

## Datasheet

# Xitanium LED Xtreme drivers – Connected Ready

Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt  
9290 039 74706



### Enabling outdoor connectivity

Philips LED Xtreme Connected Ready drivers fully comply with D4i certification which also covers the DALI-2 certification. It is the ideal solution to turn your outdoor luminaires into smart luminaires offering all control and power requirements with its dual integrated power supplies for controllers and sensors. In addition, these intelligent LED drivers offer the capability to store and report a wide range of luminaire, energy and diagnostics data in a standardized format.

### Benefits

- Ideal for lighting IoT and external DALI outdoor applications (up to 15 meters extra/inter luminaire use)
- Best-in class driver efficiency enabling high energy savings
- High flexibility: 1 code covering complete operating range and extremely compact for easy luminaire integration
- Reduced environmental impact: no potting, reduced weight and size compared to similar types, 100% recycled plastic housing, high efficiency, produced in Europe, Environmental Product Declaration

### Application

- Road and street lighting
- Decorative lighting
- Industrial lighting
- Tunnel lighting

### Features

- D4i and DALI-2 certified (DALI parts 150, 250, 251, 252 and 253)
- DALI interface with elevated surge immunity per DALI Part 151
- One code per wattage, covering 200-1050mA
- High 10/6kV surge immunity (CM/DM)
- Long lifetime and robust protection
- SimpleSet®, wireless NFC configuration interface
- Configurable drivers (AOC, CLO, AST, ALO ..)
- Autonomous dimming via Integrated DynaDimmer
- 100% recycled plastic housing
- Thermal driver protection (DTL)
- End-Of-Life indicator (EOL)
- OEM Write Protection (OWP)

## Logistical data

| Specification item | Value                                  |
|--------------------|----------------------------------------|
| Product name       | Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt |
| EOC                | 872016934334400                        |
| Logistic code 12NC | 9290 039 74706                         |
| EAN1 (GTIN)        | 8720169343344                          |
| Pieces per box     | 20                                     |
| Weight             | 176 gram                               |

## Electrical input data

| Specification item        | Value     | Unit            | Condition                                                              |
|---------------------------|-----------|-----------------|------------------------------------------------------------------------|
| Rated input voltage range | 202...254 | V <sub>ac</sub> | Performance range                                                      |
| Rated input voltage       | 230       | V <sub>ac</sub> |                                                                        |
| Rated input frequency     | 47...63   | Hz              | Performance range                                                      |
| Rated input current       | 0.125     | A               | @ rated output power @ rated input voltage                             |
| Rated input power         | 18.0      | W               | @ rated output + Vaux power @ rated input voltage                      |
| Power factor              | 0.98      |                 | @maximum output power @ rated input voltage                            |
| Total harmonic distortion | 10        | %               | @ rated output power @ rated input voltage                             |
| Efficiency                | 89.0      | %               | @ rated output power @ rated input voltage @<br>700mA I <sub>out</sub> |
| Input voltage AC          | 198...264 | V <sub>ac</sub> | Safety operational range, see MainsGuard graph                         |
| Input frequency AC        | 45...66   | Hz              | Safety operational range                                               |
| Standby Power (W)         | 0.5       | W               |                                                                        |
| Isolation input to output | SELV      |                 |                                                                        |

