



Technical Data sheet

Industrial Rectifier Charger / Transformer Based Design

Model : TECNED GR (SF/D) 110 (125)Vdc -200-250-300-400-500-600A
Fault Tolerant Topology





Transformer Based Topology

Rectifier rate & Configuration

Nominal voltage	110(125)Vdc					
Nominal current	200	250	300	400	500	600

Input

Input Transformer	Galvanic Isolation Transformer (Insulation class H)
Standard input voltage 3Phase	208/220/240/380/400/415/480V, (3W+E), (-15% to + 20%)
Standard input voltage 1Phase	110/120/200/220/230/240/277V, (2W+E), (-15%, to + 20%)
Frequency	50Hz or 60Hz (range 40-70Hz)
Input Power factor	> 0.98 (25 to 100% load)
Input current Harmonic	< 10%
Overall efficiency	up to 94% (depending on DC bus voltage)
Inrush current	Limited by soft start circuit
Power walk-in	10 Sec.
Input power connection (kVA)	27.5 34.5 41.5 55 68.5 82.5

Battery system

Battery	Available for Ni-cd and Lead Acid battery flooded & VRLA type.
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Output

Rectifier Bridge Topology	IGBT & Thyristor Fault Tolerant Systems (1ph option / 3ph standard)
DC ripple	< 2% (3Ph, without battery) / < 5%, 1Ph without battery)
Battery charging characteristic	IU (DIN 41773), T° compensated floating voltage
Battery charging current limit	Select based on battery capacity

Overload capability	110% continues / 125% - 10 minutes
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Static stability of the DC voltage under the following conditions:

- at float charge $\pm 0,5\%$
- 0 - 100% DC load variation
- input mains voltage within the operating window of +15/-20%
- input frequency with the operating window of 40-65Hz
- battery temperature within 0°C to 40°C

Dynamic stability of the DC voltage:

battery (capacity > 5 x nominal current of the rectifier) connected

Load variation : 10 -> 90% : -5%

Load variation : 90 -> 10% : +8%

Overall efficiency	> 90%
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DC Output voltage	110 to 175 V
Float charge setting (select)	1.40 - 1.42 Vdc/cell for Ni-cd or 2.17V - 2.27/Cell for Lead acid
Boost charge setting (select)	1.55 - 1.65 Vdc/cell for Ni-cd or 2.25V - 2.4V/Cell for Lead acid
Diode drooping	Limited DC output voltage to the load (option)



Transformer Based Topology

Protection

Input protection	Soft start inrush current limit
AC Short circuit & overload	MCB
AC Surge protection	(option)
Automatic input source selection	(option)
AC Voltage protection	Over, Under voltage
DC High protection	Alarm / Cut-off Rectifier ECU (Protect against over-voltage)
Rectifier output short circuit	Output current limit
Battery output	Switch with Fuse
Temperature	Transformer & heatsink high temperature alarm
DC.Ground fault	Plus and Minus pole (option)

Analog Metering

Output Rectifier Voltage	Output Rectifier current
Output battery current	W= 800 mm. up to 6 analog meters

LED lamp status & Mimic diagram

LED	Charger operation	Control	Push button-on
	Battery operation		Push button-off
	General alarm		Push button silent buzzer
	Utility fail		Push button LED test
	DC High		
	DC Low		DC ground fault
Mimic	Input MCB trip	Option LED	Fan failure alarm
	Rectifier fuse trip		Equalizecharge activated
	Battery fuse trip		Boostcharge activated
	Load fuse trip		Silicon droppers activated

LCD Display: GR(D) series only

Measurements

Input voltage
 Input current
 Rectifier output voltage
 Rectifier output current
 Battery charging / discharge current
 Load output voltage (after diode dropping)
 Battery asymmetric / capacity monitoring

Alarm Messages

DC. High / DC low / Utility Fail
 Input / rectifier / lod / battery trip

Parameter settings

Float / boost voltages / current limits / alarm levels

Logging files

Alarm history / events

Potential free contact (Max. 250Vac or 30Vdc / 2A)

4 PFC (standard)	up to 3x 4 PFC (option)	DC ground fault
General alarm	Input MCB trip	Boostcharge activated
Utility failure	Rectifier fuse trip	Equalizecharge activated
DC High	Battery fuse trip	Silicon droppers activated
DC Low	Load fuse trip	Fan failure alarm



Transformer Based Topology

General data

Equipment layout designed with fault tolerant power and control circuits

Storage temperature -25 to + 70 °C

Operating temperature -10° to + 40° Celsius

Humidity Max 95%

Installation altitude up to 1000 meter at full rate

Derating 7% per 1000 meter to 4000m

Audible Noise 55dBA - 65dBA

Enclosure: Floor standing cabinet IP20 / Aluzinc frame / powder coat RAL 7035

Dimension	Up to 300A	1800 x 600 x 800 mm	(hxwxd)	excluding options
	400-600A	1900 x 800 x 800 mm	(hxwxd)	excluding options

Weight (kg)

365	435	495	610	725	840
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DC Distribution Unit (option)

Build-in DC distribution / separate distribution enclosure

Standard

ISO9001	Quality management systems
IEC- 60146	Semiconductor converters - General requirements and line commutated converters
EMC 55011	Industrial, scientific, and medical (ISM) radio-frequency equipment—Radio disturbance characteristics—Limits and methods of measurement; Amendment A1:1999 to EN 55011:1998.
IEC- 62040-1	Uninterruptible power systems (UPS) Part 1: General and safety requirements for UPS
IEC 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤16 A per phase)
IEC 61000-3-12	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage
IEC/61000-6-5	Low voltage AC Surge 1.2/50 μs, 2 kV line to ground, 1 kV line to line (equipment installed in power stations and MV substations. Low voltage DC Surge 1.2/50 μs,

Contact Details



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