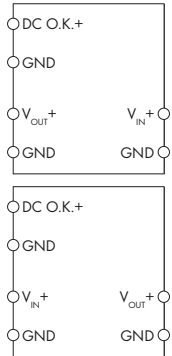


EPSITRON®  
DC/DC Converter  
787-2801, 787-2802, 787-2805, 787-2810  
787-2803



1 Safety Information

**DANGER**  
Do not work when devices are energized!  
High voltage can cause electric shock or burns.  
Switch off all power to the device prior to performing any installation, repair or maintenance work.

**DANGER**  
Live parts are likely to be touched!  
The party setting up the device is responsible for providing appropriate touch guards. The installation regulations must be observed for each individual application.

**Note**  
Follow the instructions!  
Incorrect installation may compromise safety in the event of a failure. Before installation and operation, please read these instructions thoroughly and carefully.

- Please especially observe the following:
- The device described in these instructions shall only be installed by a qualified electrician according to both DIN EN 50110-1/-2 and IEC 60364.
  - Before startup, check the device for any damage that may have occurred during shipping. The device shall not be put into operation in the event of mechanical damage.
  - Observe the applicable laws, standards and regulations.
  - Observe the current, accepted technology standards and practices at the time of installation
  - Only install this device in closed electrical service locations in accordance with DIN EN 50178.
  - Only install this device in dry indoor rooms.
  - Do not install the devices on or in the vicinity of easily flammable materials.

Improper use and failure to follow these instructions for use will render the warranty or guarantee null and void.

2 Short Description

DC/DC converters are used for converting DC voltages to other DC voltage levels. These converters can be used, for example, when other DC voltage levels are required in a system in addition to the normal DC power supply to provide power to individual, smaller sections of the system.

The 787-2810 unit offers a special feature for this. It has DIP switches which can be used to set the output voltage to 5 V, 10 V or 12 V.

3 Technical Data

Table 1: Device	
Dimensions (mm) W × H × L	6 × 96 × 94 (height from upper-edge of DIN 35 rail)
Weight	38 g

Table 2: Electrical Data					
	787-2801	787-2802	787-2803	787-2805	787-2810
<b>Input</b>					
Nominal input voltage U <sub>IN Nom</sub>	24 VDC	24 VDC	48 VDC	24 VDC	24 VDC
Input Voltage Range	10 ... 30 VDC	15 ... 30 VDC	40 ... 55 VDC	15 ... 30 VDC	15 ... 30 VDC
Input current I <sub>IN</sub>	< 0.34 A	< 0.42 A	< 0.34 A	< 0.50 A	< 0.50 A
Max. make current	< 0.5 A				
Reverse voltage protection	Yes				
<b>Output</b>					
Nominal output voltage U <sub>OUT</sub>	5 VDC	10 VDC	24 VDC	12 VDC	5 VDC/ 10 VDC/ 12 VDC
Output voltage tolerance	±3 %	±2 %	±2 %	±2 %	±3 %
Output current I <sub>OUT</sub>	0.5 A				
Operating voltage feedthrough	±3 %	±2 %	±3 %	±2 %	±3 %
Mains / load regulation	±1 %				
Residual ripple	≤ 20 mV (peak-to-peak)				
LED Indication	LED green (U <sub>out</sub> ), LED red (short circuit)				
	DC contact OK (V <sub>RN</sub> + max. 15 mA)				
<b>Efficiency/Power Losses</b>					
Efficiency at P <sub>Nom</sub> and U <sub>Nom</sub>	> 82.5 %	> 89 %	> 91 %	> 90 %	> 82.5 %
Power loss P <sub>v</sub> at nominal load	< 0.6 W	< 0.7 W	< 1.2 W	< 0.7 W	< 0.7 W
Power loss P <sub>v</sub> at minimum load	< 0.13 W	< 0.19 W	< 0.29 W	< 0.21 W	< 0.21 W
<b>Fuse Protection</b>					
Internal fuse	No				
<b>Safety and Protection</b>					
Protection class	III *				
Degree of protection (acc. to EN 60529)	IP20				
Short-circuit-protected	Yes				
Open-circuit-proof	Yes				