## Electrical output data

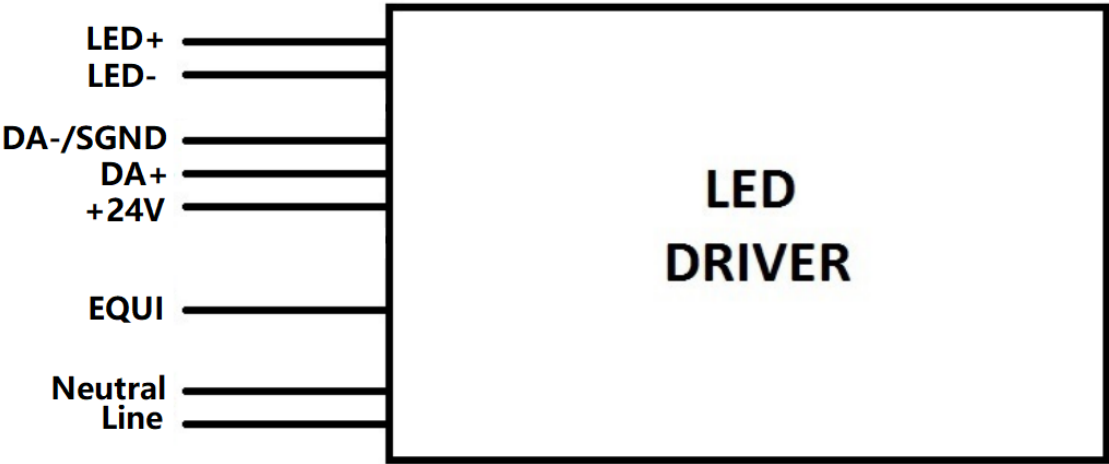
| Specification item                   | Value            | Unit            | Condition                        |
|--------------------------------------|------------------|-----------------|----------------------------------|
| Regulation method                    | Constant Current |                 |                                  |
| Output voltage                       | 8...48           | V <sub>dc</sub> |                                  |
| Output voltage max.                  | 80               | V               | Maximum voltage at open load     |
| Output current                       | 50...1050        | mA              |                                  |
| Output current min programmable      | 200              | mA              |                                  |
| Min output current                   | 50               | mA              |                                  |
| Output current tolerance ±           | 5                | %               | @full load                       |
| Output current ripple LF             | ≤ 4              | %               | Ripple = peak / average, < 3kHz  |
| Output current ripple HF             | ≤ 4              | %               |                                  |
| Output P <sub>st</sub> <sup>LM</sup> | ≤ 1.0            |                 | In entire operating window       |
| Output SVM                           | ≤ 0.4            |                 | In entire operating window       |
| Output power                         | 0.4...22.0       | W               |                                  |
| Minimum performance output power     | 6                | W               | Power factor > 0.9 and THD < 20% |

Control interfaces

| Specification item                  | Value         | Unit | Condition                                                                                                                                                           |
|-------------------------------------|---------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control method                      | DALI          |      | 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                       | 10...100      | %    | Acc. D4i. See <a href="http://www.digitalilluminationinterface.org/products">www.digitalilluminationinterface.org/products</a>                                      |
| Isolation controls input to output  | Supplementary |      | acc. IEC61347-1                                                                                                                                                     |
| D4i Power Supply max voltage.       | 22.5          | V    |                                                                                                                                                                     |
| D4i output current                  | 52            | mA   |                                                                                                                                                                     |
| D4i Power Supply max current source | 60            | mA   |                                                                                                                                                                     |

Wiring and Connections

| Specification item         | Value               | Unit                  | Type                  |
|----------------------------|---------------------|-----------------------|-----------------------|
| Input wire cross-section   | 0.5...1.5 / 20...16 | mm <sup>2</sup> / AWG | solid / stranded wire |
| Input wire strip length    | 8.5...9.5           | mm                    |                       |
| Output wire cross-section  | 0.5...1.5 / 20...16 | 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 / 20...16 | mm <sup>2</sup> / AWG | solid / stranded wire |
| Control wire strip length  | 8.5...9.5           | mm                    |                       |

