



## Datasheet

### Xitanium LED drivers – spot- and downlight SELV

Xitanium 50W WH 0.7-1.5A 54V TD DS 230V

9290 048 53201

#### Enabling future-proof LED technology

Our Xitanium programmable window LED drivers ensure OEMs have complete flexibility and control in producing high quality luminaires. Available in application-dedicated form factors for independent applications, our LED point drivers provide further customization via wide operating windows. Additionally, almost all drivers feature the following specifications: SELV, improved ripple current, temperature derating, – providing OEMs the tools to produce, and even alter later if necessary, premium downlights and spotlights.

#### Features

- Operating windows - output current can be set via the Philips MultiOne configurator or with integrated dipswitches or SimpleSet
- Choice of housing designs -linear housing for tracks in '3 in 1' in design, conventional HID housings for down and Spotlighting and WH housing for independent use with strain relief and loop through
- Power ratings: 36-50W
- Compact housing for independent use with integrated strain relief and loop through

#### Benefits

- High reliability underpinned by 5 year warranty
- Future-proof flexibility - application-oriented operating windows enable LED generation and complexity management
- Compatibility - can also be used for other manufacturers' modules or OEMs' own PCB designs

#### Application

- Retail
- Offices

## Logistical data

| Specification item | Value                                   |
|--------------------|-----------------------------------------|
| Product name       | Xitanium 50W WH 0.7-1.5A 54V TD DS 230V |
| EOC                | 872110312789100                         |
| Logistic code 12NC | 9290 048 53201                          |
| EAN1 (GTIN)        | 8721103127891                           |
| EAN3 (box)         | 8721103127907                           |
| Pieces per box     | 20                                      |
| Weight             | 216 gram                                |

## Electrical input data

| Specification item        | Value             | Unit            | Condition                                                          |
|---------------------------|-------------------|-----------------|--------------------------------------------------------------------|
| Rated input voltage range | 220...240         | V <sub>ac</sub> | Performance range                                                  |
| Rated input voltage       | 230               | V <sub>ac</sub> |                                                                    |
| Rated input frequency     | 50...60           | Hz              | Performance range                                                  |
| Rated input current       | 0.25              | A               | @ rated output power @ rated input voltage                         |
| Rated input power         | 55.0              | W               | @ rated output power @ rated input voltage                         |
| Power factor              | 0.9C              |                 | @rated output power @ rated input voltage                          |
| Total harmonic distortion | 20                | %               | @ rated output power @ rated input voltage                         |
| Efficiency                | 91.0              | %               | @ rated output power @ rated input voltage @ max. U <sub>out</sub> |
| Rated input voltage DC    | 186...250         | V <sub>dc</sub> | Performance range                                                  |
| Rated input current DC    | 0.21...0.3        | A <sub>dc</sub> | Performance range                                                  |
| Input voltage AC          | 198...264         | V <sub>ac</sub> | Operational range                                                  |
| Input frequency AC        | 45...66           | Hz              | Operational range                                                  |
| Input voltage DC          | 168...275         | V <sub>dc</sub> | Operational range.                                                 |
| Standby Power (W)         | 0.50              | W               |                                                                    |
| Isolation input to output | Reinforced (SELV) |                 |                                                                    |

## Electrical output data

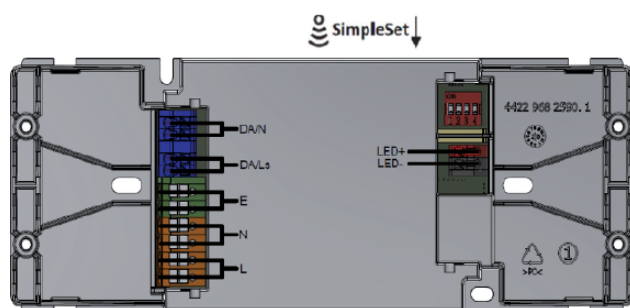
| Specification item                   | Value            | Unit            | Condition                                           |
|--------------------------------------|------------------|-----------------|-----------------------------------------------------|
| Regulation method                    | Constant Current |                 |                                                     |
| Output voltage                       | 24...54          | V <sub>dc</sub> |                                                     |
| Output voltage max.                  | 60               | V               | Maximum voltage at open load                        |
| Output current                       | 700...1500       | mA              | Via Programmable DipSwitches with MultiOne Software |
| Output current min programmable      | 700              | mA              |                                                     |
| Min output current                   | 10               | mA              |                                                     |
| Output current tolerance ±           | 5                | %               | @full load                                          |
| Output current ripple LF             | ≤ 4              | %               | Ripple = peak / average, < 3kHz                     |
| Output P <sub>st</sub> <sup>LM</sup> | ≤ 0.3            |                 | Within performance operating window                 |
| Output SVM                           | ≤ 0.1            |                 | Within performance operating window                 |
| Output power                         | 0.2...50.0       | W               |                                                     |
| Minimum performance output power     | 16.8             | W               | Power factor > 0.9 and THD < 20%                    |

