

Constant Voltage LED Driver

Constant Voltage Driver

Model: LV(30-250)W24CG2 DALI



Model	Rated Input Voltage	Input Power	Input Current	PF	Output Power Range	Output Voltage	Output Current	Efficiency (typ.)	Cementig product
LV30W24CG2 DALI	220-240VAC	≤38W	≤0.19A	≥0.95	12-30W	24V	0.5-1.25A	86%	N
LV60W24CG2 DALI		≤72W	≤0.35A		24-60W		1-2.5A	87%	N
LV100W24CG2 DALI		≤115W	≤0.6A		30-100W		1.25-4.17A	92%	N
LV150W24CG2 DALI		≤168W	≤0.9A		45-150W		1.875-6.25A	92%	Y
LV250W24CG2 DALI		≤275W	≤1.5A		75-250W		3.12-10.42A	92%	Y

* Test result @230V, 50Hz, Full Load.

1. Parameters

Category	Item	Technical Norm	
Features	Output Type	Constant Voltage	
	Dimming Type	DALI-2	
	Output Features	Isolation SELV	
	IP Grade	IP20	
	Insulation Class	Class II	
Input	Rated Input Voltage	220-240VAC	
	Range of AC Input Voltage	176-264VAC	
	Range of DC Input Voltage	175-280VDC (EMI not evaluated)	
	Frequency	Rate:50/60Hz, Range:47~63Hz	
	Power Factor	≥0.95, 220-240VAC, Rated Load, see graphs	
	THD	30W/60W	≤10% 230VAC, Rated Load, see graphs
		100W/150W/250W	≤7% 230VAC, Rated Load, see graphs
Standby Power Consumption	≤0.5W, @230VAC, Dim to OFF		
Output	Output Voltage	24VDC+5%	
	No load Voltage	24VDC+5%	
	Output Voltage Ripple	<240mV _{PK-PK} (0.5%)	
	Line Regulation	±1%	
	Load Regulation	±2%	
	Overshoot	<105%V _o	
	Start-up Time	Start-up time <0.5s @ power switch on without DALI control. Start-up time <1s @ DALI system on.	

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	Hold-up time & Turn off time	Model	Hold-up time(mS)	Turn-off time(mS)	230VAC, LED Rated Load, Hold-up time measure from AC input turn-off to output voltage drop to 90%, turn-off time measure from AC input turn-off to output voltage drop to 90%
		30W	30	72.3	
		60W	22.8	62.8	
		100W	9.2	69.6	
		150W	10	384	
	250W	16.2	676		
	Efficiency	30W	≥85%	86% typ.	230VAC, Rated Load, at output terminals, see graphs
		60W	≥86%	87% typ.	
		100W	≥91%	92% typ.	
		150W	≥91%	92% typ.	
250W		≥91%	92% typ.		
Protection	Short Circuit Protection	Auto Recovery			
	Over Current Protection	120%-180%Io, Auto Recovery			
	Over Voltage Protection	110%-150%Vo, Auto Recovery			
	Over Temperature Protection	90<Tc<110°C, Auto Recovery			
	Insulation voltage	I/P to O/P,3KVac/5mA/1min			
	Insulation resistance	>100M ohm @ 500VDC			
	Leakage current	I/P to O/P < 250 μ A			
Control Method	PUSH dimming	PUSH dimming (Max. lead wire length: 20m,same port of DALI)			
	PUSH-button	Max parallel connections qty for Push-dim 15			
	DALI function	DALI dimming (Max. lead wire length: 300m) logarithm or linear dimming curve selectable DALI-2 certified incl. Parts 251, 252, 253			
	Dimming range	DALI dimming: 1%-100% (1KHz)			
Environment	Ta/Operation Temperature	-25...+45°C			
	Ts/Storage Temperature	-40...+85°C			
	Tc/Enclosure Temperature For	30W	80°C		
	Safety	60W/100W/150W/250W	90°C		
	Humidity	5% 85%RH			
	Atmosphere	86-108KPa			
Construction	Connection Method	Terminal			
	Cable Terminals	Input	1 terminal block		
		Output	2 terminals block		
		Dimming	1terminals block		
	Installation	Independent			
	Input Wire Cross Section	30W/60W/100W/150W	0.5mm ² -1.5 mm ²		
		250W	0.75mm ² -1.5 mm ²		
	Output Wire Cross Section	2*0.75mm ² -1.5 mm ²			
Dimming Wire Cross Section	0.5mm ² -1.5 mm ²				
Output Cable Length	Max. 3M				

