



LED48-350 and LED-500 product photography

## Feature summary

- Constant Current Buck converter  
8.8mm DIN Rail width
- 350mA or 500mA output current
- Wide input voltage:
  - $U_{in,min}=5V$
  - $U_{in,max}=48V$
- Input reverse polarity protection
- Output short proof
- Power Good LED

## Product description

The LED48-XXX device is a 48V input 350mA / 500mA DIN Rail buck converter providing low ripple constant current output. It's intended use are tight control cabinets, requiring an additional current driver. The functional input voltage ranges from 5V to 48V. When the output voltage and current is achieved, a green led lights up.

The device is resilient to typical operating failures: Input reverse polarity, output short circuit, open circuit, moderate input transients and moderate output transients.

The device offers solid output current stability over the complete input voltage range. The device may be operated at ambient temperatures between  $-40^{\circ}C$  und  $50^{\circ}C$ .

## Specification overview

Description	Value
<b>Input</b>	
Input Voltage min	5 V
Input Voltage max	48 V
<b>Output</b>	
Output Voltage	$U_{in} - 2V$
Power Good Indicator	Green LED
<b>Protection</b>	
Input Fuse	yes
Input Reverse polarity protection	yes
Short circuit protection	yes
Input Overvoltage supressor	TVS

## Ordering information

Ordercode	Description
LED48-350	$I_{out} = 350\text{ mA}$
LED48-500	$I_{out} = 500\text{ mA}$

## Engineering standards

Applied engineering standards	
IEC 55032	IEC 61000-4-2
IEC 61000-4-3	IEC 61000-4-4
IEC 61000-4-5	IEC 61000-4-6
IEC 61000-4-7	IEC 61000-4-8



## 1 Functional description

### 1.1 Overview

The LED48-XXX device is a 48V input 350mA / 500mA DIN Rail buck converter providing low ripple constant current output. It's intended use are tight control cabinets, requiring an additional current driver. The functional input voltage ranges from 5V to 48V. When the output voltage and current is achieved, a green led lights up.

The device is resilient to typical operating failures: Input reverse polarity, output short circuit, open circuit, moderate input transients and moderate output transients.

The device offers solid output current stability over the complete input voltage range. The device may be operated at ambient temperatures between -40°C und 50°C.

### 1.2 Protections

The following output protections are in place:

- **Input Reverse polarity:** The input may be connected in reverse polarity with an input of  $U_{in,max} = -48\text{ V}$ .
- **Short circuit proof:** The output of the converter can be shortcircuited without problems for infinite time.
- **Open circuit proof** The output may be operated in open circuit for infinite time.
- **Input TVS diode** The converter features an input TVS diode for protection.
- **Output TVS diode** The converter features an output TVS diode for protection.

### 1.3 Ordering Information

The ordering information is summarized in below table.

Ordercode	Description	EAN
LED48-350	Output Current $I_{out} = 350\text{ mA}$	0735654854005
LED48-500	Output Current $I_{out} = 500\text{ mA}$	0735654854012
Customisation available. Contact DPS.		



## 2 Pinout

The pinout of the converter is depicted in Figure 1.

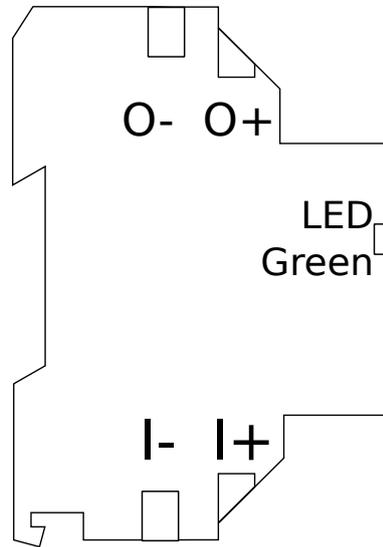


Figure 1: Anschlussdiagramm des Netzteils

Pin	Functional description
<b>Input</b>	
I-	Negative Input Pin
I+	Positive Input Pin
<b>Output</b>	
O-	Negative Output Pin
O+	Positive Output Pin
<b>Output</b>	
LED	A green LED is on, when the output is good.





