PHILIPS

CertaFlux

LEDFlex system

Design-in Guide

CertaFlux LEDFlex system

November 2020

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Important

Please take the time to read this installation guide before you install this Philips LED product and driver. The guide contains important information regarding installation and operation.

Warranty

Warranty only applies when the appropriate Philips LED drivers are used.

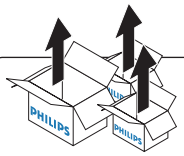
⚠ Warnings and system restrictions

- This product is for built-in use only. (Its required to cover the LEDFlex)
- More detailed information on design-in can be found on our website: www.lighting.philips.com.sg/oem-asia
- Do not switch on the LEDFlex when on the reel.
- This product may require a heatsink.
- The installation guide does not supersede local or (inter)national regulations for electrical installations.
- This Philips LED product and LED driver must be installed by a professional electrician in accordance with the applicable and appropriate electrical codes and the instructions provided by Philips.
- Do not connect this LED product directly to mains voltages.
- This is a 24 V DC product and should always be connected to a SELV (Safety Extra Low Voltage) driver. Ensure proper routing of the cable to avoid cable damage.
- Do not load the power driver beyond 90% of its rated maximum power.
- Before installation, maintenance or cleaning, always first switch off or disconnect the power and follow the appropriate safety procedures.
- Do not apply force on the electrical components when applying the LEDFlex.
- These modules are designed with ESD protection but please take into account the max level indicated in the datasheet.
- Do not make sharp bends with electrical wires.
- Avoid contact between cables and sharp edges.
- Due to the variety of designs and brands in which the Philips LED products can be installed, you may need to use customized mounting accessories to fit the specific design you are using.
- This product is designed for dry locations only.
- The fixing/cooling surface must be cleaned before installing the LEDFlex modules to remove all dirt, dust and grease.
  Please refer to the instructions of 3M™ for best tape fixation (tape type: 9495LE family).
- Do not mount on Plasticized Vinyl, EVA, Polyethylene, Polypropylene, PVF, Silicone, and PTFE. For an indication of materials that are suitable for mounting refer to the extensive information from 3M™ (tape type: 9495LE family).
- None of the components of the LEDFlex (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.
- Use a strain relief to prevent shear- and peel forces on the LED module though the connector and/or wiring.
- Connectors can only be used with our Philips CertaFlux LEDFlex family.
- These connectors are single use.
- Disclaimer: Philips is not liable for loosening of the tape over time and/or its consequences.
- If you require further support, please contact your local Philips sales organization.

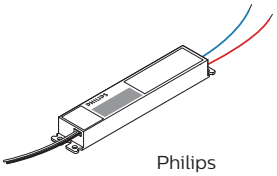
System disposal

We recommend that the CertaFlux LEDFlex module and its components are disposed of in an appropriate way at the end of their (economic) lifetime. The modules are in effect normal pieces of electronic equipment containing components that are currently not considered to be harmful to the environment. We therefore recommend that these parts are disposed of as normal electronic waste, in accordance with local regulations.

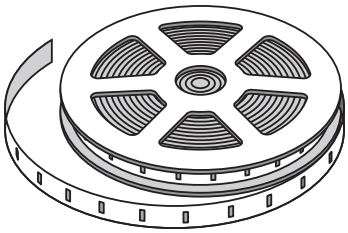
Products and tools



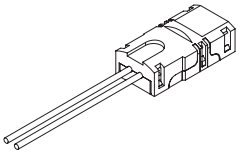
Delivered by Philips



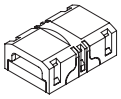
Philips
LED Transformer



LEDFlex



Connector wire-PCB*

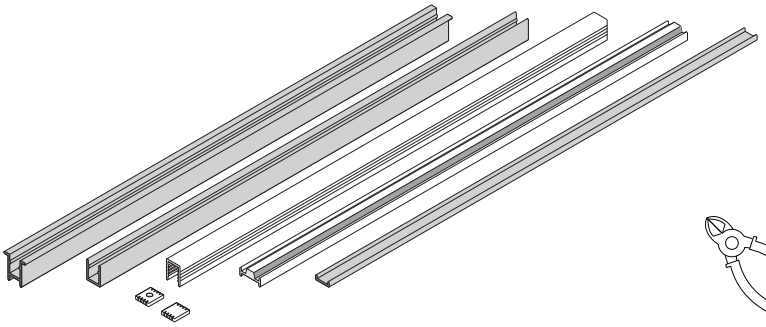


Connector PCB-PCB

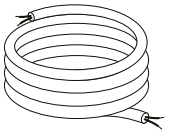
1

*: Connector and wires have to assemble in field based on actual connecting direction.

Organized by you

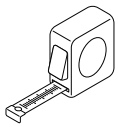


Housing materials



Extension cable

Cutting pliers

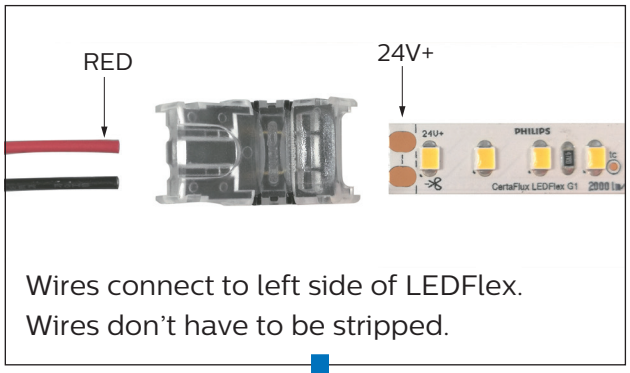


Tape measure

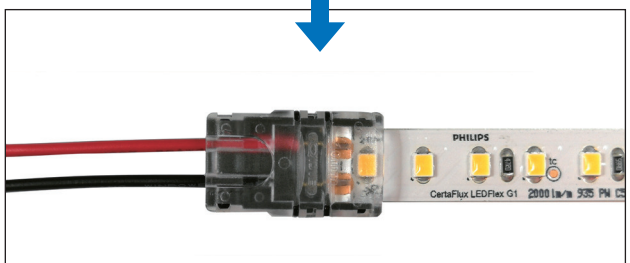
2

Connector wire-PCB assembly

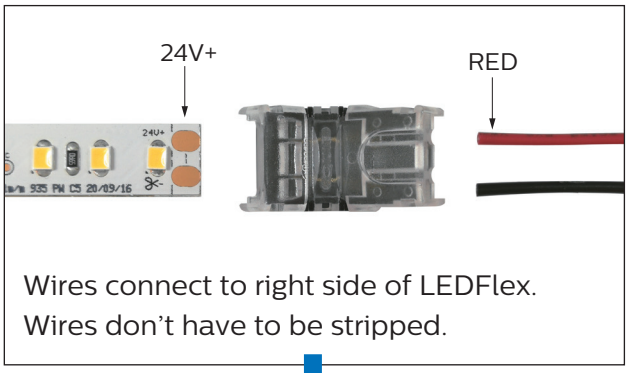
1 Single CCT



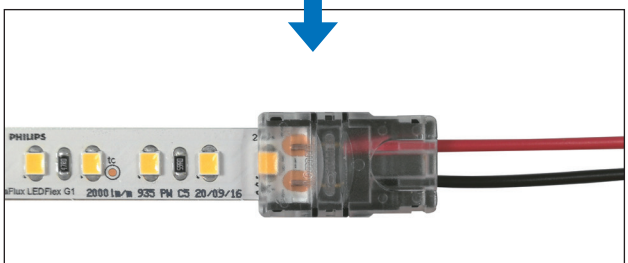
Wires connect to left side of LEDFlex.
Wires don't have to be stripped.



