back systems (CRSO) are available from retailers or private disposal companies, which accept separate control gear and light sources free of charge. In this way, raw materials are conserved and materials are recycled.

Standards

EN IEC 55015
EN IEC 61347-1
EN IEC 61347-2-13
EN IEC 61547
EN IEC 61000-3-2
EN 61000-3-3
EN IEC 62384

Ordering information

Product name	EAN 10	EAN 40	Pieces / Box
IT D0 36/220-240/24 C	6937186142214	6937186142221	20

Controlgear type	Marking
Independent	
Safety isolating controlgear: SELV output with Short-circuit proof	

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