

PHILIPS

Fortimo

LED system

LLM Gen4 1800/730 16 W



Datasheet

Outdoor LED comfortable white light

Benefits

- Comfortable, glare-free white light
- Reduced light pollution (no sky glow)
- Significant energy savings and reduced CO₂ emissions
- Suitable for dimming and telemanagement systems
- Luminaire design is based on reflector optics
- Future-proof concept

Features

- Module efficacy up to 117 lm/W.
- Quick mounting of modules
- Excellent color consistency, CRI > 70
- Entire Fortimo LED LLM module portfolio has identical physical characteristics and optical distribution
- 5-year system warranty
- High system reliability
- Dedicated drivers with Constant Light Output
- Multiple system dimming options for additional energy savings, including DALI, 1-10 V and Dynadimmer

Application

- Residential areas
- Urban street lighting
- Parks
- City centers
- Parking lots
- Squares
- Cycle - footpaths

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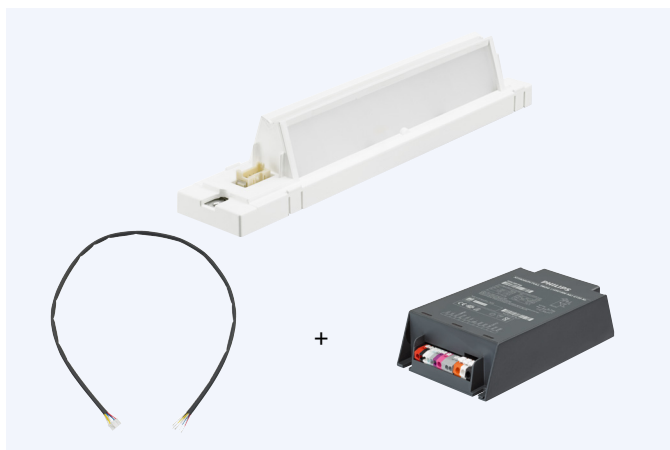
Logistical data

Specification item	Value
Product name	Fortimo LED LLM Gen4 1800/730 16W
European order code	8718696 430675 00
Logistic code 12NC	9290 009 41606
Pieces per box	6

Basic configuration

To operate a LED LLM system you need one

- Fortimo LED LLM Gen4 module
- Specified cable (depending on driver type, see driver datasheet)
- Compatible Xitanium LED driver (see included table)



Operating Conditions

Specification item	Value	Unit	Condition
Default operating current	550	mA	Current setting via Rset1 or Rset2 connection
Case temperature for CLO (T_{case} for CLO)	65	°C	Max
Maximum case temperature (T_{case} max.)	75	°C	Max
Ambient temperature (T_{amb})	15	°C	- Maximum T_{case} should never exceed T_{case} max.; - When the module exceeds T_{case} max, the system driver will automatically dim the module; - Thermal design should ensure that $T_{case} < 65$ °C (beginning of life, with respect to CLO); - Thermal design must ensure maximum ΔT ($T_{case} - T_{amb}$) ≤ 50 °C.
Min driver current	100	mA	Performance cannot be warranted below 100 mA.
Max driver current	700	mA	Performance cannot be warranted above 700 mA.

Released system combinations (EMEA market)

Drivers/Modules	12 NC	LLM Gen4 1800 lm /730
Xi LP 75W 0.3-1.0A SL 230V S240 sXt	9290 009 63106	2x
Xi LP 75W 0.3-1.0A S1 230V S240 sXt	9290 009 63306	2x
Xi LP 75W 0.2-0.7A SL 230V S240 sXt	9290 009 63006	2x
Xi LP 75W 0.2-0.7A S1 230V S240 sXt	9290 009 63206	2x
Xi LP 70W 0.3-1.0A SL 230V C150 sXT	9290 009 64106	2x
Xi LP 70W 0.3-1.0A S1 230V C150 sXT	9290 009 64306	2x
Xi LP 70W 0.2-0.7A SL 230V C150 sXT	9290 009 64006	2x
Xi LP 70W 0.2-0.7A S1 230V C150 sXT	9290 009 64206	2x
Xi LP 40W 0.3-1.0A SL 230V S175 sXt	9290 009 40906	1x
Xi LP 40W 0.3-1.0A S1 230V S175 sXt	9290 009 40806	1x
Xi LP 40W 0.2-0.7A SL 230V S175 sXt	9290 009 30806	1x, 2x
Xi LP 40W 0.2-0.7A S1 230V S175 sXt	9290 009 30706	1x, 2x
Xi LP 110W 0.3-1.0A SL 230V C150 sXT	9290 009 64506	2x
Xi LP 110W 0.3-1.0A S1 230V C150 sXT	9290 009 64706	2x
Xitanium 35W 0.20 0.70A 230V Otd; incl. LS6 and LS8	9290 006 34003	1x, 2x
Xitanium 40W 0.2 0.7 A LS 24VDC	9290 006 11903	1x **
Xitanium 40W 0.7 A Prog+ GL-J sXt	9290 007 08803	1x
Xitanium FULL PROG 35W 1000 NLD C150 Xt	9290 008 84606	1x, 2x **
Xitanium FULL PROG 35W 1000 NL1 C150 Xt	9290 008 84706	1x, 2x **
Xitanium FULL PROG 70W 1000 NLD C150 Xt	9290 008 84306	2x
Xitanium FULL PROG 70W 1000 NL1 C150 Xt	9290 008 84406	2x
Xitanium LITE PROG 70W 1000 NL C150 OD	9290 008 84506	2x