## Control interfaces

| Specification item                 | Value                   | Unit | Condition                                                                                                                                                           |
|------------------------------------|-------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control method                     | Corridor Mode, DALI, TD |      | Output current amplitude dimming. Please refer to design-in guide at <a href="http://www.philips.com/oem">www.philips.com/oem</a> for more controllability details. |
| Dimming range                      | 1...100                 | %    | For latest DALI certification status please visit <a href="http://www.digitalilluminationinterface.org/products">www.digitalilluminationinterface.org/products</a>  |
| Isolation controls input to output | Reinforced              |      | acc. IEC61347-1                                                                                                                                                     |

## Wiring and Connections

| Specification item         | Value                | Unit                  | Type                              |
|----------------------------|----------------------|-----------------------|-----------------------------------|
| Input wire cross-section   | 0.75...2.5 / 18...14 | mm <sup>2</sup> / AWG | solid / stranded wire             |
| Input wire strip length    | 10...11              | mm                    |                                   |
| Output wire cross-section  | 0.5...1.5            | mm <sup>2</sup> / AWG | solid / stranded wire             |
| Output wire strip length   | 8.5...9.5            | mm                    |                                   |
| Control wire cross-section | 0.5...1.5            | mm <sup>2</sup> / AWG | solid / stranded wire             |
| Control wire strip length  | 8.5...9.5            | mm                    |                                   |
| Maximum cable length       | 2                    | m                     | Between LED driver and LED module |
| Loop Through               | Input & Control      |                       |                                   |



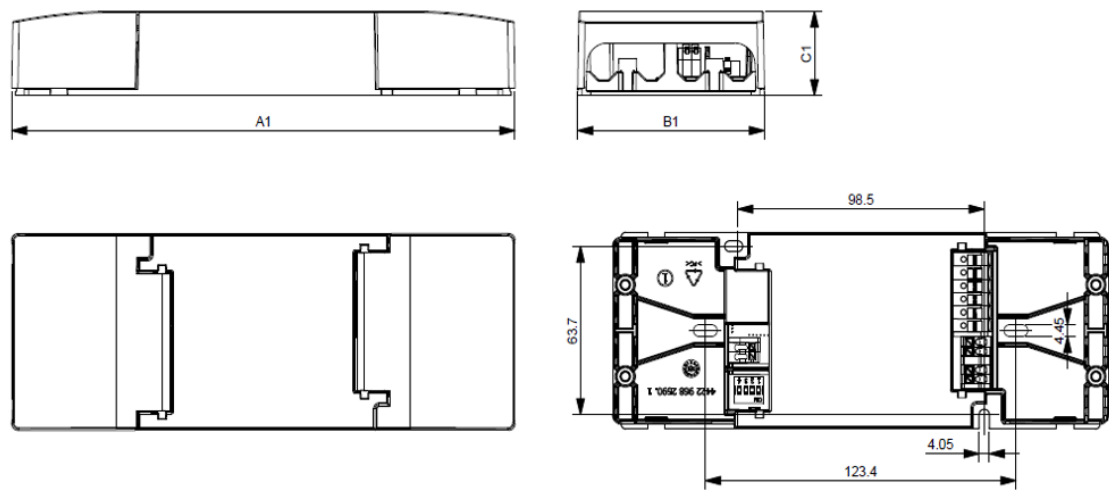
| Default Dipswitch Settings |      |      |      |      |
|----------------------------|------|------|------|------|
| lout                       | Pin1 | Pin2 | Pin3 | Pin4 |
| 1500                       | on   | on   | on   | on   |
| 1400                       | on   | on   | on   | off  |
| 1350                       | on   | on   | off  | on   |
| 1300                       | on   | on   | off  | off  |
| 1250                       | on   | off  | on   | on   |
| 1200                       | on   | off  | on   | off  |
| 1150                       | on   | off  | off  | on   |
| 1100                       | on   | off  | off  | off  |
| 1050                       | off  | on   | on   | on   |
| 1000                       | off  | on   | on   | off  |
| 950                        | off  | on   | off  | on   |
| 900                        | off  | on   | off  | off  |
| 850                        | off  | off  | on   | on   |
| 800                        | off  | off  | on   | off  |
| 750                        | off  | off  | off  | on   |
| 700                        | off  | off  | off  | off  |