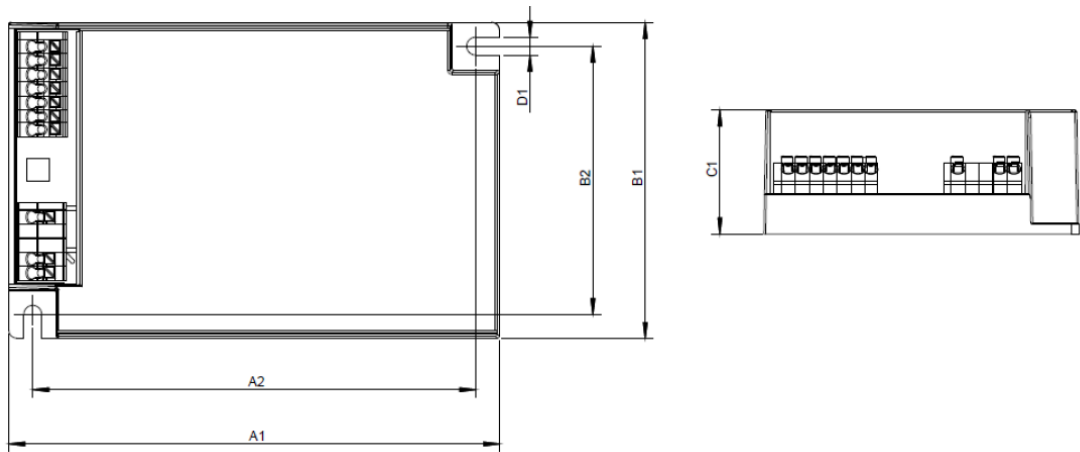


Isolation

| Insulation per IEC61347-1 | Input      | Output        | DALI + AUX    | EQUI       |
|---------------------------|------------|---------------|---------------|------------|
| Input                     | -          | SELV          | Reinforced    | Reinforced |
| Output                    | SELV       | -             | Supplementary | Basic      |
| DALI + AUX                | Reinforced | Supplementary | -             | Basic      |
| EQUI                      | Reinforced | Basic         | Basic         | -          |

Dimensions and weight

| Specification item          | Value | Unit | Tolerance (mm) |
|-----------------------------|-------|------|----------------|
| Length (A1)                 | 123   | mm   | ± 0.3          |
| Mounting hole distance (A2) | 111   | mm   | ± 0.2          |
| Width (B1)                  | 79    | mm   | ± 0.3          |
| Width (B2)                  | 67    | mm   | ± 0.2          |
| Height (C1)                 | 31    | mm   | ± 0.5          |
| Mounting hole diameter (D1) | 4.5   | mm   | ± 0.2          |
| Weight                      | 176   | gram |                |
| Housing color               | Black |      |                |



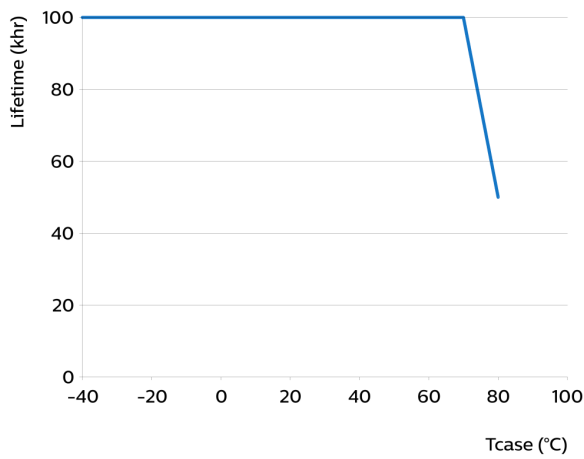
Operational temperatures and humidity

| Specification item          | Value     | Unit | Condition                                                               |
|-----------------------------|-----------|------|-------------------------------------------------------------------------|
| Ambient temperature         | -40...+60 | °C   | Higher ambient temperature allowed as long as Tcase-max is not exceeded |
| Tcase-max                   | 80        | °C   | Maximum temperature measured at Tcase-point                             |
| Tcase-life                  | 70        | °C   | Measured at Tcase-point measured at Tc-point                            |
| Maximum housing temperature | 120       | °C   | In case of a failure, inherent by design                                |
| Relative humidity           | 10...90   | %    | Non-condensing                                                          |



