



SOLITRONICS ENGINEERING LTD.

TEL: (852) 2730-8145 FAX: (852) 2730-3245 E-mail: info@solitronics.com

Integrated LED-Module with Plastic-Holder and PVC Cable for indicators & appliance

Date:

1st October, 2002

Group

NRAP-V1

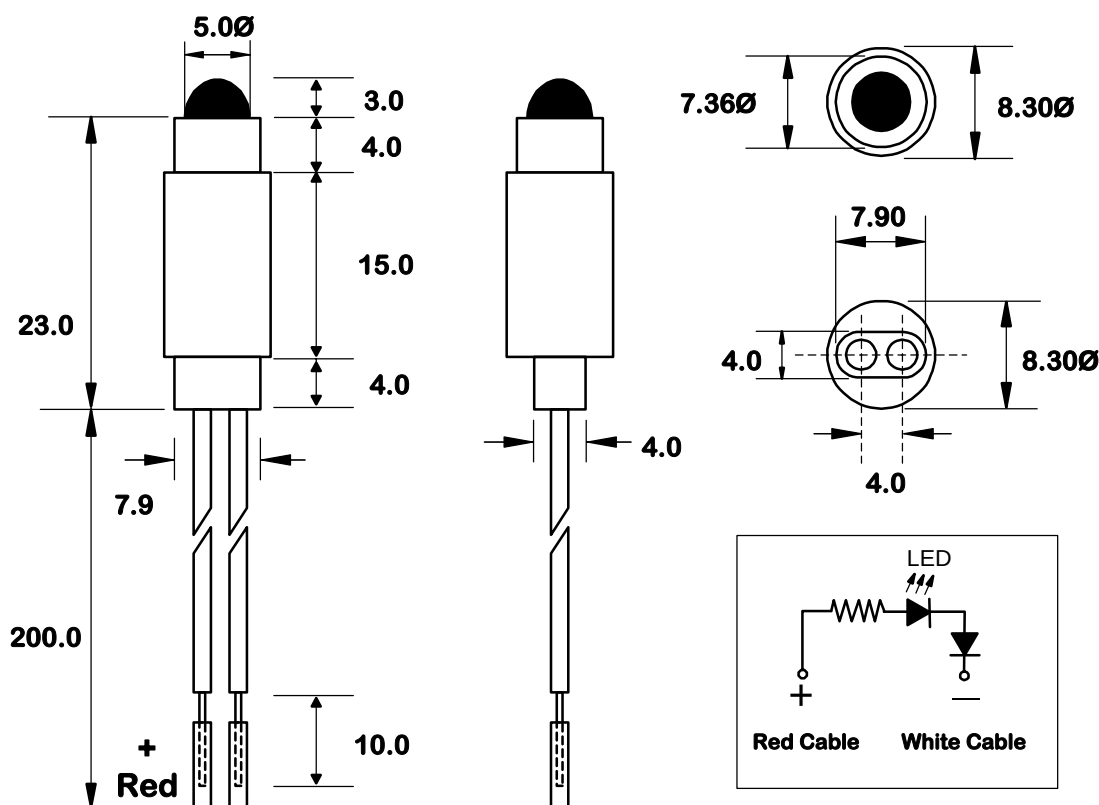
Part Number:

SEL-NRAPV1-LED-XX-XXX

Data Sheet:

SEL-NRAPV1-LED-002A-D1
(Draft Specifications D-1)

High-Brightness LED-module for indicators or appliances



2.2V & 6.0V LED-Modules with diode protection

Solitronics P/N	Operating Voltage & Current	Colour	Typ. Approx. mcd at 10mA	Remarks
SEL-NRAPV1-LED-R1-02D	2.2V AC/DC 8-15mA	Diffused-Red 660nm	307-577 mcd	With protection diode
SEL-NRAPV1-LED-Y1-02D	2.2V AC/DC 8-15mA	Diffused-Yellow 585nm	306-574 mcd	With protection diode
SEL-NRAPV1-LED-G1-02D	2.2V AC/DC 8-15mA	Diffused-Green 565nm	106-199 mcd	With protection diode
SEL-NRAPV1-LED-R1-06D	6-7V AC/DC 8-15mA	Diffused-Red 660nm	307-577 mcd	With protection diode
SEL-NRAPV1-LED-Y1-06D	6-7V AC/DC 8-15mA	Diffused-Yellow 586nm	306-574 mcd	With protection diode
SEL-NRAPV1-LED-G1-06D	6-7V AC/DC 8-15mA	Diffused-Green 565nm	106-199 mcd	With protection diode
SEL-NRAPV1-LED-R1-02S	2.2V AC/DC 8-15mA	Super Red 660nm	1007-1983 mcd	With protection diode
SEL-NRAPV1-LED-Y1-02S	2.2V AC/DC 8-15mA	Super-Yellow 586nm	960-1800 mcd	With protection diode
SEL-NRAPV1-LED-G1-02S	2.2V AC/DC 8-15mA	Super-Green 520nm#	1080-2025 mcd	With protection diode
SEL-NRAPV1-LED-B1-02S	2.2V AC/DC 8-15mA	Super-Blue 470nm#	900-1687 mcd	With protection diode
SEL-NRAPV1-LED-R1-06S	6-7V AC/DC 8-15mA	Super Red 660nm	1007-1983 mcd	With protection diode
SEL-NRAPV1-LED-Y1-06S	6-7V AC/DC 8-15mA	Super-Yellow 585nm	960-1800 mcd	With protection diode
SEL-NRAPV1-LED-G1-06S	6-7V AC/DC 8-15mA	Super-Green 520nm#	1080-2025 mcd	With protection diode
SEL-NRAPV1-LED-B1-06S	6-7V AC/DC 8-15mA	Super-Blue 470nm#	900-1687 mcd	With protection diode

Remarks: # Super-Green and Super-Blue types are sensitive to electrostatic electricity.



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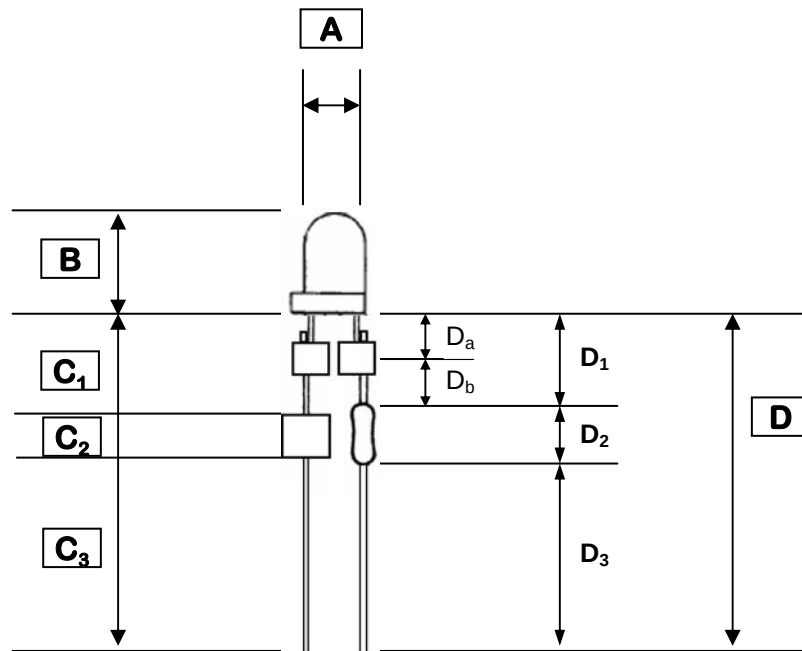
LED-RESISTOR-DIODE ASSEMBLY

Date:

Customer Drawing No. or P/N:

SEL Ref. No.:

LRDA-FORM-001



LED lamp Type.:		Resistor:	
Wire Size: AWG#		Wire Type:	
Wire Colour:		Remarks	

‡ Please delete whichever inapplicable.