Close connector transparent cover with tool, like plier, until the clips fully engaged.

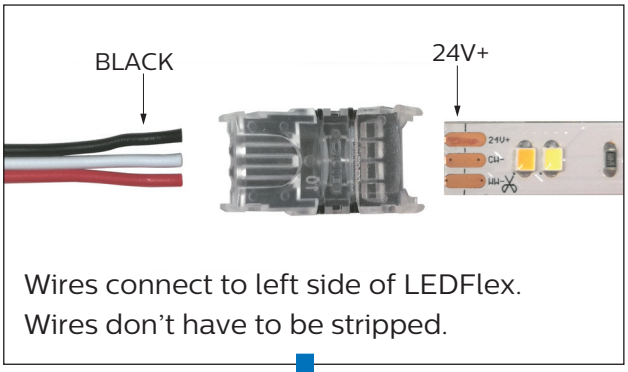


Wires connect to right side of LEDFlex.
Wires don't have to be stripped.

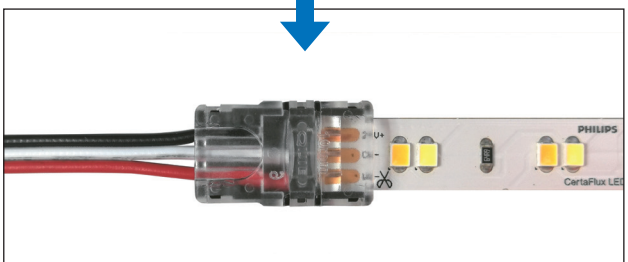


Close connector transparent cover with tool, like plier, until the clips fully engaged.

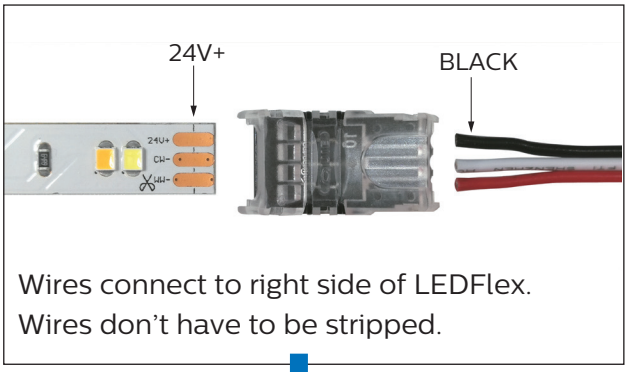
2 TW



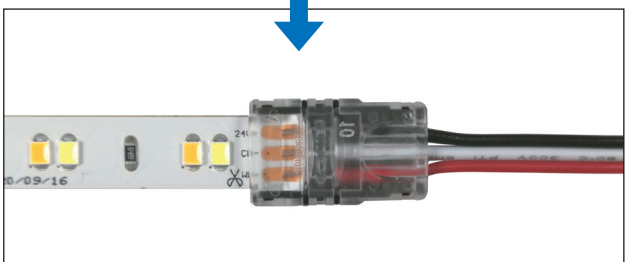
Wires connect to left side of LEDFlex.
Wires don't have to be stripped.



Close connector transparent cover with tool, like plier, until the clips fully engaged.

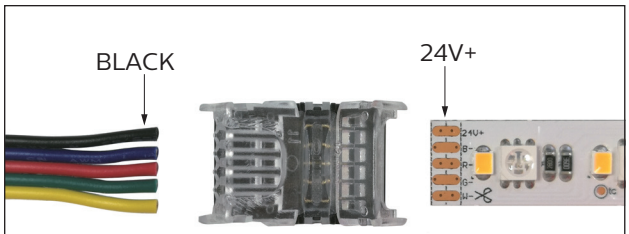


Wires connect to right side of LEDFlex.
Wires don't have to be stripped.

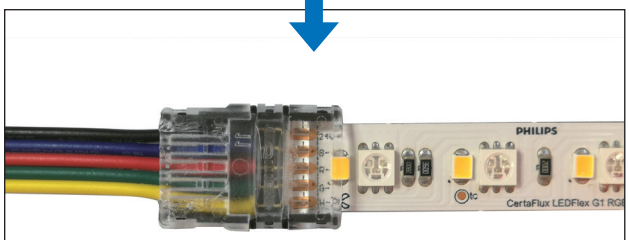


Close connector transparent cover with tool, like plier, until the clips fully engaged.

3 RGBW

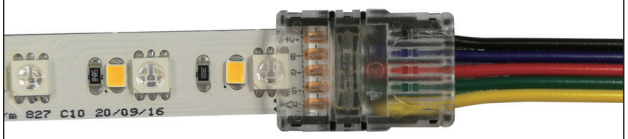


Wires connect to left side of LEDFlex.
Wires don't have to be stripped.



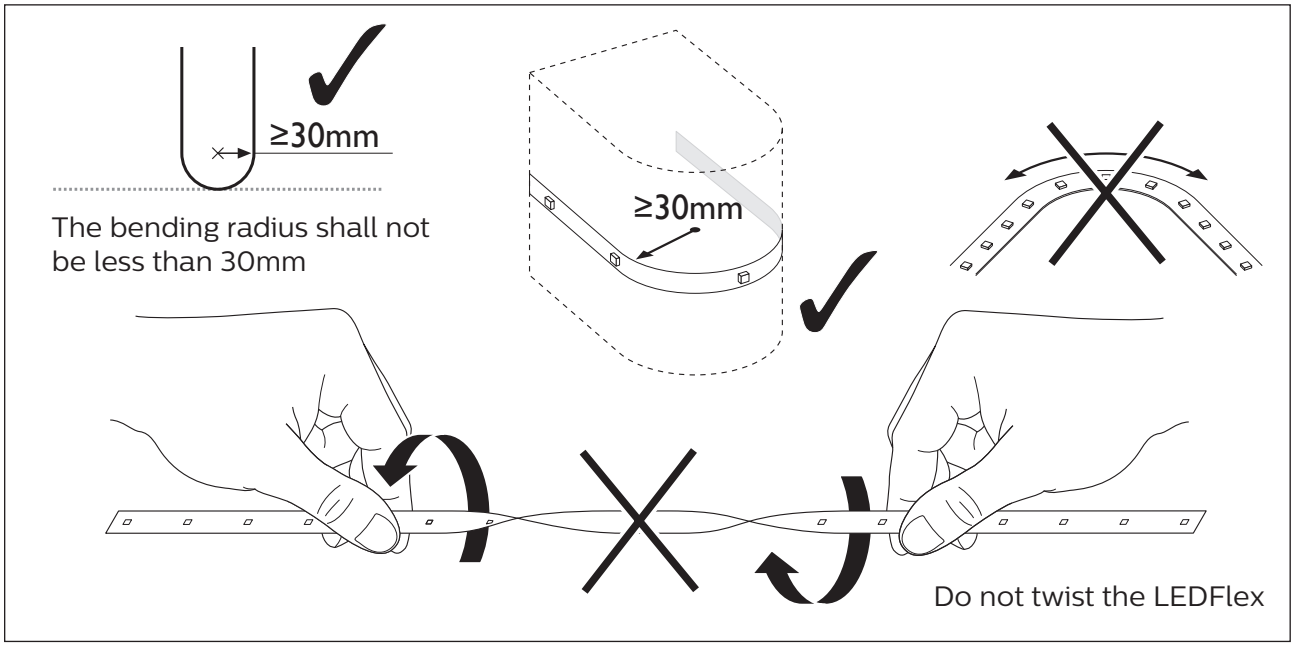
Close connector transparent cover with tool, like plier, until the clips fully engaged.