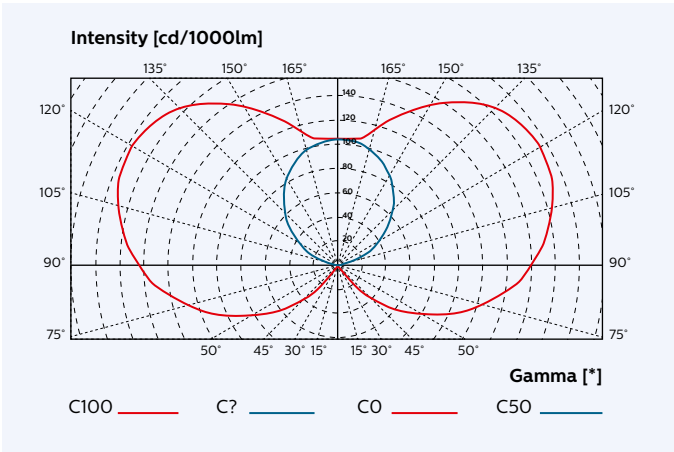
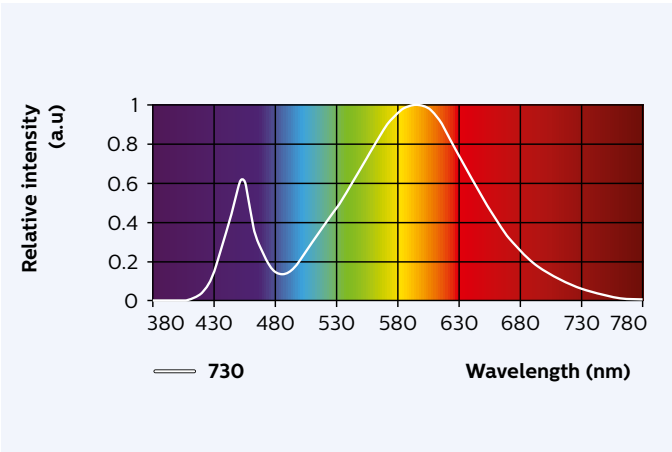
** Fortimo LED LLM 1800 lm system may ONLY be used with a single 12 V battery. Voltage input to the driver cannot exceed 20 V.

Performance Characteristics (under typical operating If=550 mA and Tcase=65 °C)

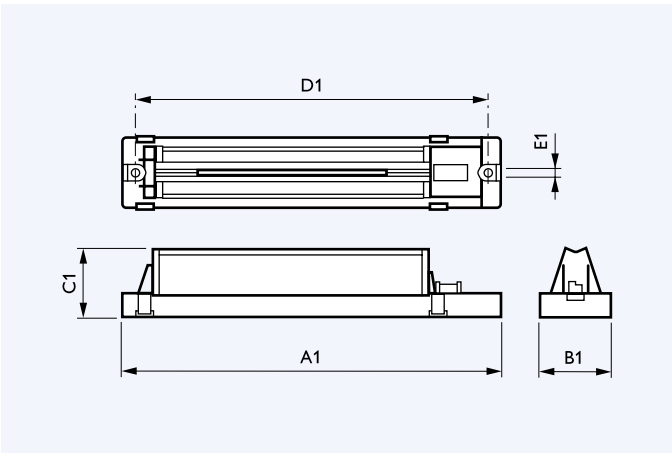
Specification item	Min	Typ	Max	Unit
Lumen output	1620	1800	2160	lm
Efficacy	100	117	-	lm/W
Power consumption		16	19	W
Forward voltage		28	31	V
Correlated Color Temperature (CCT)	-	3000	-	K
Color Rendering Index (CRI)	70	73	-	Ra
Initial color accuracy	-	5	7	SDCM
Lumen maintenance B50L80 (without CLO)	-	>50,000	-	h
Product lifetime, 90% survivals	-	>50,000	-	h

