



# HDR20-15-30

230 V<sub>ac</sub> 20 W 15 V/24 V/30 V AC/DC NoElko Power Supply



HDR20-15-30 product photograph

## Feature Summary

- 17.6 mm DIN rail width
- Standby power typ. 89 mW at 24 V<sub>dc</sub>
- Efficiency up to 87 %
- Long life: no electrolytic capacitors
- Switch-selectable output voltage:
  - 15 V<sub>dc</sub> at up to 1.34 A<sub>dc</sub>
  - 24 V<sub>dc</sub> at up to 0.84 A<sub>dc</sub>
  - 30 V<sub>dc</sub> at up to 0.67 A<sub>dc</sub>
- 207–253 V<sub>ac</sub> input voltage range
- Output short-circuit protection
- Active output overvoltage protection
- Green power LED

## Product Description

The HDR20-15-30 from Digital Power Systems (DPS) is a flyback power supply for DIN (Deutsches Institut für Normung) rail mounting with an input voltage range of 207–253 V<sub>ac</sub>, nominal 230 V<sub>ac</sub>. Its galvanically isolated constant-voltage (CV) output is selectable by switch: 15 V<sub>dc</sub> at 1.34 A<sub>dc</sub>, 24 V<sub>dc</sub> at 0.84 A<sub>dc</sub> or 30 V<sub>dc</sub> at 0.67 A<sub>dc</sub> (factory setting 15 V<sub>dc</sub>). The design uses no electrolytic capacitors (NoElko) for high reliability, and an active overvoltage protection discharges the output.

The device withstands an output short circuit, an open circuit and moderate input and output transients, and it restarts automatically after a short circuit or overtemperature. A green power LED (light-emitting diode) indicates stable operation.

The device delivers full power at ambient temperatures from –40 °C to 50 °C without derating. In standby it may emit audible switching noise.

## Specification Overview

| Description                                    | Value    |
|------------------------------------------------|----------|
| <b>Input</b>                                   |          |
| Input Voltage Range (V <sub>ac</sub> )         | 207–253  |
| Frequency (Hz)                                 | 49–61    |
| <b>Output</b>                                  |          |
| Voltage (V <sub>dc</sub> ): 15 / 24 / 30       |          |
| Current (A <sub>dc</sub> ): 1.34 / 0.84 / 0.67 |          |
| Peak Efficiency                                | 87 %     |
| <b>Protection</b>                              |          |
| Input Fuse                                     | yes      |
| Temperature Protection                         | yes      |
| Short-Circuit Protection                       | yes      |
| Overvoltage Suppressor                         | Varistor |
| <b>Mechanical</b>                              |          |
| W × H × D (mm): 17.6 × 106 × 50.85             |          |
| Weight (g)                                     | 68       |

## Ordering Information

| Order Code                            | Outputs    |
|---------------------------------------|------------|
| HDR20-15-30                           | 15/24/30 V |
| HDR20-5-12                            | 5/9/12 V   |
| Customization available. Contact DPS. |            |

## Engineering Standards

| Applied Engineering Standards |              |
|-------------------------------|--------------|
| EN 55011 / CISPR 11           | EN 61000-4-2 |
| EN 61000-4-3                  | EN 61000-4-4 |
| EN 61000-4-5                  | EN 61000-4-6 |
| EN 61000-4-7                  | EN 61000-4-8 |
| EN 61558-2-16                 | EN IEC 63000 |





## 1 Functional Description

### 1.1 Overview

The HDR20-15-30 from Digital Power Systems (DPS) is a flyback power supply for DIN (Deutsches Institut für Normung) rail mounting with an input voltage range of 207–253 V<sub>ac</sub>, nominal 230 V<sub>ac</sub>. Its galvanically isolated constant-voltage (CV) output is selectable by switch: 15 V<sub>dc</sub> at 1.34 A<sub>dc</sub>, 24 V<sub>dc</sub> at 0.84 A<sub>dc</sub> or 30 V<sub>dc</sub> at 0.67 A<sub>dc</sub> (factory setting 15 V<sub>dc</sub>). The design uses no electrolytic capacitors (NoElko) for high reliability, and an active overvoltage protection discharges the output.

The device withstands an output short circuit, an open circuit and moderate input and output transients, and it restarts automatically after a short circuit or overtemperature. A green power LED (light-emitting diode) indicates stable operation.

The device delivers full power at ambient temperatures from –40 °C to 50 °C without derating. In standby it may emit audible switching noise.

### 1.2 Protections

The HDR20-15-30 has the following protection mechanisms:

- **Input Fuse:** The fuse (rating in Table 3) disconnects the mains in case of a fault.
- **Input Overvoltage Protection:** A metal oxide varistor (MOV) limits input overvoltages.
- **Output Short-Circuit Protection:** The output withstands a short circuit indefinitely (overtemperature shutdown) and restarts automatically once it is removed.
- **Overtemperature Protection:** It shuts down above the threshold given in Table 3 and restarts automatically.
- **Open-Circuit Resilience:** The output can operate open-circuit for an unlimited duration.
- **Output Overvoltage Protection:** A high-power resistor actively discharges the output under overvoltage; a negative temperature coefficient (NTC) thermistor protects it from overheating.

### 1.3 Safety Information

The device is intended only for professional users with safety training according to local regulations. Disconnect the input before any work on it. Do not open the device. Keep away from water. It is for indoor use in dry locations only, installed in a control cabinet or distribution box.

### 1.4 Ordering Information

The following ordering options are available.

| Order Code                            | Description | EAN           | Weight | HS Code    | Origin  |
|---------------------------------------|-------------|---------------|--------|------------|---------|
| HDR20-15-30                           | 15/24/30 V  | 4262542250046 | 68 g   | 8504408390 | Germany |
| Similar Products                      |             |               |        |            |         |
| HDR20-5-12                            | 5/9/12 V    | 4262542250039 | 68 g   | 8504408390 | Germany |
| Customization available. Contact DPS. |             |               |        |            |         |

Table 1: Ordering information of the HDR20-15-30.

EAN: European Article Number; HS: Harmonized System; TARIC: Integrated Tariff of the EU.



## 2 Pinout

The pinout of the HDR20-15-30 is depicted in Figure 1. The pins are described in Table 2.

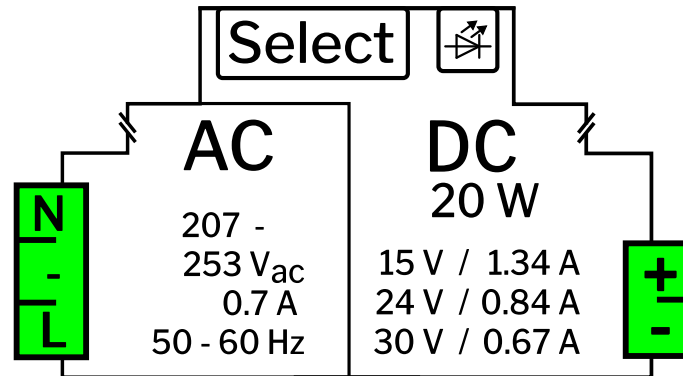


Figure 1: Pinout of the HDR20-15-30.

| Pin              | Functional Description                                                                  |
|------------------|-----------------------------------------------------------------------------------------|
| <b>Input</b>     |                                                                                         |
| N                | Neutral, AC input pin.                                                                  |
| L                | Line (Live), AC input pin.<br><i>Note: N and L can be interchanged.</i>                 |
| <b>Output</b>    |                                                                                         |
| Select           | Output voltage selection switch (factory setting: lowest output voltage).               |
| +                | Positive output terminal 15 V <sub>dc</sub> , 24 V <sub>dc</sub> , 30 V <sub>dc</sub> . |
| -                | Negative output terminal 15 V <sub>dc</sub> , 24 V <sub>dc</sub> , 30 V <sub>dc</sub> . |
| <b>Indicator</b> |                                                                                         |
| LED              | A green LED indicates that the output is functioning properly.                          |

Table 2: Pin description of the HDR20-15-30.





