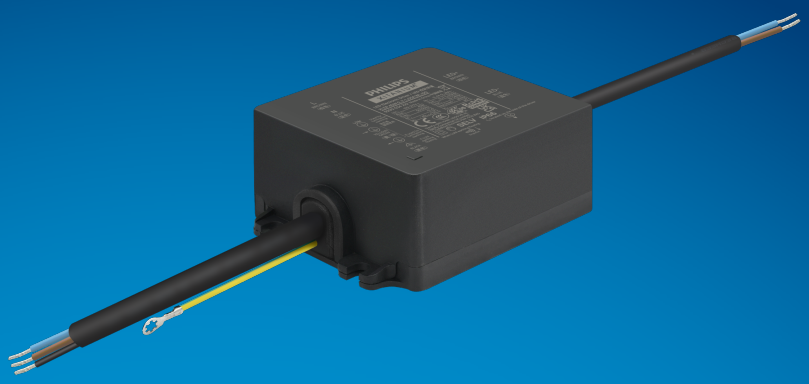
PHILIPS

Xitanium

LED driver



Datasheet

Xitanium Essential Programmable LED Drivers

Xi EP 40W 0.7-1.05A WL I90

9290 034 22280

Xitanium Essential Programmable (EP) LED drivers are designed for maximum reliability and flexibility, making it a preferred choice for outdoor applications. The key feature is to adjust the output current with the new e-set tool, a simple and fast way to configure the driver without the need to power on the driver and without the need for any software configuration. The WideLine family can operate on input voltage 100-277Vac anywhere around the world and ensure 100% performance from 200-254Vac.

Features

- Digital and simple Adjustable Output Current (AOC) with e-set tool, based on NFC technology
- Suitable for Class I and Class II application
- WideLine input voltage range: 100-277Vac
- Surge protection: 4/6kV (DM/CM)
- IP66 with 50,000 hours lifetime
- SELV certified

Benefits

- Reliable and repeatable adjustment of output current, saving labor cost and manufacturing time
- Easy to design-in and reduces SKUs
- Low maintenance cost and peace of mind in extreme conditions
- Safe to use and provides luminaire design freedom

Application

- Road and street lighting
- Tunnel lighting
- Residential area

December 2022

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	200…254	V_{ac}	Performance range
Rated input voltage	230	V_{ac}	
Rated input frequency range	47…63	Hz	Performance range
Rated input current	0.2	A	@ rated output power @ rated input voltage
Rated input power	46	W	@ rated output power @ rated input voltage
Nominal Power factor	0.95		@ rated output power @ rated input voltage
Total harmonic distortion	15	%	@ rated output power @ rated input voltage
Efficiency	88	%	@ rated output power @ rated input voltage @max. Uout
Input voltage AC range	85…305	V_{ac}	Operational range
Input frequency AC range	45…66	Hz	Operational range
Isolation input to output	Double		

Electrical output data

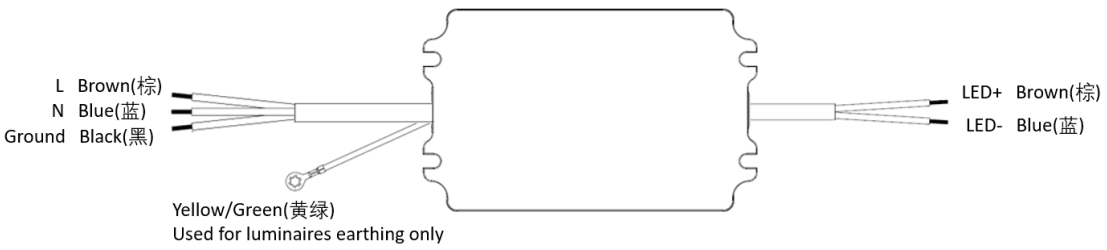
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	32…54	V_{dc}	
Output voltage max.	80	V	Maximum output voltage (rms)
Output current	0.7…1.05	A	
Output current min programmable	700	mA	
Output current tolerance ±	8	%	At max. output current, Ta=25℃
Output current ripple LF	≤ 60	%	Ripple = peak / average, @Low frequency range
Output P_{st}^{LM}	≤ 0.1		In entire operating window
Output SVM	≤ 1.8		In entire operating window
Output power	22.4…40	W	Rated output power is 40W