	A	B	C ₁	C _a	C _b	C ₂	C ₃	D ₁	D _a	D _b	D ₂	D ₃
Original												



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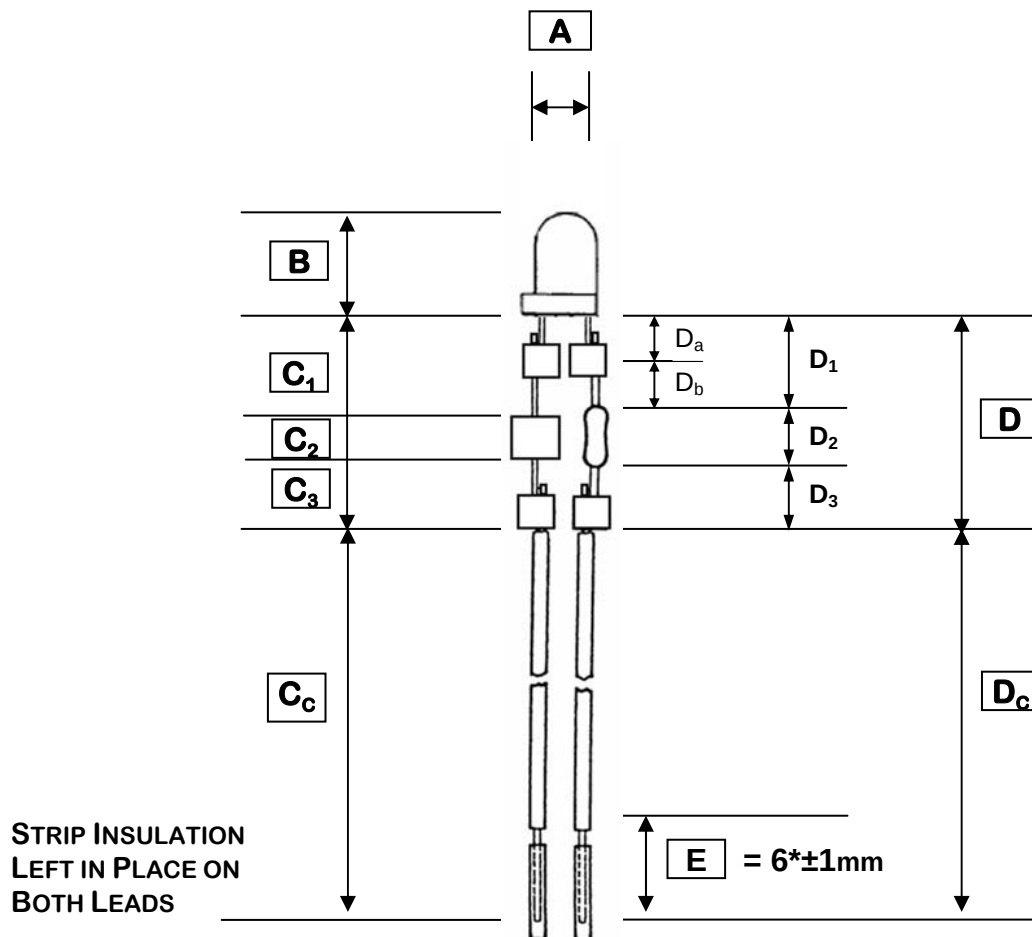
LED-RESISTOR-DIODE ASSEMBLY WITH PVC CABLE

Date:

Customer Drawing No. or P/N:

SEL Ref. No.:

LRDA-FORM-002



LED lamp Type.:		Resistor:	
Wire Size: AWG#		Wire Type:	
Wire Colour:		Remarks	

‡ Please delete whichever inapplicable.

	A	B	C ₁	C _a	C _b	C ₂	C ₃	C _c	D ₁	D _a	D _b	D ₂	D ₃	D _c	E
Original															



LED Products

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SHORT LIGHT BAR

Benefits

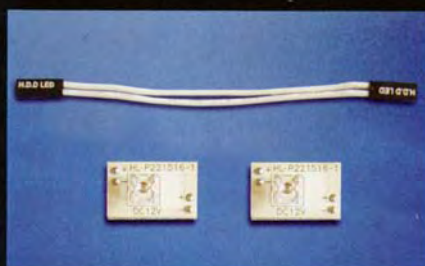
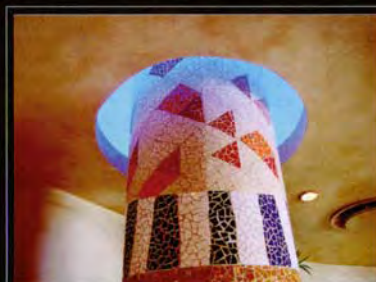
- Available in 1-LED, 2-LED, 3-LED, 4-LED, 5-LED, 6-LED versions
- Available in Red, Green, Blue, White, Amber, RGB color, etc
- Runs on 12-Volt Systems like solar cell charged batteries
- With connecting wire and mounting brackets for trouble-free installation
- Major Reduction in Power Costs
- Wide Angle or Spot illumination
- High Intensity, Low Heat Generation
- Long Life, Maintenance Free
- No RF Interference

Applications

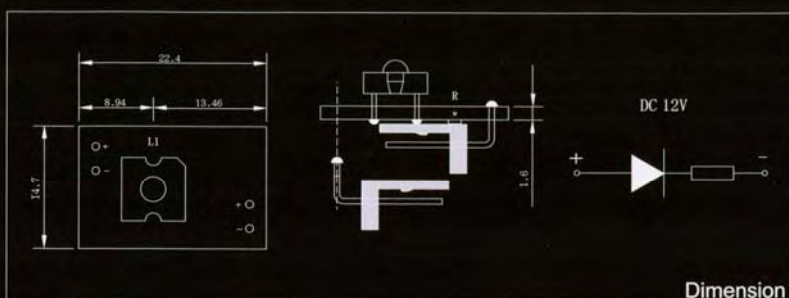
- Concealed Lighting
- Backlighting for Signage Letters
- Channel Letter Lighting
- Emergency Exit Path Lighting
- Automotive tail light, braking light and back-view mirror light.

Basic Technical Data

- Printed circuit board thickness: 1.6mm
- Working voltage: 12V DC
- Working current: 1-LED to 3-LED version 20mA
4-LED to 6-LED version 40mA
- Size (L X W): 23x 15mm (1-LED)
40 x 15mm (2-LED)
60 x 15mm (3-LED Single color)
75 x 15mm (3-LED RGB color)
80 x 15mm (4-LED)
90 x 15mm (5-LED)
156 x 15mm (6-LED)



1-LED type



Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R1D8N6-12	Red	GaAlInP	1	0.8	1	75	12	17-20
HL-LB105Y1D8N6-12	Yellow	GaAsP/GaP	1	0.8	1	75	12	17-20
HL-LB105B1D8N6-12	Blue	InGaAlN	1	0.5	0.6	75	12	17-20
HL-LB105G1D8N6-12	Green	InGaP	1	1.3	1.6	75	12	17-20
HL-LB105W1D8N6-12	White	InGaAlN	1	1.5	1.8	75	12	17-20



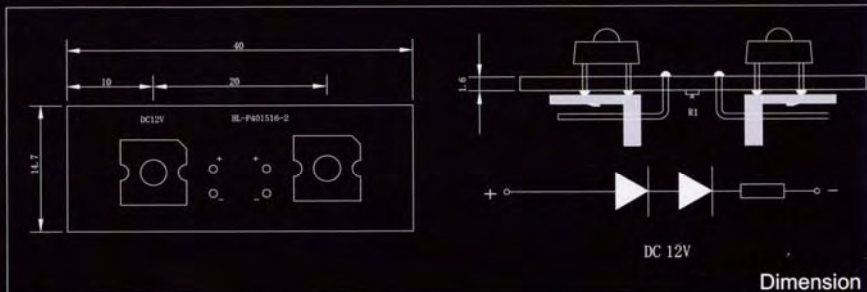
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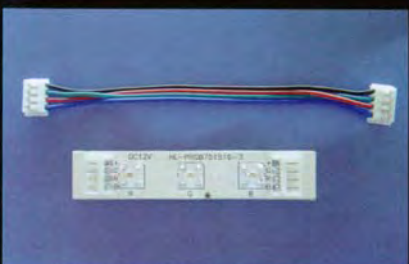


2-LED type

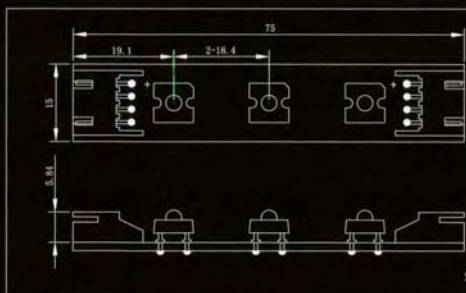


Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R2D2N6-12	Red	GaAlInP	2	1.5	1.8	75	12	17-20
HL-LB105Y2D2N6-12	Yellow	GaAsP/GaP	2	1.5	1.8	75	12	17-20
HL-LB105B2D2N6-12	Blue	InGaAlN	2	1	1.2	75	12	17-20
HL-LB105G2D2N6-12	Green	InGaN	2	2.9	3.2	75	12	17-20
HL-LB105W2D2N6-12	White	InGaAlN	2	3	3.6	75	12	17-20

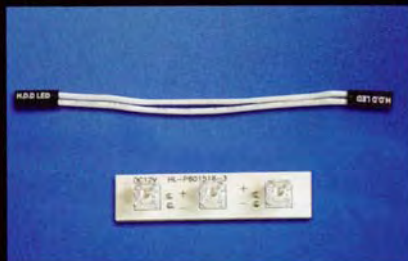


The 3-LED type (RGB Color)