## 3 Specification

The specification of the HDR20-15-30 is shown in Table 3. Unless otherwise specified, the measurement conditions listed in Table 4 apply. All values refer to static conditions unless stated otherwise.

| Parameter                                                                                | Min   | Typ | Max | Unit            |
|------------------------------------------------------------------------------------------|-------|-----|-----|-----------------|
| Eingang<br>Input                                                                         |       |     |     |                 |
| Eingangsspannung<br>Input Voltage Range                                                  | 207   |     | 253 | V <sub>ac</sub> |
| Nenneingangsspannung<br>Nominal Input Voltage                                            |       | 230 |     | V <sub>ac</sub> |
| Eingangsstrom<br>Input Current                                                           |       |     | 0.7 | A <sub>ac</sub> |
| Eingangsfrequenz<br>Input Frequency Range                                                | 49    |     | 61  | Hz              |
| Nenneingangsfrequenz<br>Nominal Input Frequency                                          | 50/60 |     |     | Hz              |
| Eingangskapazität<br>Input Capacitance                                                   |       | 4.7 |     | μF              |
| Standby-Leistungsaufnahme<br>Standby Power                                               | 50    |     | 110 | mW              |
| Standby-Leistungsaufnahme U <sub>out</sub> =15 V<br>Standby Power U <sub>out</sub> =15 V |       | 54  |     | mW              |
| Standby-Leistungsaufnahme U <sub>out</sub> =24 V<br>Standby Power U <sub>out</sub> =24 V |       | 89  |     | mW              |
| Standby-Leistungsaufnahme U <sub>out</sub> =30 V<br>Standby Power U <sub>out</sub> =30 V |       | 110 |     | mW              |
| Eingangssicherung<br>Input Fuse                                                          |       | 750 |     | mA              |
| Startzeit<br>Startup Time                                                                |       | 600 | 800 | ms              |





# HDR20-15-30

230 V<sub>ac</sub> 20 W 15 V/24 V/30 V AC/DC NoElko Power Supply

| Parameter                                                                                                                      | Min                                 | Typ   | Max  | Unit            |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------|------|-----------------|
| Ausgang<br>Output                                                                                                              |                                     |       |      |                 |
| Ausgangsspannung U <sub>out</sub> =15 V<br>Output Voltage U <sub>out</sub> =15 V                                               | 14.4                                | 15.0  | 15.9 | V <sub>dc</sub> |
| Ausgangsstrom U <sub>out</sub> =15 V<br>Output Current U <sub>out</sub> =15 V                                                  | 0                                   |       | 1.34 | A <sub>dc</sub> |
| Ausgangsspannung U <sub>out</sub> =24 V<br>Output Voltage U <sub>out</sub> =24 V                                               | 23.0                                | 24.0  | 25.0 | V <sub>dc</sub> |
| Ausgangsstrom U <sub>out</sub> =24 V<br>Output Current U <sub>out</sub> =24 V                                                  | 0                                   |       | 0.84 | A <sub>dc</sub> |
| Ausgangsspannung U <sub>out</sub> =30 V<br>Output Voltage U <sub>out</sub> =30 V                                               | 28.5                                | 30.0  | 31.5 | V <sub>dc</sub> |
| Ausgangsstrom U <sub>out</sub> =30 V<br>Output Current U <sub>out</sub> =30 V                                                  | 0                                   |       | 0.67 | A <sub>dc</sub> |
| Nennausgangsleistung<br>Rated Output Power                                                                                     |                                     |       | 20   | W               |
| Regelungsart<br>Control Mode                                                                                                   | constant voltage (CV)               |       |      |                 |
| Wandlungseffizienz (230 V <sub>ac</sub> Eingang, Nennlast)<br>Conversion Efficiency<br>(230 V <sub>ac</sub> input, rated load) |                                     | 86    | 87   | %               |
| Ausgangs-Überspannungsschutz<br>Output Overvoltage Protection                                                                  |                                     |       |      |                 |
| Ausgangsentladewiderstand<br>Output Discharge Resistor                                                                         |                                     | 66    |      | Ω               |
| Ausgangs-Überspannungsschutz<br>Output Overvoltage Protection                                                                  | yes, active discharge with resistor |       |      |                 |
| Schutz Entladewiderstand<br>Discharge Resistor Protection                                                                      | active NTC protection               |       |      |                 |
| Gehäuse<br>Case                                                                                                                |                                     |       |      |                 |
| Montageform<br>Mounting Type                                                                                                   | DIN Rail                            |       |      |                 |
| Teilungseinheiten<br>Modular Width Units                                                                                       |                                     | 1     |      |                 |
| Breite<br>Width                                                                                                                |                                     | 17.6  |      | mm              |
| Höhe<br>Height                                                                                                                 |                                     | 106   |      | mm              |
| Tiefe<br>Depth                                                                                                                 |                                     | 50.85 |      | mm              |
| Gewicht<br>Weight                                                                                                              |                                     | 68    |      | g               |
| Montagestil<br>Mounting Style                                                                                                  | Control cabinet / distribution box  |       |      |                 |
| Schutzart<br>Ingress Protection (IP) Rating                                                                                    | IP20                                |       |      |                 |





# HDR20-15-30

230 V<sub>ac</sub> 20 W 15 V/24 V/30 V AC/DC NoElko Power Supply

| Parameter                                                                                        | Min                        | Typ  | Max | Unit            |
|--------------------------------------------------------------------------------------------------|----------------------------|------|-----|-----------------|
| Sicherheitsfeatures<br>Safety Features                                                           |                            |      |     |                 |
| Galvanische Trennung Eingang/Ausgang<br>Galvanic Isolation Input/Output                          | yes                        |      |     |                 |
| Eingangsüberspannungsschutz<br>Input Overvoltage Protection                                      | yes                        |      |     |                 |
| Übertemperaturschutz<br>Overtemperature Protection                                               |                            | 110  | 120 | °C              |
| Kurzschlusschutz<br>Short-Circuit Protection                                                     | yes                        |      |     |                 |
| Leerlaufschutz<br>Open-Circuit Protection                                                        | yes                        |      |     |                 |
| Wiederanlauf nach Kurzschluss<br>Restart after Short Circuit                                     | automatic                  |      |     |                 |
| Wiederanlauf nach Übertemperatur<br>Restart after Overtemperature                                | automatic                  |      |     |                 |
| Betriebs- und Lagerbedingungen<br>Operating and Storage Conditions                               |                            |      |     |                 |
| Betriebstemperatur (Umgebung)<br>Ambient Operating Temperature                                   | −40                        |      | 50  | °C              |
| Leistungsreduzierung<br>Output Power Derating                                                    | none                       |      |     |                 |
| Lagertemperatur<br>Storage Temperature Range                                                     | −40                        |      | 50  | °C              |
| Verdrahtung<br>Wiring                                                                            |                            |      |     |                 |
| Bemessungsnorm<br>Dimensioning Standard<br>(VDE: Association for<br>Electrical Engineering)      | DIN VDE 0298-4             |      |     |                 |
| Leiterquerschnitt<br>Conductor Cross-Section                                                     | 1.5                        |      |     | mm <sup>2</sup> |
| Strombelastbarkeit (Verlegeart B2, 30 °C)<br>Current Capacity (Installation<br>Method B2, 30 °C) |                            | 16.5 |     | A               |
| Reduktionsfaktor bei 50 °C Umgebungstemperatur<br>Derating at 50 °C Ambient                      |                            | 0.71 |     |                 |
| Strombelastbarkeit bei 50 °C<br>Resulting Capacity at 50 °C                                      |                            | 11.7 |     | A               |
| Technische Merkmale<br>Technical Characteristics                                                 |                            |      |     |                 |
| Elektrolytkondensatoren<br>Electrolytic Capacitors                                               | No electrolytic capacitors |      |     |                 |
| Platinenlackierung<br>Conformal Coating                                                          | No conformal coating       |      |     |                 |

Table 3: Specification of the HDR20-15-30.