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Table 2: Electrical Data					
Feedback voltage $U_{\text{max}}$	16 V	16 V	27 V	16 V	16 V
Parallel operation	No				
Series operation	No				
MTBF (acc. to MIL-HDBK 217F)	> 1800000 h				
* Protection class III is fulfilled when protective low voltage (SELV) is present at the input side.					

Table 3: Wiring	
Connection technology	Push-in CAGE CLAMP®
Wire gauge input/output	0.2 mm² ... 2.5 mm² / AWG 24 ... 12
Strip length	9 mm ... 10 mm / 0.35 in ... 0.39 in

Table 4: Environmental Conditions	
Ambient operating temperature	−25 °C ... +70 °C
Storage temperature	−25 °C ... +85 °C
Relative humidity	≤ 95 %
Pollution degree (acc. to EN 61131-2)	2
Elevation above sea level	Max. 2000 m

4 Standards and Approvals

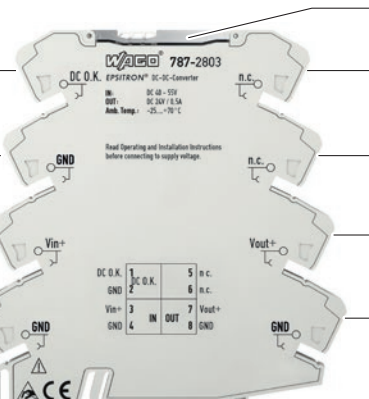
Electrical safety and EMC (electromagnetic compatibility) is provided through the equipment configuration in accordance with the cited standards.

4.1 Overview

Table 5: Standards and Approvals	
Standards	EN 60950-1
EMC	EN 61000-6-2, EN 61000-6-3

5 Pin Assignment

Table 6: Pin Assignment						
		(a)	No.	Assignment	No.	Assignment
(1)		(b)	(1)	DC OK+	(5)	n.c.
		(5)	(2)	GND	(6)	n.c.
(2)		(6)	(3)	V <sub>OUT</sub> +	(7)	V <sub>IN</sub> +
		(7)	(4)	GND	(8)	GND
(3)		(8)	(a)	Transparent cover		
			(b)	DIP switches (787-2810 only)		
(4)			(c)	Snap-in mounting foot		
(c)						

Table 7: Pin Assignment (787-2803 only)						
		(a)	No.	Assignment	No.	Assignment
(1)		(5)	(1)	DC OK+	(5)	n.c.
(2)		(6)	(2)	GND	(6)	n.c.
(3)		(7)	(3)	V <sub>IN</sub> +	(7)	V <sub>OUT</sub> +
(4)		(8)	(4)	GND	(8)	GND
(c)			(a)	Transparent cover		
			(c)	Snap-in mounting foot		

6 Installation and Startup

Protect equipment from excessive stress. Particularly during transport and handling, ensure that no parts are bent and that electrical spacing remains constant. Avoid touching the electrical components and contacts. Keep sufficient distance from adjacent parts so as to avoid interfering with the cooling!

During operation, the equipment (pursuant to the degree of protection) can have hot surfaces. Always assemble and wire the equipment when the power is disconnected. Observe the product description and the technical information in our main catalog, as well as the labels on the equipment and on the type plate. Perform installation according to the local conditions, applicable regulations (e.g., VDE 0100), national accident prevention specifications (e.g., UVV-VBG4 or BGV A2) and accepted technical regulations. This electrical equipment is intended to be installed in electrical systems or machines and fulfills requirements of the low voltage directive (2006/95/EG). When installing in machines, normal operation must not commence until it is determined the machine complies with the requirements of the machinery directive (2006/42/EG); EN 60204 shall be observed. Commencement of normal operation is only allowed under compliance with the EMC directive (2004/108/EG). The manufacturer of the system or machine is responsible for ensuring compliance with the limit values required by EMC legislation.