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	Fixed		

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	1	mm^2	3x 1.0mm2 stranded wires, waterproof cable
Output wire cross-section	1	mm^2	2x 1.0mm2 stranded wires, waterproof cable
Grounding wire(Yellow/Green) cross-section	1	mm^2	
Maximum cable length	2	m	Total length of wiring including LED module, one way

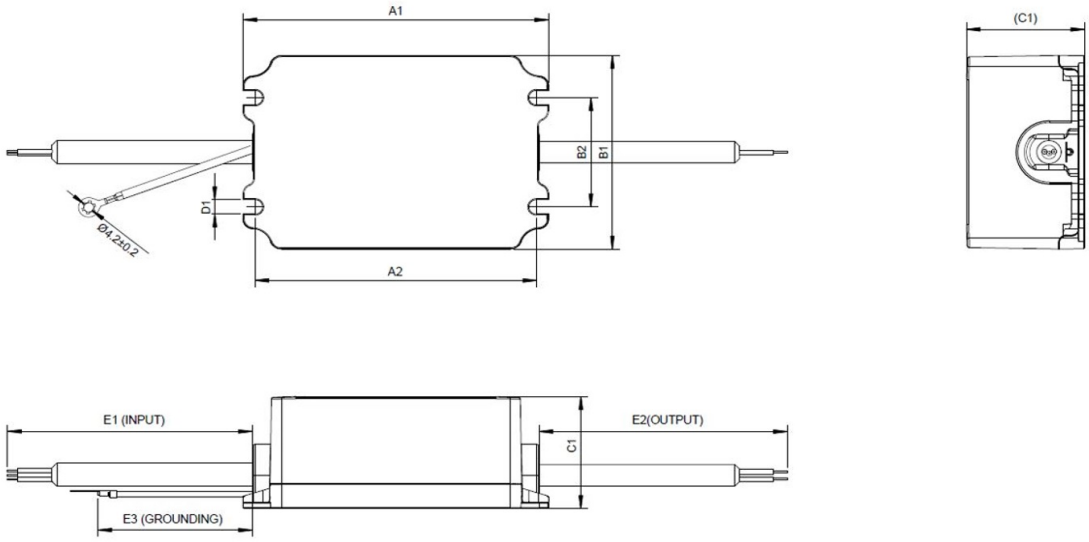


Isolation

Insulation per IEC61347-1	Input	Output	Ground
Input	-	Double	Double
Output	Double	-	Basic
Ground	Double	Basic	-

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	90	mm	± 0.5
Mounting hole distance (A2)	83	mm	± 0.5
Width (B1)	60.5	mm	± 1
Width (B2)	34	mm	± 0.3
Height (C1)	35	mm	± 1
Mounting hole diameter (D1)	4.5	mm	± 0.3
Input cable length (E1)	450	mm	± 30
Output cable length (E2)	300	mm	± 30
Grounding cable length (E3)	64	mm	± 5
Weight	305	gram	



Logistical data

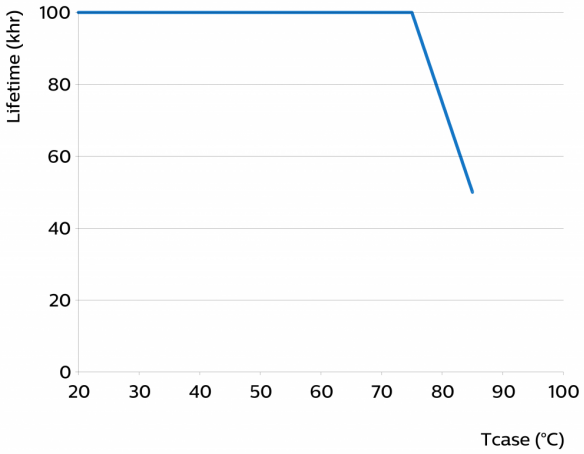
Specification item	Value
Product name	Xi EP 40W 0.7-1.05A WL I90
Logistic code 12NC	9290 034 22280
Pieces per box	30

Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40…+55	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	85	°C	Maximum temperature measured at T_{case}-point
Tcase-life	75	°C	Measured at T_{case}-point
Relative humidity	10…90	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Driver lifetime	50,000	hours	Measured temperature at Tcase-point is Tcase-max. Maximum failures = 10%



Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40...+80	°C	
Relative humidity	5...95	%	Non-condensing

Programmable features

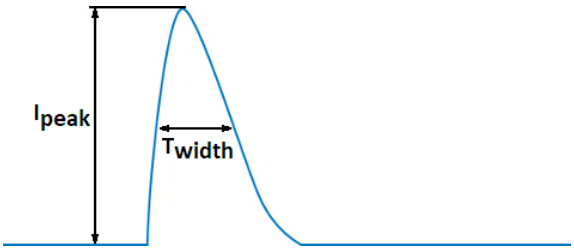
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	NFC	700 mA	

Features

Specification item	Value		Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	No		
Hot wiring	No		
Suitable for fixtures with protection class	I and II		per IEC60598
Overtemperature protection	Yes		Automatic recovering, refer to thermal guard curve

Inrush current

Specification item	Value	Unit	Condition
Inrush current	20	A	Input voltage 230V
Inrush peak width	130	µs	Input voltage 230 V, measured at 50% height
Drivers / MCB 16A type B	≤ 40	pcs	Indicative value at 230V



Please refer to the driver design in guide if you use other MCB-types.

Driver touch current / protective conductor current / earth leakage current

Specification item	Value	Unit	Condition
Typical Touch Current (ins. Class II)	0.7	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical Protective Conductor Current (ins. Class I)	2	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

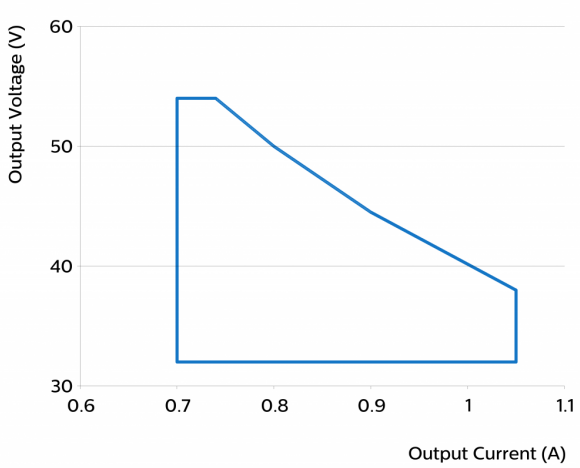
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	4	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	6	kV	Acc.IEC61000-4-5. 12 Ohm 1.2/50us,8/20us

Application Info

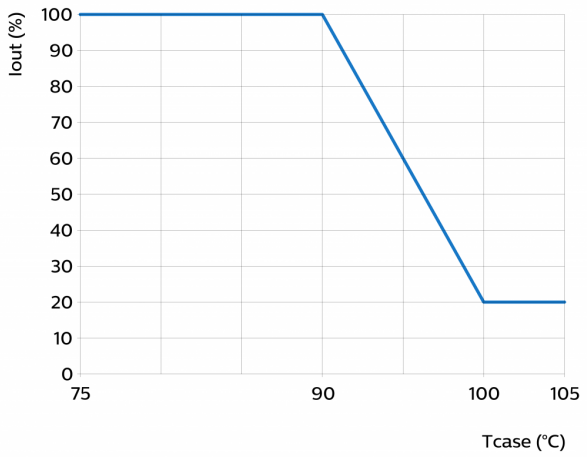
Specification item	Value
Approval marks and Certifications	CB / CCC / CE / ENEC / SELV / UKCA
Ingress Protection classification (IP)	66
Application	Outdoor
Mounting Type	Independent