Driver current (mA)	Typ Luminous flux (lm)	Typ efficacy (lm/W)	Typ thermal power (W)	Typ power (W)	Max power (W)
550	1800	117	10	16	19

Optical Characteristics

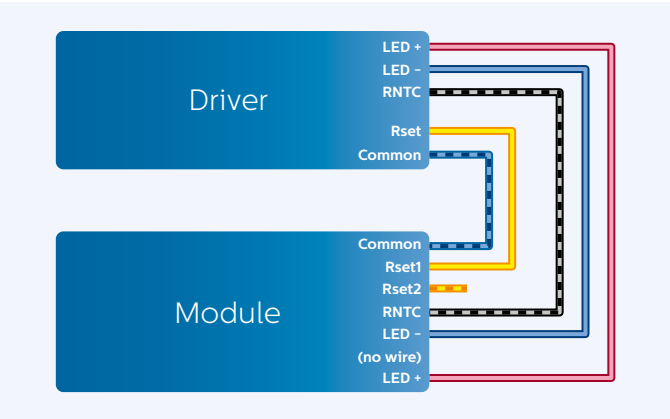


Mechanical Characteristics

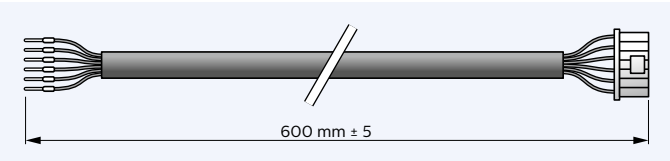


Dimensions in mm (nominal)	A1	A2	B1	C1	D1
Fortimo LED LLM Gen4, all types	230.0	214.5	43.0	40.5	4.5

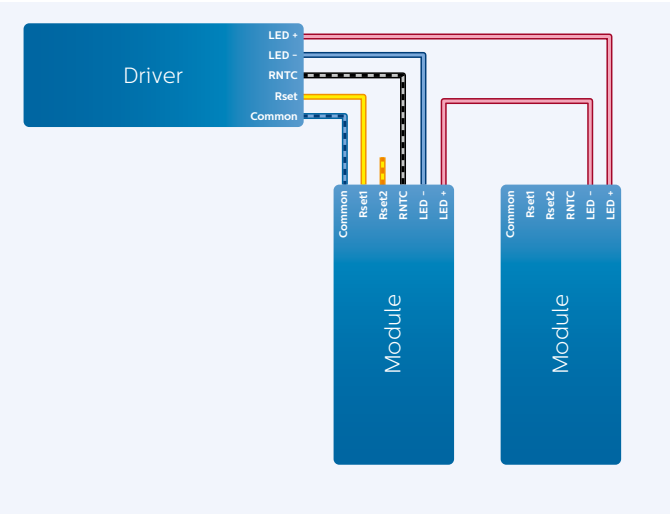
Electrical Characteristics (wiring)



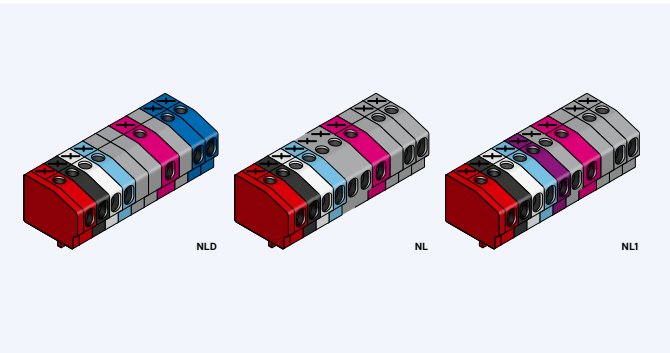
Connection between driver and LLM-module



Used cable between driver and LLM-module
Cable Fortimo 7 PA to 6 wire – 600 mm (9290 008 03903)



Multiple boards on one driver.



Connector of the Xitanium FULL/LITE Prog LED driver

Pin numbering depending on type of driver

Connector	Signal	Description
Pin 1	IDC	LED driver Constant Current input
Pin 2	(spacer)	Not connected
Pin 3	PGND	Power ground
Pin 4	NTC	Temperature sensor (R _{NTC})
Pin 5	Rset2*	Resistor for current setting of LED driver (100 mA-2 A)
Pin 6	Rset1*	Resistor for current setting of LED driver (200-700 mA)
Pin 7	SGND	Signal ground

* The Rset2 wire should be left unconnected when Rset1 drivers are used, and vice versa. The unused Rset wire should be shortened and the end wrapped with an insulating material.

