

PRODUCT DESCRIPTION

Power supply modules of the series WHR..K are compact battery charging rectifiers with rear side connections. The rectifiers are designed for high voltage power plants and substations.

Due to the modular concept and a high scalability the user is able to equip the power supply with additional modules according to his actual power profile. The chargers are very user-friendly and can be swapped as well as upgraded during system operation.

The devices get their operation parameters via the system RS 485 communication bus. After a successful login a central monitoring unit controls and monitors the devices. In case of interruption due to failure of the monitoring unit the modules continue to operate with internal default values. Therefore the supply of the connected loads and the charging of the batteries are guaranteed without any interruption. The rectifier needs a 3-wire mains connection without neutral (WHR-3..) or one-phase AC mains connection (WHR-1..).

RECTIFIER

WHR-1-110V / 20A K

WHR-1-220V / 10A K

WHR-3-110V / 20A K

WHR-3-220V / 10A K



APPLICATION

These power supplies are designed for a wide range of applications such as:

- Power supply for all medium to high power DC loads
- Rectifiers in DC systems with battery backup
- Telecommunication
- Industrial control systems
- Charging and buffering of stationary batteries in electrical power plants

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KEY FEATURES

- Three-phase input without neutral (or 1-phase)
- Protection for Input and output overvoltage / undervoltage, over temperature, phase reverse, phase failure and short circuit
- "Hot plug-in" design with backplane connection
- High power density
- RS 485 interface for remote adjusting, controlling, measuring and signalling.
- Digital display for output voltage, current and adjustment values
- High efficiency with low EMI
- CE safety and EMC certification
- LED indication for On / Fault status.

Input

Model No.	WHR-1-... ...110/20 K ...220/20 K	WHR-3-... ...110/20 K ...220/20 K
Input voltage	230VAC +/- 15%	400VAC +/- 15%
Input current	13.6AAC	3x4.6AAC
Input frequency range	45 Hz-65 Hz	
Power factor	≥ 0.93	

Mechanical

Model No.	all rectifiers
Weight approx.	9.0kg
Dimensions (W/H/D) mm	139 / 263 / 361
Protection class	IP 20
Color (front panel)	RAL7035

Output

Nominal output voltage	110V DC	220V DC
Adjustable output voltage range	95-150V	190-300V
Voltage stabilization accuracy	± 0.5%	
Current stabilization accuracy	± 1 %	
Nominal output current	20A (120V)	10A (240V)
Nominal output power	3000 W	
Efficiency	≥ 95 %	
Charge characteristic line	IU characteristic according to DIN41772/ DIN41773	
Voltage ripple	≤ 0,2%	
Dynamic accuracy of the charging voltage	<3% of Vnom at load change from 10% - 90%	
Short circuit protection	15% - 30% of Inom when in short circuit	
Parallel operation	yes	

Technical Data

Communications interface	RS 485
Ambient temperature	operation: -20° to +50° C , storage:-40° to +60° C
Humidity	≤ 90% RH
Cooling	Without fan
Climatic conditions	IEC-68-2-2, IEC-68-2-3, IEC-68-2-6
Max. installation altitude	≤2000 m
Audible noise	< 50 db
Connections	AC/DC at rear
CE conformity	Yes
Compliance with EMC standards	EN61000-4-2, EN-61000-4-6, EN-61000-4-3, EN-61000-4-12
Air pressure	70-106 kPa
Insulation Resistance	input & output > 10 megaohms at 500VDC
Dielectric strength	2000V input / output and chassis for 1min.

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Power supply modules of the series WHR are compact battery charging rectifiers with rear side connectivity. The rectifiers are designed for high voltage power plants and substations.

Due to the modular concept and a high scalability the user is able to equip the power supply with additional modules according to his actual power profile. The chargers are very user-friendly and can be swapped as well as upgraded during system operation.

The devices get their operation parameters via the system RS 485 communication bus. After a successful login a central monitoring unit controls and monitors the devices. In case of interruption due to failure of the monitoring unit the modules continue to operate with internal default values. Therefore the supply of the connected loads and the charging of the batteries are guaranteed without any interruption. Step less temperature control fan speed & change with the output power of module, which minimize noise & extend fan life. The rectifier needs a 1Ph AC mains connection.

Rectifier power circuit is divided into active PFC & DC to DC converter which can make the wide input voltage range (85V-290V) & high efficiency High power density has reached the international advanced level.

Rectifier

WHR-24V / 70A-FCI

WHR-48V / 50A-FCI

WHR-110V / 20A-FCI

WHR-220V / 10A-FCI



APPLICATION

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Power supply for all medium to high power DC loads
Rectifiers in DC systems with battery backup
Telecommunication.
Industrial control systems.
Charging and buffering of stationary batteries in electrical power plants.

KEY FEATURES

Protection for Input and output overvoltage / under-voltage, over temperature, and short circuit
“Hot plug-in“ design with backplane connection
High power density
RS 485 interface for remote adjusting, controlling, measuring and signalling.
High efficiency with low EMI
CE safety and EMC certification
LED indication for On / Fault status.

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Input

Model No.	WHR...FCI
Input voltage	85 – 290VAC (nominal 180-290V)
Input current	13.6AAC
Input frequency range	45 Hz-65 Hz
Power factor	≥ 0.99

Mechanical

Model No.	WHR...FC1
Weight approx.	2.6kg
Dimensions (W/H/D) mm	103 / 88 / 261
Protection class	IP 20
Colour (front panel)	RAL 7024

Output

Nominal output voltage	24V DC	48V DC	110V DC	220V DC
Adjustable output	21-36V	42-66V	95-150V	190-300V
Voltage stabilization accuracy	± 0.5%			
Current stabilization	± 1 %			
Nominal output current	70A (30V)	50A (50V)	20A (120V)	10A (240V)
Nominal output power	2500W			
Efficiency	≥ 92 %			
Charge characteristic line	IU characteristic according to DIN41772/ DIN41773			
Voltage ripple	≤ 200mV			
Dynamic accuracy of the charging voltage	<3% of Vnom at load change from 10% - 90%			
Short circuit protection	15% - 30% of Inom when in short circuit			
Parallel operation	Yes, current sharing ±3%			

Technical Data

Communications interface	RS 485
Ambient temperature	operation: -20° to +50° C , storage: -40° to +60° C
Humidity	≤ 95% RH
Cooling	Fan cooled
Climatic conditions	IEC-68-2-2, IEC-68-2-3, IEC-68-2-6
Max. installation altitude	≤2000 m
Audible noise	< 50 db
Connections	AC/DC at rear
CE conformity	yes
Compliance with EMC standards	EN61000-4-2, EN-61000-4-6, EN-61000-4-3, EN-61000-4-12
Air pressure	70-106 kPa
Insulation Resistance	input & output > 10 megaohms At 500VDC
Dielectric strength	2000V input / output and chassis for 1min.