



GUSTAV KLEIN
POWER SUPPLIES - since 1948

Battery Charger System

Rectifier Module GR - 5701

Made in Germany

Typical features

The Rectifier system WGS-U series comprise of the switched mode power supply (SMPS) Type GR-5701 is a primary switched converter with pulse width modulation and galvanic isolation.

Main features:

- Industrial design
- Front access
- Modular with Hot swappable
- Parallel Redundant
- No cooling fan / Low maintenances
- Output short circuit proof
- Floating/Boosting/Equalizing charge mode
- Special Battery test mode
- Overall efficiency >92.5%
- Output ripple $\leq 1\%$ rms
- Input voltage 230VAC, 1~, PE and 3x 400 VAC, 3~, PE

General features:

- Case for cabinet mounting
- High switching frequency – low noise
- Output voltage control to $\pm 1\%$
- Constant current – constant voltage characteristic
- 4 voltage characteristics
- Continuous operation at nominal current
- Inrush current limited
- Parallel operation with multiple converters - without limitation of the number - electronic balancing of current / decoupling diode
- Signalizing with LED and relays
- Plug (female) for voltage and current measurement
- Forced air cooling with long life fans (48V , 110V , 125V , 220V and 375V version)
- Natural air cooling (24V , 48V , 110V and 125V version)
- Rotation speed of the fans load and temperature dependent - enhanced life cycle (60 V and 125 V version)
- External fusing
- Connectors on front panel



Rectifier Module

Type GR-5713 (1~)

Type GR-5701 (3~)

The modules can be used for direct supply or as a float charge rectifier an unlimited number of units can be connected in parallel.

The WGS-U rectifiers are of the newest state of the art, in switched-primary construction. The current into the intermediate circuit filter is limited at switch-on, so that the AC inrush current does not exceed 120% of the rated current.

The operation status of each unit is displayed with LED's. Test sockets are available for current and voltage measurements. The modules are provided with 3-4 voltage characteristics for charging. The connection is made at the front of the unit. The modules are protected by external fuses.

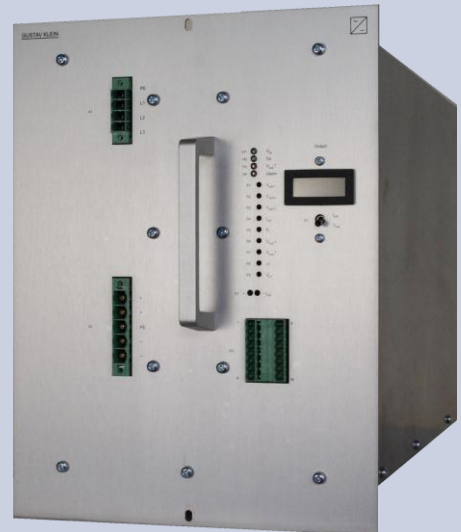
Special features:

- High efficiency
- Compact design
- Easy accessible connection
- In wide range without fans
- Noise ≤ 1 mV (24 V)
 ≤ 2 mV (48/60 V)
- Option: Temperature controlled charging voltage

High test voltages

According to German Railway standard

Input – Output: 3.75 kV rms
Output – Ground: 2 kV rms
Output – Ground: 2 kV rms



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Rectifier Module

Type: GR-5701 and GR-5713

Technical Data		
AC input voltage:	V	see table
Frequency:	Hz	45 – 63
Power factor cos phi:		> 0.95 (10 – 100 % load)
Crestfactor:		< 1.6
DC output:		
Voltage characteristics:	V / Z	2.0 / 2.23 / 2.4 (adjustable)
Regulation of output voltage:	%	± 1
Regulation time:	msec	10
Output voltage tolerance at load change 10-100-10 %:	%	< 2
Current limiting threshold:		at nominal current
Charging characteristic:		IU according to DIN 41772
Ripple of output voltage:	%	≤ 1 rms.
Noise voltage:		≤ 1 mV (24 V); ≤ 2 mV (48/60 V) Weighted with a (CCITT-A-filter)
EMC:		EN 61000-6-2 and EN 61000-6-4
Protection class:		IP 20 according EN60529 for cabinet mounting
Permissible climate:		Indoor, 3K3 according to EN 60721 (max. 85% rel. humidity, no condensation)
Ambient temperature:	°C	-5 ... + 40

Standard types 1)

Input voltage V	Output voltage V	Output current A	Efficiency %	Dimensions width x height x depth mm				Cooling 1)	Weight kg	
230	24	10	> 85%	80	x	219	x	282	AN	0,9
230	24	25	> 85%	88	x	304	x	352	AN	3,8
3x 400	24	50	> 89%	132	x	355	x	440	AN	9,4
3x 400	24	100	> 88%	150	x	449	x	303	AN	14
230	48/60	5	> 88%	80	x	219	x	282	AN	0,9
230	48/60	10	> 87%	88	x	304	x	352	AN	3,8
230	48/60	25	> 89%	132	x	355	x	442	AN	7,4
3x 400	48/60	25	> 90%	110	x	304	x	382	AN	6,3
3x 400	48/60	50	> 91%	132	x	355	x	440	AN	9,4
3x 400	48/60	110	> 90%	267	x	355	x	440	AF	20
230	48/60	125	> 88%	483	x	265,9	x	444 (6HE)	AF	33
3x 400	110	12,5	> 92%	110	x	304	x	382	AN	6,3
3x 400	110	30	> 92%	132	x	355	x	440	AF	9,4
3x 400	110	60	> 92%	267	x	355	x	440	AF	20
3x 400	110	100	≥ 93%	483	x	310,3	x	440 (7HE)	AF	48
3x 400	140	75	≥ 93%	483	x	310,3	x	440 (7HE)	AF	48
3x 400	220	30	> 93%	267	x	355	x	440	AF	20
230	110/220	35	> 91%	483	x	265,9	x	440 (6HE)	AF	33
3x 400	220	50	> 93%	483	x	265,9	x	440 (6HE)	AF	48
230	375	35	> 96%	483	x	265,9	x	440 (6HE)	AF	32

¹⁾ Other versions on demand

²⁾ „AN“ natural convection; „AF“ forced air cooling (fan)

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subject to change without notice.

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