Wires connect to right side of LEDFlex.
Wires don't have to be stripped.

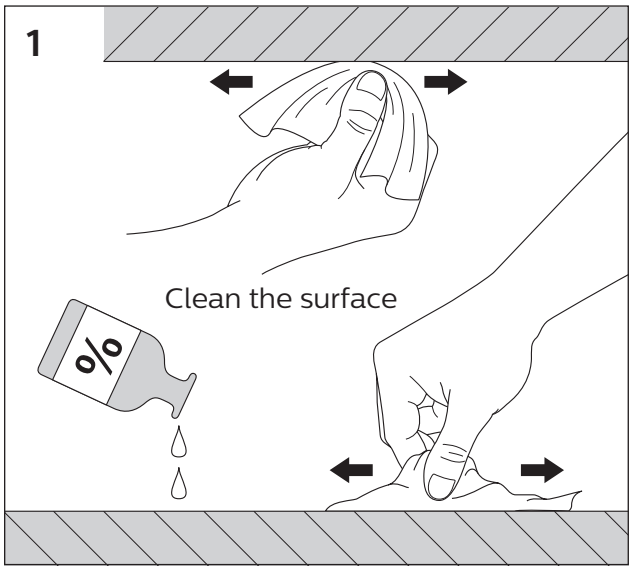


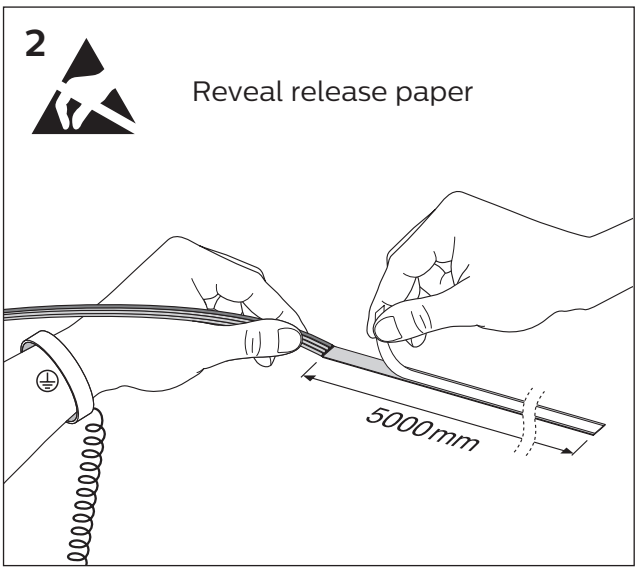
Close connector transparent cover with tool, like plier, until the clips fully engaged.

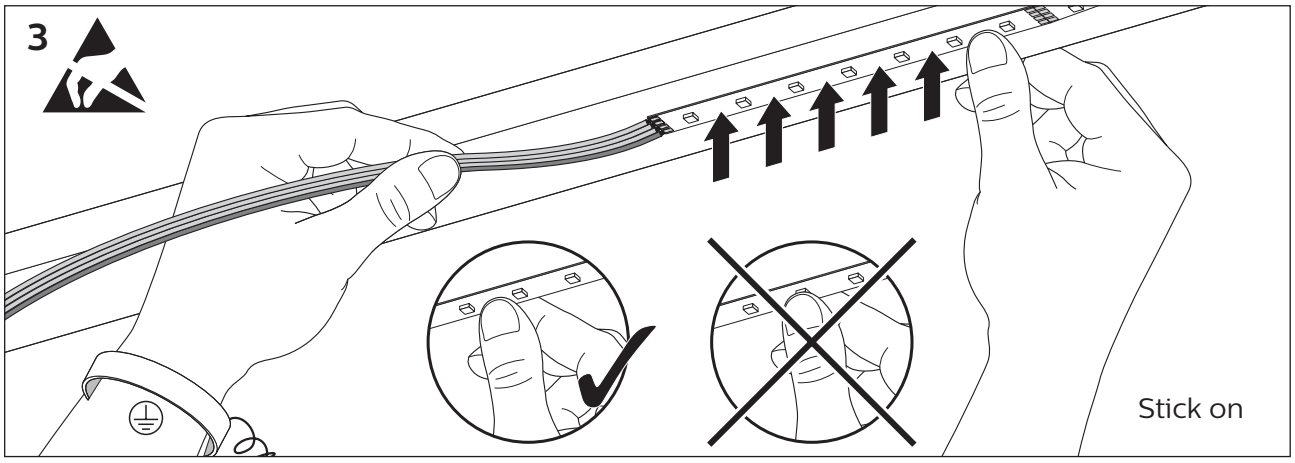
Cutting, connecting and tape adhesion



LEDFlex Installation







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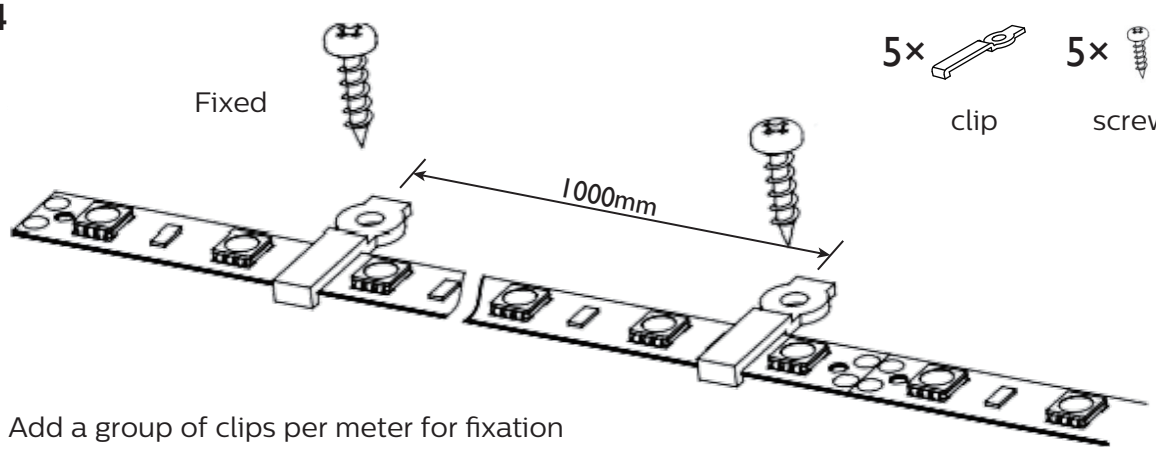
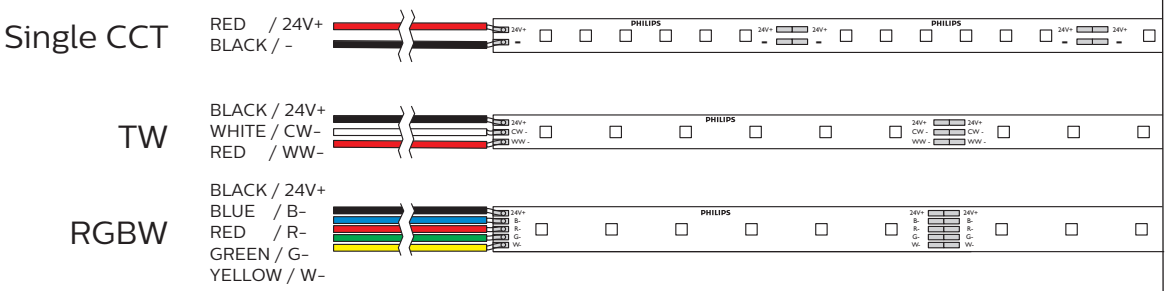