Connector pin	Function	Color coding driver/cable
Pin 1	LED +	Red
Pin 2	-	No wire
Pin 3	LED -	Blue
Pin 4	RNTC	Black/White
Pin 5	Rset2	Yellow/Black
Pin 6	Rset1	Yellow
Pin 7	Common	Blue/White

If a system consists of multiple LLM modules connected to a single driver:

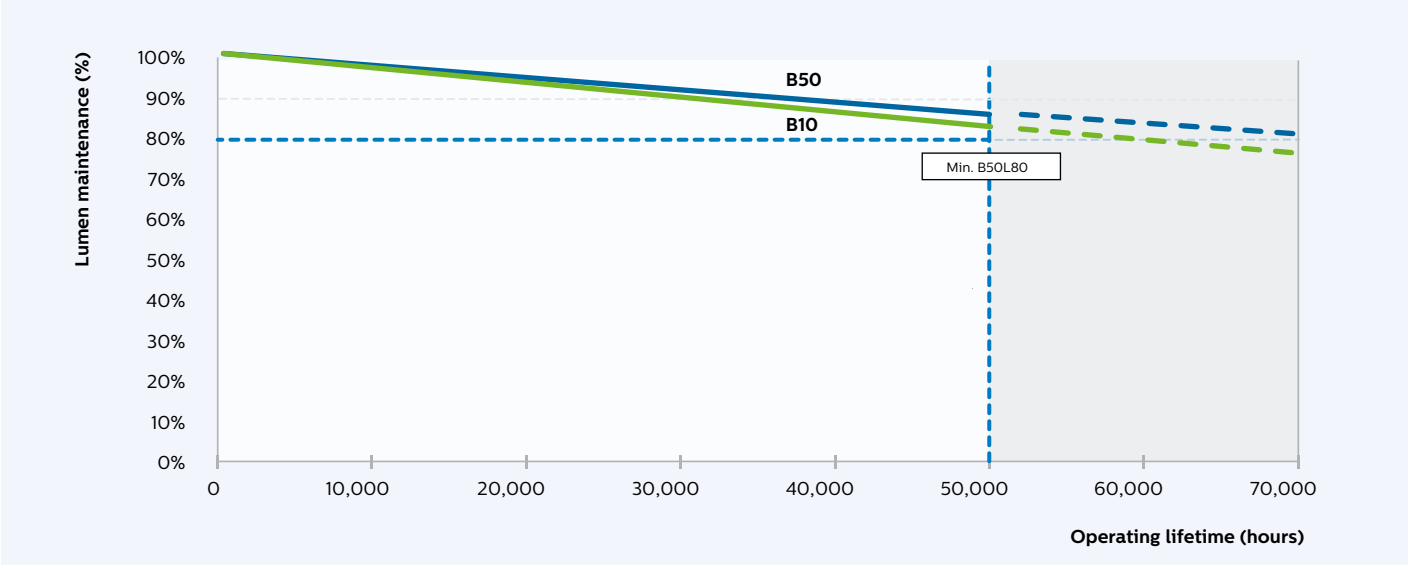
- the first module connected to the driver is the master
- only this module is monitored by the NTC and RSET

Connector pin name (alternative name)	Colour	Alternative colour
DALI1 (PROG1)	Blue (NLD)	Grey (NL/NL1)
DALI2 (PROG2)	Blue (NLD)	Grey (NL/NL1)
{ spacer }	Grey	(all)
Functional Earth	Pink	(all)
1-10 V [-] (not used)	Grey (NL1)	Grey spacer (NL/NLD)
1-10 V [+] (not used)	Purple (NL1)	Grey spacer (NL/NLD)
NTC	Light Blue	(all)
NTC common	White	(all)
LED [-]	Black	(all)
LED [+]	Red	(all)

Remark: with the Xitanium FULL/LITE Prog LED driver, you need to set the current via the MultiOne Configurator. Default setting on this driver is 700 mA.

Lifetime

Specification item	Value	Units	Condition
Lifetime characteristics	50,000	hours	Measured @ Tcase-life, with min 90% survival
Lifetime performance	See graphs		Measured in a system without the CLO feature



Fortimo LED LLM Gen4 lumen maintenance without CLO, T_{case} = 65 °C

Certificates and standards

Specification item	Value
Approval marks	CE, ENEC
RoHS and Reach	Compliant with European Directives