**Wiring note:** The resulting current capacity (Table 3) far exceeds the maximum rated output current. The system integrator selects the conductor cross-section for the installation.



## 4 Measurements

### 4.1 Measurement Conditions

The measurement conditions are listed in Table 4, if not otherwise noted in the specific measurement.

| Parameter                                        | Min | Typ | Max | Unit             |
|--------------------------------------------------|-----|-----|-----|------------------|
| Eingang<br>Input                                 |     |     |     |                  |
| Eingangsspannung<br>Input Voltage                | 227 | 230 | 233 | V <sub>ac</sub>  |
| Eingangsfrequenz<br>Input Frequency              | 49  | 50  | 51  | Hz               |
| Umgebungsbedingungen<br>Environmental Conditions |     |     |     |                  |
| Temperatur<br>Temperature                        | 20  |     | 24  | °C               |
| Feuchtigkeit<br>Humidity                         | 30  |     | 90  | % <sub>rel</sub> |

Table 4: Measurement conditions, if not otherwise noted.

### 4.2 Output Voltage Stability

The output voltage is measured across the operating range, as illustrated in Figure 2. The voltage levels are set to 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub>.

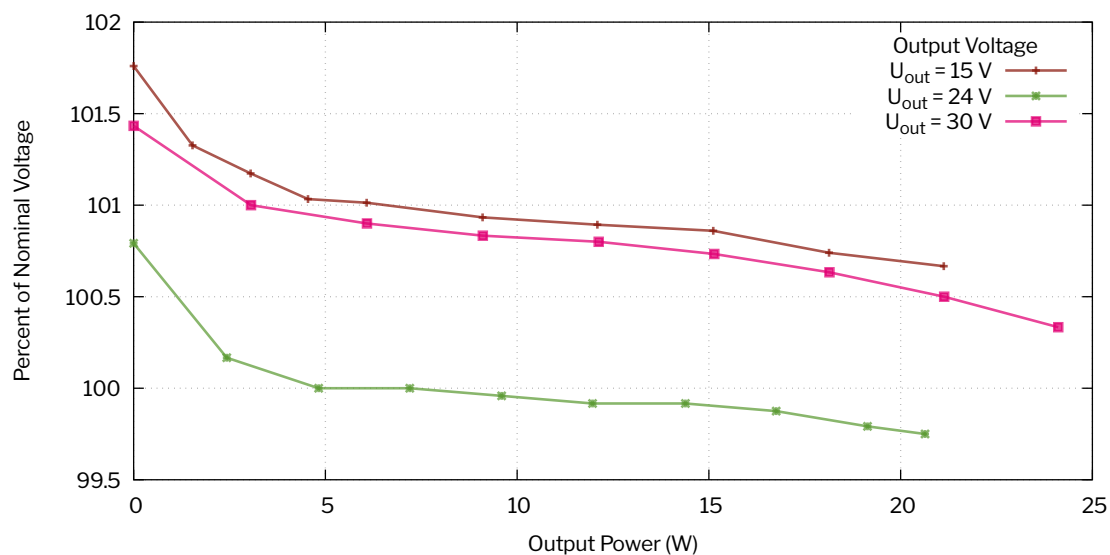


Figure 2: Output voltage in percent of the nominal voltage versus output power, measured at 230 V<sub>ac</sub> input. The curves extend beyond the rated output current, up to 1.4 A, 0.86 A and 0.8 A (30 V<sub>dc</sub>: 24 W).



## 4.3 Output Voltage Ripple

The output voltage ripple is measured across the operating range and presented in Figure 3. The voltage levels are set to 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub>.

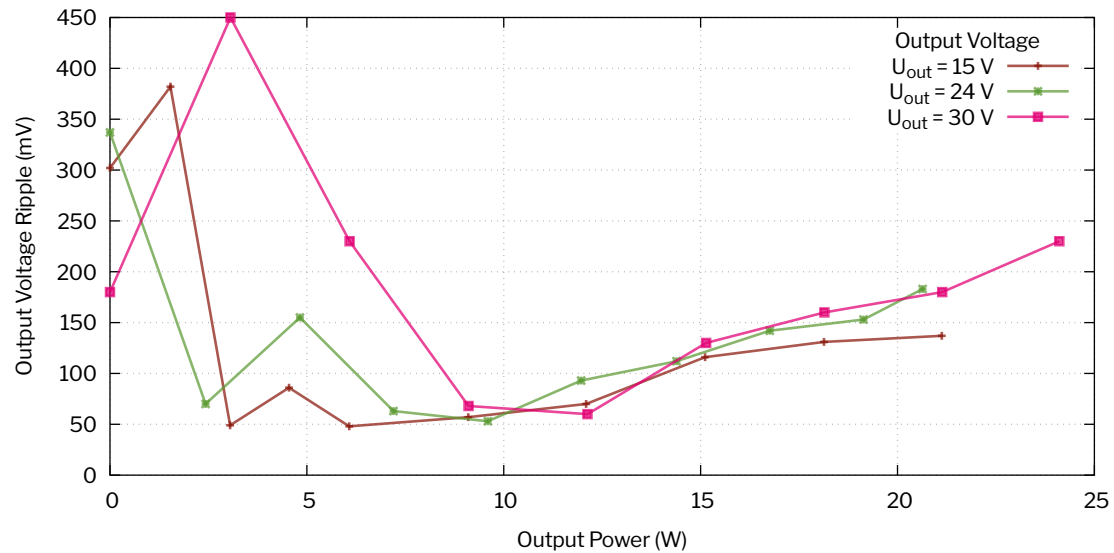


Figure 3: Output voltage ripple versus output power for 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub> output voltages. Measured at 230 V<sub>ac</sub> input, load from no load up to 1.4 A, 0.86 A and 0.8 A respectively, beyond the rated output current.



## 4.4 Conversion Efficiency

The conversion efficiency is plotted over the output current in Figure 4; Figure 5 shows the range from 70 % to 90 % in detail. The voltage levels are set to 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub>. The specified efficiency is given in Table 3.

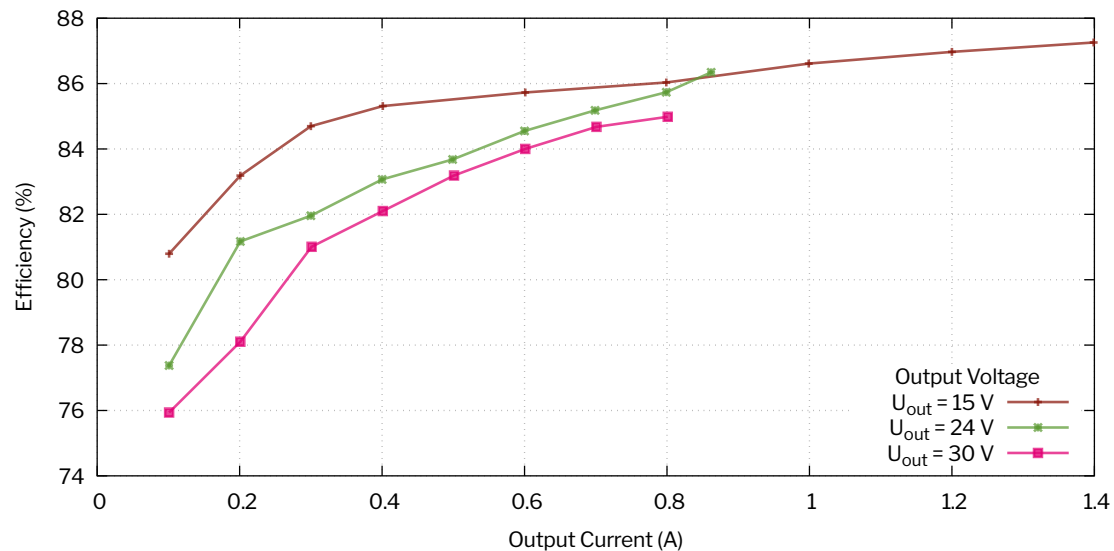


Figure 4: Conversion efficiency versus output current for 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub> output voltages. Measured at 230 V<sub>ac</sub> input. The curves extend beyond the rated output current, up to 1.4 A, 0.86 A and 0.8 A respectively.