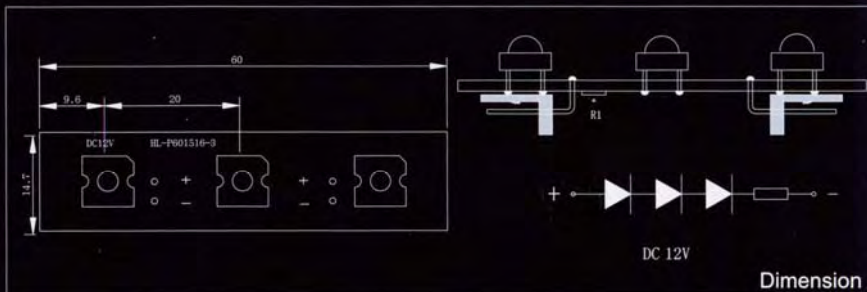


Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105RGB3D7N6-12	RGB	GaAlInP	3	0.7	0.9	75	12	17-20
		InGaN		1.2	1.6			17-20
		InGaAlN		0.48	0.6			17-20



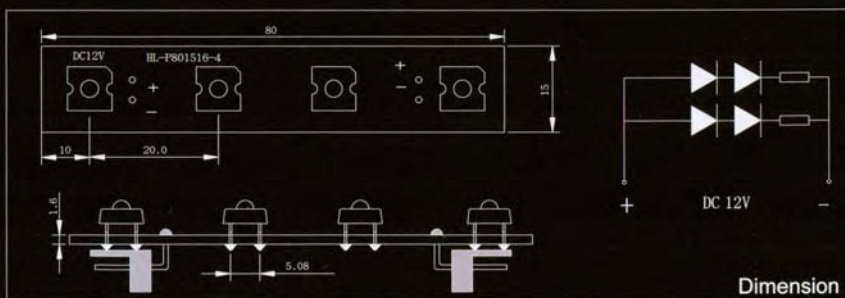
3-LED type(Single color)



Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R3D3N6-12	Red	GaAlInP	3	2.2	2.7	75	12	17-20
HL-LB105Y3D3N6-12	Yellow	GaAsP/GaP	3	2.2	2.7	75	12	17-20
HL-LB105B3D3N6-12	Blue	InGaAlN	3	1.5	1.8	75	12	17-20
HL-LB105G3D3N6-12	Green	InGaN	3	3.8	4.8	75	12	17-20
HL-LB105W3D3N6-12	White	InGaAlN	3	4.2	5.3	75	12	17-20



4-LED type



Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R4D4N6-12	Red	GaAlInP	4	2.9	3.6	75	12	34-40
HL-LB105Y4D4N6-12	Yellow	GaAsP/GaP	4	2.9	3.6	75	12	34-40
HL-LB105B4D4N6-12	Blue	InGaAlN	4	1.9	2.4	75	12	34-40
HL-LB105G4D4N6-12	Green	InGaN	4	5.1	6.4	75	12	34-40
HL-LB105W4D4N6-12	White	InGaAlN	4	5.6	7	75	12	34-40



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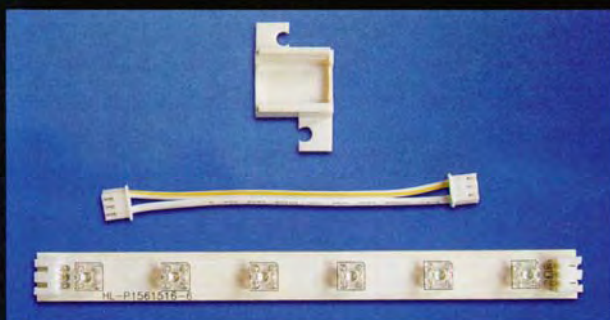


5-LED type

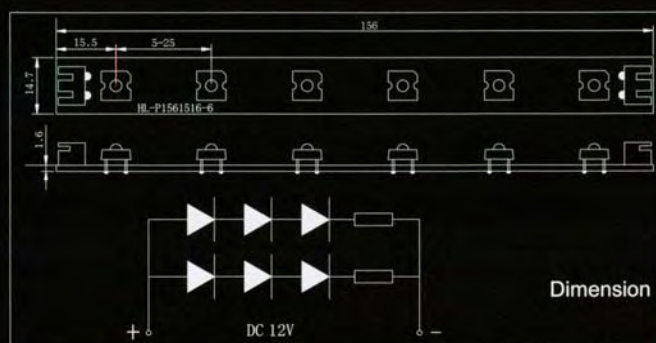


Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R5D5N6-12	Red	GaAlInP	5	3.6	4.5	75	12	34-40
HL-LB105Y5D5N6-12	Yellow	GaAsP/GaP	5	3.6	4.5	75	12	34-40
HL-LB105B5D5N6-12	Blue	InGaAlN	5	2.4	3	75	12	34-40
HL-LB105G5D5N6-12	Green	InGaN	5	6.4	8	75	12	34-40
HL-LB105W5D5N6-12	White	InGaAlN	5	7	8.7	75	12	34-40



6-LED type



Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R6D6N6-12	Red	GaAlInP	6	4.3	5.4	75	12	34-40
HL-LB105Y6D6N6-12	Yellow	GaAsP/GaP	6	4.3	5.4	75	12	34-40
HL-LB105B6D6N6-12	Blue	InGaAlN	6	2.9	3.6	75	12	34-40
HL-LB105G6D6N6-12	Green	InGaN	6	7.7	9.6	75	12	34-40
HL-LB105W6D6N6-12	White	InGaAlN	6	8.4	10.5	75	12	34-40



SMD LIGHT BAR

Benefits

- Easy connection, detachable every 3 LEDs. The detachable point is marked by a black line on the PCB. After cutting, both parts can still work independently under 12V DC power, and can still be joined together by wires and snap-in connectors
- Only parallel connection is allowed
- Easily can be connected by cable connector in series end by end
- Available colors: red, green, blue, amber, white, RGB tri-color ,etc

Applications

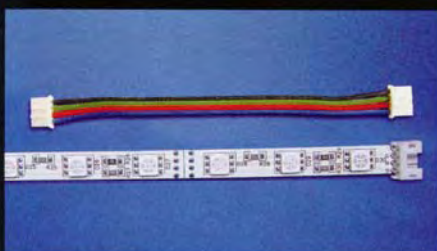
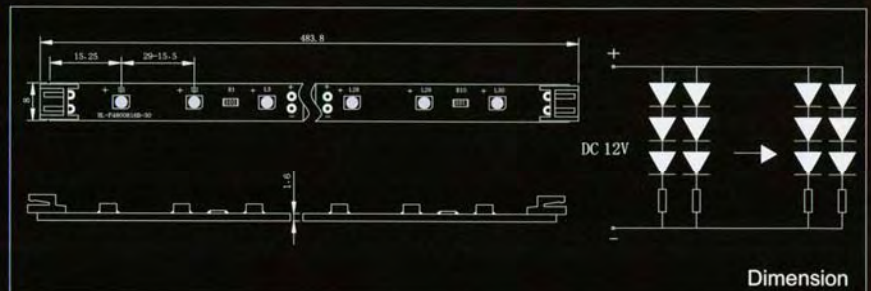
- Edge-lighting of transparent or diffused materials
- Path & Contour Marking
- Emergency/Rescue Signs
- To couple light into transparent or diffused glass

Basic Technical Data

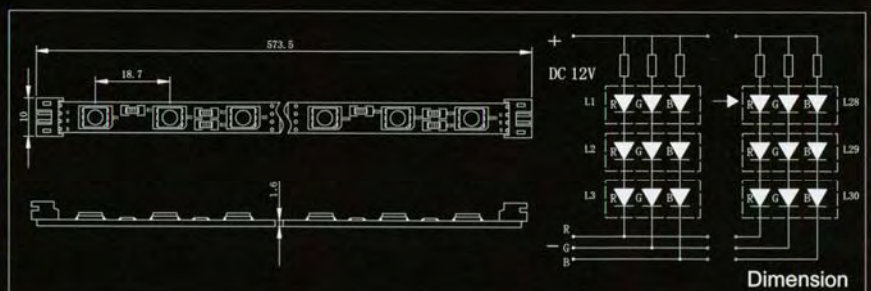
- Harmonious light with wide viewing angle 100~120 degrees
- Interconnecting wire length: 100mm
- Size of the smallest separable 3-LED unit (L x W) 46 x 8mm (single color)
56 x 10mm (RGB tri-color)
- Size of the whole strip (L x W x H): 480 x 8 x 6.5mm (single color)
570 x 10 x 6.5mm (RGB tri-color)



SMD Light Bar (Single color)



SMD Light Bar (RGB tri-color)





Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 @ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB3528R30B4N6-12	Red	GaAlInP	30	22	27	120	12	170-200
HL-LB3528Y30B4N6-12	Yellow	GaAsP/GaP	30	22	27	120	12	170-200
HL-LB3528B30B4N6-12	Blue	InGaAlN	30	14.5	18	120	12	170-200
HL-LB3528G30B4N6-12	Green	InGaN	30	38	48	120	12	170-200
HL-LB3528W30B4N6-12	White	InGaAlN	30	42	53	120	12	170-200
HL-LB5060RGB30B6N6-12	RGB	GaAlInP	30	7.2	9	100	12	170-200
		InGaN		13	16			170-200
		InGaAlN		4.8	6			170-200

SMD LIGHT RIBBON

Benefits

- Linear separable LED strip on flexible printed circuit board with self-adhesive back
- Each unit of 3 LEDs can be cut out at regular segments without damaging the rest ribbon
- The connector is being upgraded. We will keep customers to be informed

Applications

- Edge-lighting of transparent or diffused materials
- Path & contour marking
- illuminated signs

Basic Technical Data

- Standard length: 5 meters/reel
- Ribbon width: single color 8mm, RGB tri-color 10mm
- Printed circuit board thickness: single color 0.25mm
RGB tri-color 0.2mm
- Working voltage: 12V DC
- Working current: single color 2A, RGB tri-color 3A
- Entire ribbon LED quantity: single color 300 pcs, RGB tri-color 150pcs
- Size of smallest unit 3 LED (L X W): single color 50mm X 8mm
RGB tri-color 100mm X 10mm





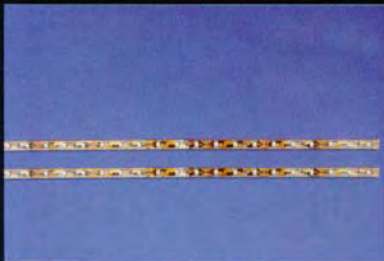
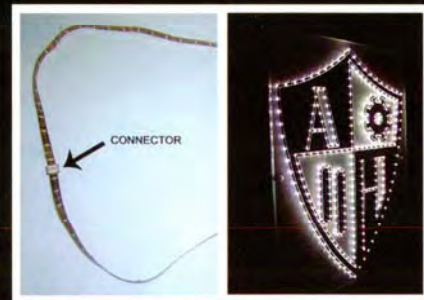
SMD LIGHT RIBBON

Assembly Information

1. Solder connection should only be performed on designated solder pads (marked " +/ - "). During soldering, don't exceed the maximum soldering time of 10 seconds and the maximum soldering temperature of 260 Celsius degrees.
2. The smallest unit (50mm or 100mm - 3 LEDs) can be removed by cutting with scissors between the designated solder pads.
3. The mounting of the ribbon is facilitated by means of the double-sided adhesive on the back-surface of the ribbon. Care must be taken to provide a clean and dry mounting surface, free of oils or silicone coatings as well as dirt particle. The mounting substrate must have sufficient structural integrity. Take care to completely remove the adhesive backing. Once the ribbon is appropriately positioned. Press on the ribbon with about 20N/cm² (refer to application techniques of 3M adhesive transfer tapes).
4. The minimum bending radius is 2 cm. The ribbon may be bent over a smaller radius of the circuit board containing no electronic components and such bends should be made once and fixed in position to avoid cyclic fatigue.

Safety Information

1. The SMD light ribbon itself and all its components may not be mechanically stressed.
2. Assembly must not damage or destroy conducting paths on the circuit board.
3. Installation of LED modules (with power supplies) needs to be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
4. Correct electrical polarity needs to be observed. Wrong polarity may destroy the ribbon.
5. Parallel connection is highly recommended as safe electrical operation mode. Serial connection is not recommended. Unbalanced voltage drop can cause hazardous overload and damage the ribbon.
6. Please ensure that the power supply is of adapters power to operate the total load.
7. When mounting on metallic or otherwise conductive surfaces, there needs to be an electrical isolation points between ribbon and the mounting surface.
8. Pay attention to standard ESD precautions when installing the ribbon.
9. Damaged by corrosion will not be honored as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.



SMD Light Ribbon(Single color)



Dimension



SMD Light Ribbon(RGB tri-color)



Dimension



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				Min.	Typ.			
HL-LB3528R30K9N-12	Red 	GaAlInP	30	22	27	120	12	170-200
HL-LB3528Y30K9N-12	Yellow 	GaAsP/GaP	30	22	27	120	12	170-200
HL-LB3528B30K9N-12	Blue 	InGaAlN	30	14.5	18	120	12	170-200
HL-LB3528G30K9N-12	Green 	InGaN	30	38	48	120	12	170-200
HL-LB3528W30K9N-12	White 	InGaAlN	30	42	53	120	12	170-200
HL-LB3528V30K9N-12	Purple 	InGaAlN	30	2.5	3.5	120	12	170-200
HL-LB3528P30K9N-12	Pink 	InGaAlN	30	12	15	120	12	170-200
HL-LB5060RGB15B9N-12	RGB   	GaAlInP	15	7.2	9	100	12	85-100
		InGaN		13	16			85-100
		InGaAlN		4.8	6			85-100

FlexHorse™

Benefits

- Linear separable LED strip on flexible printed circuit board with self-adhesive back, 3 LEDs a group
- Various choices for viewing angles from 15-120 degrees
- More flexible than RockHorse™
- Made of leaded LEDs with light emitting in the direction of PCB
- Available colors: red, green, blue, yellow, white

Applications

- Channel-letter backlights
- illuminated signs
- Mood and specialty light

Basic Technical Data

- Standard length: 5 meters/reel
- Entire LED quantity: 60 LEDs per meter
- Width: 8mm
- Working voltage: 12V DC
- Working current: 340-400mA a meter





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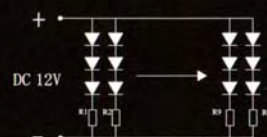
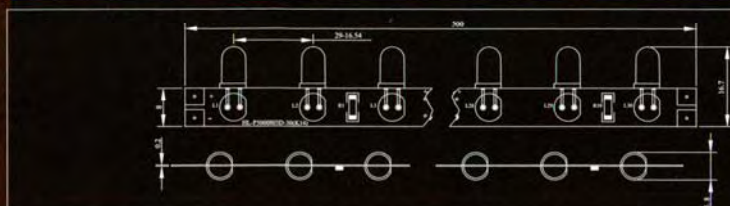
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FlexHorse™



Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB503R30K14N-12	Red	GaAlInP	30	22	27	20	12	170-200
HL-LB503Y30K14N-12	Yellow	GaAsP/GaP	30	22	27	20	12	170-200
HL-LB503B30K14N-12	Blue	InGaAlN	30	14.5	18	20	12	170-200
HL-LB503G30K14N-12	Green	InGaAlN	30	38	48	20	12	170-200
HL-LB503W30K14N-12	White	InGaAlN	30	42	53	20	12	170-200
HL-LB503V30K14N-12	Purple	InGaAlN	30	2.5	3.5	20	12	170-200
HL-LB503P30K14N-12	Pink	InGaAlN	30	12	15	20	12	170-200

RockHorse™

Benefits

- Detachable every 3 LEDs
- Easy installation with snap-in connectors
- Various choices for viewing angles from 15-120 degrees
- Special PCB material enables the "standing" assembly
- Made of leaded LEDs with light emitting in the direction of PCB
- Available colors: red, green, blue, yellow, white

Applications

- Channel-letter backlights
- illuminated signs
- Mood and specialty light

Basic Technical Data

- Standard length: 0.45 meters/18 LEDs
- Size (L X W): 450 X 8mm
- Working voltage: 12V DC
- Working current: 162mA (red, yellow)
138-168mA (blue, green, white)





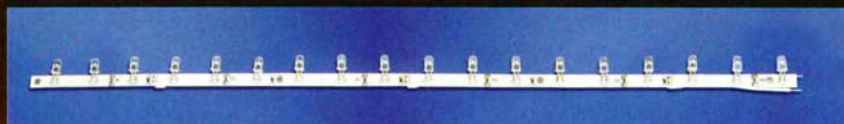
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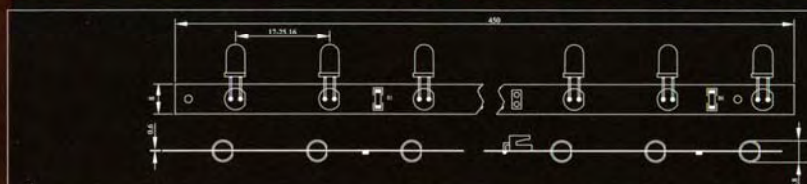
TEL : (852) 2730-8145

FAX : (852) 2730-3245

E-mail : info@solitronics.com



RockHorse™



Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB503U4FC-18P-12-R	Red	GaAlInP	18	16	20	20	12	162
HL-LB503U7YC-18P-12-Y	Yellow	GaAsP/GaP	18	16	20	20	12	162
HL-LB503H18BC-18P-12-B	Blue	InGaAlN	18	9.5	12	20	12	138-168
HL-LB503U11GC-18P-12-G	Green	InGaN	18	24	30	20	12	138-168
HL-LB503H159WC-18P-12-W	White	InGaAlN	18	25	32	20	12	138-168

