

### Special Features

- The SPECTRA Intelligent LED Driver generates 4 constant current DC outputs from a DC input with high user friendly degree
- User settable Output Currents between 350mA and 1350mA for each channel
- Input Voltage: 12Vdc, 24Vdc, 48Vdc
- Very High Efficiency (~95% at full load, Vin=48Vdc)
- 60W Maximum Output Power per channel (240W Maximum Total Output Power)
- 4 Temperature Senses for LEDs over Temperature Protection
- High Resolution PWM or Linear dimming
- DMX512A/RDM digital control
- Non-volatile on board memory and Real Time Clock for built in effect macros and custom timed program sequences
- Ready for automated lighting systems
- Easy to embed Compact Convection-Cooled open frame and enclosed versions
- SELV, Class 2 Outputs, NOT Isolated
- CE Mark



### Product overview and Applications

The SPECTRA 4-channel LED Driver is a flexible solution specifically designed for LED colour mixing applications, capable of outputting up to 240W. SPECTRA technology is ideal for powering Colour Mixing (RGBW or other) LED luminaries.

The technology allows for flexible current setpoint characteristics while maintaining compliance with the requirements for a NEC Class 2 output.

SPECTRA LED DRIVER can be controlled and managed by DMX512/RDM, and can be programmed to provide independent scenes, colour combinations and effects. Its highly efficient and modular design allows the driver to meet the requirements of multiple LED Lighting Applications where multi channel dimming or colour mixing is required

- Architectural Lighting
- Entertainment Lighting
- Commercial Lighting
- Stage Lighting



## Benefits

- Fully Compatible with standard fixtures (via DMX512/RDM interface bus)
- Accurate 0-100% PWM dimming range
- Linear or PWM dimming
- High resolution PWM dimming
- Preprogrammed Macros
- Clock for timing and auto-sequencing
- Drives LED strings of up to 44Vdc total forward Voltage
- LED board and device temperature control
- Components and Parts available as optional (see Options section)
- Several OEM Options available upon request (see OEM Options section)

## Input Specification

Nominal Input Voltages	12Vdc, 24Vdc, 48Vdc
Input Voltage Range	Nominal input voltages +/- 3%
Efficiency	> 95% at full load, Vin=48Vdc
Maximum Input Current	~6 A
Input Connection	2-vie PCB mount screw terminal block (+Vin, RTN), see <b>Note 2</b>

## Output Specification

Number of Output Channels	4
Output Regulation	Constant Current
Output Voltage Range @ Vin=48Vdc	16 to 44Vdc (Iout=350mA); 19 to 44Vdc (Iout=700mA); 22 to 44 (Iout=1350mA)
Output Voltage Range @ Vin=24Vdc	8 to 20Vdc (Iout=350mA); 9 to 20Vdc (Iout=700mA); 10 to 20Vdc (Iout=1350mA)
Output Voltage Range @ Vin=12Vdc	4 to 8Vdc (Iout=350mA); 4.5 to 8.5Vdc (Iout=700mA); 5 to 8.5Vdc (Iout=1350mA)
Output Current per Channel	From 350 to 1350mA, precisely in 50mA increments (350mA, 400mA, 450mA, .....1300mA, 1350mA)
Dimming range with Linear Control	From 10% to 100%
Dimming range with PWM Control	From 0% to 100%
Output Current Regulation	+/- 5% @350mA; +/- 4% @700mA; +/- 3% @1350mA
Ripple Current	≤35% (P-P) of maximum Output Current (1350mA)
MAXIMUM Output Power per Channel @ Vin=48Vdc	60W, meets power limitations for NEC Class 2 rating
MAXIMUM TOTAL Pout (4 channels) @ Vin=48Vdc	240W
Outputs NOT Isolated from the Input	
Output Connection	4 x 4-vie push pin connector (+LED,-LED, Ts,Ts), see <b>Note 2</b>

**Note 2:** See the Application Note "AN 1\_Spectra Wiring Diagram" for more details.

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## Protections

Input Protections	
Input Fuse	7 A
Output Protections	
Power Limited	With automatic recovery when the fault is removed
Over Current protection	With automatic recovery when the fault is removed
Short Circuit Protection (+LED/-LED)	Latch mode
Device Over Temperature	With hysteresis and automatic recovery
LEDs Over Temperature	4 independent Temperature senses for Active protection of LEDs through Thermistors (NTC) mounted on the LED Board. See <b>Note 3</b>