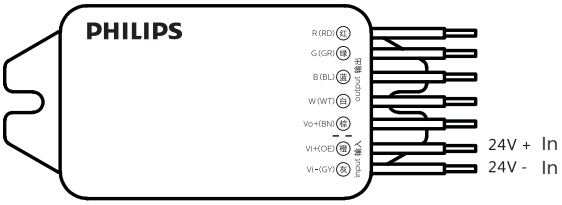
Add a group of clips per meter for fixation

Clips must not be applied on the electrical components.
Chips and screws are included in LEDFlex box.

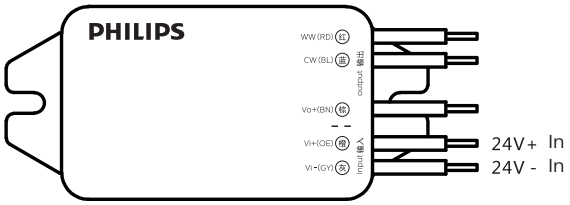
5

Connecting the controller / power supply





Wireless RGBW Bridge Box
12nc:929001470080

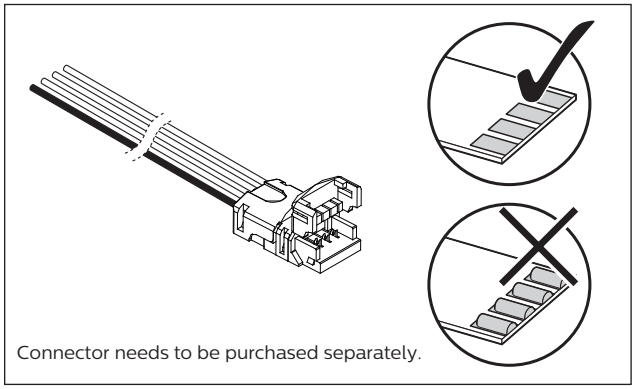


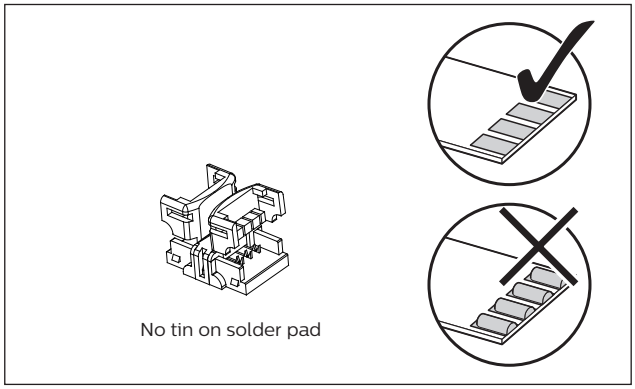
Wireless Tunable White Bridge Box
12nc:929001469980

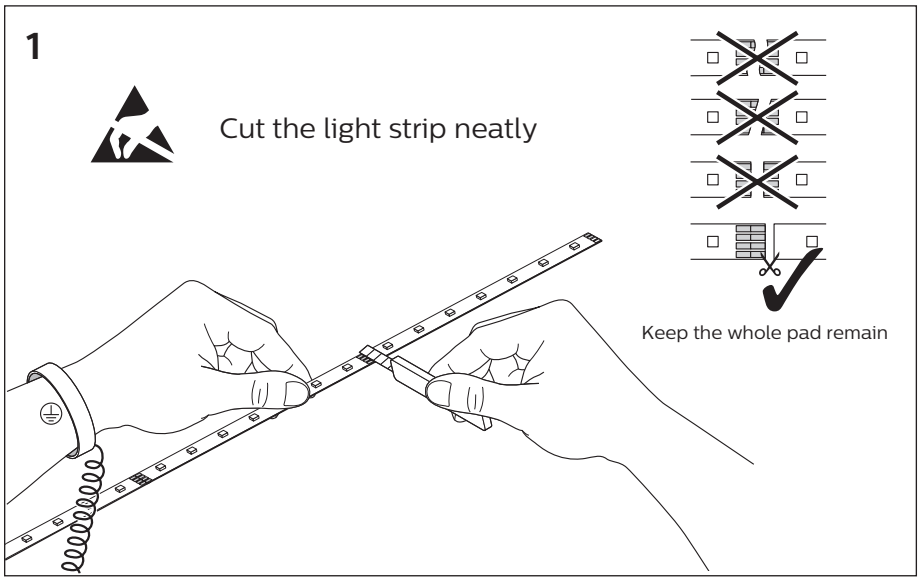
Compatible driver list please refer to “Driver mapping” chapter.
Bridge box datasheets and installation guide please refer to website https://www.lighting.philips.com.sg/oem-asia/support/technical-downloads.

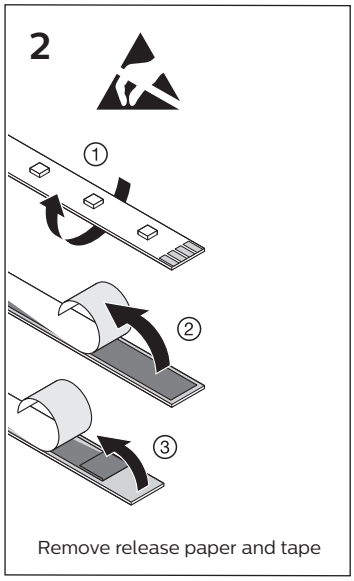
Bridge Box needs to be purchased separately