SMD SIDEVIEW FLEX

Benefits

- Linear separable LED strip on flexible printed circuit board with self-adhesive tape back
- Separable every 3 LEDs, after cut, the remaining can be used separately or rejoined
- Light emits from the side, which gives the contour a corona effect
- Available in various single colors

Applications

- Small letters and illuminated sign
- Mood lighting

Basic Technical Data

- Standard length: 3 meters/reel
- Ribbon width: 5mm
- Working voltage: 12V DC
- Working current: 340-400mA a meter
- Entire ribbon LED quantity: 60 LEDs per meter





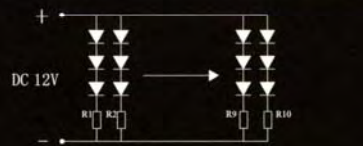
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SMD SIDEVIEW FLEX

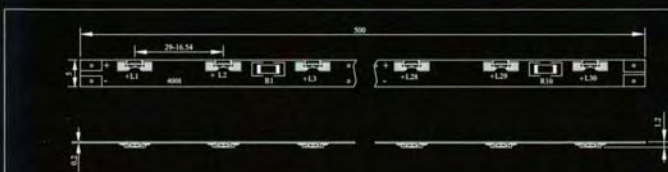


Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB3010R30K17N-12	Red	GaAlInP	30	22	27	120	12	170-200
HL-LB3010Y30K17N-12	Yellow	GaAsP/GaP	30	22	27	120	12	170-200
HL-LB3010B30K17N-12	Blue	InGaAlN	30	14.5	18	120	12	170-200
HL-LB3010G30K17N-12	Green	InGaN	30	38	48	120	12	170-200
HL-LB3010W30K17N-12	White	InGaAlN	30	42	53	120	12	170-200
HL-LB3010V30K17N-12	Purple	InGaAlN	30	2.5	3.5	120	12	170-200
HL-LB3010P30K17N-12	Pink	InGaAlN	30	12	15	120	12	170-200



SMD SIDEVIEW FLEX



Dimension

Part Number	Color	Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB4008R30K16N-12	Red	GaAlInP	30	22	27	90	12	170-200
HL-LB4008Y30K16N-12	Yellow	GaAsP/GaP	30	22	27	90	12	170-200
HL-LB4008B30K16N-12	Blue	InGaAlN	30	14.5	18	90	12	170-200
HL-LB4008G30K16N-12	Green	InGaN	30	38	48	90	12	170-200
HL-LB4008W30K16N-12	White	InGaAlN	30	42	53	90	12	170-200
HL-LB4008V30K16N-12	Purple	InGaAlN	30	2.5	3.5	90	12	170-200
HL-LB4008P30K16N-12	Pink	InGaAlN	30	12	15	90	12	170-200



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WATERPROOF LIGHT BAR

Benefits

- Available in full range of single colors and RGB full color
- Available in different lengths 0.4m, 0.5m, 0.8m, 1m single color and 0.3m RGB full of color
- Various choices for viewing angles from 40-120 degrees
- Low input voltage 12V DC or 5V DC
- Totally waterproof

Applications

- Backlighting for larger size ad-signs
- Elegant interior decoration
- Nice accent lighting lamps
- Landscape outlines, etc
- Signal lighting

Basic Technical Data

- Working voltage: 12V DC (RGB tri-color used 5V DC)
- Working current: 150 ~180mA (0.4m, 25-LED)
170~ 200mA (0.5m, 30-LED)
340mA~400mA (1m, 60-LED)



405mm type



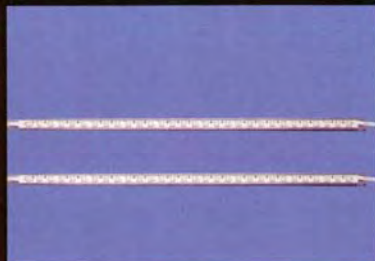
Part Number	Color	Material	Description	Luminous flux (lm)		Viewing Angle	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R25BC1-12	Red	GaAlInP	25 LEDs, 0.4 meter, one wire out, without connector	18	23	75	12	150-180
HL-LB105Y25BC1-12	Yellow	GaAlInP		18	23	75	12	150-180
HL-LB105B25BC1-12	Blue	InGaAlN		12	15	75	12	150-180
HL-LB105G25BC1-12	Green	InGaAlN		32	40	75	12	150-180
HL-LB105W25BC1-12	White	InGaAlN		35	44	75	12	150-180



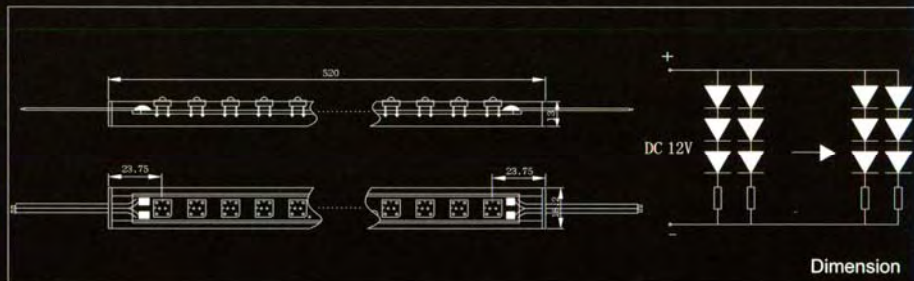
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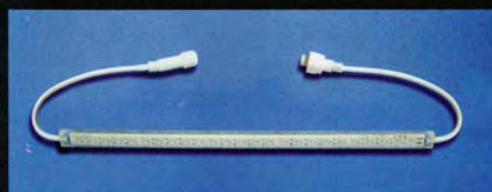
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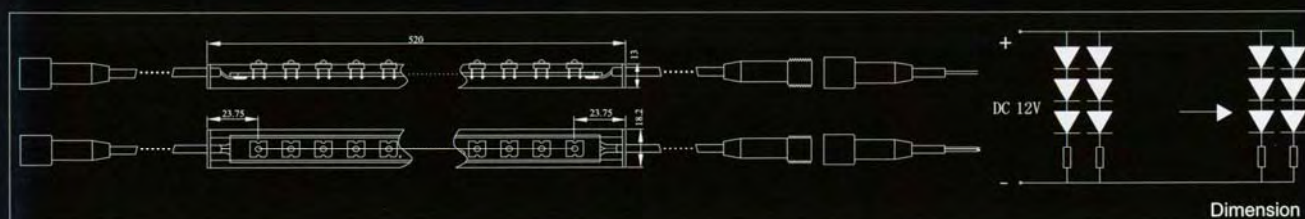
520mm type



Part Number	Color	Material	Description	Luminous flux (lm)		Viewing Angle 2θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R30K3C2-12	Red	GaAlInP	30 LEDs, 0.5 meter, two wires out from two ends, without connector	22	27	75	12	170-200
HL-LB105Y30K3C2-12	Yellow	GaAlInP		22	27	75	12	170-200
HL-LB105B30K3C2-12	Blue	InGaAlN		14.5	18	75	12	170-200
HL-LB105G30K3C2-12	Green	InGaN		38	48	75	12	170-200
HL-LB105W30K3C2-12	White	InGaAlN		42	53	75	12	170-200



520mm type



Part Number	Color	Material	Description	Luminous flux (lm)		Viewing Angle 2θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R30K3C4-12	Red	GaAlInP	30 LEDs, 0.5 meter, two mating wires out from two ends	22	27	75	12	170-200
HL-LB105Y30K3C4-12	Yellow	GaAlInP		22	27	75	12	170-200
HL-LB105B30K3C4-12	Blue	InGaAlN		14.5	18	75	12	170-200
HL-LB105G30K3C4-12	Green	InGaN		38	48	75	12	170-200
HL-LB105W30K3C4-12	White	InGaAlN		42	53	75	12	170-200



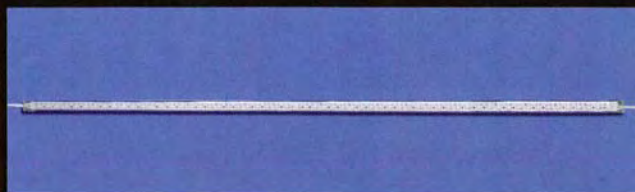
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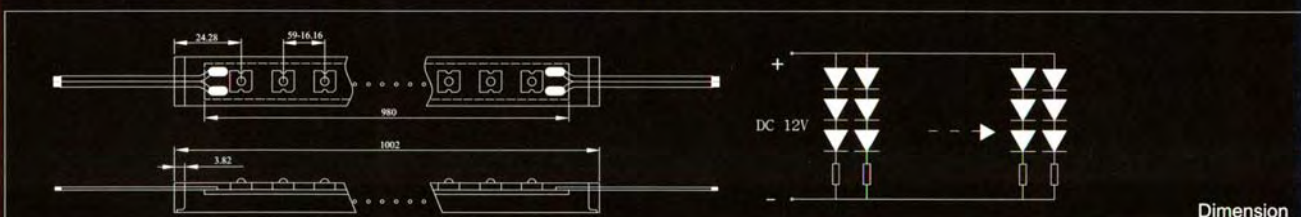
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1000mm type