# LED48-XXX

Ultrathin 8.8mm 48V DIN Rail LED Buck Driver

## 3 Specification

The specification is shown in the following table. If not otherwise specified the following parameters have been used:  $T_{amb}=25^{\circ}\text{C}$ .

	Min	Typ	Max	Unit
Eingang Input				
Eingangsspannung Input Voltage	5 V		48	V <sub>dc</sub>
Eingangskapazität Input Capacitance		15		μF
TVS Schutzdiode Ausgang TVS Protection Output	SMAJ48A			
TVS Schutzdiode Eingang TVS Protection Input	2x SMAJ26A in Series			
LED48-350 LED48-350				
Ausgangsstrom Output Current	330	360	385	mA <sub>dc</sub>
LED48-500 LED48-500				
Ausgangsstrom Output Current	450	500	530	mA <sub>dc</sub>
Gehäuse Case				
Montageform Mounting Type	Din Rail			
Breiteinheiten Mounting Width	8			mm
Montagehöhe Mounting Height	Household Installation BOX			





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	Min	Typ	Max	Unit
<b>Sicherheitsfeatures</b> <b>Safety Features</b>				
Verpolungsschutz Reverse polarity protection		yes		
Neg. Eingangsspannung Negative Input Voltage			- 48	V <sub>dc</sub>
Kurzschlusschutz Short circuit protection		yes		
Leerlaufschutz Open circuit protection		yes		
<b>Betriebsbedingungen</b> <b>Operating Conditions</b>				
Temperaturbereich Temperature Range	-40		50	°C
<b>Technische Merkmale</b> <b>Technical Characteristics</b>				
Elektrolytkondensatoren Electrolytic Capacitors	No electrolytic capacitors			



## 4 Measurements

### 4.1 Measurement Conditions

All measurements were made at room temperature. The input voltage was set to  $U_{in} = 48V$ .

### 4.2 LED48-350

#### 4.2.1 Current

The current is depicted in Figure ??.

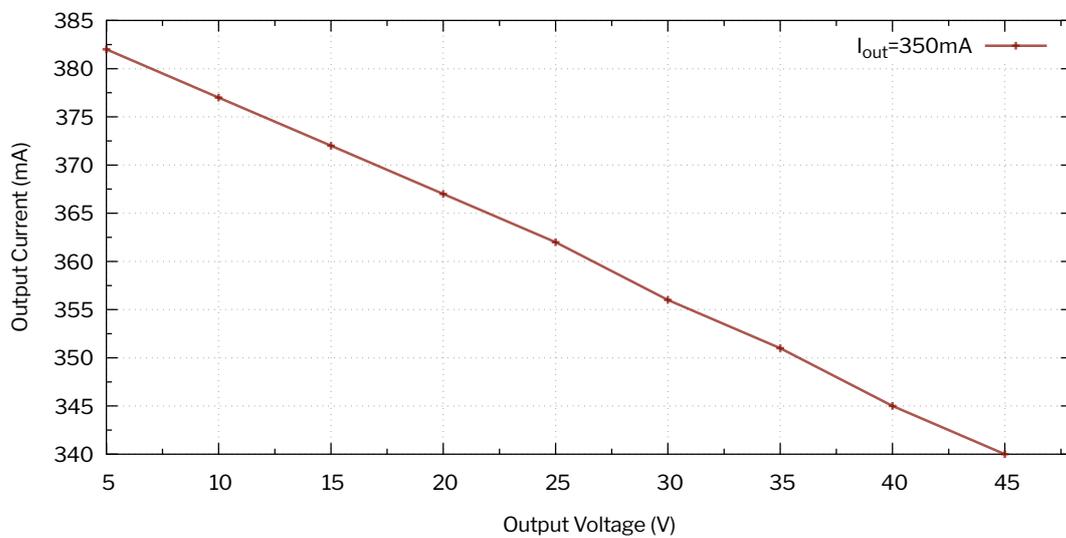


Figure 2: Current Stability of the 350mA Variant over Output Voltage



## 4.2.2 Efficiency

The efficiency of LED48-350 is depicted in Figure 3.