Lifetime

| Specification item    | Value   | Unit  | Condition                                                                    |
|-----------------------|---------|-------|------------------------------------------------------------------------------|
| Driver lifetime       | 100,000 | hours | Measured temperature at Tcase-point is Tcase-life.<br>Maximum failures = 10% |
| Driver lifetime Tcmax | 0       | hours | Measured temperature at Tcase-point is Tcase-life.<br>Maximum failures = 10% |



Maximum failures = 10%

Storage temperature and humidity

| Specification item  | Value     | Unit | Condition      |
|---------------------|-----------|------|----------------|
| Ambient temperature | -40...+85 | °C   |                |
| Relative humidity   | 5...95    | %    | Non-condensing |

Programmable features

| Specification item                      | Available               | Default setting | Condition |
|-----------------------------------------|-------------------------|-----------------|-----------|
| Set Adjustable Output Current (AOC)     | Programmable, SimpleSet | 700 mA          |           |
| Driver Temperature Limit (DTL)          | Yes                     | ON              |           |
| Adjustable Light Output (ALO)           | Yes                     | OFF             |           |
| Adjustable Light Output (ALO) min level | Yes                     | OFF             |           |
| Constant Light Output (CLO)             | Yes                     | OFF             |           |
| Adjustable Start-up Time (AST)          | Yes                     | 1 s             |           |
| Dynadimmer                              | Yes                     |                 |           |
| Min Dim Level (%)                       | Yes                     | 10 %            |           |
| End Of Life indicator (EOL)             | Yes                     | OFF             |           |
| OEM Write Protection (OWP)              | Yes                     | OFF             |           |
| DALI Power Supply (DALI part 250)       | Yes                     | ON              |           |
| Luminaire Info (DALI part 251)          | Yes                     |                 |           |
| Luminaire maintenance (DALI part 253)   | Yes                     |                 |           |

## 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         |
| +24V Auxiliary Power Supply (DALI part 150) | Yes      | 24VDC                |
| Box configuration                           | Yes      |                      |
| Energy metering (DALI part 252)             | Yes      | +/-4 % at full power |
| Diagnostics (DALI part 253)                 | Yes      |                      |
| Diagnostics via Signify tool                | Yes      |                      |

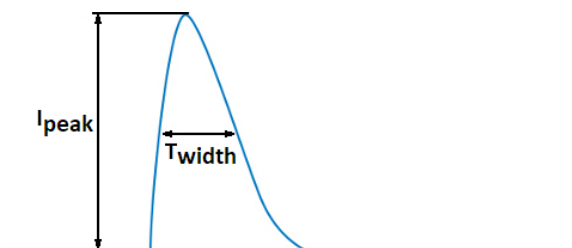
## Inrush current

| Specification item                | Value     | Unit    | Condition                                  |
|-----------------------------------|-----------|---------|--------------------------------------------|
| Inrush current                    | 21.6      | A       | Input voltage 230V                         |
| Inrush peak width                 | 131       | $\mu$ s | Input voltage 230V, measured at 50% height |
| Drivers / MCB 16A type B @230V AC | $\leq 46$ | 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 piece)

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) | 0.35  | mA peak | Acc. IEC61347-1. LED module contribution not included |