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	Cable diameters range	Input& Dimming	2.2-4mm		
		Output	2.2-4mm or 9.5-10.5mm		
	Dimension	30W	300*30*16mm (L*W*H)		
		60W/100W/150W	350*30*18mm (L*W*H)		
250W		400*40*22mm (L*W*H)			
Standards	Certification	CE			
	Safety Standards	EN61347-2-13:2014/A1:2017,EN61347-1:2015, AS61347.2.13:2018,AS/NZS 61347.1:2016 Inc A1			
	EMC Standards	EN IEC 55015:2019,EN IEC 55015:2019/A11:2019 EN IEC 61000-3-2:2019,EN61547:2009, EN 61000-3-3:2013/A1:2019			
	Performance	EN62384;IEC 62386-101 Edition2.0 2014-11; BS EN 62386-102:2014 ; BS EN 62386-207:2009 DALI Part -251,-252 and -253			
	Surge	L-N:2KV			
Others	RoHS	2011/65/EU			
	MTBF	≥250KHours,Ta=25°C (MIL-HDBK-217F)			
	Audible Noise	30W/60W	<28dB @ 10cm distance, 20dB background		
		100W/150W/250W	<25dB @ 10cm distance, 20dB background		
	Life Time(@Ta max)	30W	≥80K Hrs	@230VAC , full oad, End of Life: Failure Rate<10%	
		60W	≥60K Hrs		
		100W	≥60K Hrs		
150W		≥55K Hrs			
250W		≥52K Hrs			
Warranty	5years, End of Life: Maximum Failure Rate=10%				
<p>Remark:</p> <ol style="list-style-type: none"> All Parameters, if not specified, are measured at 230VAC/50Hz and 25°C ambient temperature. LED Driver is a component of the luminaires, Luminaires and wire layout will affect the EMC, please check the EMC with end products again. Output ripple should be measured at the output end which has with 0.1uF/50V ceramic capacitance and 47uF/50V Aluminum capacitance connected in parallel. Measured using oscilloscope with bandwidth limited to 20MHz. 					

2. Connected quantities of different current Breaker

TYPE	LV30W24CG2 DALI Connected quantities of different current Breaker						Input Voltage	Inrush Current <25A	Time
	current (A)	10	13	16	20	25			
	Installation wire diameter	1.5mm ²	2.5mm ²	2.5mm ²	4mm ²	4mm ²			
TYPE B	27	35	44	55	68	@230VAC	22	200us	
TYPE C	44	57	70	87	109				
TYPE D	70	91	112	140	175				

TYPE	LV60W24CG2 DALI Connected quantities of different current Breaker						Input Voltage	Inrush Current <30A	Time
	current (A)	10	13	16	20	25			
	Installation wire diameter	1.5mm ²	2.5mm ²	2.5mm ²	4mm ²	4mm ²			
TYPE B	23	30	37	46	58	@230VAC	26	220us	
TYPE C	37	48	59	74	92				
TYPE D	59	77	95	118	148				