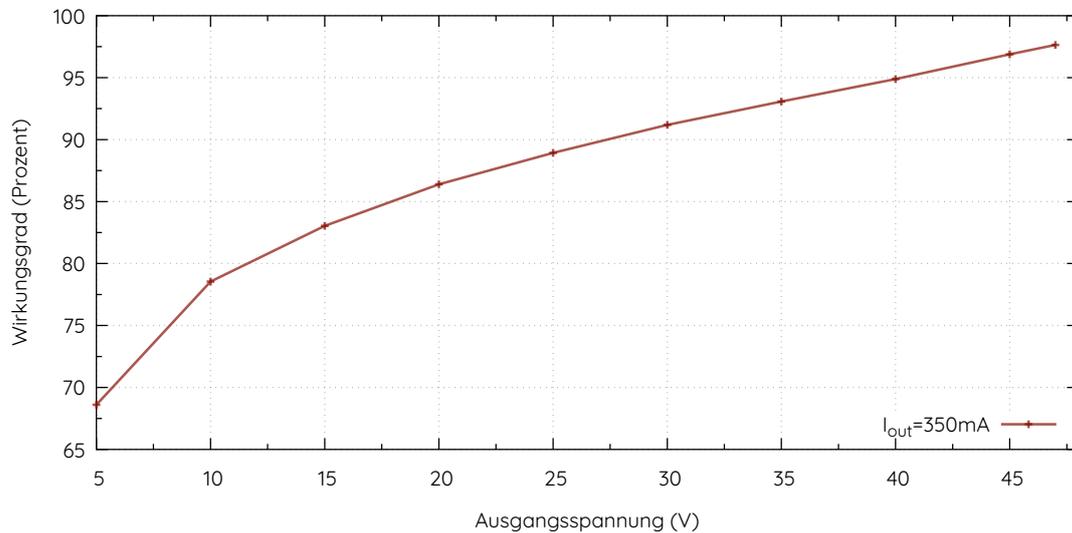


Figure 3: Efficiency of the 350mA Variant over Output Voltage

## 4.2.3 Losses

The electrical losses are depicted in Figure 4.

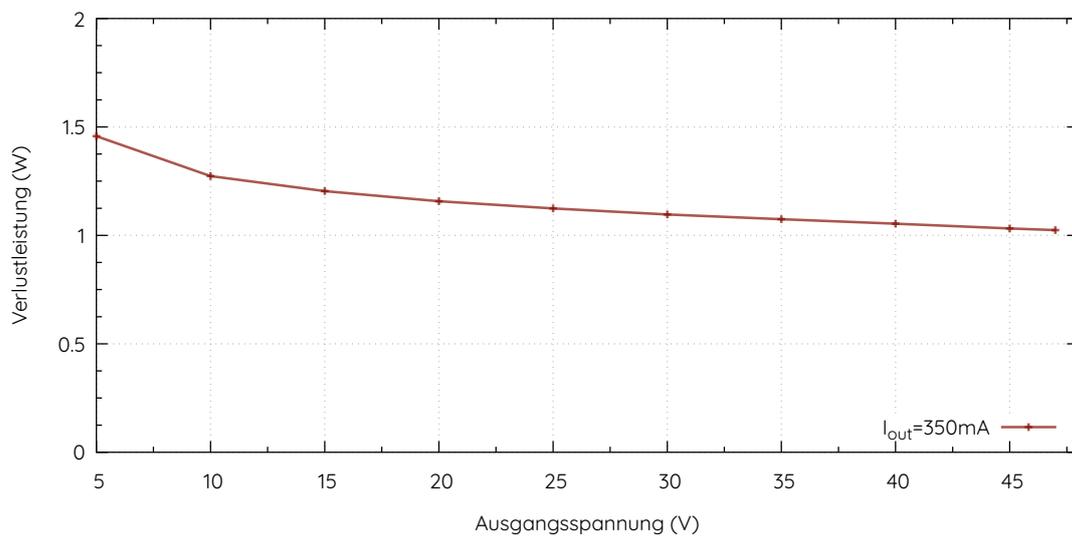


Figure 4: Power Loss of the 350mA Variant over Output Voltage



## 4.3 LED48-500

### 4.3.1 Current

The current is depicted in Figure 5.

