CONVERGING SYSTEMS

Flexible Linear Lighting Arrays™

Low-Voltage Color Changing (RGB) LED Elements

Low-Voltage, Full-Color Flexible (LED) lighting elements

Flexible Construction Enables Mounting on Flat or Uneven surfaces

Standard and Water-Resistant Models available

Licensed Patents from Philips Electronics

Small Form Factor Device can be Integrated Easily

Shorter/Customized lengths can be created in the field

Product Description

Background

The Flexible Linear Lighting Arrays (FLLA™) is an ingenious, easy-to-install family of color changing LED elements that are designed to work seamlessly with the ILC-100™ (RGB or 3-channel white) or ILC-400™ (RGBW or 4-channel white) Intelligent Lighting Controller to generate virtually any color of illumination (including white). The FLLA-RGB devices are available in a choice of two brightness configurations (standard and enhanced) as well as two packaging formats (water resistant, and super-water resistant). The lowest-cost version (IP54-water resistant) is designed for installations where protection of the surface-mounted LED elements can be provided typically by a soffit or other shield. The super water-resistant (IP67) version is specified where exposure to continuous water is expected (fountains). The IP54 version come equipped with a built-in 4-pin female connector on the non-powered end such that additional lengths can be daisy-chained without soldering or crimping (max run is 5.0 meters per strip) connected arrays. The IP67 come equipped with a sealed set flying lead. The FLLA-RGBW devices come in standard IP54 configurations, enhanced brightness only.

Operation

Combined with an ILC-100™ or an ILC-400™ LED controller, nearly 16.7 million colors can be selected (using RGB strips). Compatible-accessory family products include keypads, hand-held IR remotes, standard 0-10v lighting interfaces, motion sensors, as well as serial and Ethernet adapters.

Easy Setup and Configuration

The FLLA's thin form factor enables the lighting devices to be mounted almost anywhere. Typically up to 12m (40') of standard density (FLE-12SD-xxx) 12-volt DC LEDs or up to 6m (20') of enhanced brightness (FLE-12EB-xxx) 12-volt LEDs can be connected to a single ILC-100™ controller[1]. Alternatively, a 24-volt enhanced brightness configuration is available (FLE-24EB-xxx) which permits longer runs. If additional runs beyond those specified above are required, additional ILC-100™ or controllers can be networked together. ILC-100™ controllers can be located up to an amazing 1219m (4000') away with other controllers, automation systems or switches!

Applications

Typical applications include backlighting projection screens, soffit lighting, navigational/accessibility lighting, decorative ambient, focal point, and object of interest illumination. Bi-directional feedback with the ILC-100 controllers enables automation systems to indicate specific lighting states selected (on touchscreens and iPads). The ILC-100/400™ and the FLLA luminaries allow you to be the designer for LED lighting! Popular building and home automation systems have developed customized device drivers which enable simple to sophisticated control of scenes and functions. In addition, a family of CS-Bus™ interface adapters is available which enable ILC-100/400™ LED lighting controllers to be connected to nearly any type of home, commercial or industrial automation system!

Features

- LED energy saving lighting elements
- 16.7 million hues (colors) available
- Compatible with ILC family LED controllers
- SB-Std. Brightness RGB (44 lms./ft) as well as EB-Enh. Brightness RGB (88 lumens/ft) models. RGB-W Enh Brightness only.
- SB Monochrome (100 lm/ft as well as EB-Monochrome (200 lm/ft) models
- Apple iPad[R], Android[R] compatible[2]
- Dry, water-resistant, and super water-resistant models available.
- Low-voltage system ***does not*** require a commercial electrical license for installation
- 3M[tm] adhesive backing (silicon fastening straps available for moist locations)
- Can interconnect to controllers and control panels up to 1209m (4000') away
- Std. lengths can be customized (min 0.1m)