**Note 3:** See the Application Note "AN 2\_Spectra Temperature Sense" for more details.

## Controls / Communication

Digital Control Interface & Diagnostic	DMX512 / RDM
Setting & Diagnostic	Display&Keypad. See <b>Note 4</b>
DMX Addressing	Display&Keypad. See <b>Note 4</b>
Programs	Display&Keypad. See <b>Note 4</b>
Master/Slave setting	Display&Keypad. See <b>Note 4</b>

**Note 4:** See the Application Note "AN 3\_Spectra Display & Keypad" for more details.

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## Safety Conformity (all models)

- UL8750 Recognized



Mark available in the boxed versions (Models RSPT190-BWOD, RSPT190-BWD)

Compliant to the following standards:

- UL60950
- IEC/EN 61347-2-13 Particular Requirements for DC or AC, Supplied electronic control gear for LED Modules
- IEC/EN 62384 DC or AC Supplied electronic control gear for LED Modules – Performance Requirements
- Power Limitation: Meets the NEC Class 2  
Meets the IEC/UL60950-LPS

## EMC Compliance (only boxed versions Models Codes RSPT190-BWOD and RSPT190-BWD)

### Emission Tests

Conducted Emission 9kHz -30MHz	EN55015
Radiated Emission 9kHz -30MHz	EN55015
Radiated Emission 30MHz – 300MHz	EN55015
Conducted & Radiated Emission measurement	FCC CFR47-part 15/subpart B

### Immunity Tests

Equipment for general lighting purposes - EMC Immunity Requirements	EN61547
ESD (Electrostatic Discharge)	EN61000-4-2
Radiated, radio-frequency electromagnetic field	EN61000-4-3
Electrical Fast Transient/burst	EN61000-4-4
Conducted disturbances induced by radiofrequency fields	EN61000-4-6
Non repetitive damped oscillatory transient, Ring wave	ANSI C.62.41 Category A1

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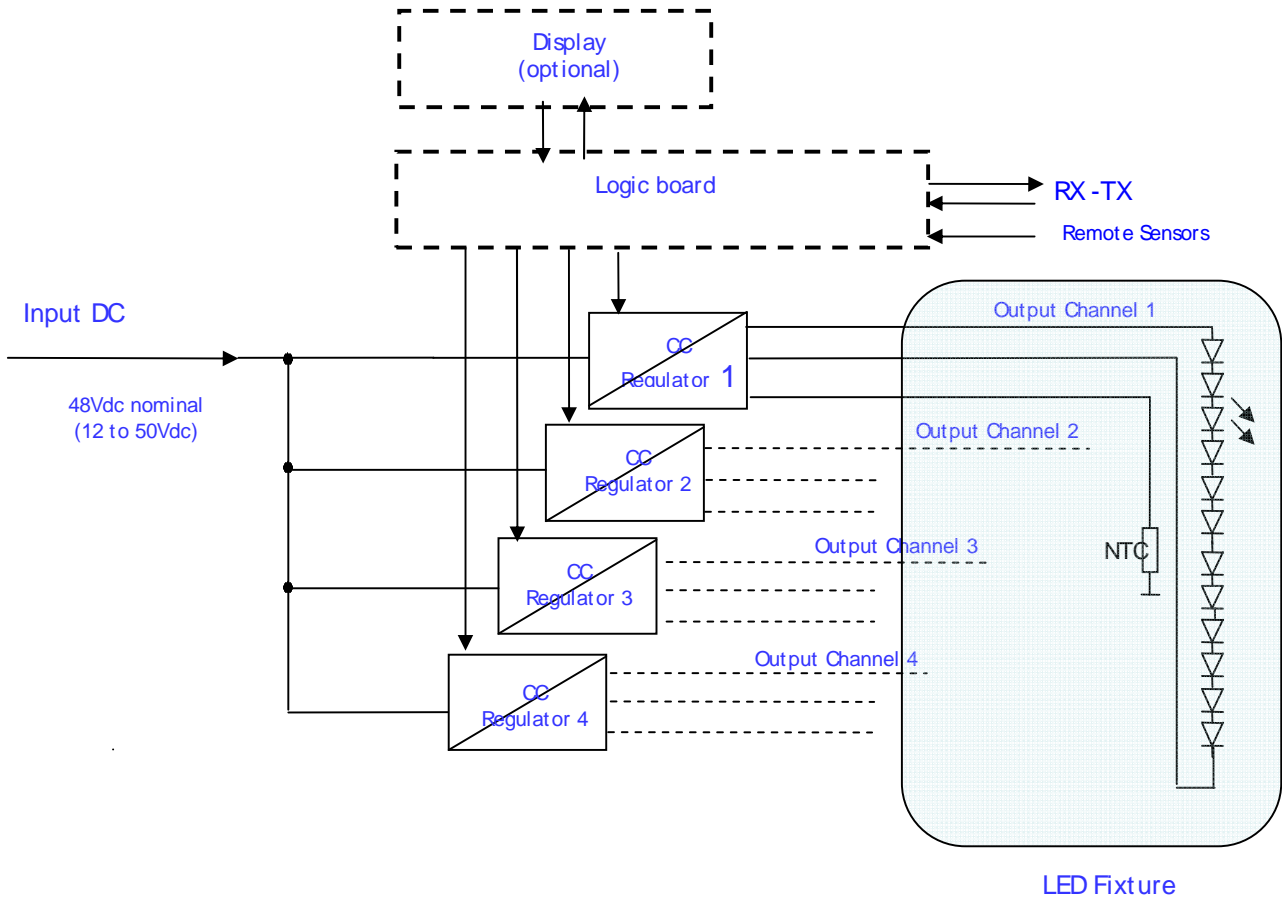
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## Block Diagram