## Isolation

| Insulation per IEC61347-1 | Input             | Output            | DALI       |
|---------------------------|-------------------|-------------------|------------|
| Input                     | -                 | Reinforced (SELV) | Basic      |
| Output                    | Reinforced (SELV) | -                 | Reinforced |
| DALI                      | Basic             | Reinforced        | -          |

Dimensions and weight

| Specification item | Value | Unit | Tolerance (mm) |
|--------------------|-------|------|----------------|
| Length (A1)        | 201   | mm   |                |
| Width (B1)         | 75    | mm   |                |
| Height (C1)        | 32.5  | mm   |                |
| Weight             | 216   | gram |                |

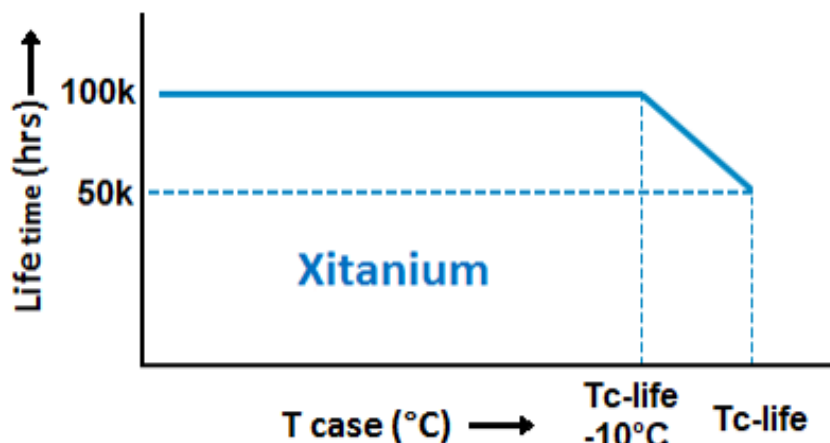


Operational temperatures and humidity

| Specification item          | Value     | Unit | Condition                                                               |
|-----------------------------|-----------|------|-------------------------------------------------------------------------|
| Ambient temperature         | -20...+50 | °C   | Higher ambient temperature allowed as long as Tcase-max is not exceeded |
| Tcase-max                   | 90        | °C   | Maximum temperature measured at Tcase-point                             |
| Tcase-life                  | 90        | °C   | Measured at Tcase-point                                                 |
| Maximum housing temperature | 110       | °C   | In case of a failure, inherent by design                                |
| 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.<br>Maximum failures = 10%             |
| Driver lifetime    | 100,000 | hours | Measured temperature at Tcase-point is Tcase-max -10 degrees.<br>Maximum failures = 10% |



Maximum failures = 10%

| Temperature [°C] | Lifetime | Unit | Condition                      |
|------------------|----------|------|--------------------------------|
| 90               | 50000    | hr   | Temperature measured @Tc point |
| 85               | >50000   | hr   |                                |
| 80               | 100000   | hr   |                                |

## Storage temperature and humidity

| Specification item  | Value     | Unit | Condition      |
|---------------------|-----------|------|----------------|
| Ambient temperature | -25...+85 | °C   |                |
| Relative humidity   | 5...95    | %    | Non-condensing |