Technical Specifications

General Specifications

Product Type	*Vdc*	*Nominal Watts/ft. (meter)*	*LEDs elements/ft. (meter)*	*Element type*	*Lengths Available*[1]	*Wiring Confi.*	*Reserved*	
24v enh. Brightness RGB IP 54	24v	3.66w/ft (12w)	18.3 leds (60)	RGB integr.	A type[2]	+ common		
24v enh. Brightness RGB IP 67	24v	3.66w/ft (12w)	18.3 leds (60)	RGB integr.	C type[2]	+ common		
24v enh. brightness RGBW IP 54	24v	3.66w/ft (12w)	18.3 leds (60)	RGB integr.+ W	B type[2]	+ common		
24v enh. brightness RGBW IP 67	24v	3.66w/ft (12w)	18.3 leds (60)	RGB integr. + W	C type[2]	+ common		
24v std. brightness 2700K IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	A type[2]	+ common		
24v std. brightness 3000 K IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	A type[2]	+ common		
24v std. brightness 3600 K IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	A type[2]	+ common		
12v std. brightness RGB IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	A type[2]	+ common		
12v std. brightness RGB IP 67	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	C type[2]	+ common		
12v std. brightness 2700K IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	A type[2]	+ common		
12v std. brightness 3000 K IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integrated	A type[2]	+ common		
12v std. brightness 3600 K IP 54	12v	1.83w/ft (6w)	9.15 leds (30)	RGB integr. chip	A type[2]	+ common		

Notes:[1] IP 54 devices are trimmable every .1m

[2] Std. Lengths Availabel=**A Type**=.1m/.2m/.5m/1.0m/3.0m/5.0m **B Type**=1.0m/3.0m/5.0m **C Type**= 5.0M

Photometric

Product Type	*Approx. Lumens/ft (meter)*	*Beam Angle*	*Color Temp (Kelvin)*	*CRI*	*λp*	*CIE(1931) x,y*
24v enh. Brightness RGB IP 54	88 (288)	120°	1800-7000K	*		R(0.688, 0.305) G(0.150, 0.712) B(0.132, 0.073)
24v enh. Brightness RGB IP 67	88 (288)	120°	1800-7000K			R(0.688, 0.305) G(0.150, 0.712) B(0.132, 0.073)
24v enh. brightness RGBW IP 54	88 (288)	120°	1800-7000K	90+		
24v enh. brightness RGBW IP 67	88 (288)	120°	1800-7000K	90+		
24v std. brightness 2700K IP 54			ANSI 2700K [4]	75	611nm	(0.4320, 0.4221)
24v std. brightness 3000 K IP 54			ANSI 3000K [5]	76	593nm	(0.4199, 0.3911)
24v std. brightness 3600 K IP 54			ANSI 3500K			
12v std. brightness RGB IP 54	44 (144)	120°	1800-7000K			
12v std. brightness RGB IP 67	44 (144)	120°	1800-7000K			
12v std. brightness 2700K IP 54	44 (144)	120°	2600K	90+		
12v std. brightness 3000 K IP 54	44 (144)	120°	2900K	90+		
12v std. brightness 3600 K IP 54	44 (144)	120°	3600K	90+		

Notes:[2] Not relevant for RGB

Recommended Controller and External Power Supply List

Product Type	**Controller**	**Max. ft. run/ leader cable (m)**	**Max supported run /controller**					
24v enh. Brightness RGB IP 54	ILC-100	16.4 ft (5m)	26.11 ft (7.96m)					
24v enh. Brightness RGB IP 67	ILC-100	16.4 ft (5m)	26.11 ft (7.96m)					
24v enh. brightness RGBW IP 54	ILC-400	16.4 ft (5m)	16.4 ft (5m)					
24v enh. brightness RGBW IP 67	ILC-400	16.4 ft (5m)	16.4 ft (5m)					
24v std. brightness 2700K IP 54								
24v std. brightness 3000 K IP 54								
24v std. brightness 3600 K IP 54								
12v std. brightness RGB IP 54	ILC-100	16.4 ft (5m)	32.79 ft(10m)					
12v std. brightness RGB IP 67	ILC-100	16.4 ft (5m)	32.79 ft(10m)					
12v std. brightness 2700K IP 54	ILC-100	16.4 ft (5m)	37.50 ft (11.43m)					
12v std. brightness 3000 K IP 54	ILC-100	16.4 ft (5m)	37.50 ft (11.43m)					
12v std. brightness 3600 K IP 54	ILC-100	16.4 ft (5m)	37.50 ft (11.43m)					