## Environmental

Operating ambient temperature	-30°C to 50°C
Storage amb temp.	-40°C to 85°C
Operating Relative Humidity	5% to 95%, non condensing
Cooling	Convection Cooled
Sine operational vibration test	IEC 60068-2-6
Random operational vibration test	IEC 60068-2-64
Random non-operational vibration test	IEC 60068-2-64
Shock resistance test non-operational	CEI EN 60068-2-27
Shock resistance test operational	CEI EN 60068-2-27

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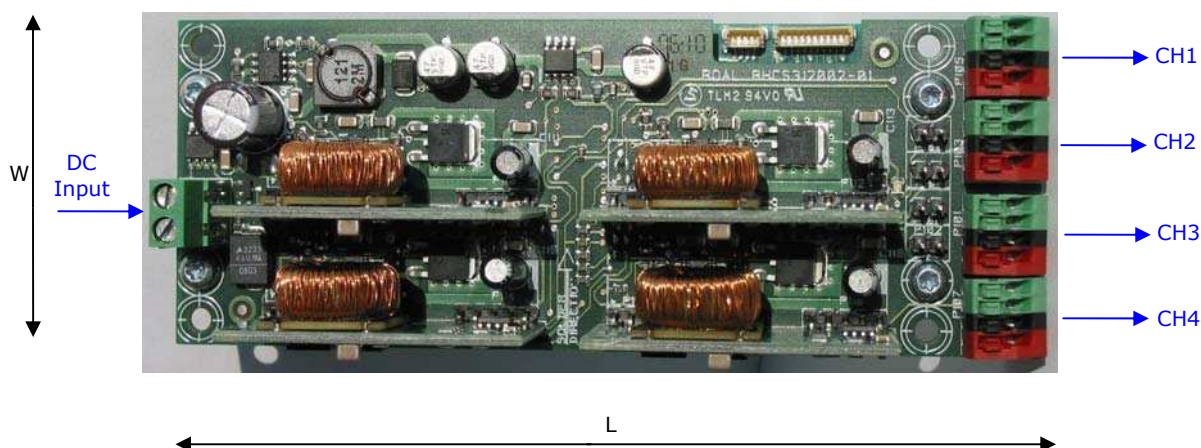
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## Physical Specification (Open Frame Version Code RSPT190-OPEN)

Case	Open Frame PCB
Mounting	4 x 4.5 mm fixing holes
Overall Dimensions (H x W x L)	35 mm x 51mm x 134mm = 1.37 in x 2 in x 5.27 in
Weight	140g = 0.30lb