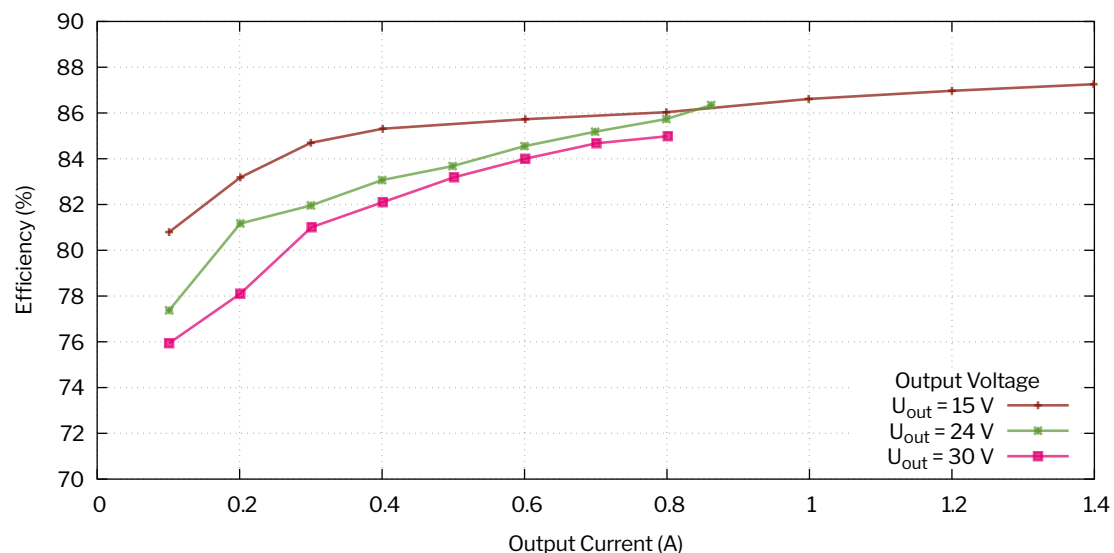


Figure 5: Detail of Figure 4: conversion efficiency versus output current, efficiency axis from 70 % to 90 %. Measured at 230 V<sub>ac</sub> input.



## 4.5 Power Losses

The power losses (input power minus output power) are plotted over the output power range in Figure 6.

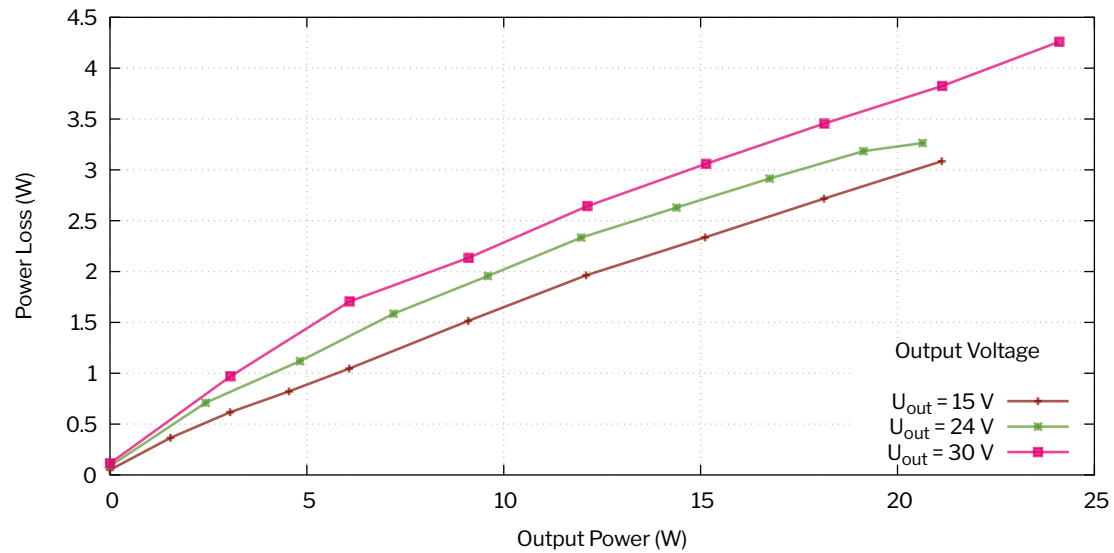


Figure 6: Power losses versus output power for 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub> output voltages. Measured at 230 V<sub>ac</sub> input. The curves extend beyond the rated output current, up to 1.4 A, 0.86 A and 0.8 A respectively.



#### 4.6 Input Standby Power

The input standby power is plotted over the selectable output voltages, as shown in Figure 7.

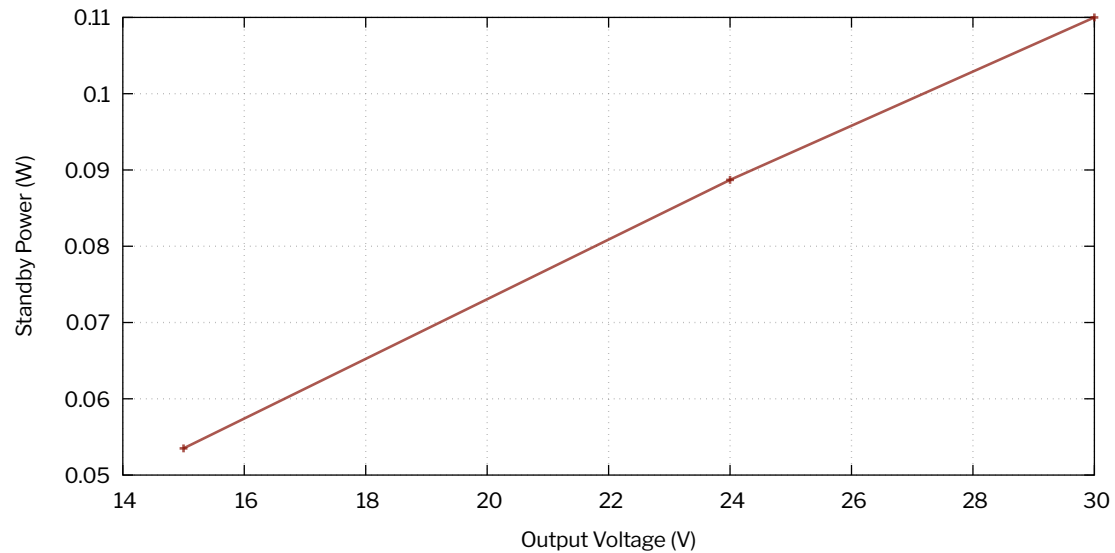


Figure 7: Standby power versus selected output voltage, no load. Measured at 230 V<sub>ac</sub> input.



## 4.7 Step Response

### 4.7.1 15 V<sub>dc</sub>

For the step response measurement at 15 V<sub>dc</sub> output voltage, the output current was changed from 0 A to 1.4 A, a step slightly above the rated output current given in Table 3. The output voltage response is shown in Figure 8. The rise and fall slope of the current was set to 2 A/ms.