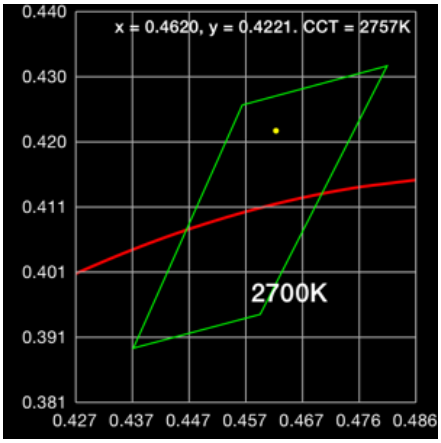
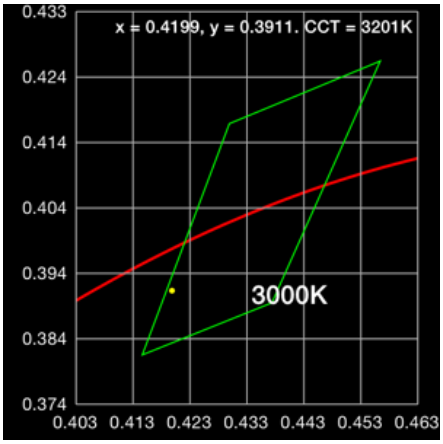
Construction/Suitability/Certifications

Product Type	Safety Rating	Compli ance	Philips Lic.[1]	IP Rating[2]	Integrated connectors	Width	Height	Weight
24v enh. Brightness RGB IP 54	ETL/cETL Listing[3]	RoHS	✓	IP 54	4 Pin F power 4 Pin M feeder	0.35” (9mm)	0.13” (3.41mm)	0.43 oz/ft (39.69 g/m)
24v enh. Brightness RGB IP 67	ETL/cETL Listing	RoHS	✓	IP 67	4 Pin flying leads	0.48” (12.3mm)	0.19” (4.75m	0.79 oz/ft (73.71 g/m)
24v enh. brightness RGBW IP 54	ETL/cETL Listing	RoHS	✓	IP 54	4 Pin M feeder			
24v enh. brightness RGBW IP 67	ETL/cETL Listing	RoHS	✓	IP 67	4 Pin flying leads			
12v std. brightness RGB IP 54	ETL/cETL Listing	RoHS	✓	IP 54	4 Pin M feeder	0.35” (9mm)	0.13” (3.41mm)	0.43 oz/ft (39.69 g/m)
12v std. brightness RGB IP 67	ETL/cETL Listing	RoHS	✓	IP 67	4 Pin flying leads			0.79 oz/ft (73.71 g/m)
12v std. brightness 2600K IP 54	ETL/cETL Listing	RoHS	✓	IP 54	4 Pin M feeder	0.35” (9mm)	0.13” (3.41mm)	0.43 oz/ft (39.69 g/m)
12v std. brightness 2900 K IP 54	ETL/cETL Listing	RoHS	✓	IP 67	4 Pin F power	0.35” (9mm)	0.13” (3.41mm)	0.43 oz/ft (39.69 g/m)
12v std. brightness 3600 K IP 54	ETL/cETL Listing	RoHS	✓	IP 54		0.35” (9mm)	0.13” (3.41mm)	0.43 oz/ft (39.69 g/m)