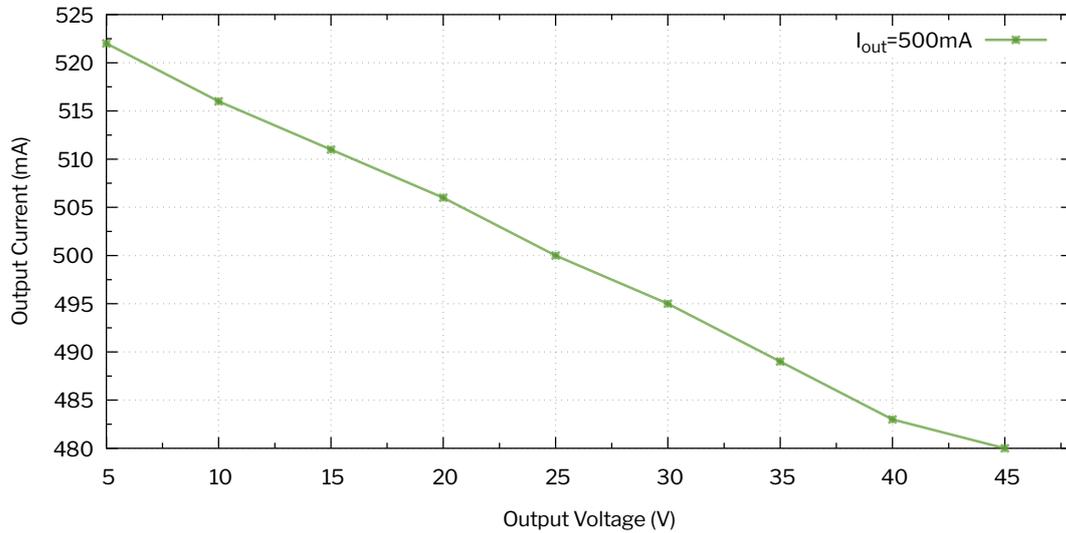


Figure 5: Current Stability of the 500mA Variant over Output Voltage

### 4.3.2 Efficiency

The efficiency is depicted in Figure 6.

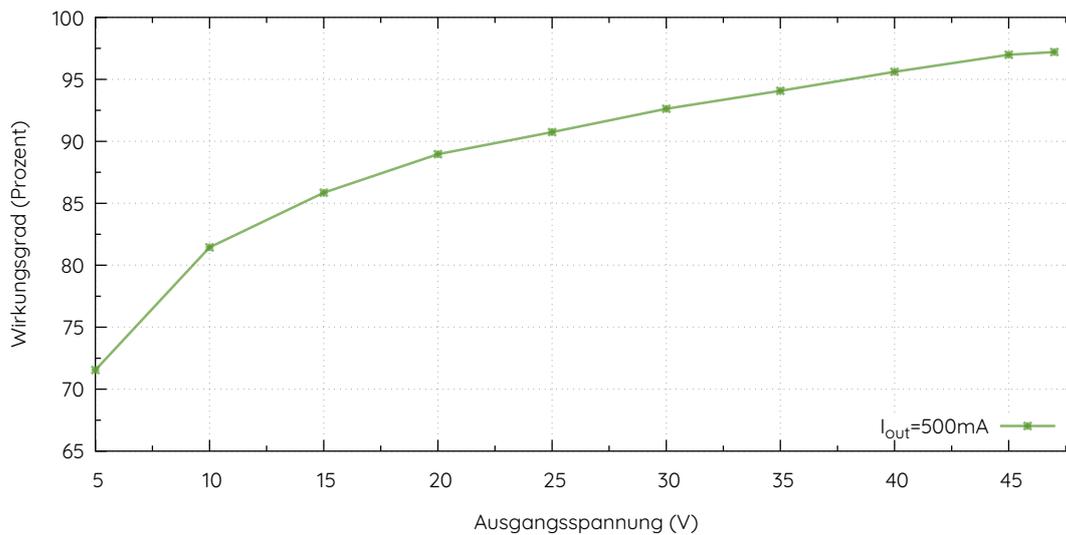


Figure 6: Efficiency of the 500mA Variant over Output Voltage



### 4.3.3 Losses

The electrical losses are depicted in Figure 7.

