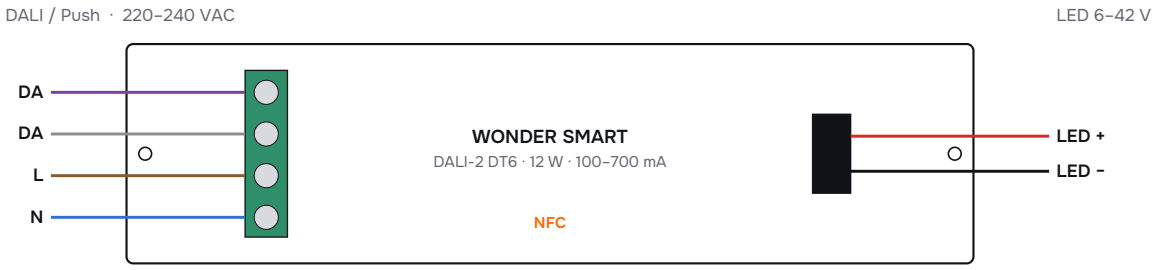
LED DRIVER · DALI-2 DT6 · CONSTANT CURRENT · NFC

WS-DT6-CC12

12 W dimmable constant-current LED driver, 100 – 700 mA set by NFC · DALI-2 and Push DIM



12 W	100–700 mA	6 – 42 V	0.01–100 %	PF > 0.95	Class II
max. output power	output current, NFC	LED voltage	dimming range	at 230 VAC, full load	plastic case, IP20

1 Features

- DALI-2 device type 6 to IEC 62386-101, -102 and -207; works with DALI masters that support DT6.
- Output current 100 – 700 mA, set with a phone over NFC (default 300 mA); fine steps down to 0.1 mA.
- Address, groups, scenes, levels, fade and dimming curve can be set over NFC, even without power.
- Amplitude (CCR) dimming 0.01 – 100 % – smooth, deep and flicker-free.
- Linear or logarithmic dimming curve.
- Push DIM from a standard mains push button.
- Constant light output (CLO) and corridor function.
- DALI-2 parts 251, 252, 253: memory bank, energy and diagnostics data.
- Error reporting; short-circuit, over-current and over-temperature protection.
- Class II, fully isolated plastic case. High power factor and efficiency.

Safety. Do not install with power applied to the device. Do not expose the device to moisture. Indoor use only. Installation by a qualified electrician.