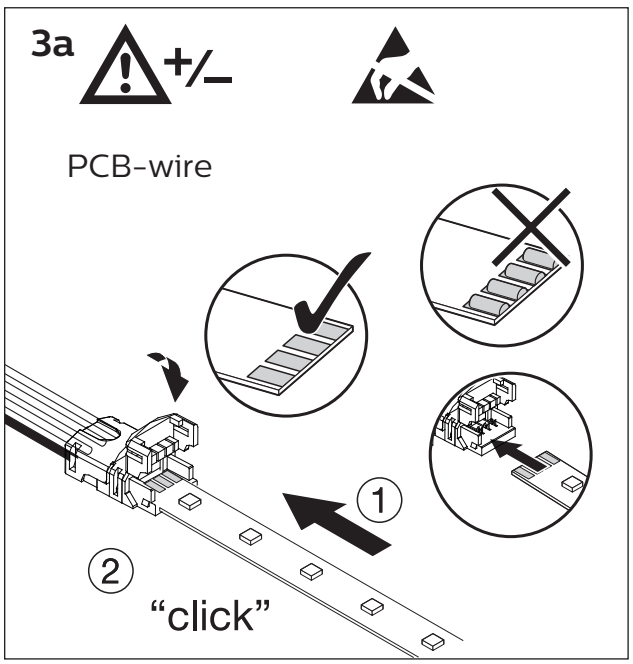
Connector Installation

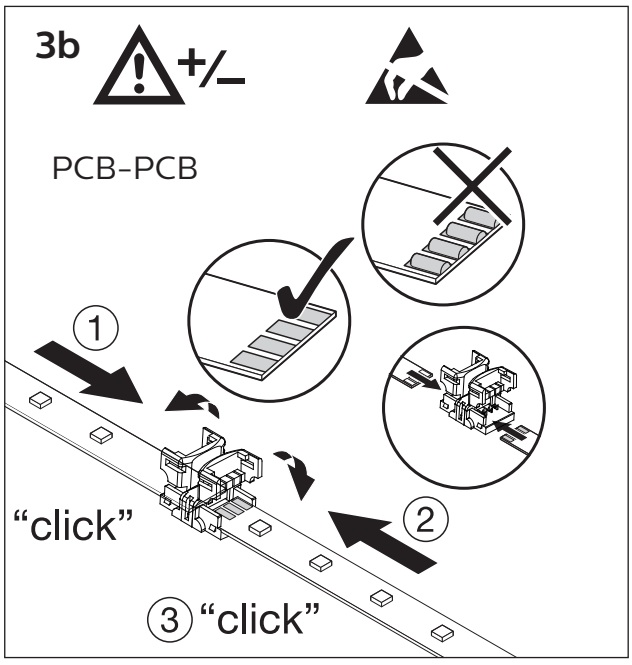




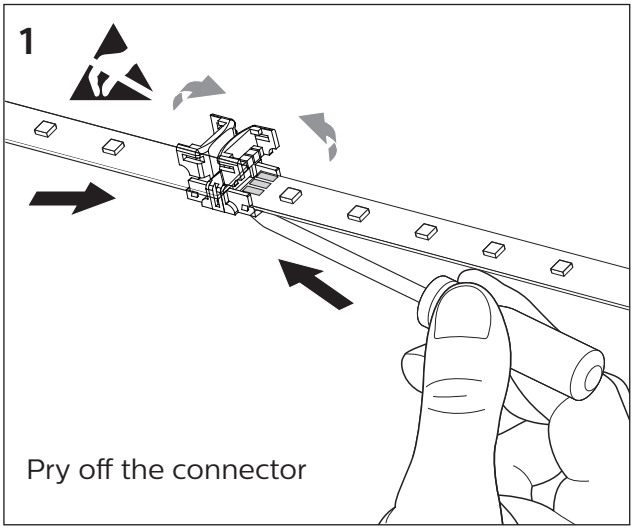


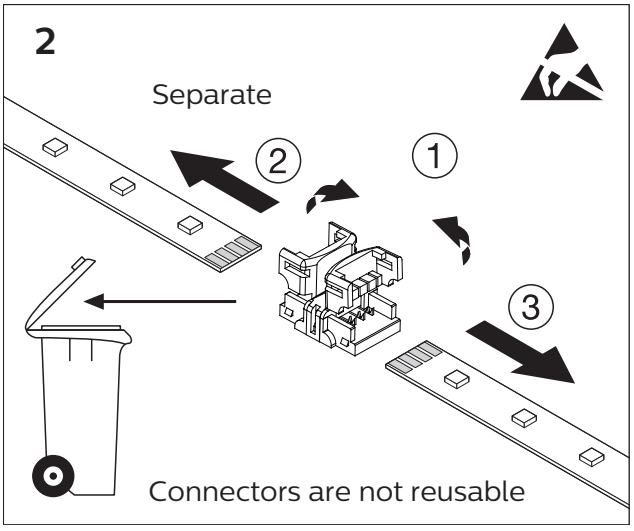




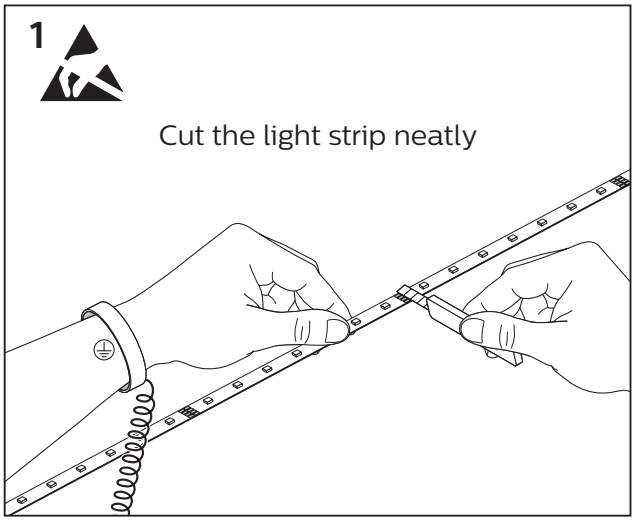


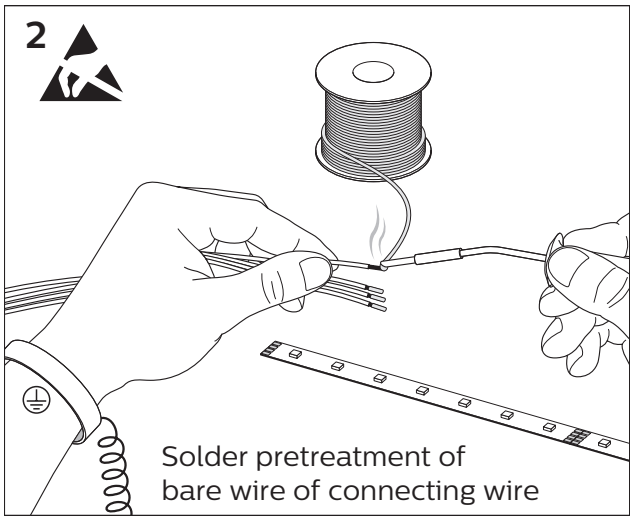
Connector Disassembly

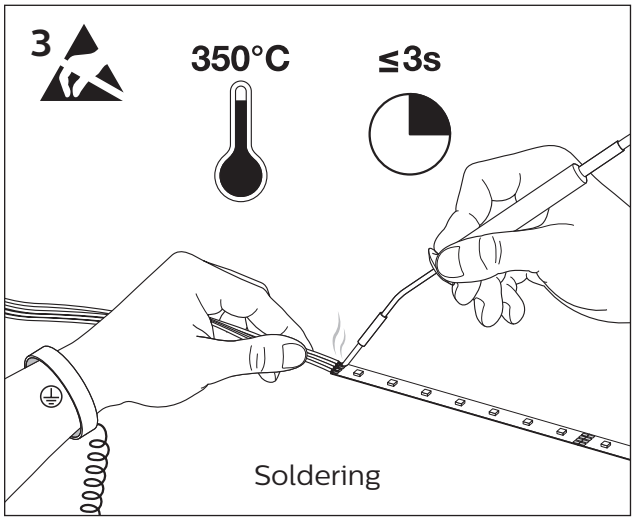


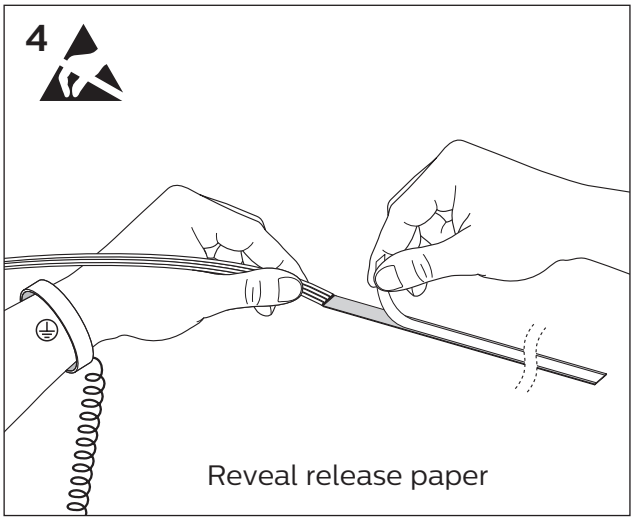


Wire Soldering









Introduction

Attention needs to be paid to thermal design-in for LED-modules and drivers to ensure optimum performance and life time of the luminaire. The critical thermal management items for the LED module are set out in this chapter in order to facilitate the design-in. If these thermal items are taken into account, this will help to ensure optimum performance and lifetime of the LED system.

Relevant definitions are explained along with guidance on how and where to measure the temperatures.

Key Definitions:

Module temperature: This is the temperature measured at the specified Tcase or Tc point of the module. This temperature is directly related to the LED junction temperature, which is the critical parameter for operation.

Ambient temperature: This is the temperature of the air surrounding the luminaire in the test environment or application. The module and driver temperature increases, by approximation, linearly with the ambient temperature. This relation can be used to predict module and driver temperatures at a different ambient temperature.

Tc nominal: This is the module temperature at which the performance is specified.

Tc life: This is the module or driver temperature (equal or higher than Tc nominal) at which the lifetime of the module (e.g. lumen maintenance of LxxByy) is specified.

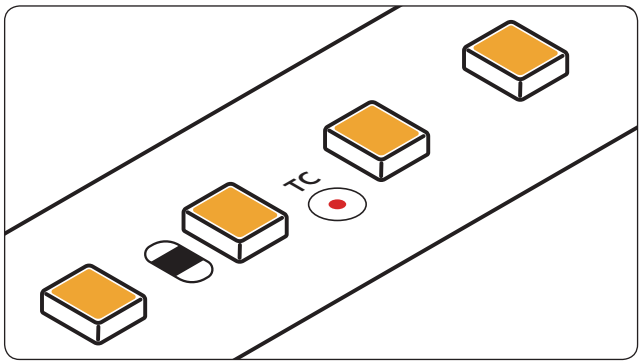
Tc max: This is the maximum module or driver temperature
(equal or higher than Tc life) to stay within safety limits. This temperature must not be exceeded, even in case of fan failure. The specified Tc nominal, Tc life, and Tc max are listed in the relevant datasheets that can be found on our website
www.lighting.philips.com.sg/oem-asia

Test Requirements

Measurements shall not be taken until the luminaire has stabilized thermally, i.e. temperatures are changing at a rate less than 1 °C per hour (see also the relevant clauses in IEC 60598-1). A temperature is considered constant if:
a) The test has been running for at least 3 hours, and
b) Three successive readings, taken at 15-minute intervals, are within 1°C of one another and are still not rising.

Module Tcase point location

The Tcase point of the LEDFlex module is located on the top side of the module. Please refer to the datasheet for the exact location Driver Tcase point location. The Tcase point on the driver is indicated by a point or an asterisk with the Tc caption. Please refer to the driver datasheet for the exact location. The thermocouple can be attached with a high temperature glue or Kapton tape.



Indication of Tc measurement point

Thermal design

Cooling