## Programmable features

| Specification item                     | Available                          | Default setting | Condition                                                                                           |
|----------------------------------------|------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------|
| Set Adjustable Output Current (AOC)    | DipSwitch, Programmable, SimpleSet | 700 mA          |                                                                                                     |
| Adjustable Light Output (ALO)          | Yes                                | OFF             |                                                                                                     |
| Constant Light Output (CLO)            | Yes                                | OFF             |                                                                                                     |
| Touch & Dim (TD)                       | Yes                                | ON              |                                                                                                     |
| Corridor Mode                          | Yes                                | ON              | Default: T1=55s, T2=32s, T3=30min                                                                   |
| Min Dim Level (%)                      | Yes                                | 1 %             |                                                                                                     |
| DC emergency (DCemDim)                 | Yes                                | ON              | Default 15%, EOFx range = 1 ... 100% (EOFx = DCemDIM level).<br>Internal fuse rating: T2A 250VDC/AC |
| DALI control supported at DC operation | Yes                                | OFF             |                                                                                                     |
| OEM Write Protection (OWP)             | Yes                                | OFF             |                                                                                                     |
| Luminaire Info (DALI part 251)         | Yes                                |                 |                                                                                                     |
| Luminaire maintenance (DALI part 253)  | Yes                                |                 |                                                                                                     |
| Dipswitch Configuration                | Yes                                |                 | Programmable via MultiOne Software                                                                  |

## Non-programmable features

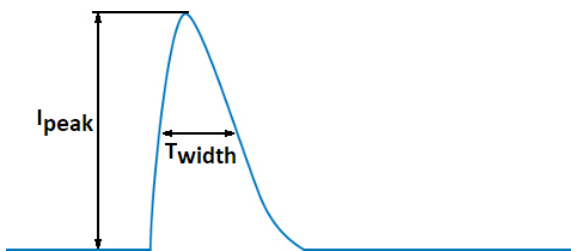
| Specification item                          | Value    |  | Condition                   |
|---------------------------------------------|----------|--|-----------------------------|
| Open load protection                        | Yes      |  | Automatic recovering        |
| Short circuit protection                    | Yes      |  | Automatic recovering        |
| Over power protection                       | Yes      |  | Automatic recovering        |
| Hot wiring                                  | No       |  |                             |
| Suitable for fixtures with protection class | I and II |  | per IEC60598                |
| Energy metering (DALI part 252)             | Yes      |  | Accuracy 4% down to 50%load |
| Diagnostics (DALI part 253)                 | Yes      |  |                             |
| Diagnostics via Signify tool                | Yes      |  |                             |

## Inrush current

| Specification item                | Value | Unit | Condition                                  |
|-----------------------------------|-------|------|--------------------------------------------|
| Inrush current                    | 25.9  | A    | Input voltage 230V                         |
| Inrush peak width                 | 168   | μs   | Input voltage 230V, measured at 50% height |
| Drivers / MCB 16A type B @230V AC | ≤ 30  | pcs  | Input voltage 230V                         |

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

If several mini circuit breakers are used directly side-by-side (without distance pieces)  
a correction factor of 80% has to be applied to the rated current



## 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) | 0.5   | mA rms  | Acc. IEC60598-1. LED module contribution not included |

## Surge immunity

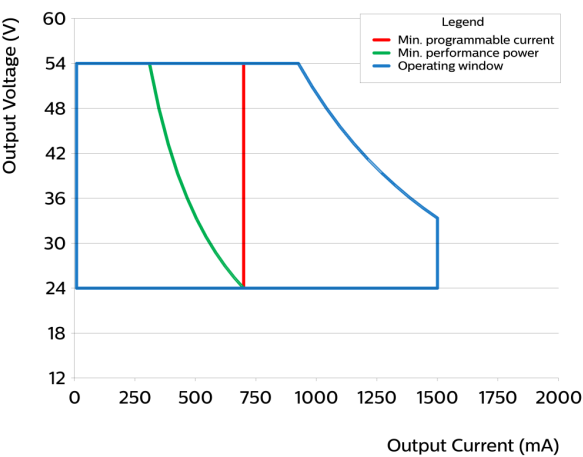
| Specification item                  | Value | Unit | Condition                                             |
|-------------------------------------|-------|------|-------------------------------------------------------|
| Mains surge immunity (diff. mode)   | 1     | kV   | L- N Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us       |
| Mains surge immunity (comm. mode)   | 2     | kV   | L/N - PE Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us  |
| Control surge immunity (diff. mode) | 1     | kV   | DA - DA Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us    |
| Control surge immunity (comm. mode) | 2     | kV   | DA/DA- PE, Acc. IEC61000-4-5. 12 Ohm, 1.2/50us,8/20us |