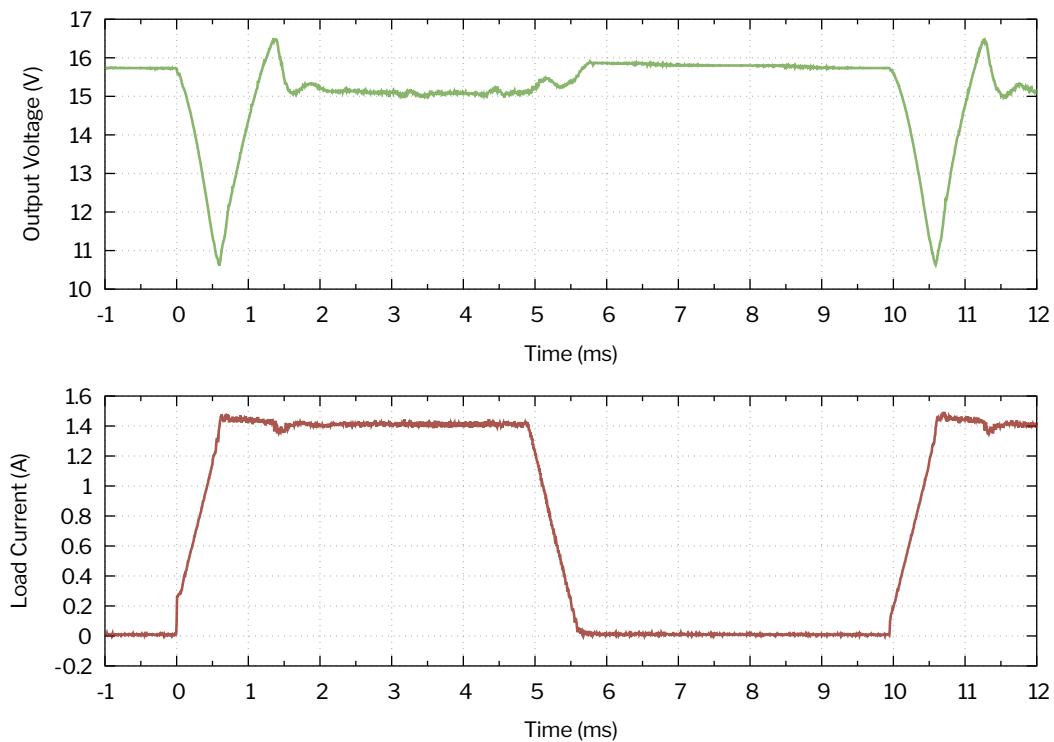


Figure 8: Transient response at  $U_{\text{out}} = 15 \text{ V}_{\text{dc}}$ , load step 0 A to 1.4 A (above the rated output current) at 2 A/ms. Measured at 230 V<sub>ac</sub> input.



## 4.7.2 24 V<sub>dc</sub>

For the step response measurement at 24 V<sub>dc</sub> output voltage, the output current was changed from 0 A to 0.9 A, a step slightly above the rated output current given in Table 3. The output voltage response is shown in Figure 9. The rise and fall slope of the current was set to 2 A/ms.

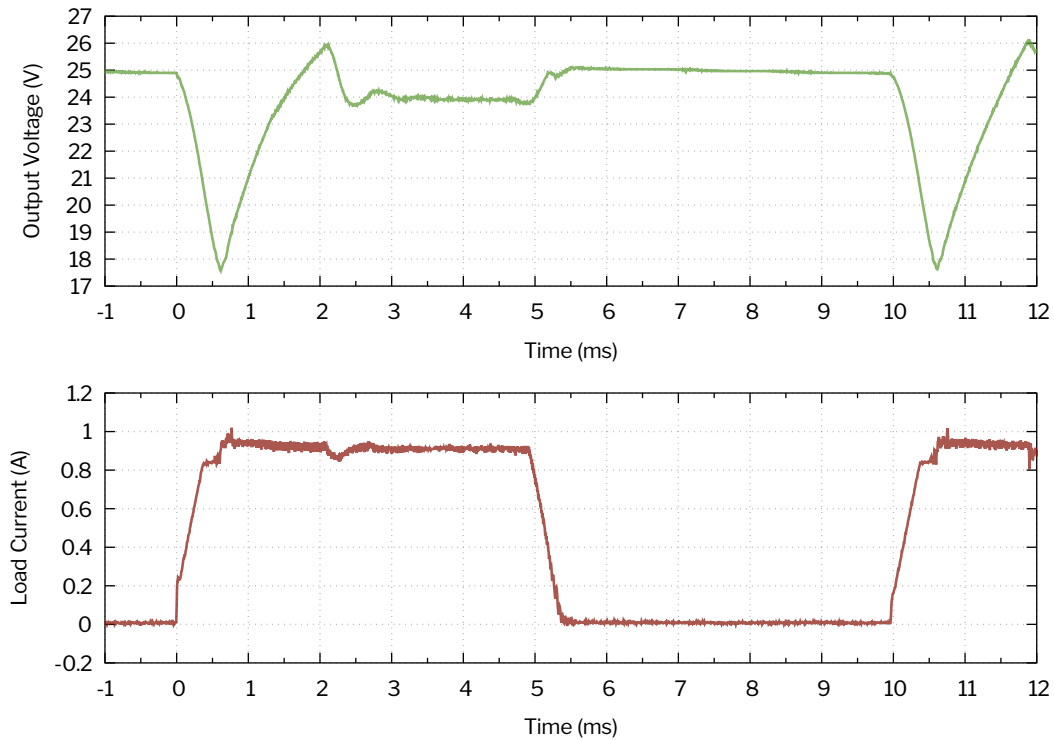


Figure 9: Transient response at  $U_{out} = 24 \text{ V}_{dc}$ , load step 0 A to 0.9 A (above the rated output current) at 2 A/ms. Measured at 230 V<sub>ac</sub> input.



## 4.7.3 30 V<sub>dc</sub>

For the step response measurement at 30 V<sub>dc</sub> output voltage, the output current was changed from 0 A to 0.7 A, a step slightly above the rated output current given in Table 3. The output voltage response is shown in Figure 10. The rise and fall slope of the current was set to 2 A/ms.

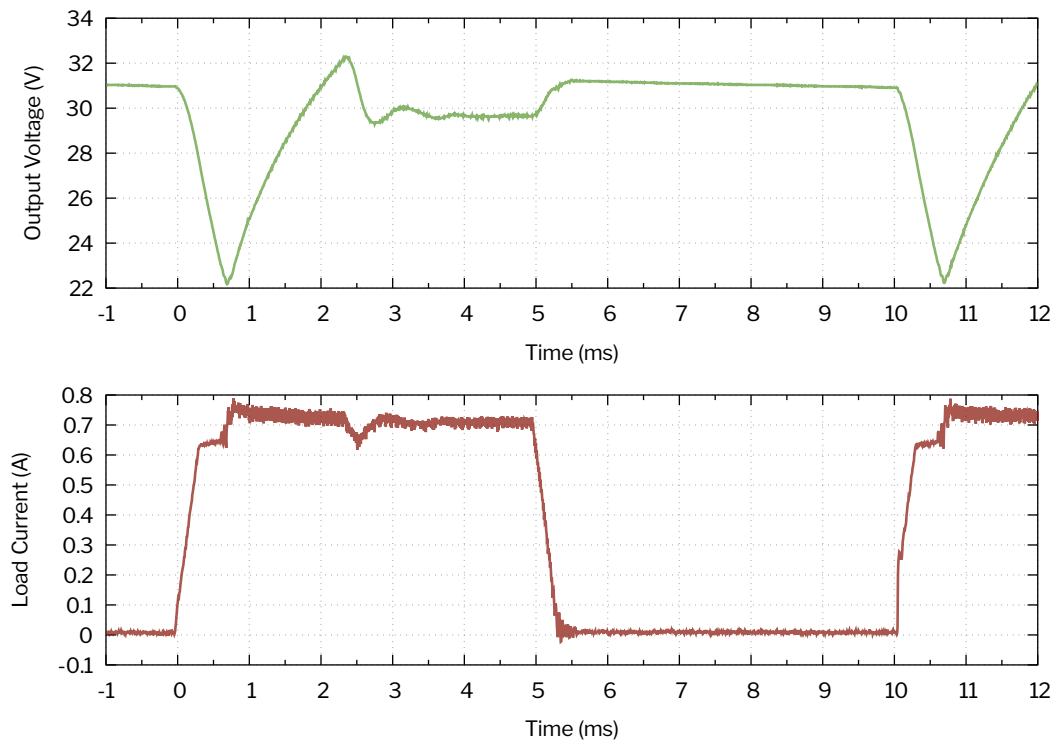


Figure 10: Transient response at  $U_{out} = 30 \text{ V}_{dc}$ , load step 0 A to 0.7 A (above the rated output current) at 2 A/ms. Measured at 230 V<sub>ac</sub> input.