Graphs

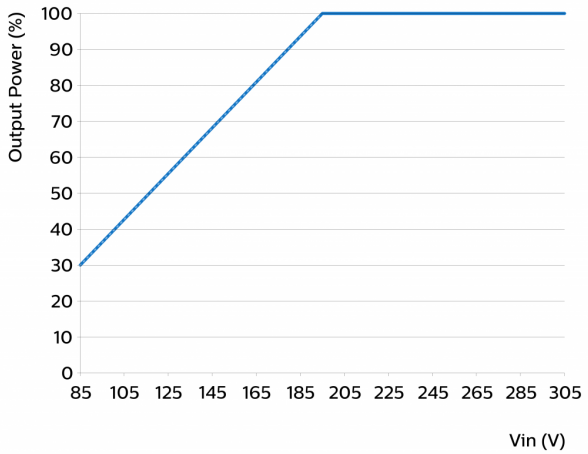
Operating window



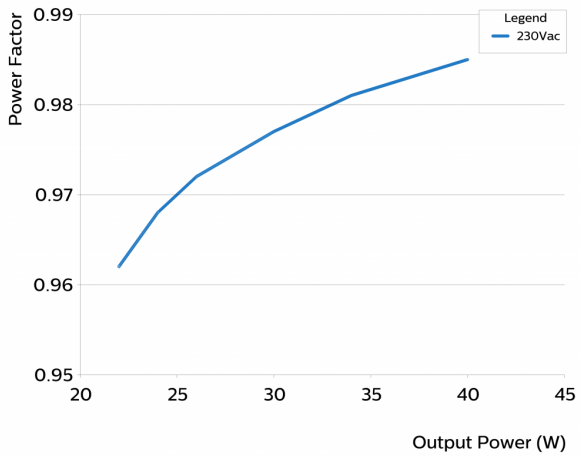
Thermal Guard



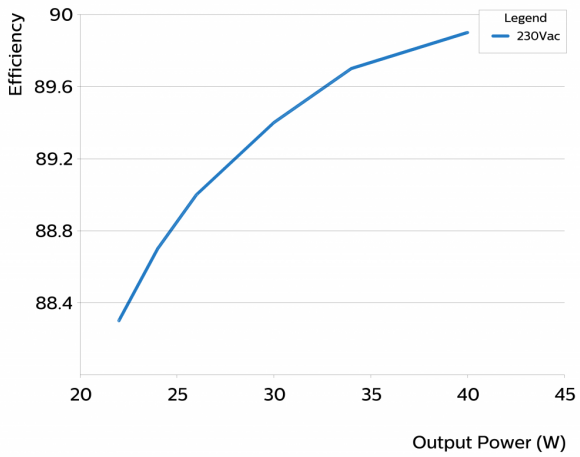
Mains Guard



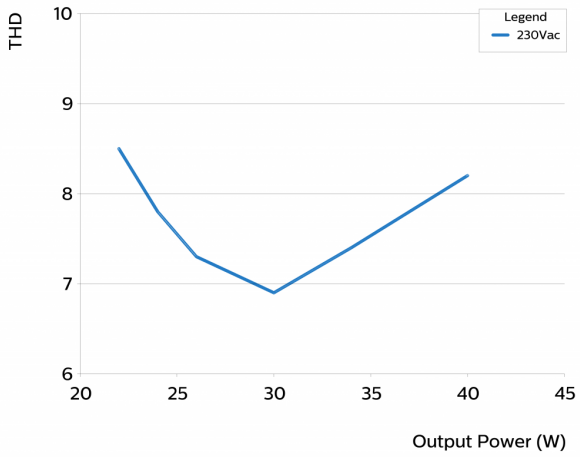
Power factor versus output power



Efficiency versus output power



THD versus output power



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