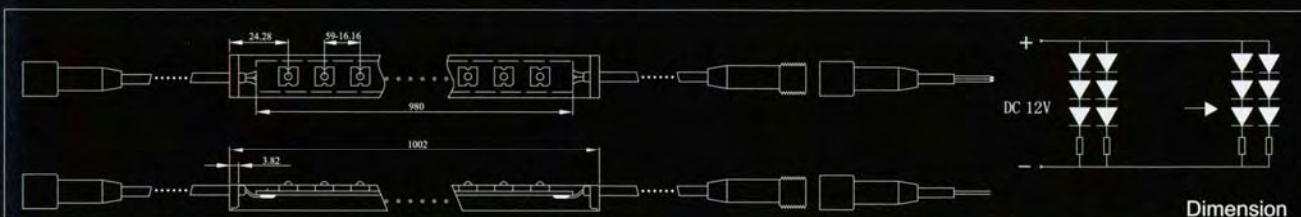


Dimension

Part Number	Color	Material	Description	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R60X1C2-12	Red	GaAlInP	60 LEDs, 1 meter,	43	54	75	12	340-400
HL-LB105Y60X1C2-12	Yellow	GaAlInP	two wires out from	43	54	75	12	340-400
HL-LB105B60X1C2-12	Blue	InGaAlN	two ends,	29	36	75	12	340-400
HL-LB105G60X1C2-12	Green	InGaN	without connector	77	96	75	12	340-400
HL-LB105W60X1C2-12	White	InGaAlN		84	105	75	12	340-400



1000mm type

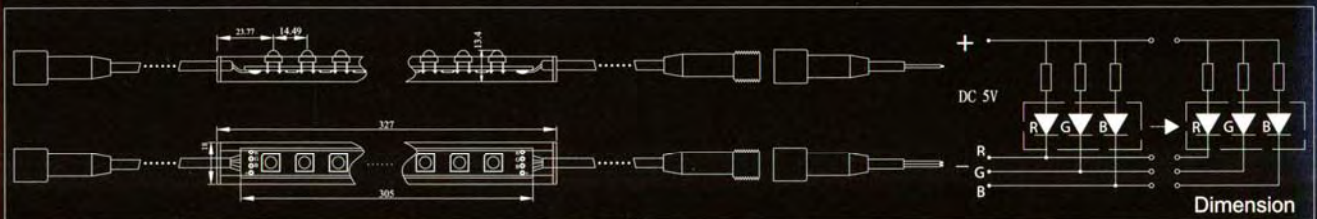


Dimension

Part Number	Color	Material	Description	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R60X1C4-12	Red	GaAlInP	60 LEDs, 1 meter, two mating wires out from two ends	43	54	75	12	340-400
HL-LB105Y60X1C4-12	Yellow	GaAlInP		43	54	75	12	340-400
HL-LB105B60X1C4-12	Blue	InGaAlN		29	36	75	12	340-400
HL-LB105G60X1C4-12	Green	InGaN		77	96	75	12	340-400
HL-LB105W60X1C4-12	White	InGaAlN		84	105	75	12	340-400



RGB 327mm type



Part Number	Color	Material	Description	Luminous flux (lm)		Viewing Angle	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB112RGB20R2C4-5V	RGB	GaAlInP	20 LEDs, 0.3 meter,	14	18	100	5	340-400
		InGaN	two mating wires	25	32			340-400
		InGaAlN	out from two ends	9.6	12			340-400

WATERPROOF LED MODULES

Installation

When install the modules, the quantity you may need depends on the lighting box or letter sizes and brightness. (Usually 60-90 units per square meters)

Be careful of the polarity which is marked on the PCB. The marks +, - can be read from the top.

Be noted all modules with the same or similar binned LEDs should be installed in the same lighting box to gain light consistency.

To reduce electrical power wastage, install the transformer nearby and it is recommended to connect less 50 units for each circuit route.

If you install SMD module or flat top super flux module, the distance from the LED peak to the panel is better to be 5-6cm. For modules with less than 120 degrees, the distance is recommended to be 8-10cm.





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WATERPROOF LED MODULES

Benefits

- Available in 2-LED and 3-LED & 4-LED version
- With mounting holes for easy mounting
- Low voltage, energy efficient, virtually no maintenance
- Low heat, high brightness, works well under harsh conditions
- Full range of colors: red, yellow, blue, green, white, etc
- Input voltage: 12V DC, professionally designed to be fully waterproof

Application:

- Slim design for narrow and compact LED signages.
- Waterproof for outdoor advertising signs, channel-letter, effective contouring, outdoor waterproof LED lighting projects, etc

Basic Technical Data

- Module thickness: 12.5mm (2 & 4 - LED PVC Module)
8mm (3 - LED PVC Module)
6.5mm (2 & 4 - LED Alu-base Module)
- Working voltage: 12V DC
- Working current: 2 - LED version 20~35mA
3 - LED version 20~30mA
4 - LED version 34~44mA
- LED Size (L X W): 2 - LED PVC Module 25 x 16mm
3 - LED PVC Module 74 x 17mm
4 - LED PVC Module 30 x 23mm
2 - LED Alu-base Module 35 x 21mm
4 - LED Alu-base Module 37 x 32mm
6 - LED RGB Alu-base Module 37 x 32mm



Waterproof 2-LED modules (PVC housing)



Part Number	Color	Housing Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R2L2C2-12	Red	PVC	2	1.4	1.8	75	12	30-35
HL-LB105Y2L2C2-12	Yellow	PVC	2	1.4	1.8	75	12	30-35
HL-LB105B2L2C2-12	Blue	PVC	2	1	1.2	75	12	20-25
HL-LB105G2L2C2-12	Green	PVC	2	2.6	3.2	75	12	20-25
HL-LB105W2L2C2-12	White	PVC	2	3	3.5	75	12	20-25



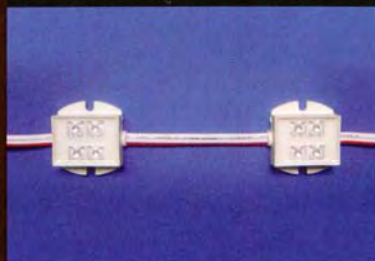
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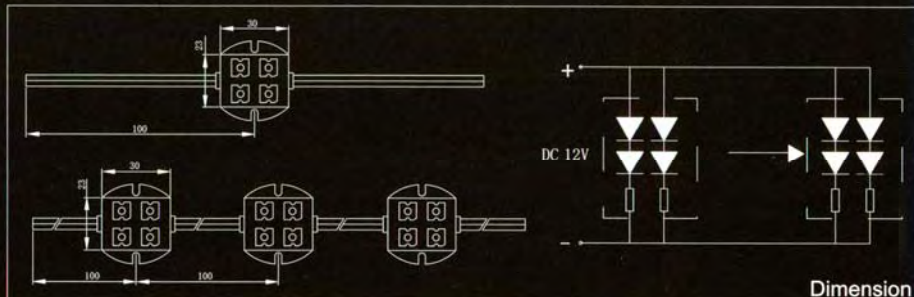
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Waterproof 4-LED modules (PVC housing)



Dimension

Part Number	Color	Housing Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R4L7C2-12	Red	PVC	4	2.8	3.6	75	12	60-65
HL-LB105Y4L7C2-12	Yellow	PVC	4	2.8	3.6	75	12	60-65
HL-LB105B4L7C2-12	Blue	PVC	4	2	2.4	75	12	45-50
HL-LB105G4L7C2-12	Green	PVC	4	5.2	6.4	75	12	45-50
HL-LB105W4L7C2-12	White	PVC	4	6	7	75	12	45-50



Waterproof 2-LED modules (Aluminium base)



Dimension

Part Number	Color	Housing Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB112R2D19C2-12	Red	Aluminium	2	1.4	1.8	100	12	17-20
HL-LB112Y2D19C2-12	Yellow	Aluminium	2	1.4	1.8	100	12	17-20
HL-LB112B2D19C2-12	Blue	Aluminium	2	1	1.2	100	12	17-20
HL-LB112G2D19C2-12	Green	Aluminium	2	2.6	3.2	100	12	17-20
HL-LB112W2D19C2-12	White	Aluminium	2	3	3.5	100	12	17-20

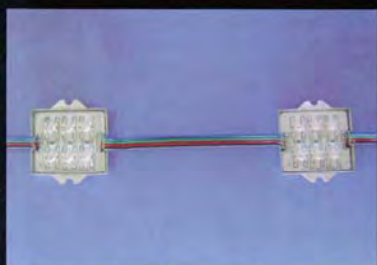


Waterproof 4-LED modules (Aluminium base)

