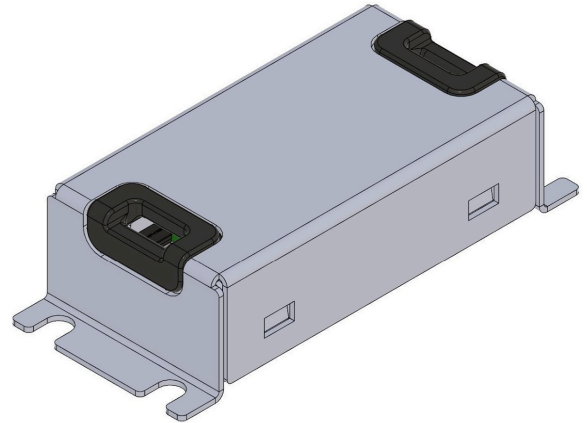


Compact CV LED Driver

DOM-D-CV-3 | 5-Channel | 50 W | PWM Dimming | Domatic Bus

The Compact CV LED Driver is an ultra-compact, 5-channel constant-voltage LED driver built for space-constrained architectural lighting installations. At just 86 × 37 × 22 mm it delivers up to 50 W of precisely controlled output at the 24 V setting, with a software-selectable 5 V, 12 V, or 24 V output rail. Five 16-bit PWM channels support single-color, tunable white, RGB, RGBA, RGBW, and RGBWW LED formats. Output voltage, per-channel intensity, color mixing, dimming curves, and grouping are software-configurable via the Domatic PowerHub. Integrated 5 V addressable-LED logic outputs (DATA and CLK) and a 0–24 V tolerant analog input support WS281x-style data-only LEDs, APA102-style data/clock LEDs, sensor input, and fixture-level intelligence.



Key Features

- ✓ 5 independent constant-voltage output channels
- ✓ Software-selectable 5 V, 12 V, or 24 V output
- ✓ Ultra-compact form factor: 86 × 37 × 22 mm
- ✓ 65,535-step dimming on all 5 output channels
- ✓ Supports single-color, CCT (tunable white), RGB, RGBA, RGBW, and RGBWW LED formats
- ✓ Dedicated 5 V DATA and CLK outputs for addressable LEDs
- ✓ 0–24 V tolerant analog input for reading 0-10V sensors, contact sensors, etc.
- ✓ Channels configurable as independent elements – drive multiple fixtures (e.g. up-light + down-light) from a single driver
- ✓ Native Domatic Bus interface – power, control, and reporting on a single 2-wire CL2 input, up to 50 m
- ✓ Per-channel intensity, color mixing, and grouping configured in software via the PowerHub

Electrical Specifications

Input

Input Voltage	39 – 59 VDC
Nominal Input Voltage	48 VDC
Max Input Current	1.5 A
Max Input Power	60 W
Communication	Domatic Bus (IEEE 1901 HD-PLC)

Output

Output Type	Constant Voltage
Output Channels	5
Channel Topology	Common Anode
Output Voltage Range	5 VDC, 12 VDC, or 24 VDC (Software-selectable)
Max Output Power	50 W at 24 VOUT, 36 W at 12 VOUT, 15 W at 5 VOUT
Max Output Current per Channel	3.0A
Max Total Output Current	3.0A
Efficiency	Voltage-dependent; see Load Compatibility

Dimming Performance

Dimming Method	Pulse-Width Modulation (PWM)
PWM Frequency	7.63 kHz
PWM Resolution	65,535 steps
Min Brightness	0.005%
Dimming Curve	Configurable via the PowerHub
Fade Time	Configurable per circuit via the PowerHub
Color Mixing	Per-channel intensity, software-mixed in the PowerHub

Communication & Control

Network Protocol	IEEE 1901 HD-PLC, Domatic Device Protocol
Wiring	2-wire CL2 cable (power + data combined)
Max Distance from PowerHub	25 m on 18 AWG (0.82 mm ²) · 50 m on 16 AWG (1.3 mm ²)
Controller	Domatic PowerHub (required)
Monitoring	Per-channel state, Input/Output power usage, and temperature reported to the PowerHub in real time
Configuration	Output voltage, channel grouping, color mapping, dimming curves, fade time, min/max limits — all software-configurable via the PowerHub