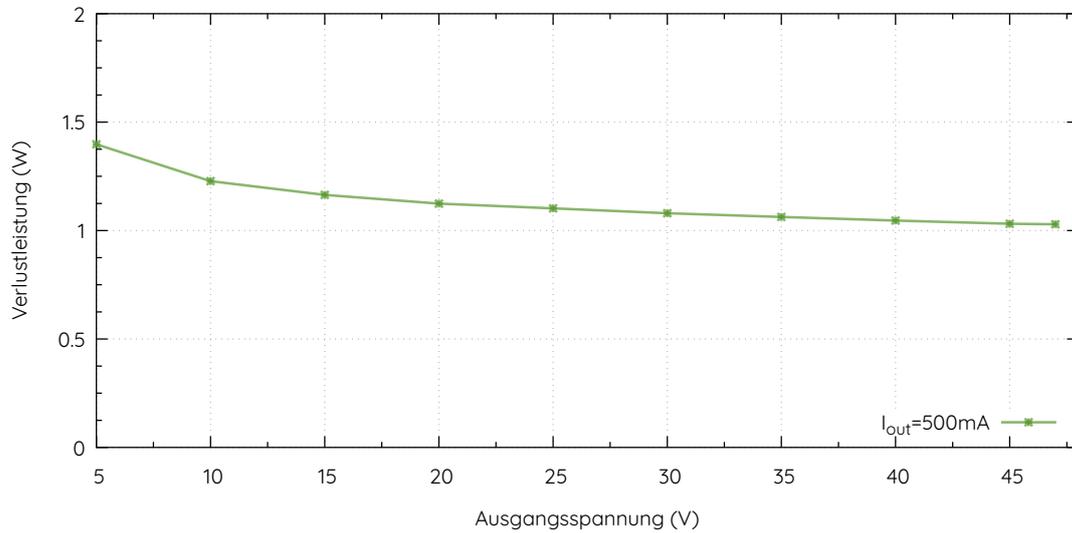


Figure 7: Power Loss of the 500mA Variant over Output Voltage



## 5 EMC Measurements

### 5.1 LED48-350

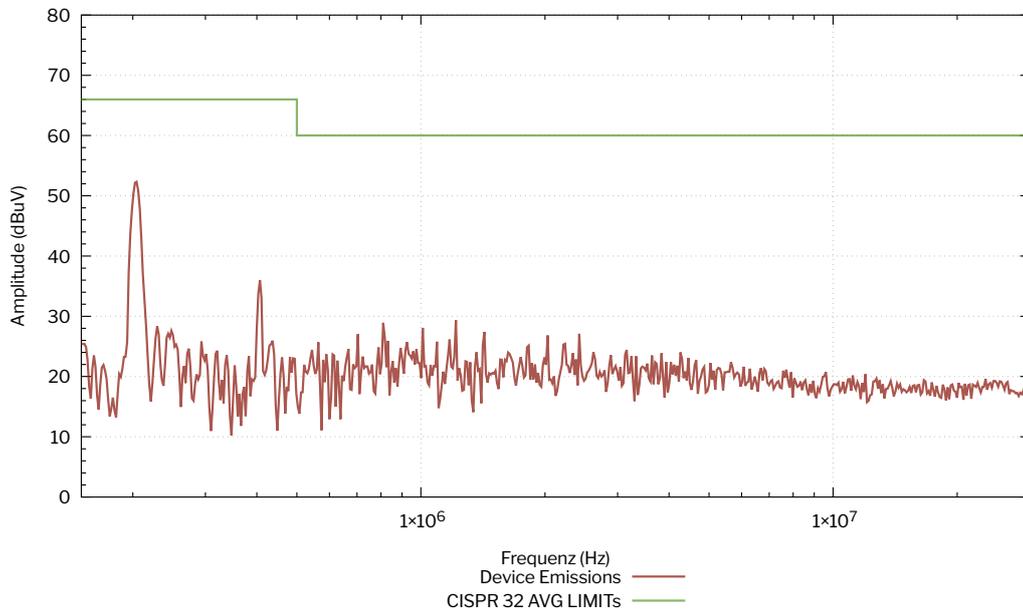


Figure 8: Conducted Input emissions

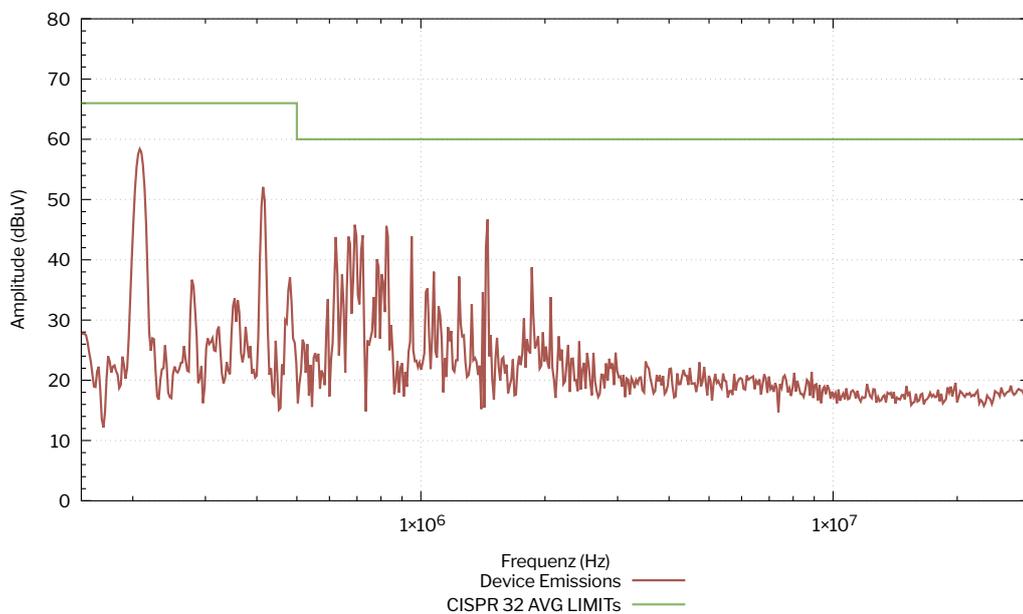


Figure 9: Conducted Output emissions



## 5.2 LED48-500

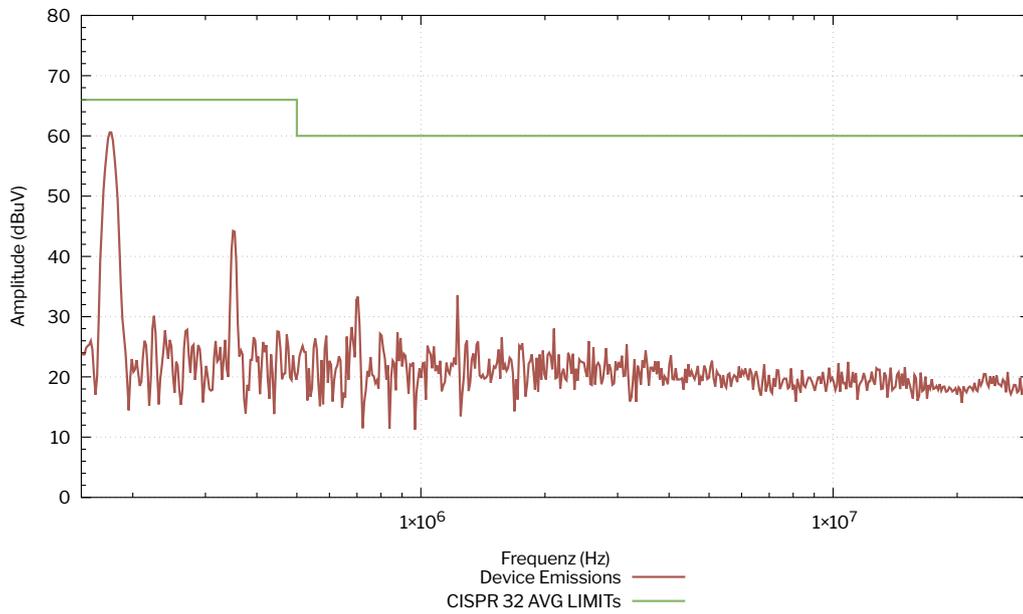


Figure 10: Conducted Input emissions

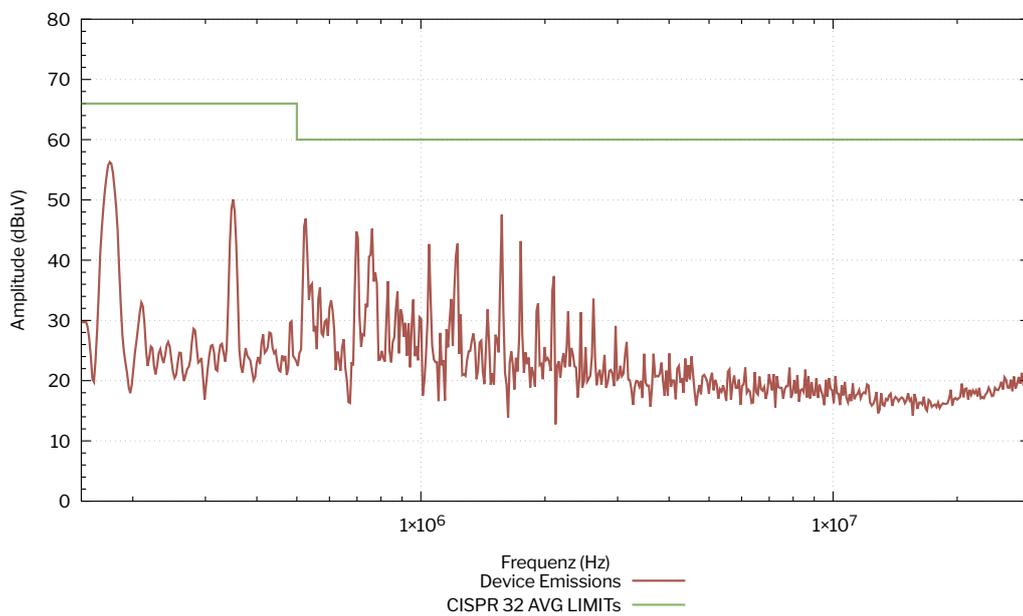