The LEDFlex modules have a relatively small footprint in relation to their electrical and thermal power. A good thermal contact via the 3M™ tape to an adequate heat sink, is a necessity for a good luminaire. To make good contact a certain pressure should be applied during installation. When applying pressure to the LEDFlex take care not to damage the electronics by exerting force on them and avoid ESD of more than 2kV. The heat sink surface must be smooth and free of burrs to obtain optimal contact. The heat sink should not be locked up in a confined space. It should be in contact with the ambient air for optimal heat transfer to the ambient.

Drivers

If placed in the luminaire drivers are preferably placed as far away as possible from the modules to prevent heating interaction. If placed in a separate driver compartment they are preferably mounted on the inner surface of the compartment. Do not place the driver on a heat sink that is used for cooling the modules. If so, it will be heated by the thermal losses of the LED –modules.

To warrant the lifetime of the driver, two parameters are key:

1. Ambient operating temperature. The ambient operating temperature is given in the product datasheet.
2. Tc life: The temperature measured at the Tcase point of the LEDFlex module is located on the top side. Please refer to the datasheet for the exact Driver Tcase point location and Tc life value.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	LED Transformer 20W 24VDC 120-277V			CertaDrive LED Transformer 30W 24VDC Economic LED Transformer 30W 24VDC		
		12NC	9290 021 05580			9290 021 46280 9137 100 33080		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	2.6	2.5	2.3	3.9	3.7	3.5
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	3.0	2.9	2.7	4.5	4.3	4.1
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	3.0	2.9	2.7	4.5	4.3	4.1
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	3.0	2.9	2.7	4.5	4.3	4.1
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	3.0	2.9	2.7	4.5	4.3	4.1
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	3.0	2.9	2.7	4.5	4.3	4.1
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	1.4	1.3	1.3	2.1	2.0	1.9
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	1.4	1.3	1.3	2.1	2.0	1.9
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	1.5	1.4	1.4	2.3	2.1	2.0
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	1.5	1.4	1.4	2.3	2.1	2.0
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	1.7	1.6	1.5	2.5	2.4	2.3
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	1.7	1.6	1.5	2.5	2.4	2.3
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	1.3	1.2	1.2	1.9	1.8	1.7
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	1.3	1.2	1.2	1.9	1.8	1.7
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	1.3	1.2	1.2	1.9	1.8	1.7
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	1.3	1.2	1.2	1.9	1.8	1.7
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	1.0	1.0	0.9	1.5	1.4	1.4
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	1.0	1.0	0.9	1.5	1.4	1.4
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	1.0	1.0	0.9	1.5	1.4	1.4
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	1.0	1.0	0.9	1.5	1.4	1.4
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	1.8	1.7	1.6	-	-	-
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	1.8	1.7	1.6	-	-	-
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	1.8	1.7	1.6	-	-	-