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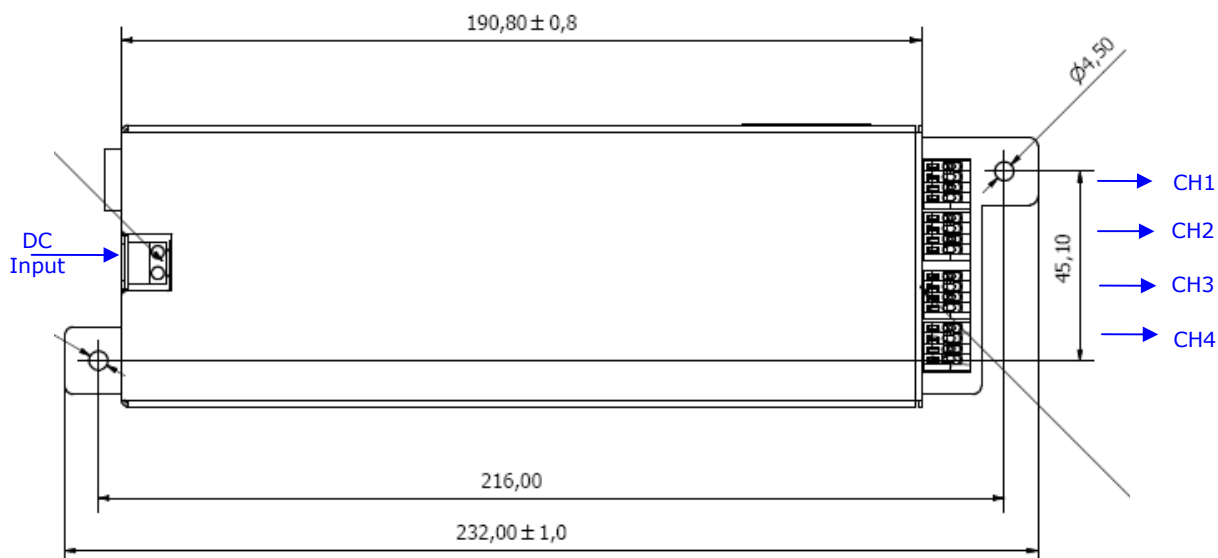
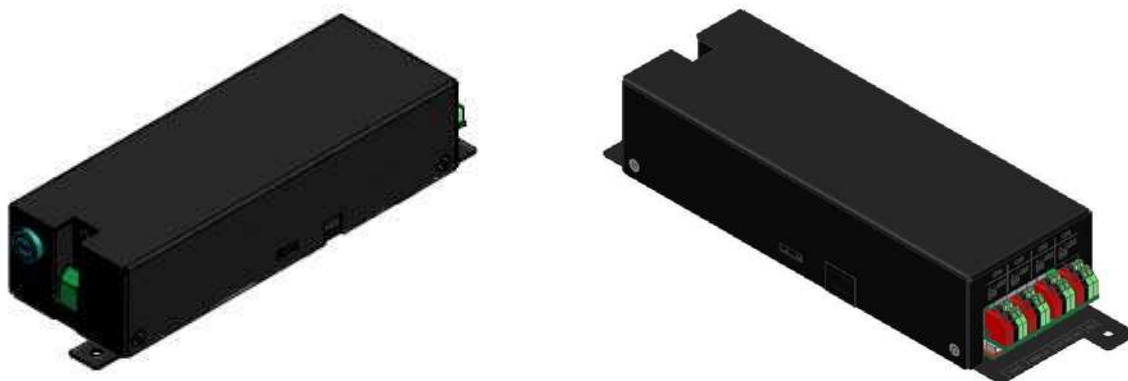
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## Physical Specification (Boxed Version without display Code RSPT190-BWOD)

Case	IP20 Metallic Enclosure
Input Connecting	Through screws terminal block 2 vie
Output Connecting	Through 4x4 vie push-pin connector
Mounting	2 x 4.50mm holes for screws
Overall Dimensions (H x W x L)	44.4mm x 67mm x 232mm = 1.75"x 2.64" x 9.13"
Weight	540g = 1.19lb



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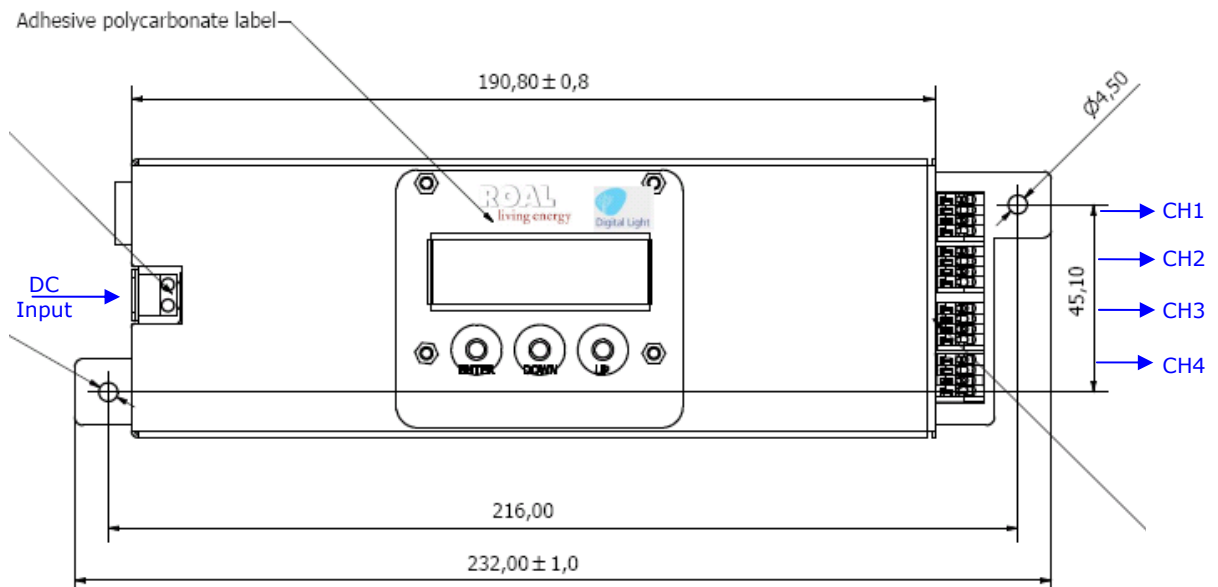
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Physical Specification (Boxed Version with display Code RSPT190-BWD)