## 4.8 Power-On Behavior

The power supply is turned on with a target output voltage ( $U_{out, set}$ ) of 15 V<sub>dc</sub>, 24 V<sub>dc</sub>, and 30 V<sub>dc</sub>. During testing, it was observed that the power-on time may vary with each power cycle. A measurement is shown in Figure 11.

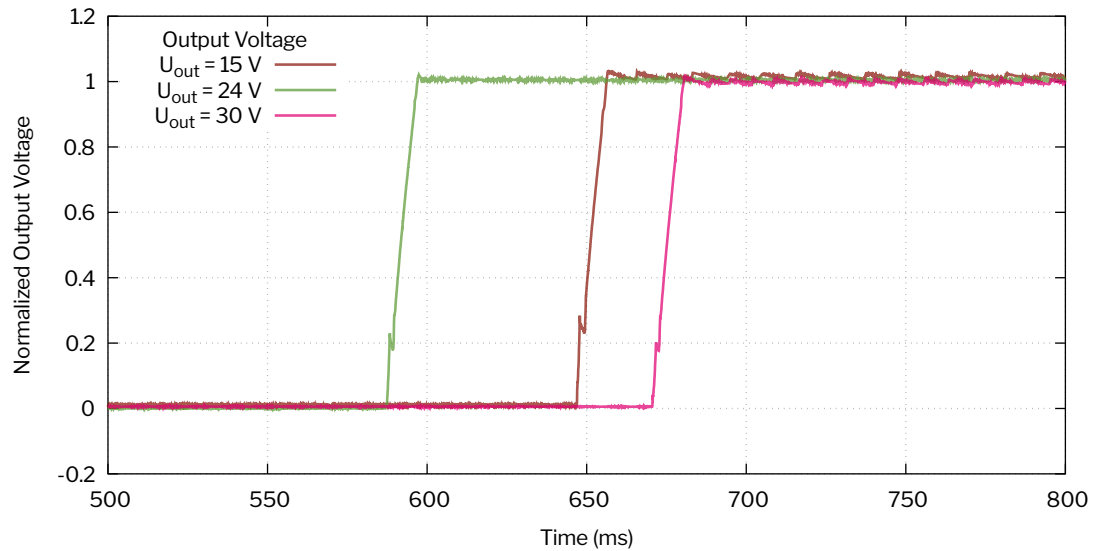


Figure 11: Output voltage of the HDR20-15-30 when the power is turned on.



## 4.9 Startup

The startup time is defined as the time from the input voltage being present to 90 % of the output voltage.

### 4.9.1 15 V<sub>dc</sub>

The startup time for  $U_{\text{out}}=15\text{ V}_{\text{dc}}$  is shown in Figure 12.

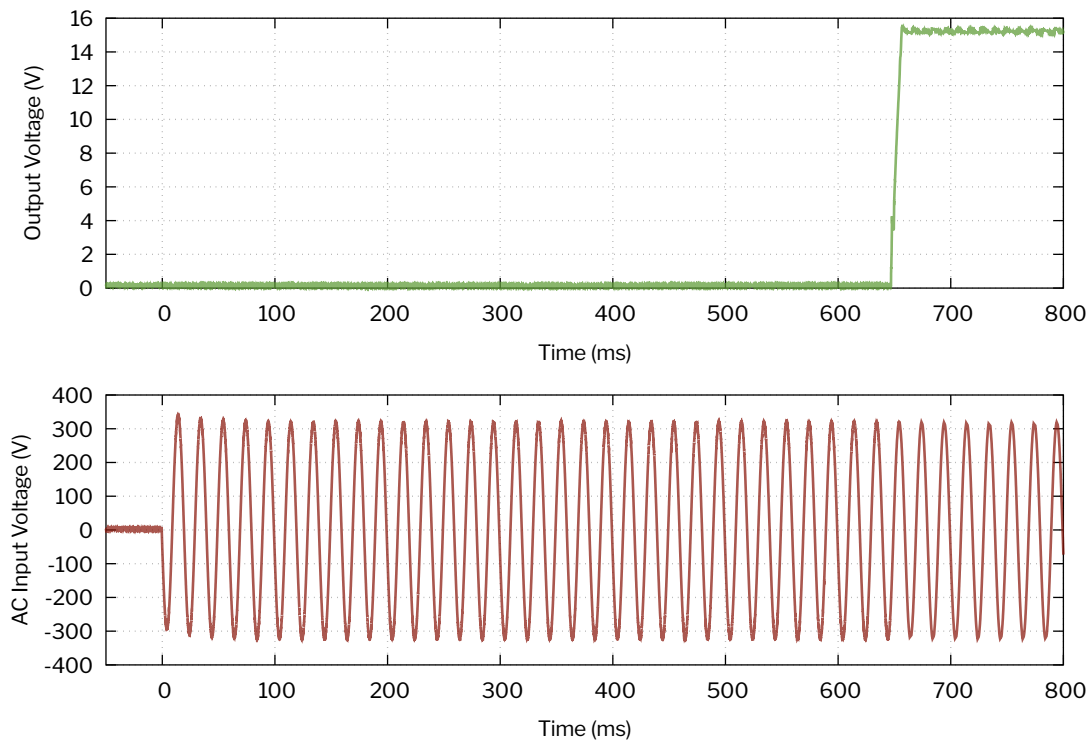


Figure 12: Startup time measurement for  $U_{\text{out}} = 15\text{ V}_{\text{dc}}$ .



## 4.9.2 24 V<sub>dc</sub>

The startup time for  $U_{out}=24\text{ V}_{dc}$  is shown in Figure 13.

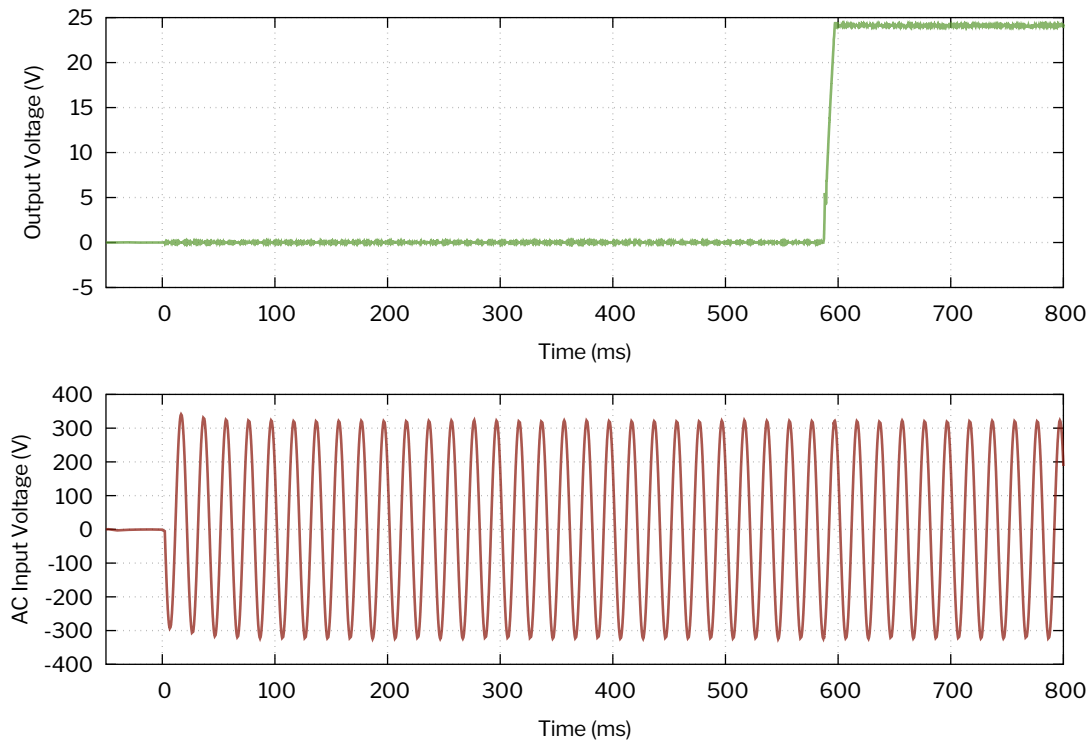


Figure 13: Startup time measurement for  $U_{out} = 24\text{ V}_{dc}$ .