Auxiliary I/O

The DOM-D-CV-3 includes auxiliary outputs and an analog input for addressable LEDs, sensor input, and fixture-level control. The addressable-LED outputs are TXU0102-buffered 5 V logic signals with up to 12 mA drive capability. DATA can be used alone for WS281x-style LEDs, while DATA and CLK together support APA102-style LEDs.

Pin	Function	Specification
DATA	Addressable LED Data	5 V logic output, up to 12 mA drive
CLK	Addressable LED Clock	5 V logic output, up to 12 mA drive
AIN	Analog Input	0–24 V tolerant input with internal pull-up; floats near 5 V when open

Protection Features

Overvoltage Protection	Yes
Overload Protection	Yes
Output Short-Circuit Protection	Yes
Over Temperature Protection	Yes
ESD Protection	Yes

Environmental Specifications

Operating Ambient Temp (T_a)	0 to 55 °C
Full Power Rating	50 W up to 45 °C T_a
Derated Power	30 W at 55 °C T_a
Max Case Temp (T_c)	75 °C

Power Derating

Max Power (at ≤ 45 °C T_a)	50 W
Max Power (at 55 °C T_a)	30 W

Load Compatibility

<i>Selected Output Voltage</i>	<i>Max Output Current</i>	<i>Max Output Power</i>	<i>Efficiency</i>
5 VDC	3.0 A	15 W	80%
12 VDC	3.0 A	36 W	90%
24 VDC	2.1 A	50 W	95%

The 5 output channels share a common positive (VOUT) and provide independent return paths (CH1 – CH5).

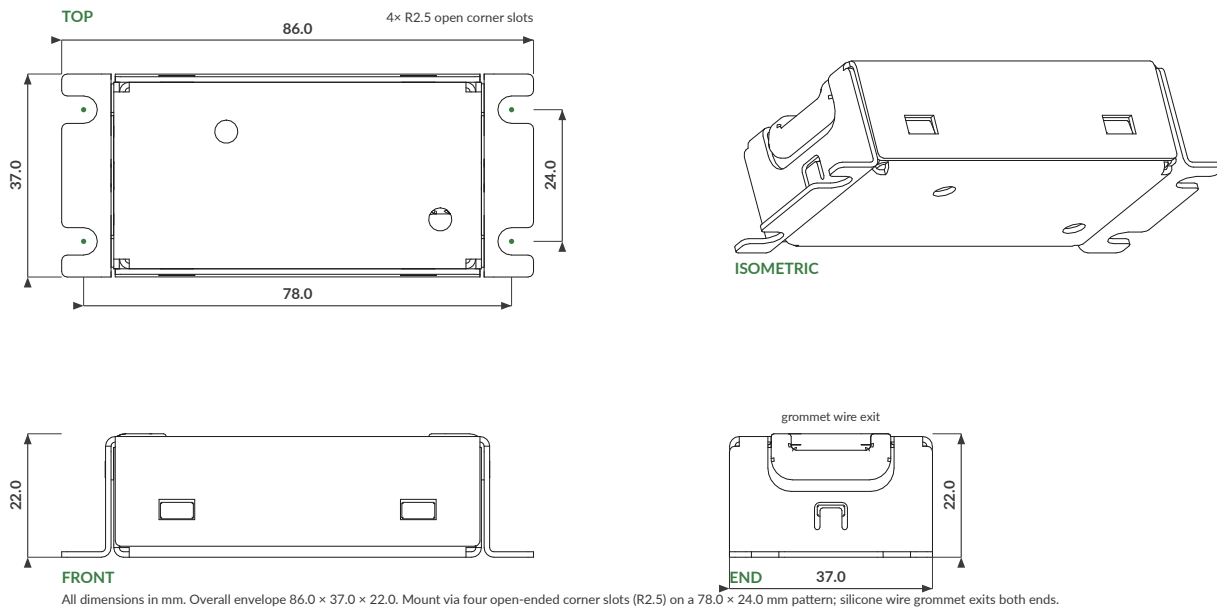
<i>Format</i>	<i>Channels Used</i>	<i>Typical Mapping</i>
Single-color	1	Any single channel
CCT (tunable white)	2	Warm / Cool
RGB	3	R / G / B
RGBA	4	R / G / B / Amber
RGBW	4	R / G / B / White
RGBWW	5	R / G / B / Warm White / Cool White

