

Let's talk!

AC-DC Converter REC7500-400-24-K1

Battery Charger for Railway Applications

Technical Data

General

Electrical safety	acc. to EN 50124-1:2017 and DIN-EN 50153:2018 overload and short-circuit proof
Efficiency	> 90 % at nominal load
Electrical isolation	3.75 kV _{AC} (primary/secondary)
Protection class	1
EMC	acc. to DIN-EN 50121-3-2:2017
Railway standard for electronic equipment	DIN-EN 50155:2022
Shock and vibration	acc. to EN 61373:2011 cat. 1B
Ambient temperature	-25 °C to +55 °C acc. to EN 50125-1:2014 and DIN-EN 50155:2022 cat. T3, extended to -30 °C to +55 °C; with 3-AC supply, linear derating of the charging current from 80 A to 0 A in the temperature range of +80 °C to +90 °C (heat sink temperature)
Relative humidity	15 – 100 % acc. to EN 50125-1:2014 (protected against condensation)
Operation altitude	max. 1400 m
Fire protection	acc. to EN 45545-2:2020 HL2
Software design	DIN-EN 50716:2024
IT security	DIN-EN IEC 62443-4-1:2018

AC input

Nominal voltage 3-AC	400 V _{AC} , with or without N
Voltage range	342 – 484 V _{AC}
Frequency range	47 – 63 Hz (briefly down to 25 Hz)
Temporarily reduced input voltage	Derating acc. to diagram 1

Alternatively:

Nominal voltage 1-AC	230 V _{AC}
Voltage range	190 – 254 V _{AC}
Frequency range	47 – 53 Hz
Derating	from 220 to 190 V _{AC} linear drop in output current from 60 A to 30 A

Type of power network	IT or TN grid acc. to VDE 0100
Power factor	> 0.85

DC output

Nominal voltage	24 V _{DC} (charge curve 25 – 30 V _{DC})
Voltage stability	±1.5 %
Ripple	< 5 %
Nominal current	300 A ±1.5 %
Max. output power	7500 W
Alternatively (with 1-AC):	
Ripple	< 5 %
Nominal current	60 A ±1.5 %
Max. output power	1800 W
OVP	< 33 V
Load range	0 – 100 %
Short-circuit behaviour	Shutdown at 10 V > 10 s (adjustable)
Output characteristic	UI characteristic
Number of outputs	1x battery charging, 2x load
Decoupling of load outputs	via active diode function



Picture may differ from actual device

Battery charging

Charging method	I _{UoU} characteristic
Battery type	Lead-acid battery, U _{NOM} = 24 V
Battery capacity @ 30°C	400 Ah or 340 Ah
Charging current limit	80 A (3-AC) / 60 A (1-AC)
Charging characteristic	see diagram 2
Current consumption from the battery	< 1 mA

Signals

Signal input	Battery temperature NTC 10 kΩ
Signal outputs	2 potential-free relay contacts "Power Good" and "No Alarm", each 3-pole led out (COM-NC-NO), max. contact load: 0.5 A at 30 V _{DC}
Optical	2x LED green, 1x LED red

External communication

CAN interface	Measured values, status and error messages, event log with time stamp, parameter setting, firmware update (via service laptop)
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Connection technology

Signal (X1)	Harting Han 3A, 12-pole, male
AC input (X2)	Harting Han Modular 10B, male
DC output (2x load+)	2x M12 bolts
DC output (1x battery+)	1x M12 bolt
DC output (3x common-)	3x M12 bolts
Service (X3)	D-Sub 9-pole, female
Protective earth (PE)	M6 and M10 bolt

Mechanical data

Housing material	Aluminium
Dimensions	19" x 9 U x 500 mm (W x H x D)
Weight	approx. 30 kg
Ingress protection	IP 53
Cabling	Front side
Cooling	3 controlled and monitored fans

Warranty

24 months

Order code

REC7500-400-24-K1

Subject to change without notice.