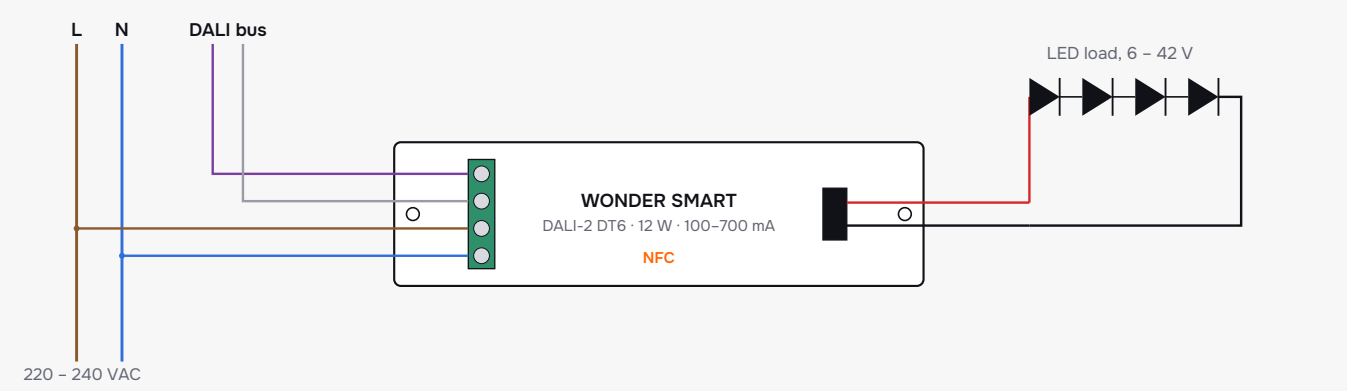
2 Specification

Model		WS-DT6-CC12 · 12 W DALI-2 DT6 constant-current LED driver, NFC
OUTPUT	LED channels	1
	LED voltage	6 – 42 VDC, max. 50 V
	Output current	100 – 700 mA set via NFC (default 300 mA); min. step 0.1 mA
	Current accuracy	±3 % at full load (±1 % at certain full-load points)
	Rated power	max. 12 W
INPUT	Voltage range	220 – 240 VAC / 220 – 240 VDC
	Absolute voltage range	196 – 264 VAC / VDC
	Frequency	0 / 50 / 60 Hz
	Power factor (typ.)	> 0.95 at 230 VAC, full load*
	THD	max. 12 % at 230 VAC, full load*
	Efficiency (typ.)	> 77 % at 230 VAC, full load*
	Input current (typ.)	max. 0.1 A
	Inrush current (typ.)	max. 3.96 A at 230 VAC, 0.09 ms pulse
	Leakage current	< 5 mA at 230 VAC
	Standby power	< 0.5 W
	Surge	L–N: 2 kV
CONTROL	Dimming interface	DALI DT6 (DALI consumption < 2 mA) / Push DIM
	Dimming range	0.01 – 100 % of max. current
	Dimming method	Amplitude (CCR)
	Dimming curve	Linear / logarithmic
PROTECTION	Short circuit	Yes; remove the fault and re-power the device
	Over-current	Yes; remove the fault and re-power the device
	Over-temperature	Yes; remove the fault and re-power the device
ENVIRONMENT	Operating temperature	ta -25 … +45 °C
	Max. case temperature	tc 85 °C
	Humidity	10 – 95 % RH, non-condensing
	Storage	-40 … +80 °C, 10 – 95 % RH
SAFETY & EMC	Safety standards	EN 61347-1, EN 61347-2-13
	Withstand voltage	I/P – O/P: 3.75 kVAC
	Isolation resistance	I/P – O/P: 100 MOhm / 500 VDC / 25 °C / 70 % RH
	EMC emission	EN 55015, EN 61000-3-2, EN 61000-3-3
	EMC immunity	EN 61547, EN 61000-4-2, 3, 4, 5, 6, 8, 11
GENERAL	MTBF	191,350 h (MIL-HDBK-217F, 230 VAC, full load, 25 °C)
	Dimensions	135 × 35 × 20 mm (L × W × H)
	Ingress protection	IP20, indoor use
	Protection class	Class II

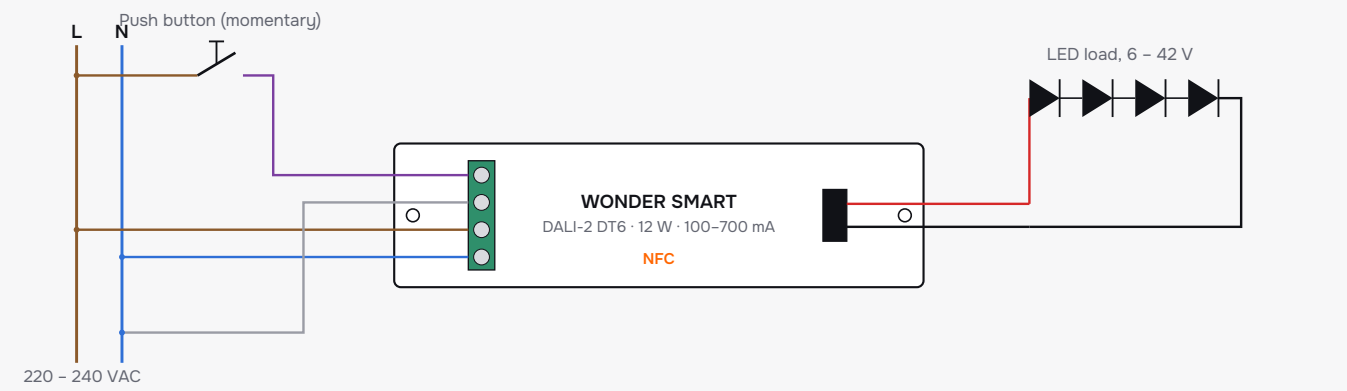
* PF, THD and efficiency depend on the test set-up and equipment. Specifications are subject to change without notice.