Case	IP20 Metallic Enclosure
Input Connecting	Through screws terminal block 2 vie
Output Connecting	Through 4x4 vie push-pin connector
Mounting	2 x 4.50mm holes for screws
Overall Dimensions (H x W x L)	52.4mm x 67mm x 232mm = 2.06"x 2.64" x 9.13"
Weight	590g = 1.30lb



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## DMX Channels

DMX Channel	Function	Description
1	Strobe	Strobe and Pulse function (adjustable and random)
2	Dimmer	Global dimming of all four channels
3	Channel 1 Dimm	Dimming of Channel 1
4	Channel 2 Dimm	Dimming of Channel 2
5	Channel 3 Dimm	Dimming of Channel 3
6	Channel 4 Dimm	Dimming of Channel 4
7	CTC	Colour Temperature Control (four-channel combination)
8	Macro	Selection of the macro presets
9	Mod_Col	Storage and enable of balanced white

## Model Table

Model Number		Short Description	Enclosure	Drawing/ Photo
Package	Dash			
RSPT190	-OPEN	SPECTRA Open Frame	Open Frame	
RSPT190	-BWOD	SPECTRA Boxed without Display	Metallic Enclosure	
RSPT190	-BWD	SPECTRA Boxed with Display	Metallic Enclosure	

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## Options

- The following options are available with Spectra LED Driver Models. The options can be ordered apart specifying the codes written in the table below (Ordering Code Column)

Model Number		Short Description/ Drawing	Part Available as Optional	Ordering Code
Package	Dash			
RSPT190	-OPEN	SPECTRA Open Frame  	DMX Cabling (l=300mm)	RHSM000175 (see <b>Note 5</b> )
			Display Board & keypad	RHPS218 (see <b>Note 6</b> )
			Display cable (l=180mm)	RHSM000229 (see <b>Note 6</b> )
RSPT190	-BWOD	SPECTRA Boxed without Display  	DMX Cabling (l=300mm)	RHSM000175 (see <b>Note 5</b> )
			Display Board & keypad	RHPS218 (see <b>Note 6</b> )
			Display cable (l=180mm)	RHSM000229 (see <b>Note 6</b> )
RSPT190	-BWD	SPECTRA Boxed with Display  	DMX Cabling (l=300mm)	RHSM000175 (see <b>Note 5</b> )

**Note 5:** The DMX Cabling allows the connection between Spectra and the host system's DMX connector

**Note 6:** The Display Board & Keypad can be connected to Spectra by using the Display Cable

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## OEM Options (Contact the factory for details)

The following OEM Options are available upon request; contact the factory for more details.

- Infrared input for portable remote controls
- Analog 0-10V control communication interface, according to ANSI ESTA E1.3 - 2001 (see **Note 7**)
- DALI Standard Communication (see **Note 7**)
- ZigBee Wireless Communication (see **Note 7**)
- Proximity crepuscular and other sensor inputs available for automated control options
- Customized firmware
- For Other customizations: contact the factory

**Note 7:** It requires an external additional module, contact the factory for more information

## Spectra Correlated documents

This document is the Spectra datasheet: the file is called "[DS1\\_Spectra 180W 4Channels](#)".

During the Spectra adoption please consider that, to support you, there are also 4 dedicated Application Notes as showed in the table below. Please contact Roal Sales Department or your local Distributor if you do not have them.

Application Note Number	File Name	Topics
1	<a href="#">AN1_Spectra Wiring Diagram</a>	Wiring Connections
2	<a href="#">AN2_Spectra Temperature Sense</a>	LED Board Over Temperature protection
3	<a href="#">AN3_Spectra Display &amp; Keypad</a>	Display & Keypad Interface use
4	<a href="#">AN4_Spectra DMX-RDM Communication</a>	Control through the DMX/RDM standard communication

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