7 Mounting

**NOTICE**  
Avoid electrostatic discharge!  
The devices are equipped with electronic components that you may destroy by electrostatic discharge when you touch. Pay attention while handling the devices to good grounding of the environment (persons, job and packing).

7.1 DIN-35 Rail

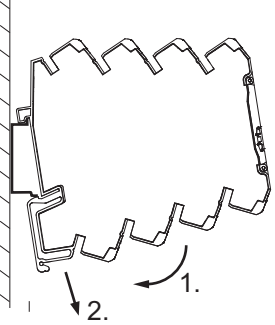


Figure 1: Mounting

7.1.1 Mounting on DIN-Rail

Install the device as per EN 60715 by snapping it onto DIN-rail (see Figure 1):

- Place the device with its DIN-rail guide on the top edge of the DIN-rail.
- Press the device onto the DIN-rail [1] while simultaneously pulling on the snap-in mounting foot (c) until it locks into place [2].
- To ensure secure fastening on the DIN-rail, fit end clips (e.g., Item No. **249-116**) on either side of the device (with a block arrangement: on either side of the devices).

If devices are snapped on the DIN-rail at the factory, use separators (Item No. **209-191**) for safe electrical isolation between two adjacent contact points.

7.1.2 Removal from the DIN-Rail

- To remove (see Figure 2) pull down the snap-in mounting foot (c) [1]. Use a screwdriver or an operating tool for this.
- Tilt the device forward and detach it from the DIN-rail.

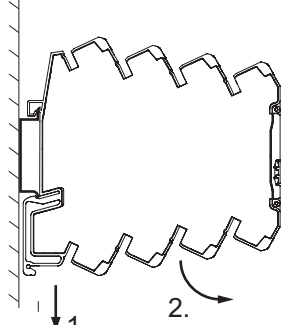




Figure 2: Removal

8 Wiring

**DANGER**  
Ensure a standard connection!  
To minimize any hazardous situations resulting in personal injury or to avoid failures in your system, the data and power supply lines shall be installed according to standards, with careful attention given to ensuring the correct terminal assignment. Always adhere to the EMC directives applicable to your application.

Always observe the max. permissible conductor cross sections for the signal and power cables (see “Technical Data”).

Perform wiring of the device using an operating tool.

Table 8: Wiring	
	
Wiring the device Slightly pull on the wire to ensure that it is securely connected.	Removing the wiring

Push-in type jumper bars (859 series) can be used for potential commoning (see “Accessories”).

9 LEDs and Error Indication

The LEDs (green/red), which are visible on the front, display the following states:

Table 9: LEDs and Error Indication			
<b>LEDs and Error Indication</b>	<b>LED</b>		<b>DC OK Contact</b>
	<b>Green</b>	<b>Red</b>	
Normal operation: Output voltage present	•		V <sub>IN</sub> +
Error: Short circuit at output		•	0 V
Error: Output voltage outside of tolerance range (±10 %) *	•	•	0 V
* Example: Less than the supply voltage			

10 Configuration (787-2810 only)

The required output voltage can be set using DIP switches:

Table 10: Configuration Option	
DIP switches (787-2810 only)	

Table 11: Configuration via DIP Switches – Output Voltage		
DIP Switches		
1	2	Output Voltage
		12 V
•		10 V
•		12 V
•	•	5 V

11 Accessories

Details on accessories are available online at [www.wago.com](http://www.wago.com).

11.1 Tools

Use only the following tool:

Table 12: Accessories – Tools		
Operating tool with partially insulated shaft	Type 2, (3.5 × 0.5) mm blade	210-720

11.2 Marking

Use the WMB multi-marking system, or the TOPJOB®S marking system for marking.