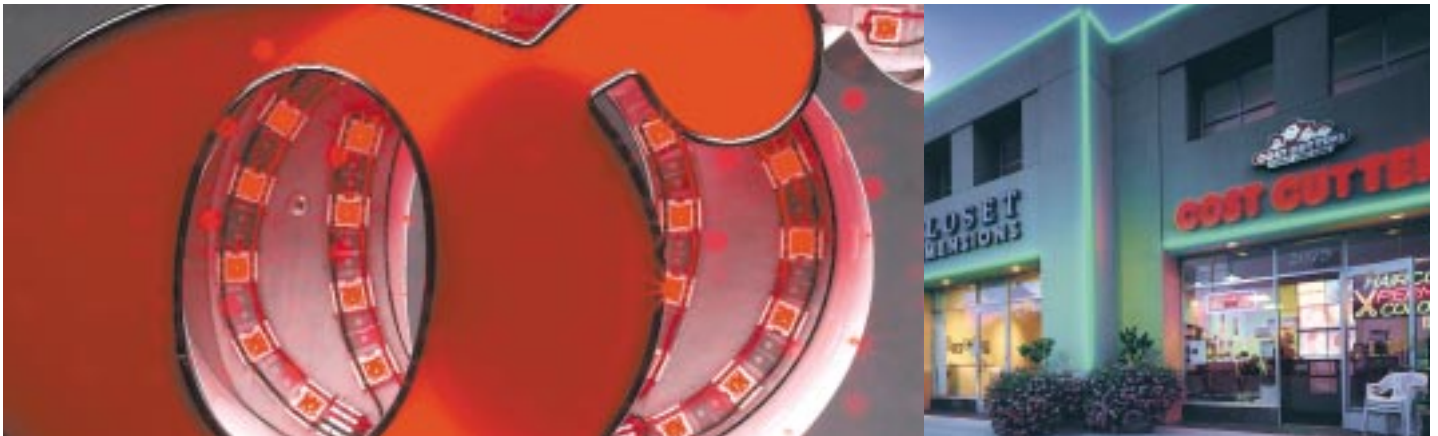


DC/DC Controller



This product is included in the s-Xtanium (signage) segment of the Xtanium family of products.

The s-Xtanium DC/DC controller provides the constant DC voltage output required to enhance the long life and optimum operation of LEDs arranged in parallel.

Xtanium™ Drivers have an operating life matching that of the LEDs.

Features

Low profile housing, small size (124x40x22 mm)

Meet approbation requirements (UL, CSA, FCC, CE, ENEC)

DC constant current output

Reliability

Power Efficiency

Benefits

Provides freedom (flexibility) to designers; Support spatial unobtrusiveness of LEDs.

It is a hazard free product; It can be installed in practically any location; Listed in UL-48 Signs Accessories Manual.

It can operate any LED lamp design the customer is developing or already marketing; No binning of LEDs results in cost savings.

Drivers last as long as LEDs ($\geq 50,000$ hrs); 5 years warranty (similar to ballasts).

Optimization of the usage of the total system power; Power losses (up to 40% of total power) saved by this operation mode.



Selection Guide

Part Number	Description
9137 001 57303	24V/16W/5A Xitanium DC/DC LED Controller

Note:
1. Drivers work with all colors of standard and custom Luxeon™ Power Light Sources.

Electrical Characteristics

Input			
Parameter	Symbol	LED024D0005V50F	Units
Input Voltage Range	V_{in}	21.5 – 26.5	V
Power Consumption Range	P_{in}	2.3 – 20.0	W
Efficiency	–	80	%
Output			
Parameter	Symbol	LED024D0005V50F	Units
Power Output Range	P_o	1.8 – 16.0	W
Output Current	I_o	0.4 – 5.0	mA
Crest Factor LED Current	I_{pk}/I_{avg}	1.1 Maximum	–
Output Voltage Range	V_o	1.5 – 5.0	V

Notes:
1. Electrical characteristics at 33°C ambient temperature.
2. Output insulation 3.25KV, 50–60 Hz.
3. CISPR15, CISPR22 and FCC Class B EMI

Environmental Ratings

Parameter	Symbol	Minimum	Maximum	Units
Operating Ambient Temperature	T_{op}	-40/-40	+70/+158	°C/°F
Storage Ambient Temperature	T_{st}	-40/-40	+75/+167	°C/°F
Case Temperature	T_c	–	+90/+194	°C/°F
Relative Humidity	RH	–	80	%
Lifetime (failures after 50,000 hours)	L_{50K}	–	5	%