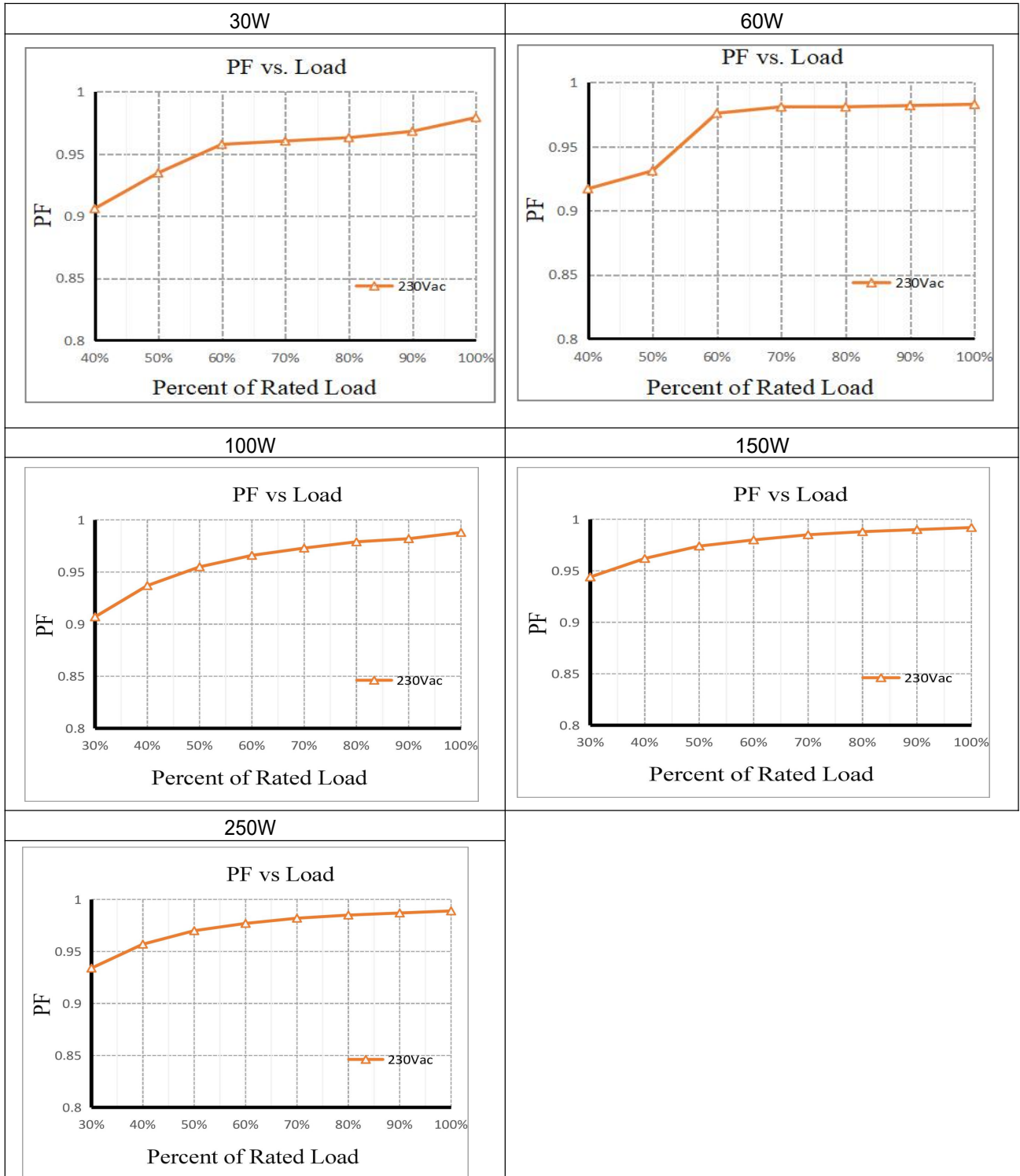
TYPE	LV100W24CG2 DALI Connected quantities of different current Breaker						Input Voltage	Inrush Current <50A	Time
	current (A)	10	13	16	20	25			
	Installation wire diameter	1.5mm ²	2.5mm ²	2.5mm ²	4mm ²	4mm ²			
TYPE B	13	17	21	27	33	@230VAC	45	250us	
TYPE C	21	28	34	43	53				
TYPE D	34	44	55	68	85				

TYPE	LV150W24CG2 DALI Connected quantities of different current Breaker						Input Voltage	Inrush Current <60A	Time
	current (A)	10	13	16	20	25			
	Installation wire diameter	1.5mm ²	2.5mm ²	2.5mm ²	4mm ²	4mm ²			
TYPE B	11	14	17	21	27	@230VAC	56	185us	
TYPE C	17	22	27	34	43				
TYPE D	27	36	44	55	69				