## 4.9.3 30 V<sub>dc</sub>

The startup time for  $U_{out}=30\text{ V}_{dc}$  is shown in Figure 14.

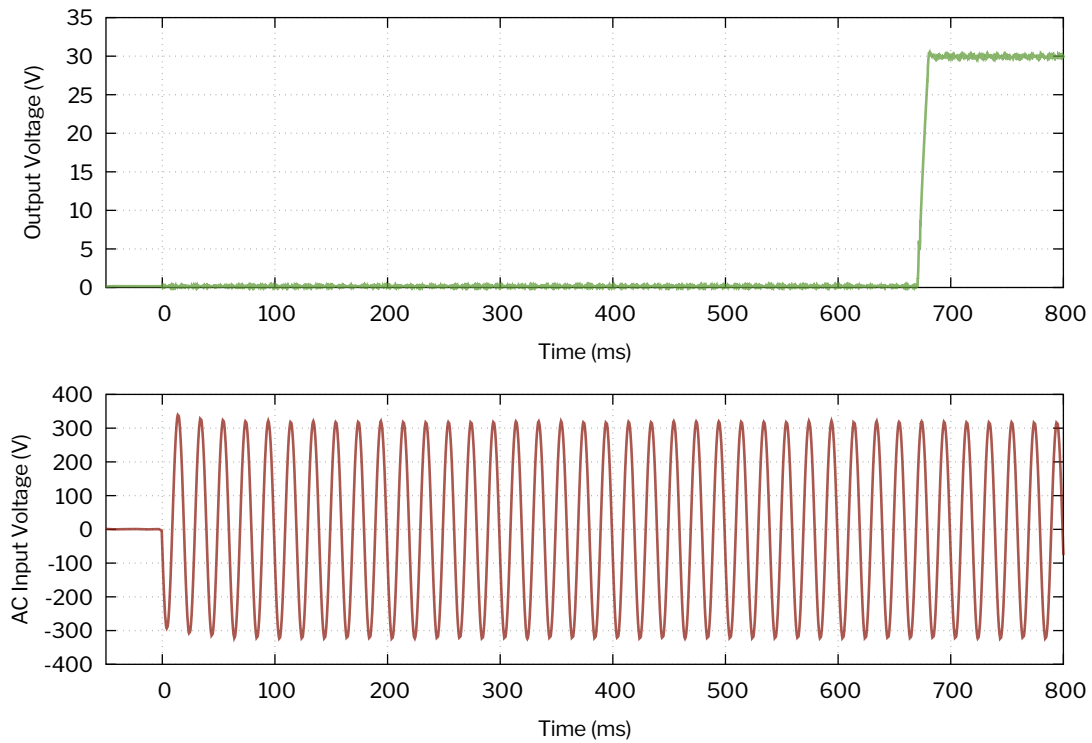


Figure 14: Startup time measurement for  $U_{out} = 30\text{ V}_{dc}$ .



## 5 EMC Measurements

The HDR20-15-30 complies with the electromagnetic compatibility (EMC) standards listed on the first page. Conducted emissions are assessed against the EN 55011 / CISPR 11 Class A (industrial) limits; the EU Declaration of Conformity is DPS-HDR20-15-30-CE.pdf.

### 5.1 AC Input

Figure 15 shows the average and quasi-peak conducted emissions at the AC input.

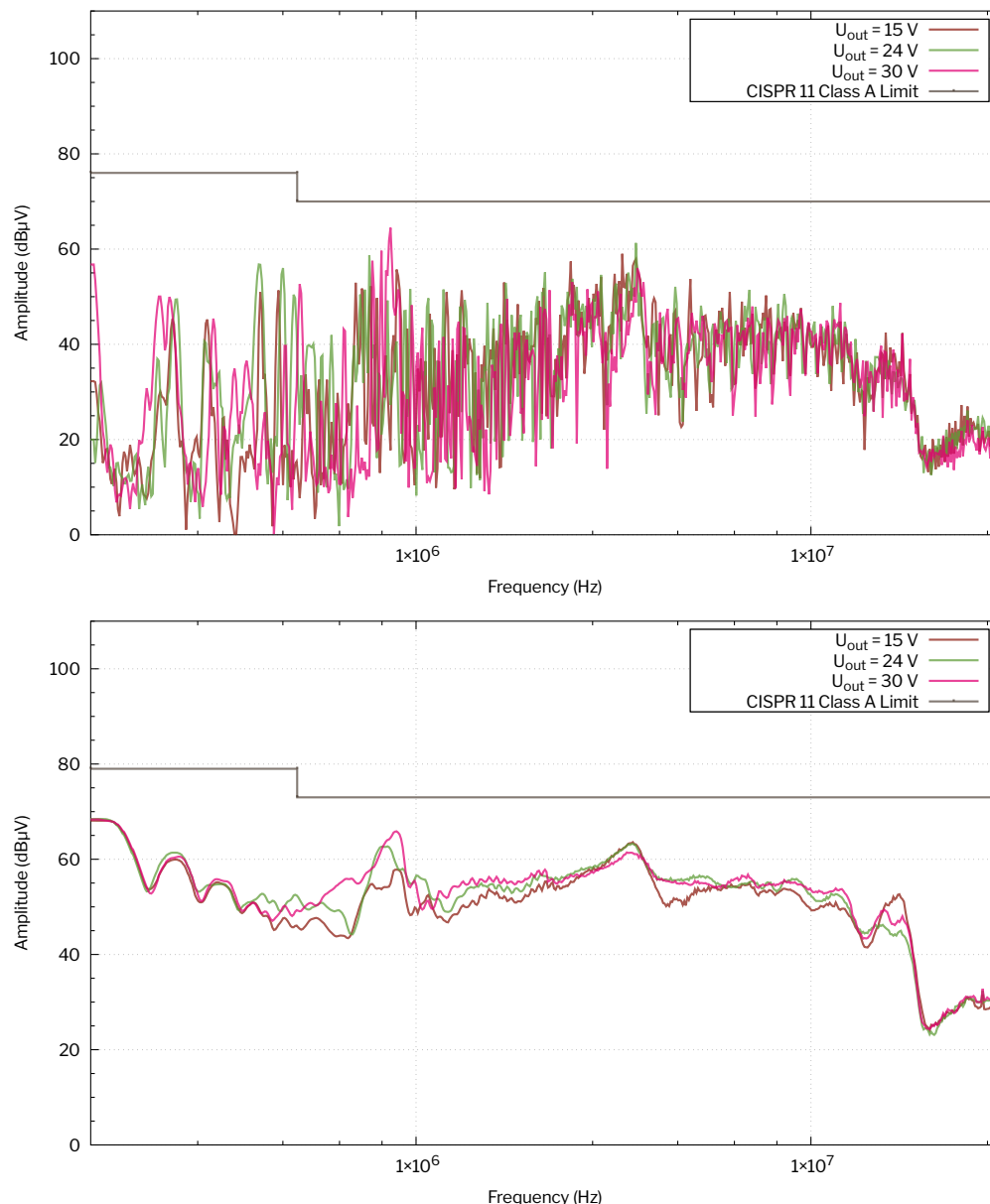


Figure 15: Input EMC emission, measured at 230 V<sub>ac</sub> input, resistive load, rated output current. Top: average (AVG), bottom: quasi-peak (QP) detector.



## 5.2 DC Output

The average and quasi-peak conducted emissions at the DC output of the HDR20-15-30 are depicted in Figure 16.