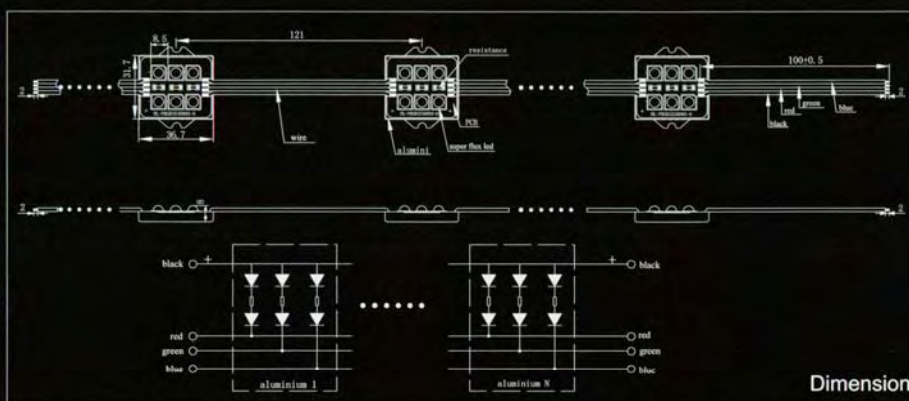


Dimension

Part Number	Color	Housing Material	LED Quantity	Luminous flux (lm)		Viewing Angle	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB112R4D18C2-12	Red	Aluminium	4	2.8	3.6	100	12	34-40
HL-LB112Y4D18C2-12	Yellow	Aluminium	4	2.8	3.6	100	12	34-40
HL-LB112B4D18C2-12	Blue	Aluminium	4	2	2.4	100	12	34-40
HL-LB112G4D18C2-12	Green	Aluminium	4	5.2	6.4	100	12	34-40
HL-LB112W4D18C2-12	White	Aluminium	4	6	7	100	12	34-40

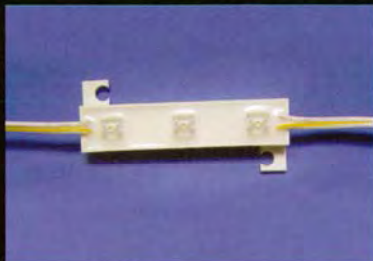


Waterproof 6-LED modules (Aluminium base)

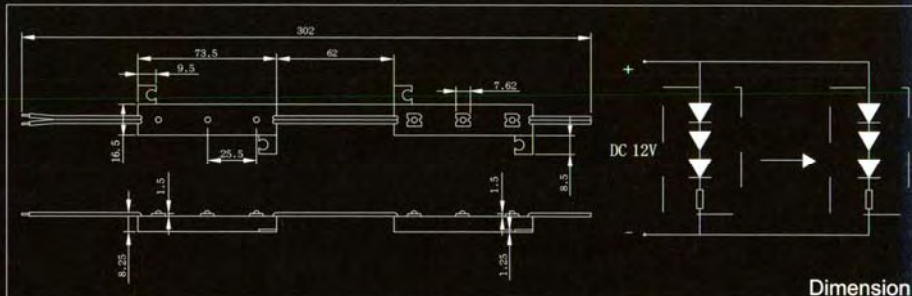


Dimension

Part Number	Color	Housing Material	LED Quantity	Luminous flux (lm)		Viewing Angle	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB112RGB6D20C2-12	Red	Aluminium	6	1.4	1.8	100	12	17-20
	Green	Aluminium		2.5	3.2			17-20
	Blue	Aluminium		0.9	1.2			17-20



Waterproof 3-LED modules (PVC housing)



Dimension

Part Number	Color	Housing Material	LED Quantity	Luminous flux (lm)		Viewing Angle 2 θ 1/2	Voltage (V)	Current (mA)
				Min.	Typ.			
HL-LB105R3L3C2-12	Red	PVC	3	2	3	75	12	25-30
HL-LB105Y3L3C2-12	Yellow	PVC	3	2	3	75	12	25-30
HL-LB105B3L3C2-12	Blue	PVC	3	1.5	1.8	75	12	20-25
HL-LB105G3L3C2-12	Green	PVC	3	4	5	75	12	20-25
HL-LB105W3L3C2-12	White	PVC	3	4	5	75	12	25-30

SPOTLIGHT / FLOODLIGHT

Features:

- High luminance
- Low power consumption
- Long life up to 50,000h with Luxeon high power LED
- Easy to install
- Ideal for medical, landscape and architectural lighting
- Widely used in advertisement and cabaret application

Basic Technical Data

- Options : 1w or 3w
- Dimensions : 50mm
- Operating Temperature: -40 to +85°
- Heat-sink: Pure aluminum or aluminum alloy
- Spot Power: 1w=2.1 watt 3w=4.2 watt
- LED input current: 1w=350mA, 3w=700mA
- Drive: fix current
- View angle: 25 or 100 degrees
- LED Intensity (lumen): 1w=25lumen, 3w=80lumen





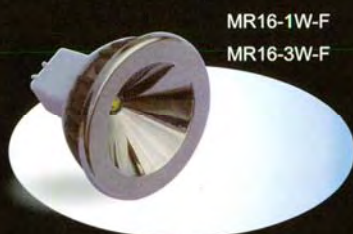
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MR16-1W-F

MR16-3W-F



MR16-1W-S

MR16-3W-S

Part Number	Descriptions	Color	Voltage	Current	LED Intensity	Viewing Angle	Size
MR16-1W-CW-S	1w luxeon led	Cold White	AC/DC6-24V	350mA	25lumen	25 degrees	51x51mm
MR16-1W-WW-S	1w luxeon led	Warm White	AC/DC6-24V	350mA	25lumen	25 degrees	51x51mm
MR16-1W-CW-F	1w luxeon led	Cold White	AC/DC6-24V	350mA	25lumen	100 degrees	51x51mm
MR16-3W-CW-S	3w luxeon led	Cold White	AC/DC6-24V	700mA	80lumen	25 degrees	51x51mm
MR16-3W-CW-F	3w luxeon led	Cold White	AC/DC6-24V	700mA	80lumen	100 degrees	51x51mm



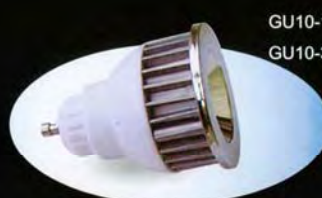
E27-1W-F

E27-3W-F



E27-1W-S

E27-3W-S



GU10-1W-F

GU10-3W-F



GU10-1W-S

GU10-3W-S

Part Number	Descriptions	Color	Voltage	Current	LED Intensity	Viewing Angle	Size
E27-1W-CW-S	1w luxeon led	Cold White	AC 90-265V	350mA	25lumen	25 degrees	51X75mm
E27-1W-WW-S	1w luxeon led	Warm White	AC 90-265V	350mA	25lumen	25 degrees	51X75mm
E27-1W-CW-F	1w luxeon led	Cold White	AC 90-265V	350mA	25lumen	100 degrees	51X75mm
E27-3W-CW-S	3w luxeon led	Cold White	AC 90-265V	700mA	80lumen	25 degrees	51X75mm
E27-3W-CW-F	3w luxeon led	Cold White	AC 90-265V	700mA	80lumen	100 degrees	51X75mm
GU10-1W-CW-S	1w luxeon led	Cold White	AC 90-265V	350mA	25lumen	25 degrees	51X75mm
GU10-1W-WW-S	1w luxeon led	Warm White	AC 90-265V	350mA	25lumen	25 degrees	51X75mm
GU10-1W-CW-F	1w luxeon led	Cold White	AC 90-265V	350mA	25lumen	100 degrees	51X75mm
GU10-3W-CW-S	3w luxeon led	Cold White	AC 90-265V	700mA	80lumen	25 degrees	51X75mm
GU10-3W-CW-F	3w luxeon led	Cold White	AC 90-265V	700mA	80lumen	100 degrees	51X75mm

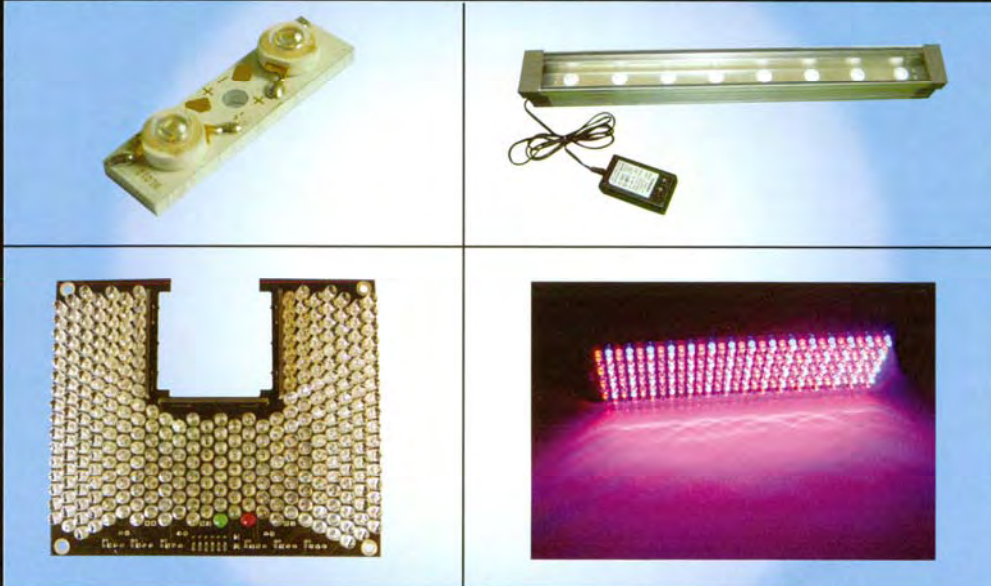


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Besides the standard LED lighting products, we also provide OEM/ODM LED assembly service for our valued clients.