Surge immunity

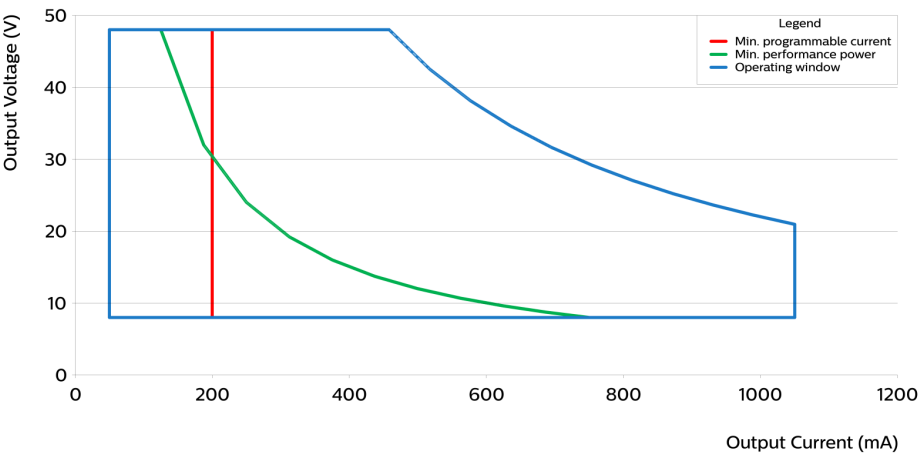
| Specification item                  | Value | Unit | Condition                                                                   |
|-------------------------------------|-------|------|-----------------------------------------------------------------------------|
| Mains surge immunity (diff. mode)   | 6     | kV   | L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us                              |
| Mains surge immunity (comm. mode)   | 10    | kV   | L/N - EQUI 10kV acc. EN61547; 8kV acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us |
| Control surge immunity (diff. mode) | 0.8   | kV   | DALI part 151                                                               |
| Control surge immunity (comm. mode) | 4     | kV   | DA / Vaux - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us                  |
| Control surge immunity (comm. mode) | 4     | kV   | DA / Vaux - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us                  |

Application Info (Approbation)

| Specification item                     | Value                                                         |
|----------------------------------------|---------------------------------------------------------------|
| Approval marks and Certifications      | CCC / CE / D4i / DALI 2 / EAC / ENEC / RCM / SELV / UA / UKCA |
| Ingress Protection classification (IP) | 20                                                            |
| Application                            | Outdoor                                                       |
| Mounting Type                          | Built-in                                                      |

Graphs

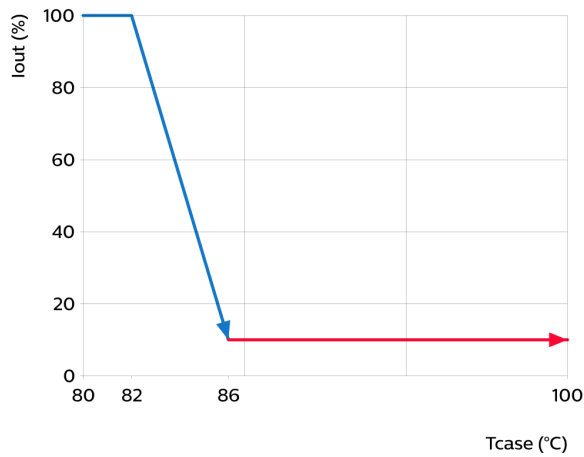
Operating window



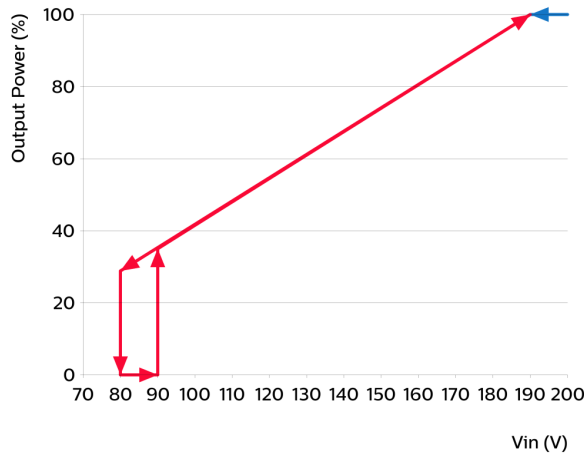
| Type                                   | Output current (mA) | Min. output voltage (V) | Max. output voltage (V) | Max. output power (W) |
|----------------------------------------|---------------------|-------------------------|-------------------------|-----------------------|
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 200                 | 8                       | 48                      | 9.6                   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 250                 | 8                       | 48                      | 12                    |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 300                 | 8                       | 48                      | 14.4                  |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 350                 | 8                       | 48                      | 16.8                  |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 400                 | 8                       | 48                      | 19.2                  |

|                                        |      |   |    |      |
|----------------------------------------|------|---|----|------|
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 450  | 8 | 48 | 21.6 |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 500  | 8 | 44 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 550  | 8 | 40 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 600  | 8 | 36 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 650  | 8 | 33 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 700  | 8 | 31 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 750  | 8 | 29 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 800  | 8 | 27 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 850  | 8 | 25 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 900  | 8 | 24 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 950  | 8 | 23 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 1000 | 8 | 22 | 22   |
| Xi CR 22W 0.2-1.05A SDMP 230V C123 sXt | 1050 | 8 | 20 | 22   |