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Version 1.2

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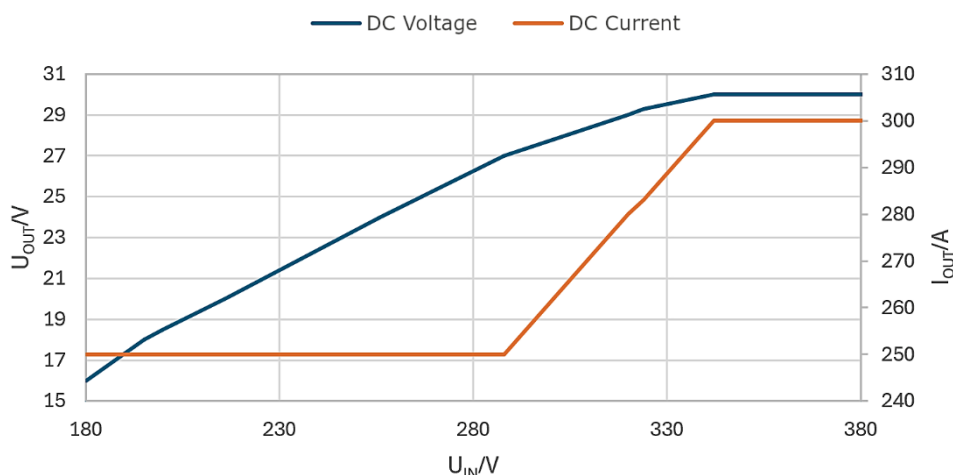


Diagram 1: Operation with reduced output power in the event of temporarily reduced input voltage (3~AC)

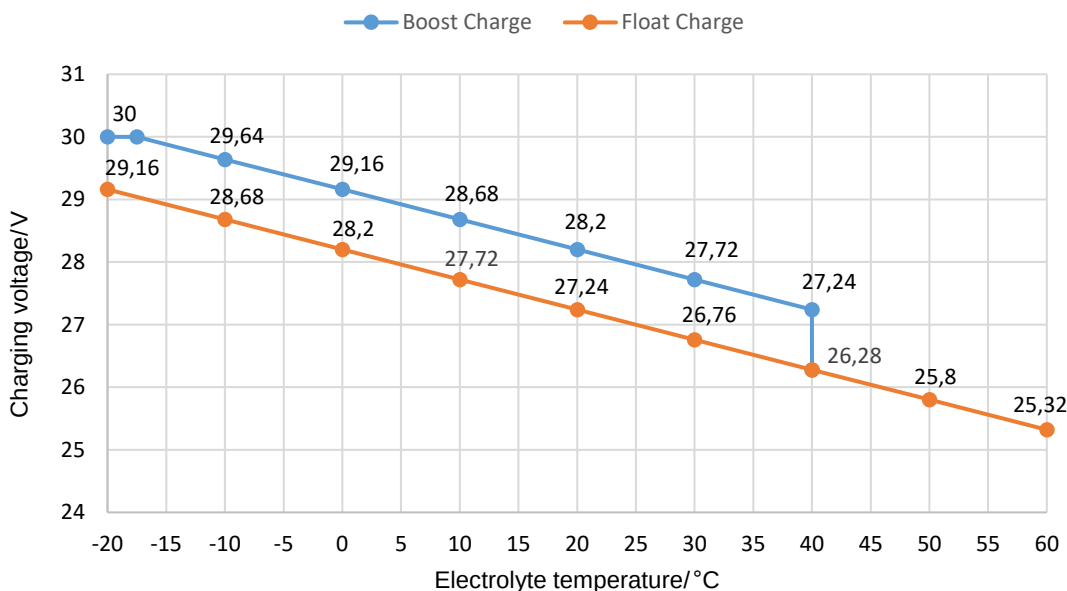


Diagram 2: Temperature-controlled charging characteristic (factory defaults, all parameters are changeable)

Parameter	Value
Temperature compensation	-48,00 mV/K
Upper temperature limit	60 °C
Lower temperature limit	-20 °C
Charging current limit	3~AC: 80 A 1~AC: 60 A

Parameter	Value
Current-dependent switchover - from Boost to Float Charge - from Float to Boost Charge	Charging current < 16 A Charging current > 26,67 A
Temperature-dependent switchover - over from Boost to Float Charge	Battery temperature > 40 °C