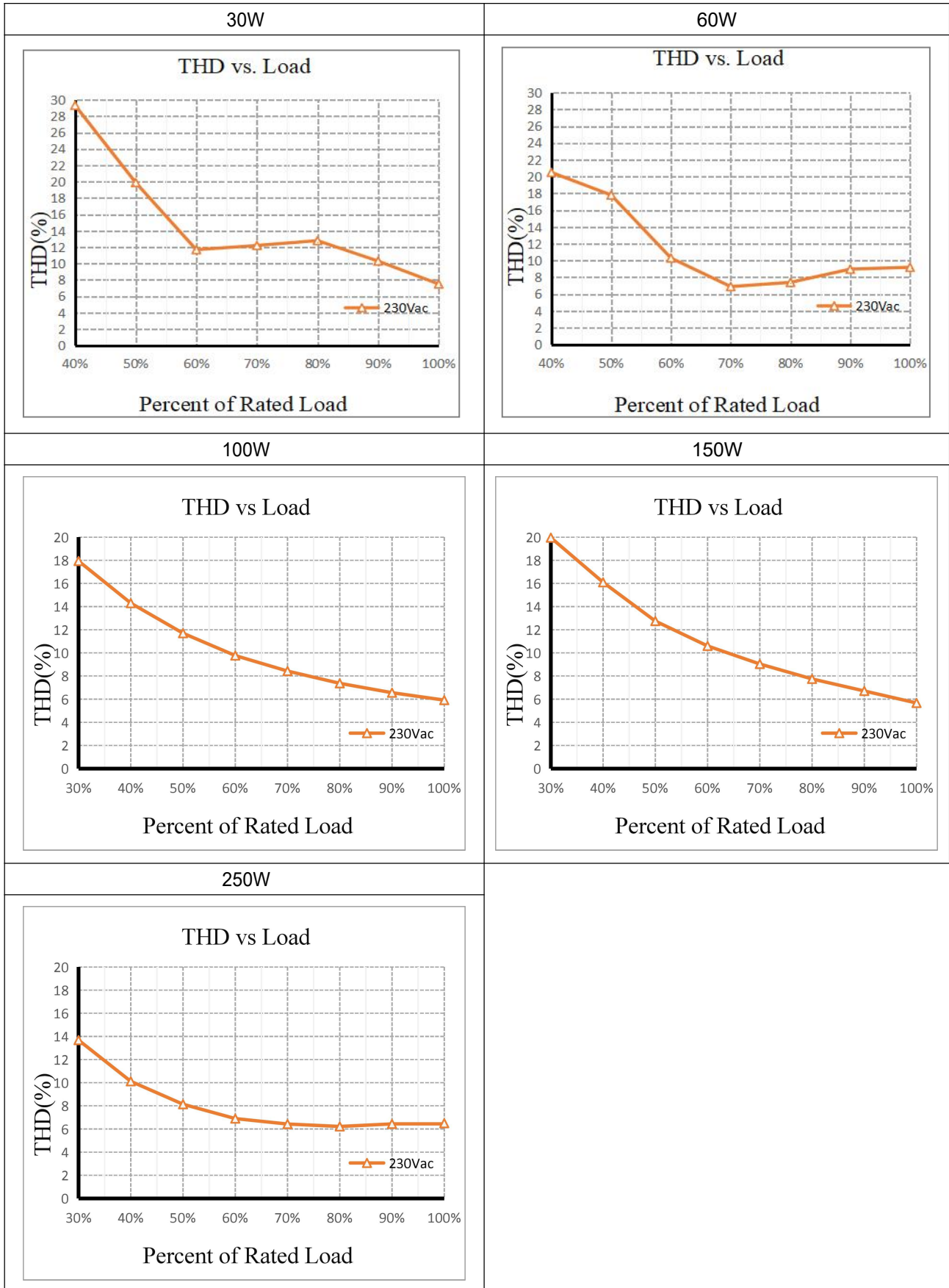
TYPE	LV250W24CG2 DALI Connected quantities of different current Breaker						Input Voltage	Inrush Current <80A	Time
	current (A)	10	13	16	20	25			
	Installation wire diameter	1.5mm ²	2.5mm ²	2.5mm ²	4mm ²	4mm ²			
TYPE B	8	10	13	16	20	@230VAC	76	310us	
TYPE C	13	16	20	25	32				
TYPE D	20	26	32	40	51				