## Application Info (Approbation)

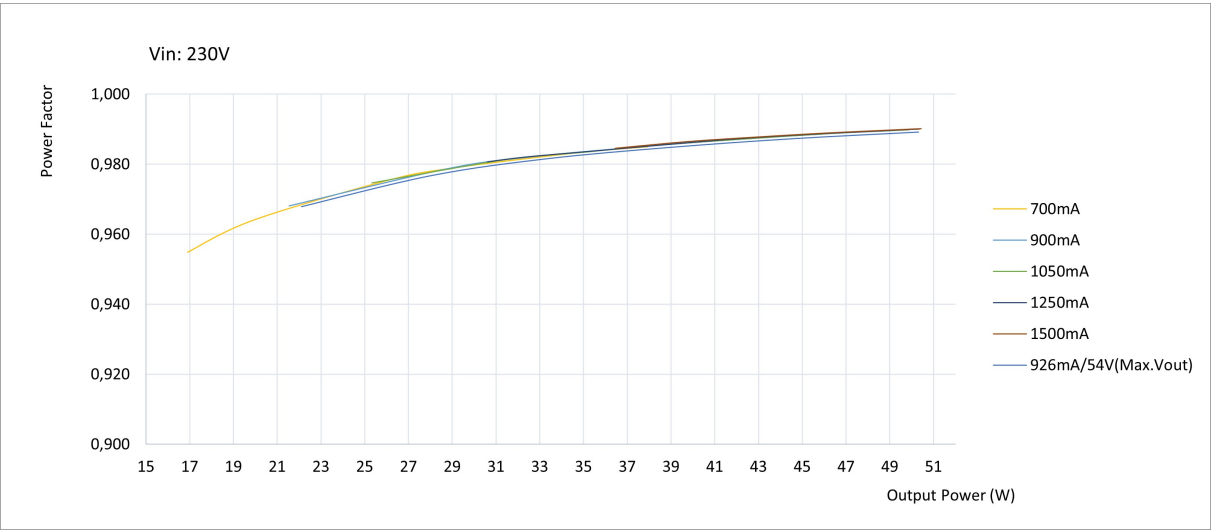
| Specification item                     | Value                                                                                                               |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Approval marks and Certifications      | CCC / CE / DALI 2 / Double-insulated / EAC / EL / ENEC / Independent / RCM (do not cover) / SELV / UA / UKCA / WEEE |
| Ingress Protection classification (IP) | 20                                                                                                                  |
| Application                            | Indoor Point                                                                                                        |
| Mounting Type                          | Independent                                                                                                         |