[1]IP 54 is rated for moist locations, IP67 is rated for super moist locations

[2]**Note**: *System comprised of ILC-100™ and FLLA luminaries includes a license to use LED color mixing and LED dimming technology without risk of patent infringement from Philips Electronics*

[3] Rated to work with UL rated Category 2 power supplies

Warm White 2700	Warm White 3000
ANSI C78-377-2008	ANSI C78-377-2008
	
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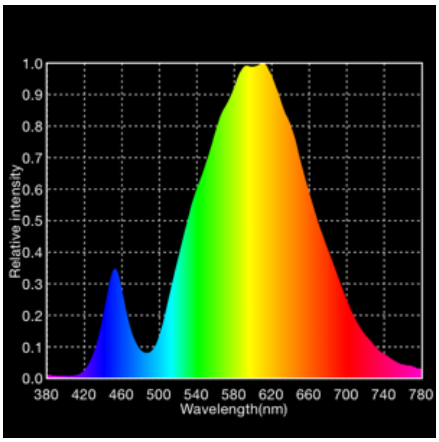
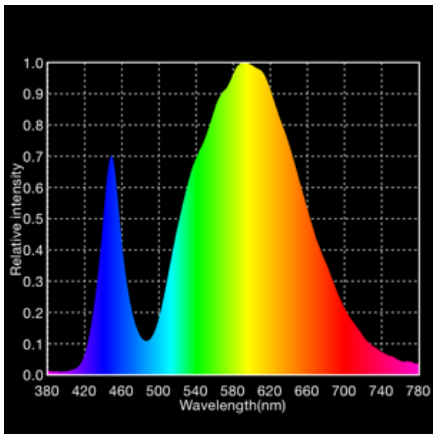
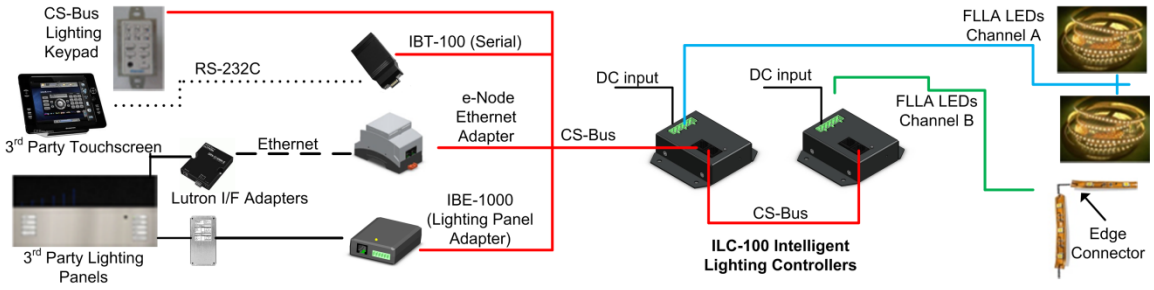
	

System Design

Overview



Application

The Flexible LED elements (luminaires) and the ILC-100™ family of LED controllers are ideal for a variety of applications. They are widely used in a variety of application areas where ***precise color settings***, ***3rd-party lighting and automation control, networkable functionality, expandability*** and ***bi-directional feedback*** are demanded. You application may be easily adapted from our core technology. Contact us for more information.

- Backlighting Projection Screens
- Soffit and Alcove Lighting
- Navigational/Exit Lighting
- Object of Interest Illumination
- Motor Automation
- Cabinet Lighting
- Marine/Boat applications
- Energy savings applications
- Heat sensitive application
- Enhanced functionality for Lighting Panels
- Space saving requirement
- Stair and Stumble-Proof Applications

Notes: [1]: Category 2 power supplies restrict current to 60 watts @12 volts DC or 100 watts @24 volts DC
[2]: Using e-Node™ Ethernet adapter and ILC-100™ Controller.