3. Graph

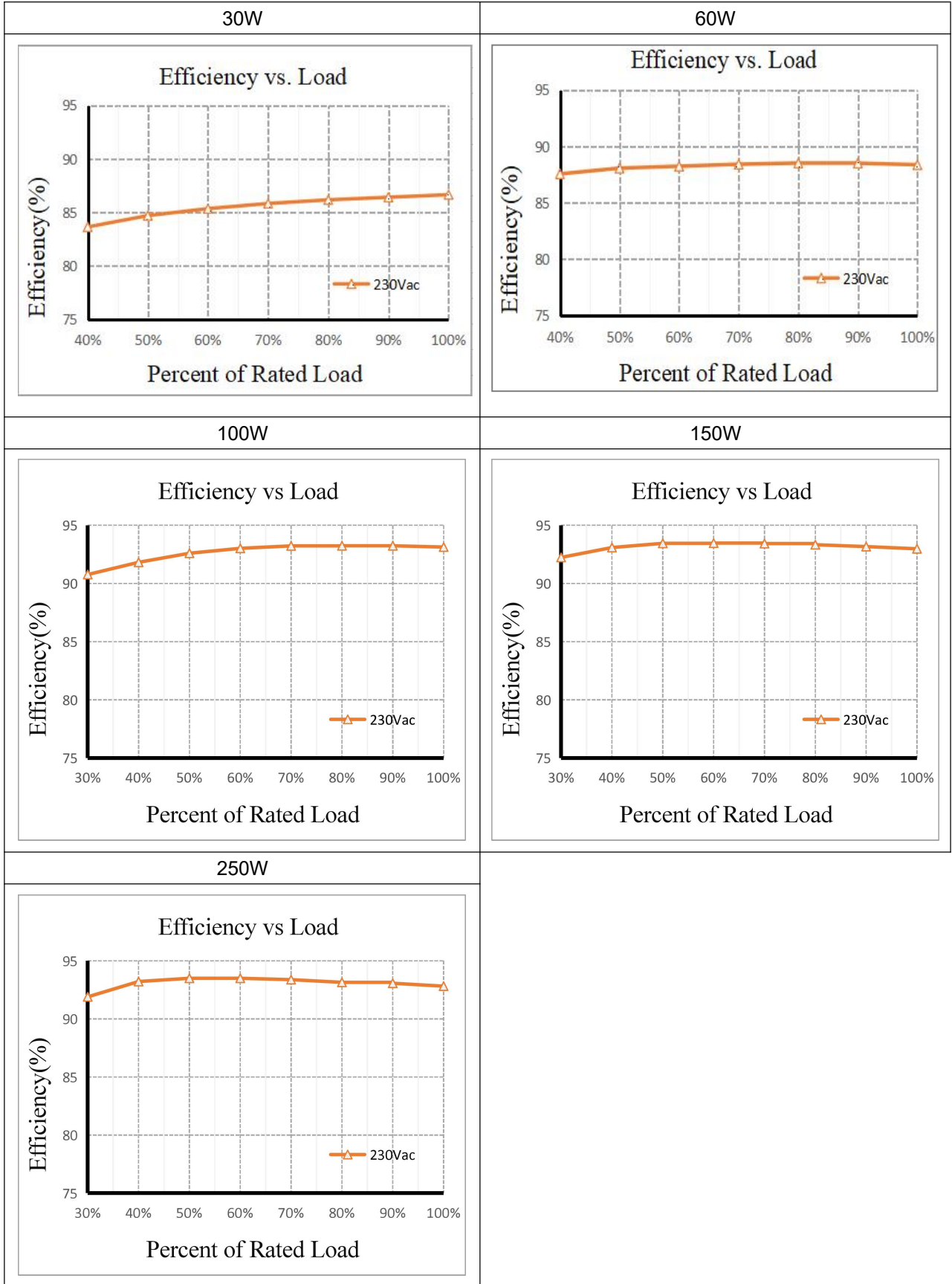
PF VS LOAD Curve



THD VS LOAD Curve



Efficiency VS LOAD Curve



4. Label

<input type="checkbox"/> L <input type="checkbox"/> N <input type="checkbox"/> DA <input type="checkbox"/> DA	wire preparation (6mm) INPUT: 0.5-1.5° OUTPUT: 0.75-1.5° DIM: 0.5-1.5° 	KGP KGP Electronics GmbH Hueckstraße 19 DE-58511 Lüdenscheid	LED Dimmable Driver LV30W24CG2 DALI Constant Voltage Type For LED modules only	Input Voltage: 220-240V~ Input Frequency: 50/60Hz Power Factor(λ): ≥0.95 I _{in} : ≤0.19A	U _{rated} = 24V= I _{range} = 0.5-1.25A P _{range} = 12-30W t _a : -25...45°C t _c : 80°C	CE, RoHS, REACH, SELV, DALI, etc.
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<input type="checkbox"/> L <input type="checkbox"/> N <input type="checkbox"/> DA <input type="checkbox"/> DA	wire preparation (6mm) INPUT: 0.5-1.5° OUTPUT: 0.75-1.5° DIM: 0.5-1.5° 	KGP KGP Electronics GmbH Hueckstraße 19 DE-58511 Lüdenscheid	LED Dimmable Driver LV60W24CG2 DALI Constant Voltage Type For LED modules only	Input Voltage: 220-240V~ Input Frequency: 50/60Hz Power Factor(λ): ≥0.95 I _{in} : ≤0.35A	U _{rated} = 24V= I _{range} = 1-2.5A P _{range} = 24-60W t _a : -25...45°C t _c : 90°C	CE, RoHS, REACH, SELV, DALI, etc.
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<input type="checkbox"/> L <input type="checkbox"/> N <input type="checkbox"/> DA <input type="checkbox"/> DA	wire preparation (6mm) INPUT: 0.5-1.5° OUTPUT: 0.75-1.5° DIM: 0.5-1.5° 	KGP KGP Electronics GmbH Hueckstraße 19 DE-58511 Lüdenscheid	LED Dimmable Driver