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	CertaDrive LED Transformer 60W 24VDC Economic LED Transformer 60W 24VDC			CertaDrive LED Transformer 120W 24VDC Economic LED Transformer 120W 24VDC		
		12NC	9290 021 46380 9137 100 33180			9290 021 46480 9137 100 33680		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	7.8	7.4	7.0	15.5	14.7	14.0
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	9.0	8.6	8.1	18.0	17.1	16.2
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	9.0	8.6	8.1	18.0	17.1	16.2
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	9.0	8.6	8.1	18.0	17.1	16.2
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	9.0	8.6	8.1	18.0	17.1	16.2
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	9.0	8.6	8.1	18.0	17.1	16.2
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	4.2	4.0	3.8	8.3	7.9	7.5
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	4.2	4.0	3.8	8.3	7.9	7.5
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	5.0	4.8	4.5	10.0	9.5	9.0
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	5.0	4.8	4.5	10.0	9.5	9.0
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	3.9	3.7	3.5	7.8	7.4	7.0
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	3.9	3.7	3.5	7.8	7.4	7.0
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	3.9	3.7	3.5	7.8	7.4	7.0
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	3.9	3.7	3.5	7.8	7.4	7.0
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	3.0	2.9	2.7	6.0	5.7	5.4
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	3.0	2.9	2.7	6.0	5.7	5.4
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	3.0	2.9	2.7	6.0	5.7	5.4
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	3.0	2.9	2.7	6.0	5.7	5.4
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	-	-	-	10.7	10.2	9.6
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	-	-	-	10.7	10.2	9.6
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	-	-	-	10.7	10.2	9.6

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	CertaDrive LED Transformer 180W 24VDC Economic LED Transformer 180W 24VDC			CertaDrive LED Transformer 250W 24VDC Economic LED Transformer 250W 24VDC		
		12NC	9290 021 46580 9137 100 33780			9290 028 26380 9290 021 59480		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	23.3	22.1	20.9	32.3	30.7	29.1
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	27.0	25.7	24.3	37.5	35.6	33.8
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	27.0	25.7	24.3	37.5	35.6	33.8
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	27.0	25.7	24.3	37.5	35.6	33.8
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	27.0	25.7	24.3	37.5	35.6	33.8
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	27.0	25.7	24.3	37.5	35.6	33.8
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	12.5	11.9	11.3	17.4	16.5	15.6
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	12.5	11.9	11.3	17.4	16.5	15.6
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	13.5	12.8	12.2	18.8	17.8	16.9
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	13.5	12.8	12.2	18.8	17.8	16.9
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	15.0	14.3	13.5	20.8	19.8	18.8
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	15.0	14.3	13.5	20.8	19.8	18.8
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	11.6	11.1	10.5	16.2	15.4	14.5
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	11.6	11.1	10.5	16.2	15.4	14.5
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	11.6	11.1	10.5	16.2	15.4	14.5
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	11.6	11.1	10.5	16.2	15.4	14.5
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	9.0	8.6	8.1	12.5	11.9	11.3
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	9.0	8.6	8.1	12.5	11.9	11.3
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	9.0	8.6	8.1	12.5	11.9	11.3
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	9.0	8.6	8.1	12.5	11.9	11.3
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	-	-	-	-	-	-
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	-	-	-	-	-	-
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	-	-	-	-	-	-

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	Xitanium LED Transformer 30W 1-10V 24VDC			Xitanium LED Transformer 60W 1-10V 24VDC		
		12NC	9290 028 25880			9290 028 25980		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	3.9	3.7	3.5	7.8	7.4	7.0
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	2.1	2.0	1.9	4.2	4.0	3.8
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	2.1	2.0	1.9	4.2	4.0	3.8
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	2.3	2.1	2.0	4.5	4.3	4.1
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	2.3	2.1	2.0	4.5	4.3	4.1
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	2.5	2.4	2.3	5.0	4.8	4.5
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	2.5	2.4	2.3	5.0	4.8	4.5
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	-	-	-	-	-	-
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	-	-	-	-	-	-
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	-	-	-	-	-	-

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	Xitanium LED Transformer 30W 1-10V 24VDC			Xitanium LED Transformer 60W 1-10V 24VDC		
		12NC	9290 028 25880			9290 028 25980		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	3.9	3.7	3.5	7.8	7.4	7.0
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	4.5	4.3	4.1	9.0	8.6	8.1
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	2.1	2.0	1.9	4.2	4.0	3.8
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	2.1	2.0	1.9	4.2	4.0	3.8
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	2.3	2.1	2.0	4.5	4.3	4.1
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	2.3	2.1	2.0	4.5	4.3	4.1
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	2.5	2.4	2.3	5.0	4.8	4.5
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	2.5	2.4	2.3	5.0	4.8	4.5
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	1.9	1.8	1.7	3.9	3.7	3.5
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	1.5	1.4	1.4	3.0	2.9	2.7
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	-	-	-	-	-	-
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	-	-	-	-	-	-
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	-	-	-	-	-	-

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	Xitanium LED Transformer 100W 1-10V 24VDC			Xitanium LED Transformer 150W 1-10V 24VDC		
		12NC	9290 028 26080			9290 028 26180		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	12.9	12.3	11.6	19.4	18.4	17.5
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	15.0	14.3	13.5	22.5	21.4	20.3
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	15.0	14.3	13.5	22.5	21.4	20.3
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	15.0	14.3	13.5	22.5	21.4	20.3
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	15.0	14.3	13.5	22.5	21.4	20.3
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	15.0	14.3	13.5	22.5	21.4	20.3
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	6.9	6.6	6.3	10.4	9.9	9.4
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	6.9	6.6	6.3	10.4	9.9	9.4
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	7.5	7.1	6.8	11.3	10.7	10.1
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	7.5	7.1	6.8	11.3	10.7	10.1
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	8.3	7.9	7.5	12.5	11.9	11.3
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	8.3	7.9	7.5	12.5	11.9	11.3
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	6.5	6.1	5.8	9.7	9.2	8.7
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	6.5	6.1	5.8	9.7	9.2	8.7
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	6.5	6.1	5.8	9.7	9.2	8.7
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	6.5	6.1	5.8	9.7	9.2	8.7
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	5.0	4.8	4.5	7.5	7.1	6.8
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	5.0	4.8	4.5	7.5	7.1	6.8
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	5.0	4.8	4.5	7.5	7.1	6.8
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	5.0	4.8	4.5	7.5	7.1	6.8
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	-	-	-	-	-	-
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	-	-	-	-	-	-
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	-	-	-	-	-	-

