

## Technical data sheet

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### USB charging socket with protective cap



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#### Identification

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Type NG-9009 DC 24V 2x USB-A IP65  
Part No. [819009](#)

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#### Product version

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Hardware revision D  
Datasheet version 03

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#### Use/Application/Properties

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Description DC/DC converter as charger for mobile phones and tablet PCs on rail vehicles in the passenger area. The converter has a DC voltage input with DC 24 V. 2 channels with 5 V/1.5 A each are available at the output. In addition, the charger automatically monitors the voltage on the USB data lines and provides the corresponding charge signatures on the data lines.

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#### Technical data

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Rated voltage $U_N$	DC 24 V
Rated current	max. 700 mA
Voltage range	DC 16.8 V – 30 V
Efficiency	90 %
Output voltage	DC 5 V $\pm$ 0,25 V
Output current	1.5 A per channel
Protection device	Polarity reversal protection Suppressor diode
Status indication LED	LED green (Output voltage) per channel
Protection device output	Short-circuit protection Overload protection
Contact durability	5000
Connection type	Spring terminal, pluggable with loop-through function (2-pin) (Not included in the delivery) 0.20 mm <sup>2</sup> – 1.5 mm <sup>2</sup> Stripping length: 10 mm Screwdriver: 2.5 × 0.4 mm

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24.03.2022 • Subject to technical modification

Part No. [819009](#) • Datasheet version: 03

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### General

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Dimensions (w × h × d)	35.0 mm × 35.0 mm × 45.0 mm
Weight/unit	0.029 kg
Housing material	PA 66
Mounting	Single-hole mounting Torque 4 Nm
Installation position	As desired

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### Environmental service conditions

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<b>Altitude</b>	2000 m
Operating temperature class	OT4: -40 °C ... +70 °C Due to heat development in the housing, continuous operation at +70 °C ambient temperature is not recommended, as this could have an impact on the product life.
Switch-on extended Operating temperature class	ST1: OTx + 15 °C
Temperature variation class	H1:no requirements
Shock/Vibration	Category 1, class B
Class of supply voltage interruption	S1
Supply change-over class	C1
Useful life class	L4: 20 years
Degree of protection	IP20

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### Failure Rate Prediction (MTBF)

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Standards	Electronic components – Reliability – Reference conditions for failure rates and stress models for conversion: EN/IEC 61709 Failure Rates of Components – Expected values: SN 29500
Failure rate at +45 °C	145 fit
Failure rate at +45 °C	6908854 h 1 fit equals one failure per 10 <sup>9</sup> component hours The indicated temperature is the mean component ambient temperature.
Comments	The results are valid under following conditions: Automotive environment or industrial areas without extreme dust levels and harmful substances Continuous operation 8760 h per year

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### Standards/Certifications

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Standards	<p><b>EN 50155:2007:</b> Railway applications – Rolling stock – Electronic equipment <b>EN 50155:2017:</b> Railway applications – Rolling stock – Electronic equipment (testing according chapter 13.3 table 12) Withstand voltage test: routine test with 1 s test duration <b>EN 50121-3-2:2016:</b> Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus <b>EN 50124-1:2017:</b> Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment <b>EN 61373:1999:</b> Railway applications – Rolling stock equipment – Shock and vibration tests <b>EN 61373:2010:</b> Railway applications – Rolling stock equipment – Shock and vibration tests <b>EN 45545-2:2013+A1:2015:</b> Railway applications – Fire protection on railway vehicles – Part 2: Requirements for fire behaviour of materials and components</p>
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### Accessories

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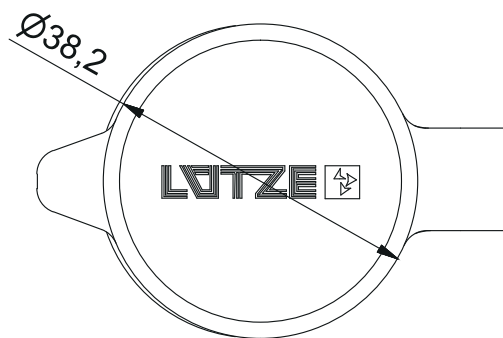
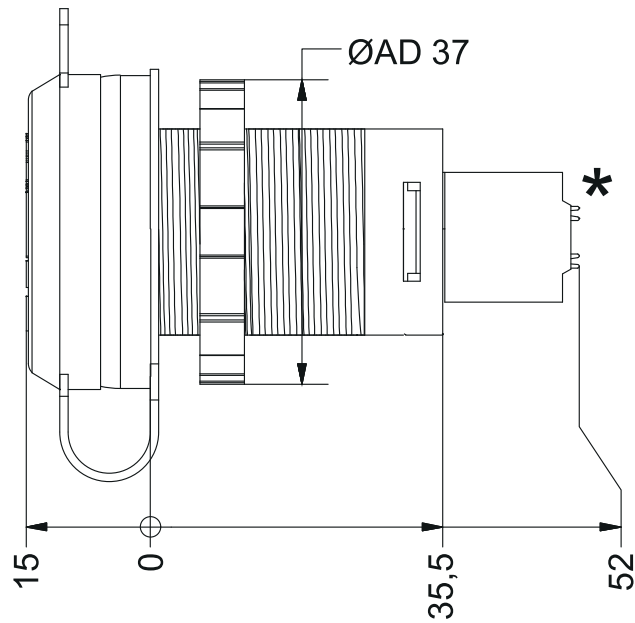
Accessories	<p>Not included in the delivery: Spring terminal, pluggable with loop-through function (2-pin), part number 819902 Assembly tool, part number 819903</p>
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### Notes and Comments

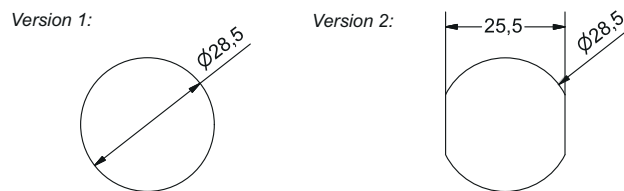
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Comments	<p>* not included in the delivery</p>
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Dimensions



Mounting diagram



Circuit diagram