LV100W24CG2 DALI Constant Voltage Type For LED modules only	Input Voltage: 220-240V~ Input Frequency: 50/60Hz Power Factor(λ): ≥0.95 I _{in} : ≤0.6A	U _{rated} = 24V= I _{range} = 1.25-4.17A P _{range} = 30-100W t _a : -25...45°C t _c : 90°C	CE, RoHS, REACH, SELV, DALI, etc.
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<input type="checkbox"/> L <input type="checkbox"/> N <input type="checkbox"/> DA <input type="checkbox"/> DA	wire preparation (6mm) INPUT: 0.5-1.5° OUTPUT: 0.75-1.5° DIM: 0.5-1.5° 	KGP KGP Electronics GmbH Hueckstraße 19 DE-58511 Lüdenscheid	LED Dimmable Driver LV150W24CG2 DALI Constant Voltage Type For LED modules only	Input Voltage: 220-240V~ Input Frequency: 50/60Hz Power Factor(λ): ≥0.95 I _{in} : ≤0.9A	U _{rated} = 24V= I _{range} = 1.875-6.25A P _{range} = 45-150W t _a : -25...45°C t _c : 90°C	CE, RoHS, REACH, SELV, DALI, etc.
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<input type="checkbox"/> L <input type="checkbox"/> N <input type="checkbox"/> DA <input type="checkbox"/> DA	wire preparation (6mm) INPUT: 0.75-1.5° OUTPUT: 0.75-1.5° DIM: 0.5-1.5° 	KGP KGP Electronics GmbH Hueckstraße 19 DE-58511 Lüdenscheid	LED Dimmable Driver LV250W24CG2 DALI Constant Voltage Type For LED modules only	Input Voltage: 220-240V~ Input Frequency: 50/60Hz Power Factor(λ): ≥0.95 I _{in} : ≤1.5A	U _{rated} = 24V= I _{range} = 3.12-10.42A P _{range} = 75-250W t _a : -25...45°C t _c : 90°C	CE, RoHS, REACH, SELV, DALI, etc.
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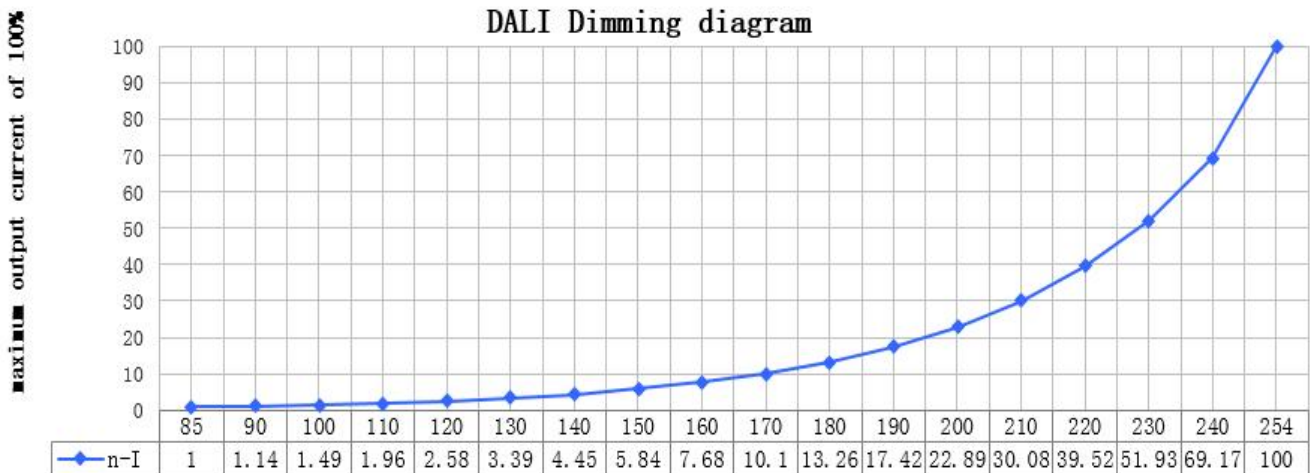
5. DALI dimming curve