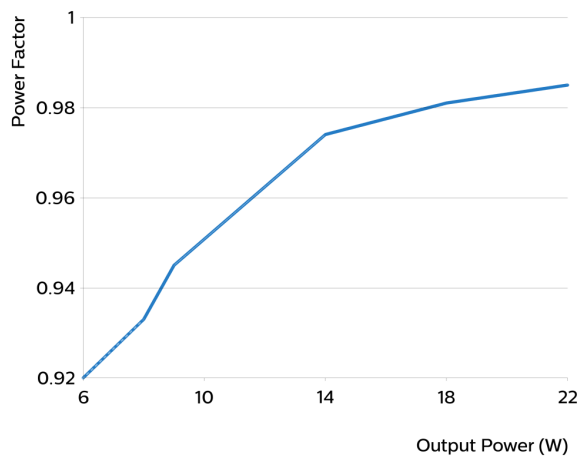
Thermal Guard



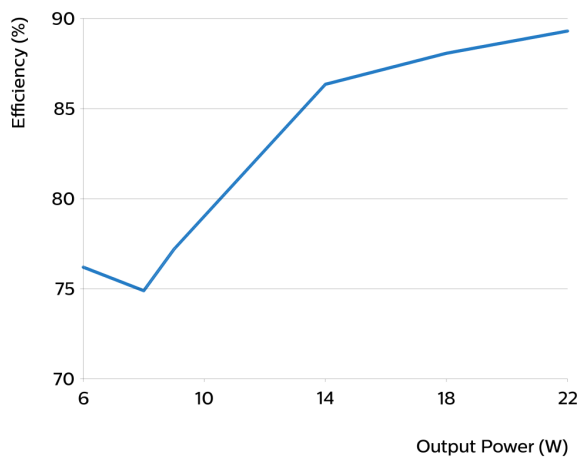
Mains Guard



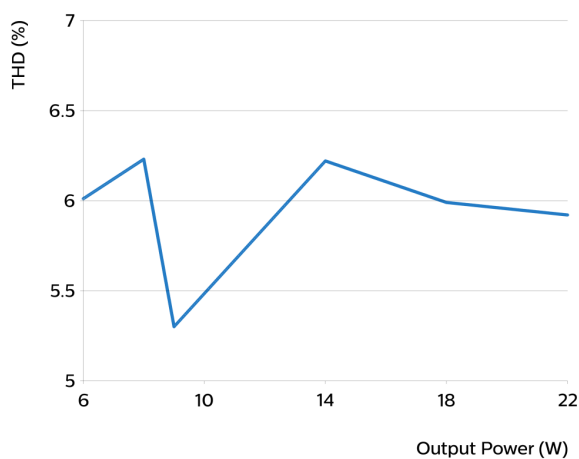
Power factor versus output power



Efficiency versus output power



THD versus output power



## Notes

Important info about dual power supplies:

- 1: DA power supply and Vaux supply are short-circuit proof.
- 2: The DA supply is specified with a guaranteed supply current of 52mA and a maximum supply current of 60mA. Voltage is depending on loading and will vary between 12V and 20VDC. The DA supply is turned on by factory default and can be switched off through MultiOne software.
- 3: Auxiliary supply Vaux supplies 24VDC and is able to deliver 3W average power. Peak power capacity is 10W with 25% duty cycle (T=5.2ms). This supply cannot be switched off.
- 4: DA supply and Vaux share the same common negative terminal.
- 5: Do not connect multiple Vaux supplies in parallel.