Graphs

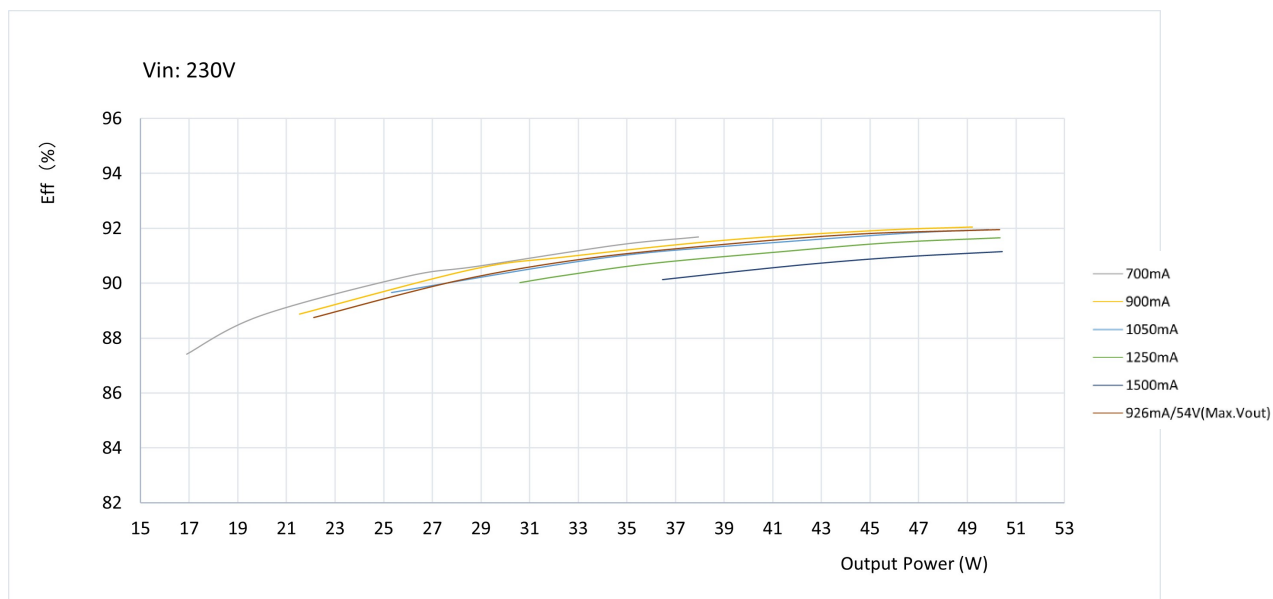
Operating window



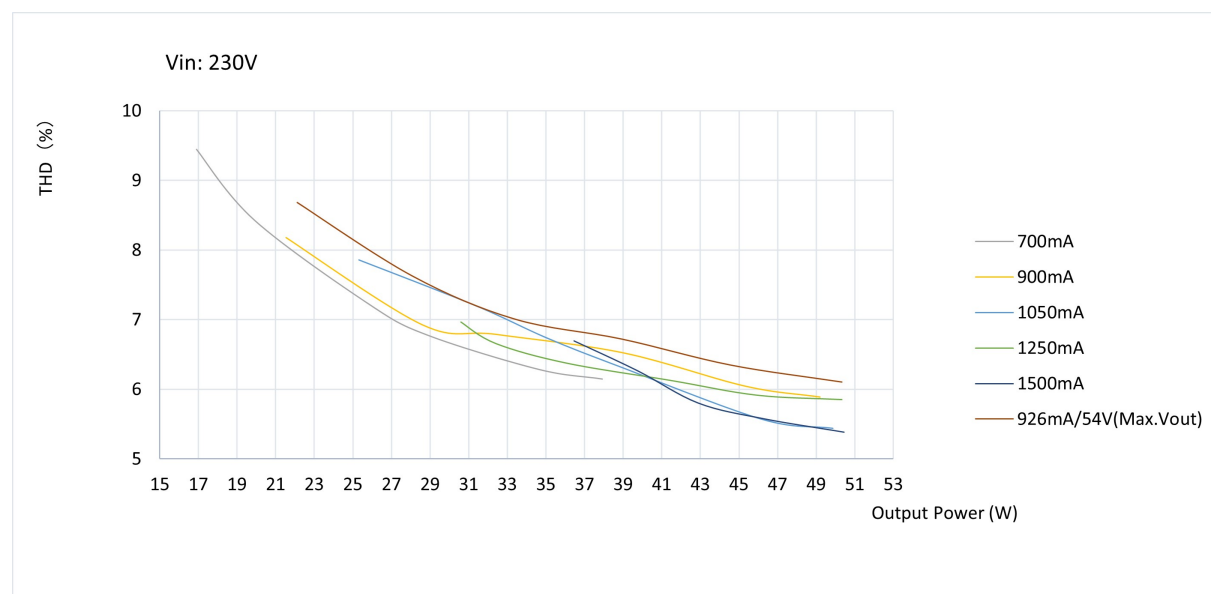
Power factor versus output power



## Efficiency versus output power



## THD versus output power



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Date of release: February 5, 2026 v2

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