5.1 formula for DALI dimming.

$$X(n) = 10^{\left\{ \left[\frac{(n-1)}{253} \right] - 1 \right\}}$$

Here, n means the target dimming stage of the total 254 stages.

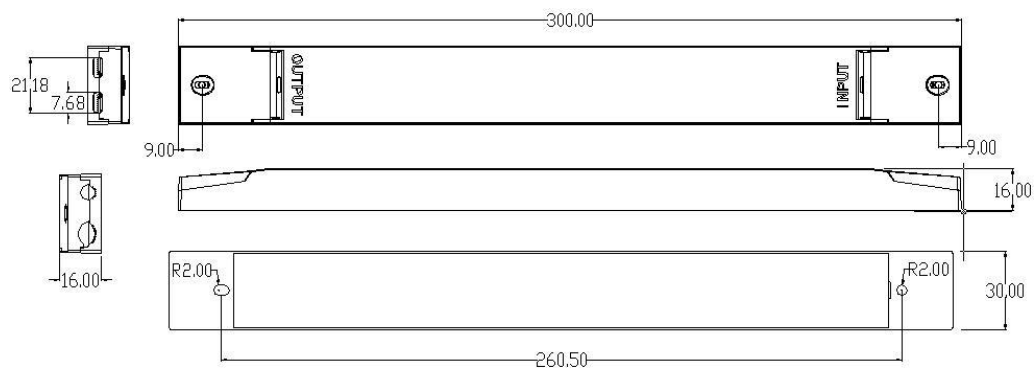
X(n) means the percent of the maximum output curr



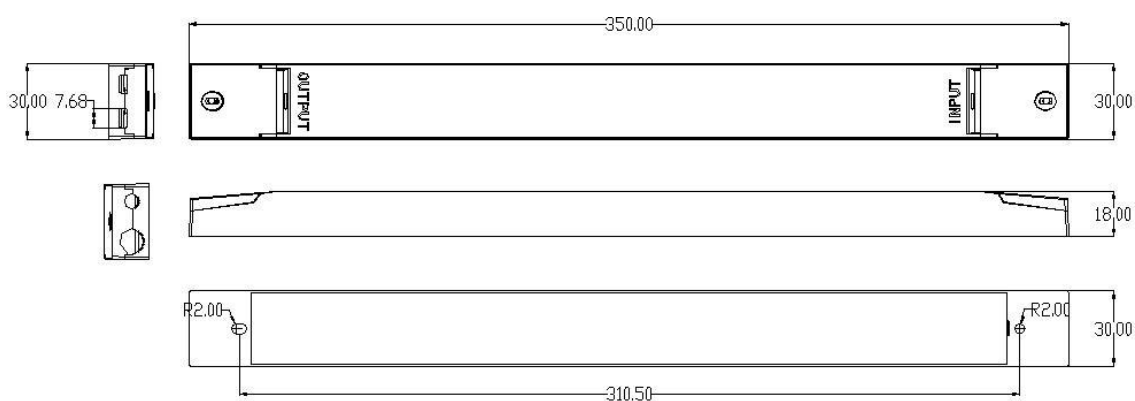
target dimming stage of the total 254 stages