Note The same 5 channels can be split between multiple fixtures – for example, three channels on an up-light RGB element and two channels on a CCT down-light element. Grouping is a PowerHub configuration choice, not a hardware constraint.

Mechanical Specifications

Length	86 mm (3.39")
Width	37 mm (1.46")
Height	22 mm (0.87")
Volume	70 cm ³
Power Density	0.7 W/cm ³ (at 45 °C)
Enclosure Material	Sheet metal, 1 mm thickness
Mounting	4 open-ended corner slots (R2.5) on a 78 × 24 mm pattern

The enclosure is a two-piece sheet-metal shell with a silicone wire grommet at each end. Four formed feet — one at each corner — carry open-ended slots (R2.5) on a 78 × 24 mm pattern for fastening to a surface. The drawing below gives the overall envelope and mounting pattern.













Wiring & Connectors

The Domatic Bus input, LED output channels, and auxiliary I/O are exposed as color-coded pigtail wires. The tables below describe each signal wire on the device.

Input Connector

Wire	Function	Wire Spec	Description
■ Red	VIN	18 AWG (0.82 mm ²) UL1007	Positive power/data input
■ Black	GND	18 AWG (0.82 mm ²) UL1007	DC negative return (0V reference, not earth ground)

Output Connector

Wire Color	Pin Name	Wire Spec	Specification
 Brown	VOUT	20 AWG (0.52 mm ²) UL1007	Software-selectable common positive output: 5 V, 12 V, or 24 V
 Yellow	CH1	20 AWG (0.52 mm ²) UL1007	16-bit PWM-modulated LED cathode return, channel 1
 White	CH2	20 AWG (0.52 mm ²) UL1007	16-bit PWM-modulated LED cathode return, channel 2
 Red	CH3	20 AWG (0.52 mm ²) UL1007	16-bit PWM-modulated LED cathode return, channel 3
 Green	CH4	20 AWG (0.52 mm ²) UL1007	16-bit PWM-modulated LED cathode return, channel 4
 Blue	CH5	20 AWG (0.52 mm ²) UL1007	16-bit PWM-modulated LED cathode return, channel 5
 Black	GND	24 AWG (0.21 mm ²) UL1007	DC negative return (0V reference, not earth ground)
 Purple	DATA	24 AWG (0.21 mm ²) UL1007	5 V addressable-LED data output
 Pink	CLK	24 AWG (0.21 mm ²) UL1007	5 V addressable-LED clock output
 Grey	AIN	24 AWG (0.21 mm ²) UL1007	0–24 V tolerant analog input

Standards & Compliance

Safety	UL 8750, Second Edition (rev. January 05, 2021)
Listing	Eurofins / MET Listed – Low Voltage Fixture Driver; PENDING
Power Classification	NEC Class 2
Environment Rating	Damp-rated

System Requirements

The DOM-D-CV-3 requires a Domatic PowerHub as the bus controller. The PowerHub provides power (nominal 48 VDC, up to 100 W per port) and data connectivity over standard CL2 cable. Typical installations support a maximum cable distance of 50 m on 16 AWG (1.3 mm²); on 18 AWG (0.82 mm²) the maximum distance is 25 m. Longer runs can be supported with thicker cabling.

Ordering Information

Model Number	Description
DOM-D-CV-3	Compact 5-Channel Constant-Voltage LED Driver, 50 W, PWM-Dimmed, Domatic Bus