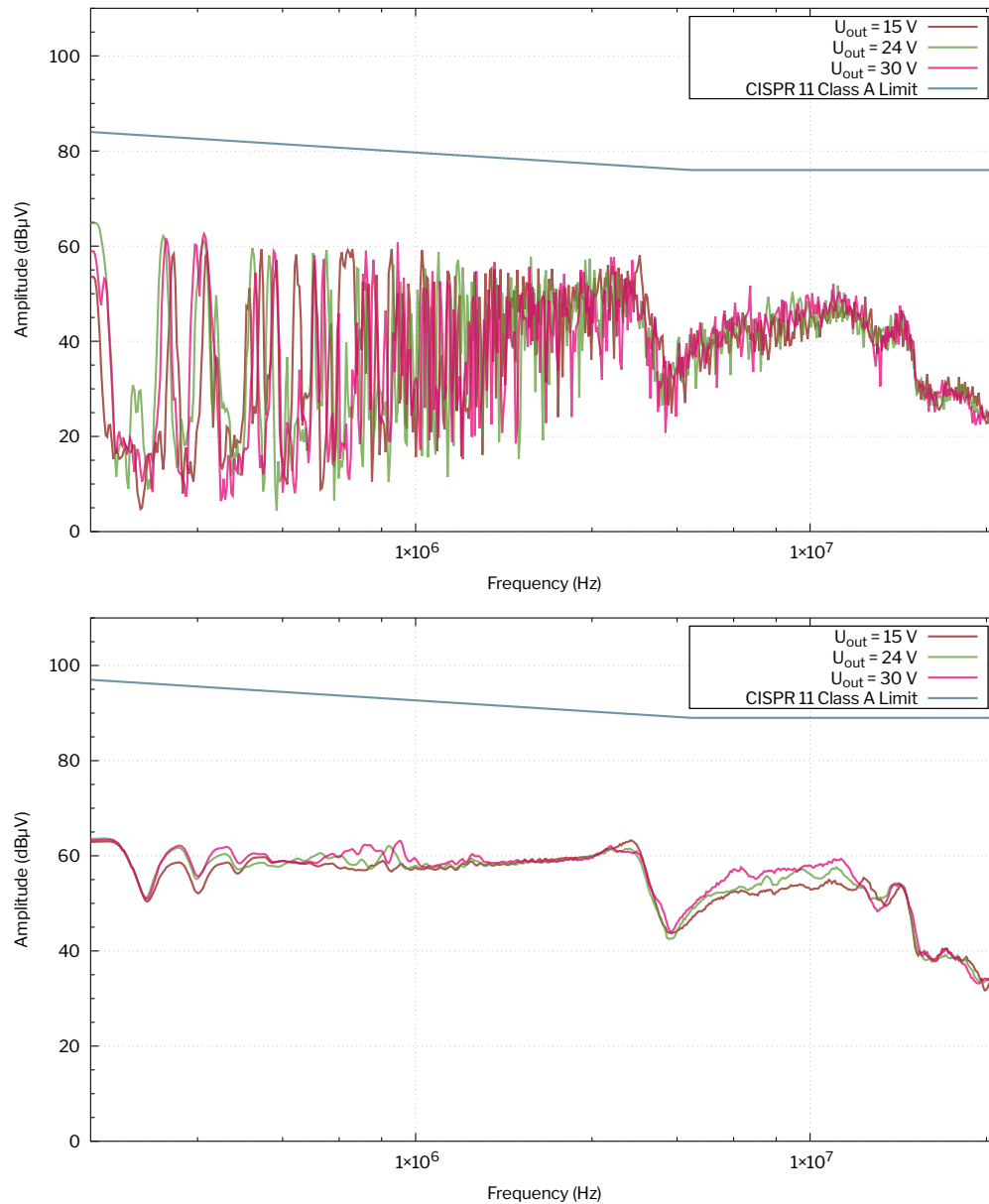


Figure 16: Output EMC emission of the HDR20-15-30. Measured at 230 V<sub>ac</sub> input with a resistive load at rated output current. Top: average (AVG), bottom: quasi-peak (QP) detector.



## 6 Case

The case drawing of the HDR20-15-30 is shown in Figure 17.

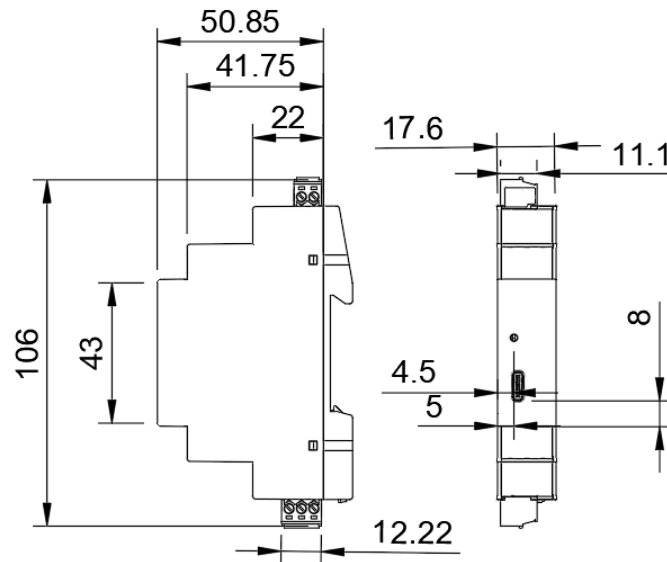


Figure 17: HDR20-15-30 product drawing with dimensions. All dimensions in mm.

## 7 Product Label

### 7.1 Revision 4 (current)

The product label of the HDR20-15-30 is shown in Figure 18. The magenta line shows the cut line of the label and the cutout for the output voltage selection switch.

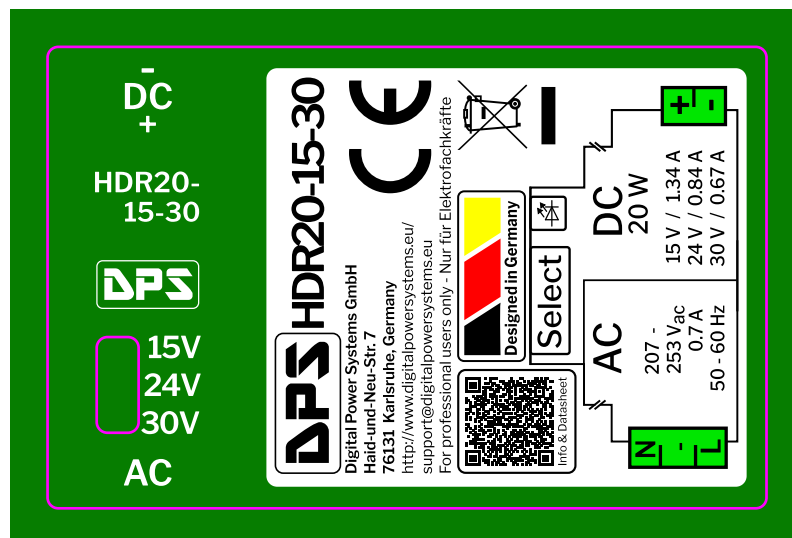


Figure 18: Current revision 4 product label of the HDR20-15-30.





## 8 Document

### 8.1 Latest Document Revision

The latest document revision can be downloaded here:  
<https://digitalpowersystems.eu/en/acdc/hdr20-15-30>

### 8.2 Datasheet Quality

Feedback on this datasheet helps to improve it. Please send it by e-mail to [datasheet@digitalpowersystems.eu](mailto:datasheet@digitalpowersystems.eu) or use the contact page: <https://digitalpowersystems.eu/contact-us/>

### 8.3 Revision History

The revision history is shown in Table 5.

| Date       | Changes in Revision                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 13.01.2026 | Initial release.                                                                                                                         |
| 31.07.2026 | Corrected HS code, weight, case depth and startup time. Added ordering data and the EU Declaration of Conformity as a separate document. |
| 23.09.2026 | New company address. Specification and functional description extended. Power loss plot added.                                           |
| 24.09.2026 | Current product label and product link. Typical efficiency updated. Editorial corrections.                                               |

Table 5: Revision history of the HDR20-15-30.

### 8.4 Contact Information

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