6.Dimension (Unit: mm)

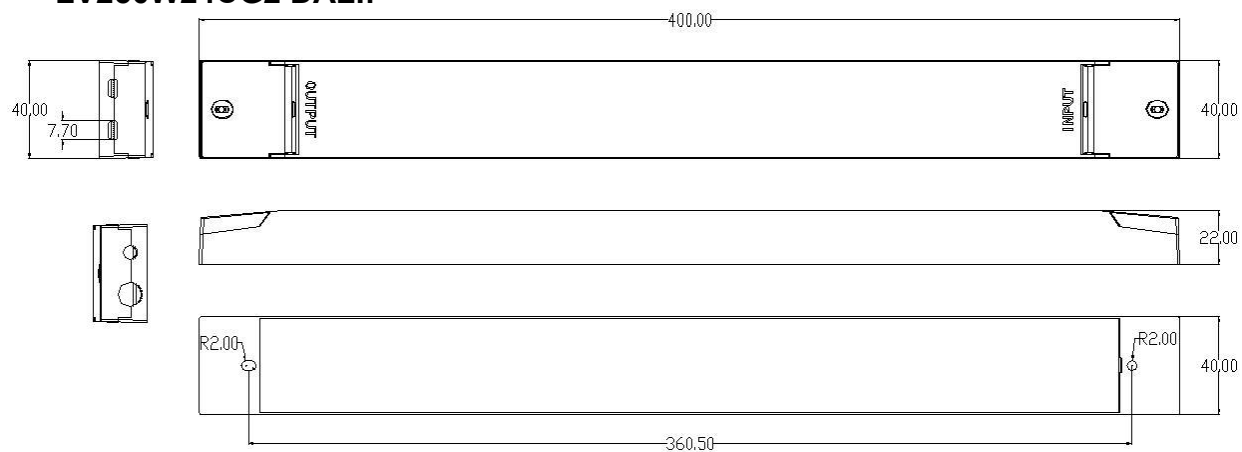
LV30W24CG2 DALI



LV60W24CG2 DALI & LV100W24CG2 DALI & LV150W24CG2 DALI:



LV250W24CG2 DALI:



7. Packing information

Packing way	Model	Carton L*W*H(mm)	Pcs/C arton	Net weight/ Pcs(kg)	Net weight/ Carton(kg)	Gross weight / Carton(kg)
With white box and manual	LV30W24CG2 DALI	450*240*200	45	0.143	6.44	6.96
	LV60W24CG2 DALI		45	0.23	10.35	10.87
	LV100W24CG2 DALI		35	0.21	7.35	7.87
	LV150W24CG2 DALI		35	0.31	10.78	11.3
	LV250W24CG2 DALI		30	0.53	15.9	16.42
Without white box and manual	LV30W24CG2 DALI		75	0.125	9.38	10.08
	LV60W24CG2 DALI		75	0.21	15.75	16.45
	LV100W24CG2 DALI		70	0.19	12.88	13.48
	LV150W24CG2 DALI		70	0.28	19.6	20.2
	LV250W24CG2 DALI		40	0.5	20	20.6

8. Wiring instructions

- All connections must be kept as short as possible to ensure good EMI behaviour
- Mains leads should be kept apart from LED Driver and other leads (ideally 5 – 10 cm distance)
- Advice the maximum length of output wires is 3 m
- Secondary switching is not permitted (Except for constant voltage)
- Incorrect wiring can damage LED modules.
- The wiring must be protected against short circuits to earth (sharp edged metals parts, metal cable clips, louver, etc.)

9. REVISION HISTORY

DATE	REV.	REMARK
2023-3-20	V1.0	Initial release.