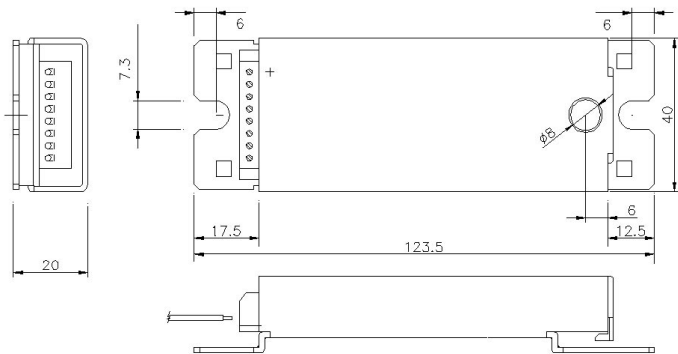
Notes:
1. Case temperature should be measured at test point T_c , as marked on driver label.

Built-in flux intensity matching device

Parameter	Symbol	Minimum	Maximum	Units
Flux intensity matching current (% of nominal ILED)	I_{flux}	-10	+110	%

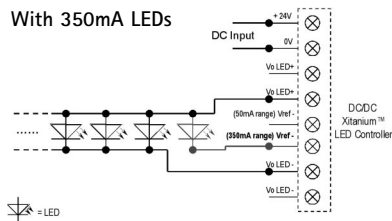
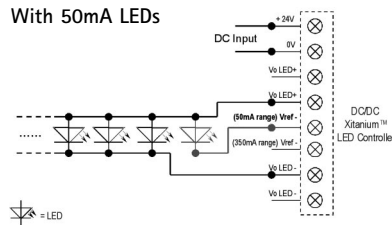
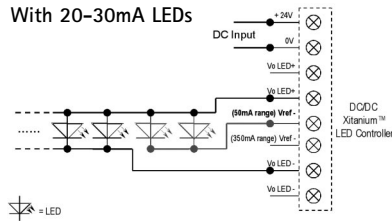
Notes:
1. The DC/DC Controller contains a built-in potentiometer (access hole is on top of housing).
2. Purpose of potentiometer is tuning the flux intensity of LEDs by changing their operating current level.
3. This is helpful during any of the following conditions:
• Installing: matching flux intensities between brand new channel letters, one to the other; or,
• Replacing: matching flux intensity of a new channel letter with the existing ones (to compensate for flux degradation).
4. Matching of flux intensities is to be done manually by the installer.
5. DC/DC LED Controller comes from the factory already preset at 100%.

Mechanical Dimensions



Notes:
1. All dimensions are in millimeters.
2. Drawing not to scale.
3. Feature two slots for mounting with M4 or #6 size screws.
4. DC input/output 8 position screw-in connector.
5. Housing material Aluminum, colour black. Plastic supports material Nylon.
6. Driver weight, 70 grams.

Controller Wiring Diagram



Notes:
1. The LED array consists of a parallel connection of LEDs selected on equal forward voltage (binned LEDs).
2. One or two LEDs from the array needs to be connected to the appropriate negative-reference (Vref-) terminal for automatic control of the current through the array.
3. There is a separate negative-reference terminal for the 20-to-50mA LED types (Vref-50mA) and for the 250-to-350mA LED types (Vref-350mA).
4. Since LEDs are operated in parallel, they should be binned to have an equal current through each LED. Unbinned LEDs operated on the same controller might cause LEDs to be operated out of specification.
5. Dual output terminals (Vo LED+, Vo LED-) provide installation freedom to distribute the LEDs in different directions.

Number of LEDs operated by one DC/DC LED Controller

LED Forward Current (mA)	LED Forward Voltage (V)	Number of LEDs		
		minimum	maximum	
20	1.5	40	250	
	2.0	32	250	
	2.5	27	250	
	3.0	23	246	
	3.5	20	214	
	4.0	18	192	
	4.5	16	173	
	5.0	15	156	
	30	1.5	27	166
		2.0	21	166
2.5		18	166	
3.0		15	164	
3.5		13	142	
4.0		12	128	
4.5		11	115	
5.0		10	104	
50		1.5	16	100
		2.0	13	100
	2.5	11	100	
	3.0	9	98	
	3.5	8	85	
	4.0	7	77	
	4.5	6	69	
	5.0	6	62	
	250	1.5	3	20
		2.0	2	20
2.5		2	20	
3.0		1	19	
3.5		1	17	
4.0		1	15	
4.5		1	13	
5.0		1	12	
350		1.5	2	14
		2.0	1	14
	2.5	1	14	
	3.0	1	14	
	3.5	1	12	
	4.0	1	11	
	4.5	–	9	
	5.0	–	8	

Note:
1. LEDs highlighted with gray are typical LEDs.