OEM / ODM

HL-RGB-A is specially designed for controlling LED multicolor changing patterns. Its slim and delicate shape enables a no-sweat installation. The design flexibility on LED fittings will be enhanced enormously. The wireless controlling system is to make your home decoration possible with industrial products.

Specifications

Working Temperature: -20-60°C
In/output Voltage: DC12V
Dimensions: 95*65*25mm
Connecting Mode: Common anode
Recommended Current: 4A for each color
Max. Current: 6A for each color
Length or Quantity of LED fittings to control: Consult sales engineers
Application: can be working with any RGB items in 12VDC

How to achieve the color changing? (What function of the buttons?)
Button A – It is a major function key. Press one time, one color pattern will appear.
Button B – To speed up jumpy color changing
Button C – To slow down jumpy color changing

Changing patterns can be achieved.

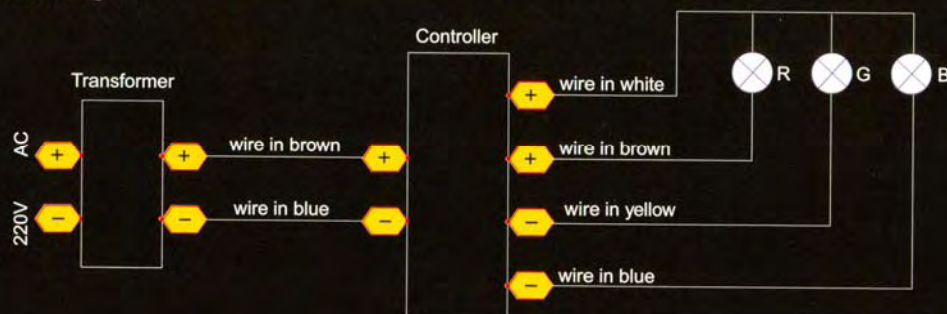
ITEM	PATTERNS
1	Static red
2	Static blue
3	Static pink
4	Static green
5	Static yellow
6	Static cyan
7	Static white
8	Jumpy changing
9	Gradual changing

RGB Controller
Mode No.: HL-RGB-A





Connect Diagram



Safety Information

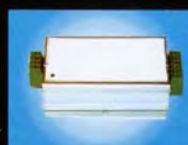
1. The input voltage of this controller should be only 12V DC. DC24V or other high voltage would most probably destroy it.
2. The 4 wires coming out of the controller can't be incorrectly interconnected, or short circuit could occur.
3. Connect the wires of the controller and LED fittings as per the instruction.
4. Don't peel off the label on the controller in case any indication information will be missed.
5. The standard warranty is one year. SEL won't be responsible for any damage of the controller due to any wrong operation.

1. RGB Controller parameter

RGB Controller
Mode No.: HL-RGB-B



RGB Amplifier



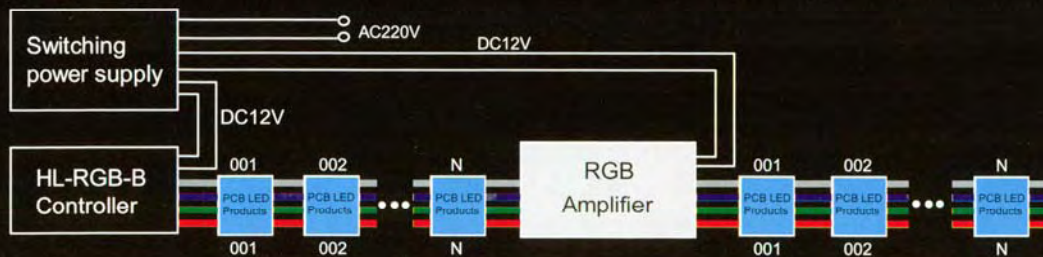
CONTROLLER TYPE	CHANGING PATTERNS	VOLTAGE	CURRENT	DIMENSION	CONNECTING				
				(mm)	OUTPUT		INTPUT		
HL-RGB-B (CONTROLLER)	Seven-colored gradually change,seven-colored skipping change,three-c olored chasing.	DC12V	8A	94*67*25	+: Anode	Connect to 12V Switch Power	N/A		
					-: Cathode				
					R: Red	Match the same color line with RGB			
					G: Green				
					B: Blue				
W: White									
RGB (AMPLIFIER)	Seven-colored gradually change,seven-colored skipping change,three-c olored chasing.	DC12V	8A	102*67*25	+: Anode	Connect to 12V Switch Power	N/A		
					-: Cathode				
					R: Red	Match the same color line with RGB	R: Red	Match the same color line with HL-RGB-B output	
					G: Green		G: Green		
					B: Blue		B: Blue		
					W: White		W: White		



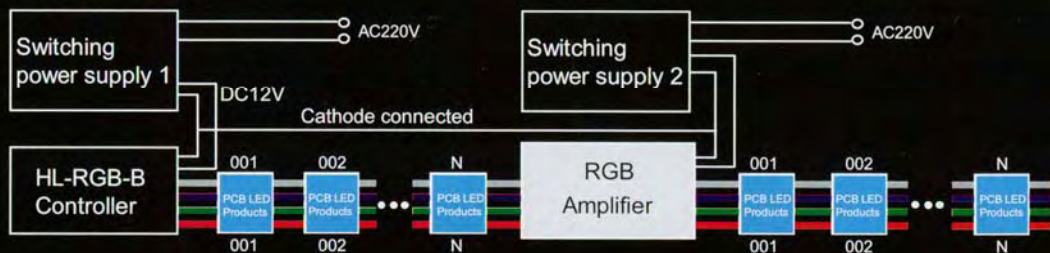
2. RGB Connecting Method



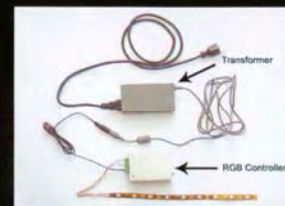
Connecting method 1



Connecting method 2



Normally, HL-RGB-B Controller can control max 8 metre RGB light ribbon or SMD light bar, or 100pcs LED module. If you want connect RGB light ribbon more than 8 metre, you should choose RGB Amplifier.





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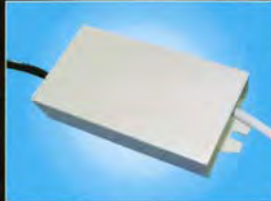
Waterproof Transformer



Waterproof Transformer-A
CE certified
Size: 180×68×53mm
Weight: 850g
Input Voltage: 170-240V
Max. Output Power: 60W
Rated Output Current: 5A
Output Voltage: 12±0.5V



Waterproof Transformer-B
Size: 142×71×44mm
Weight: 532g
Input Voltage: 170-250V
Max. Output Power: 30W
Rated Output Current: 2.5A
Output Voltage: 12±0.5V
Working Temperature: -25-40°C



Waterproof Transformer-C
CE certified
Size: 122×58×25mm
Weight: 280g
Input Voltage: 110-250V
Max. Output Power: 20W
Rated Output Current: 1.67A
Output Voltage: 12±0.5V
Working Temperature: -25-40°C



Waterproof Transformer-D
CE certified
Size: 200×30×20mm
Weight: 248g
Input Voltage: 170-250V
Max. Output Power: 30W
Rated Output Current: 2.5A
Output Voltage: 11.6-12.30V

Normal Transformer



Normal Transformer-C
CE UL certified
Size: 114×50×30mm
Weight: 310g
Input Voltage: 100-240V
Max. Output Power: 30W
Rated Output Current: 2.5A
Output Voltage: 12V



Normal Transformer-D
CE UL certified
Size: 118×61×37mm
Weight: 270g
Input Voltage: 100-240V
Max. Output Power: 50W
Rated Output Current: 4.16A
Output Voltage: 12V