3 Wiring

3.1 With DALI bus

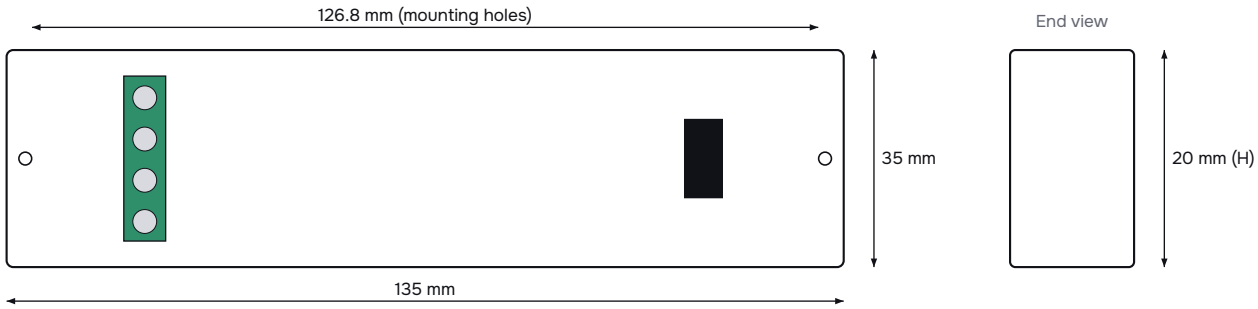


3.2 With a Push DIM button



Push DIM operation. Short press: on / off. Press and hold: dim up or down; release and hold again to change direction. Range 1 – 100 %.

4 Dimensions



5 Addressing and configuration

5.1 With a DALI master

The driver gets one DALI short address for its single channel, assigned automatically by the DALI master during addressing. Follow the instructions of the DALI master used.

5.2 With a phone over NFC

All settings can be written over NFC with the driver unpowered, before or after installation. Use the Wonder Smart NFC configuration app on a phone with NFC (iOS or Android); ask Wonder Smart for the download link.

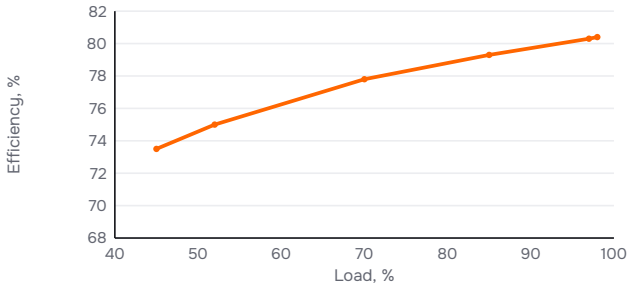
1. Enable NFC on the phone. Make sure the driver is not powered while you write settings.
2. Open the app and tap **+** to add a device. Hold the phone over the NFC mark on the driver and give the configuration a name.
3. Read the driver, then **unlock** it to open the parameter pages. Only selected functions are shown.
4. Set the parameters you need (see the list below).
5. Tap **Write**, hold the phone over the NFC mark until the write is confirmed, then power the driver.

Parameter	Description
Target current	Output current, 100 – 700 mA (default 300 mA). Set to match the LED module.
Low-side current error compensation	Fine correction of the current at low levels.
Max. / min. level	Upper and lower dimming limits.
Power-on level	Light level after mains power is restored.
System failure level	Light level when the DALI bus fails.
Short address / groups / scenes	DALI address 0 – 63, groups 0 – 15, scene levels 0 – 15.
Fade time / fade rate	Speed of level changes.
Dimming curve	Logarithmic or linear.
Constant light output (CLO)	Raises the current over the working hours to compensate LED ageing. Up to 8 time/level points; the driver counts its working hours.
Corridor / Push DIM mode	Select one: PD (Push DIM, default) or CD (corridor). In CD mode a standard mains motion sensor on the push input sets occupied, prolonged and absence levels and times.