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Driver mapping

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	Xitanium LED Transformer 250W 1-10V 24VDC		
		12NC	9290 028 26280		
		extension wire length (m)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)			
9290 028 62380	CertaFlux LEDFlex 5m 500lm/m 924 C10 G1	7.0	32.3	30.7	29.1
9290 028 62480	CertaFlux LEDFlex 5m 500lm/m 927 C10 G1	6.0	37.5	35.6	33.8
9290 028 62580	CertaFlux LEDFlex 5m 500lm/m 930 PW C10 G1	6.0	37.5	35.6	33.8
9290 028 62680	CertaFlux LEDFlex 5m 500lm/m 935 PW C10 G1	6.0	37.5	35.6	33.8
9290 028 62780	CertaFlux LEDFlex 5m 500lm/m 940 PW C10 G1	6.0	37.5	35.6	33.8
9290 028 62880	CertaFlux LEDFlex 5m 500lm/m 965 C10 G1	6.0	37.5	35.6	33.8
9290 028 62980	CertaFlux LEDFlex 5m 1000lm/m 924 C10 G1	13.0	17.4	16.5	15.6
9290 028 63080	CertaFlux LEDFlex 5m 1000lm/m 927 C10 G1	13.0	17.4	16.5	15.6
9290 028 63180	CertaFlux LEDFlex 5m 1000lm/m 930 PW C10 G1	12.0	18.8	17.8	16.9
9290 028 63280	CertaFlux LEDFlex 5m 1000lm/m 935 PW C10 G1	12.0	18.8	17.8	16.9
9290 028 63380	CertaFlux LEDFlex 5m 1000lm/m 940 PW C10 G1	10.8	20.8	19.8	18.8
9290 028 63480	CertaFlux LEDFlex 5m 1000lm/m 965 C10 G1	10.8	20.8	19.8	18.8
9290 028 63580	CertaFlux LEDFlex 5m 1500lm/m 930 PW C5 G1	13.9	16.2	15.4	14.5
9290 028 63680	CertaFlux LEDFlex 5m 1500lm/m 935 PW C5 G1	13.9	16.2	15.4	14.5
9290 028 63780	CertaFlux LEDFlex 5m 1500lm/m 940 PW C5 G1	13.9	16.2	15.4	14.5
9290 028 63880	CertaFlux LEDFlex 5m 1500lm/m 965 C5 G1	13.9	16.2	15.4	14.5
9290 028 63980	CertaFlux LEDFlex 5m 2000lm/m 930 PW C5 G1	18.0	12.5	11.9	11.3
9290 028 64080	CertaFlux LEDFlex 5m 2000lm/m 935 PW C5 G1	18.0	12.5	11.9	11.3
9290 028 64180	CertaFlux LEDFlex 5m 2000lm/m 940 PW C5 G1	18.0	12.5	11.9	11.3
9290 028 64280	CertaFlux LEDFlex 5m 2000lm/m 965 C5 G1	18.0	12.5	11.9	11.3
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	-	-	-
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	-	-	-
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	-	-	-

Maximum meters LEDFlex per driver type with 90% driver load. If this value is bigger than 5 meters, create a parallel connection.		Description	LED Transformer 40W 24VDC 120-277V			LED Transformer 60W 24V 220-240V		
		12NC	9290 021 05680			9137 100 32267		
		extension wire length (m)	0	5 (-5%)	10 (-10%)	0	5 (-5%)	10 (-10%)
12 NC	Discription	Power (W/m)						
9290 028 64380	CertaFlux LEDFlex 5m1000lm/m 827-865 C12 G1	10.1	3.6	3.4	3.2	5.4	5.1	4.8
9290 028 64480	CertaFlux LEDFlex 5m 1000lm/m RGBWW C10 G1	10.1	3.6	3.4	3.2	5.4	5.1	4.8
9290 028 64580	CertaFlux LEDFlex 5m 1000lm/m RGBCW C10 G1	10.1	3.6	3.4	3.2	5.4	5.1	4.8

Tunable white and RGBW LEDFlex have to work with Bridge Box system.

If you have a question on a specific combination, please contact your local sales representative.

Electromagnetic compatibility (EMC)

Electromagnetic compatibility (EMC) is the ability of a device or system to operate satisfactorily in its electromagnetic environment without causing unacceptable interference in practical situations. In general, LED modules have limited effect on the EMC of a luminaire. In some cases EMC needs to be improved.

How to... Improve EMC performance.

As mentioned before, the total amount of parasitic current needs to be minimized. For that reason, the following practical precautions need to be taken into account in a lighting system to minimize EMC:

- Minimize the DM loop area of the lamp wires going from the driver to the light source by keeping the wires close together (bundling). This will minimize the magnetic field and reduce the radiated EMC. Long linear light sources are also part of that loop.
- Keep mains and control wires (DALI, 0-10 V) separated from the output wires (do not bundle).
- Sometimes, radiated EMC compliance cannot be achieved, necessitating the use of a 100 ... 300 Ω axial ferrite bead(s) for either mains or lamp wiring (effective for interference between 30 MHz and 300 MHz), or coupling the wires through ferrite cores within the luminaire may improve the overall EMC performance. However, selection of the type and characteristics of the additional filter depends on what frequency components have to be damped and by how much. Adhering to these rules will help in EMC compliance. For further questions, please contact your local Philips representative. Alternatively, the Philips Lighting OEM Design-In team could be consulted for a possible solution.

Chemical compatibility

In the current market medium power LEDs exist, containing a silver-finished (Ag) Lead frame. The lead frame finish is sensitive to pollution and or corrosion when exposed to Oxygen and certain Volatile Organic Components [VOCs]. Examples of VOCs are substances containing Sulfur or Chlorine. In that case parts of the lead frame may blacken, which will impair the lumen output or the color point of the LED light. Materials that are known to have a higher risk to be a source of Sulfur and Chlorine are for example natural rubbers used for cables, cable entries or sealing, or corrugated carton. Also be careful using adhesives, cleaning agents, coatings and applications in aggressive (corrosive) environments. We recommend ensuring that the direct environment of these LEDs in the luminaire does not contain materials that can be a source of Sulfur or Chlorine, for optimal reliability of the LED, LED module and/or LED luminaire. Furthermore, make sure that the products with these LEDs are not stored or used in vicinity of sources of Sulfur or Chlorine, and the production environment is also free of these materials. Also avoid cleaning of the LED products with these types of LEDs with abrasive substances, brushes or organic solvents like Acetone and TCE. Applications of the product in industry and heavy traffic environment should be avoided in case of risk of ingress of Sulfur and Chlorine from the environment. The Philips LEDFlex family makes use of LEDs with above explained type of lead frame. Therefore above recommendations apply for the Philips LEDFlex. A list of chemicals, often found in electronics and construction materials for luminaires that should be avoided, is provided in the table on the left. Note that Philips does not warrant that this list is exhaustive since it is impossible to determine all chemicals that may affect LED performance. These chemicals may not be directly used in the final products but some of them may be used in intermediate manufacturing steps (e.g. cleaning agents). Consequently, trace amounts of these chemicals may remain on (sub) components, such as heat sinks. It is recommended to take precautions when designing your application. In case of questions on compatibility of materials or applications of the product please contact your Philips representative for application support.

Chemical name	Normally used as
Acetic	Acid
Hydrochloric acid	Acid
Nitric acid	Acid
Sulfuric acid	Acid
Ammonia	Alkali
Potassium hydroxide	Alkali
Sodium hydroxide	Alkali
Acetone	Solvent
Benzene	Solvent
Dichloromethane	Solvent
Gasoline	Solvent
MEX (Methyl Ethly Ketone)	Solvent
MKB (Methyl Isobutyl Ketone)	Solvent
Mineral spirits (turpentine)	Solvent
Tetracholorometane	Solvent
Toluene	Solvent
Xylene	Solvent
Castor oil	Oil
Lard	Oil
Linseed	Oil
Petroleum	Oil
Silicone oil	Oil
Halogenated hydrocarbons	
(containing F, CI, BR elements)	Misc
Rosin flux	Solder flux
Acrylic tape	Adhesive
Cyanoacrylate	Adhesive

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