Figure 11: Conducted Output emissions



## 6 Case

The case drawing is shown in Figure 12.

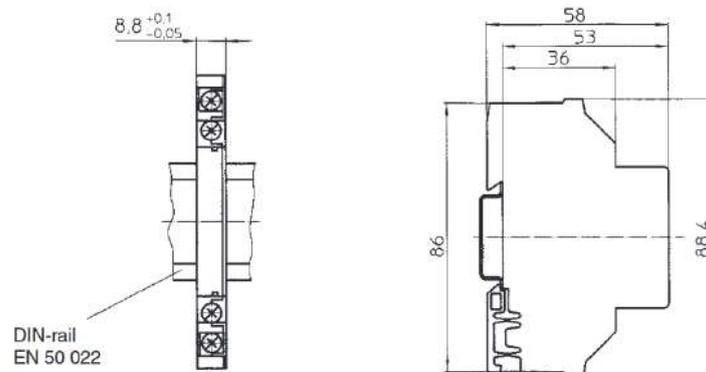


Figure 12: Product case.

## 7 Product label

The Label for the LED48-XXX is depicted in the following Figure 13.



Figure 13: The product label of the LED48-XXX.





## 8 Revision History

The revision history is depicted in the following table.

Date	Changes in Revision
28.11.2022	Initial Release
16.01.2023	Updated product picture
25.04.2023	Updated Device Limits 350mA & 500mA
2.05.2023	Updated Device Limits 350mA
31.05.2023	Added EMC Section
8.01.2024	Added Product EAN and updated images





# LED48-XXX

Ultrathin 8.8mm 48V DIN Rail LED Buck Driver

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## 9 Contact Information

This is a product of the Digital Power Systems GmbH (DPS).

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