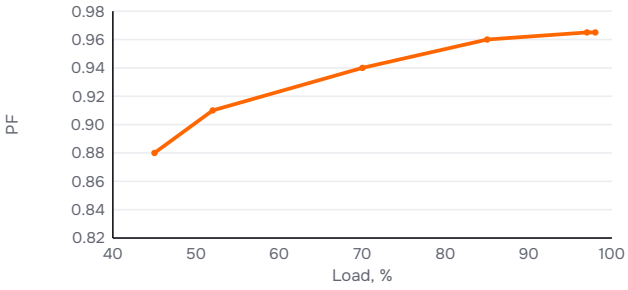
NFC needs no power on the driver. Read the driver first, change only what you need, then write the configuration back. CLO and corridor functions need a current app and driver firmware.

6 Performance

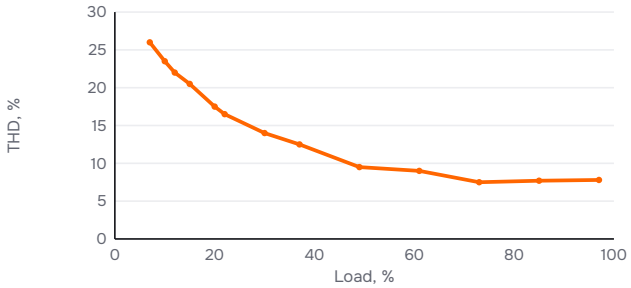
Efficiency vs load (700 mA)



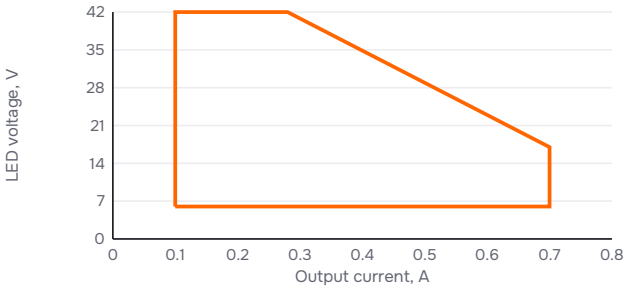
Power factor vs load (700 mA)



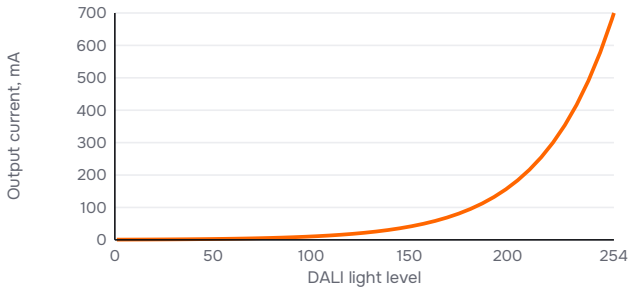
THD vs load (700 mA)



Operating window



Dimming curve, logarithmic (700 mA)



7 Expected lifetime

ta	30 °C	40 °C	45 °C	–
tc	50 °C	60 °C	65 °C	85 °C
Lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 40,000 h

Lifetime under reference conditions. The relation between tc and ta depends on the luminaire design.

8 Drivers per circuit breaker

Maximum number of drivers per MCB. Inrush: I_{peak} 3.96 A, pulse width 0.09 ms at 230 VAC.

MCB type	10 A	13 A	16 A	20 A	25 A
B	37	49	60	75	94
C	63	81	100	125	156
D	80	104	128	160	200

- Values are based on standard S200-series miniature circuit breakers; other brands and models give different quantities.
- Do not exceed these quantities; the final number depends on the installation.
- Reduce the quantity when the MCB ambient temperature exceeds 30 °C or several MCBs are mounted side by side.
- Type C breakers are recommended for LED lighting.

9 Support

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