

STROM M

Modular switch-mode
industrial applications rectifier

State of the art switch mode technology,

N+1 redundant Strom M rectifier system is designed to be scalable, simple to use and easy to maintain with hot swappable rectifier modules. It allows you to benefit from low electromagnetic pollution and high efficiency, resulting in a cost effective system with reduced operating costs, short delivery time and prepared for possible future power expansion.

Typical applications

- Power generation
- T&D
- Oil & Gas
- Petrochemical and chemical
- Heavy industry
- Mining industry
- Transportation and signaling

FEATURES

- Compact design and light weight
- High power density
- Low input current harmonics and high power factor, high efficiency
- High availability with N+1 redundancy of rectifier modules
- Low MTTR due to modular design
- Low DC voltage ripple for an optimized battery life time
- Power increase possibility on site
- Digital processing and setting of all parameters
- Monitoring of all parameters via the front panel display (touch screen available as option)
- Built-in intelligent battery management
- Temperature-compensated charge voltage regulation
- Manual or automatic high rate charge
- Alarm- and event logger, with a date and time-stamped event log memory
- Large communication facility options
- Inbuilt programable logic control to provide a wide range of interaction possibilities with external systems
- 19" battery charger subrack versions for integration inside cabinet as ready to use solution

BENEFITS

- Existing pre-defined configurations to permit reduced lead times
- Highly customizable with a fully comprehensive option list and fully flexible design
- Compatible with all industrial battery types including gas recombination, with easy parameter adjustment
- Reduces capital and operational expenses (CAPEX & OPEX)
- Ease of installation, start-up & maintenance, low Mean Time To Repair (MTTR)
- International service support

Configured rectifier system specification

SYSTEM	24 V	48 V	110/120 V	220 V
INPUT				
Nominal input voltage	230 V single phase $\pm 20\%$ (+20% -60% functional) or 400 V three phase with neutral $\pm 10\%$ (+15% -20% functional)			
Frequency	50 Hz or 60 Hz, $\pm 5\%$			
Current consumption	Depends on configuration			
Inrush current	1.5 nominal peak current			
THDI	<5%			
Power factor	0.99			
OUTPUT				
Output voltage	24 V	48 V	110/120 V	220 V
Maximum output current	1200 A	1200 A	1200 A	800 A
Voltage range	20 – 32.4 V	40 – 64.8 V	91 – 148.5 V	182 – 297 V
Commissioning voltage	33 V	66 V	166 V	308 V
System earth	Floating/positive or negative output connected to earth			
Static voltage regulation	<1%			
Dynamic voltage regulation	Load change 10 – 90%, 90% – 10% – deviation 5%			
Current regulation	0 to +6%			
Ripple voltage	Max. 0.2% rms typical on rectifier output, battery not connected			
MANAGEMENT				
Common alarm connection	1 Form C relay contact – Rating 60 VAC @ 2 A, 24 VDC @ 2 A & 60 VDC @ 0.1 A			
Control panel	Multi-functional LCD with 2 LEDs indicate the system status			
PROTECTION				
Input/battery/load	Depending on configuration			
Soft start	Yes			
Protection	The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature			
Decoupling fuse	Yes – within rectifier			
MECHANICAL				
Degree of protection	Standard IP21, optional IP43 (other protection as option)			
Equipment color	RAL 7035, powder coated, textured paint (special colors as option)			
Dimensions (H x W x D) & weight	Output current ≤ 500 A: 2000 x 600 x 800 mm depending on DC voltage and options integrated Output current > 500 A: 2000 x 1200 x 800 mm depending on DC voltage and options integrated (other cabinets as option), weight depends on configuration			
Acoustic noise @ 1 m	≤ 65 dBA – depends on the system output power			
Connections	Bottom (top cable as option)			
ENVIRONMENTAL				
Type of cooling	Rectifier modules are forced air cooling with electronic speed control			
Operating temperature	0 °C to +40 °C with a de-rating of 1.25 %/°C between 40 °C and 55 °C			
Storage temperature	-25 °C to +70 °C			
Operating humidity	10% to 95% RH non-condensing			
Installation height	0 to 1000 m – de-rating @ 1% per 100 m above 1000 m up to 3000 m			
STANDARDS				
Safety	EN50178			
EMC	EN 55022 Level B, EN 61000.6-1,2,3,4, EN 61000.3-2, EN 61000.3-3, EN21000, EN 50121-3-2/IEC 62236-3-2 – EN 50121-4/IEC 62236-4 – EN 50121-5/IEC 62236-5 IEC 60146-1-1 Class B 2kV			
Functional	EN/IEC62040-5-3			
Environment	ROHS WEEE			
Approvals & certification	CE			

19" battery charger subrack

SYSTEM	24 V	48 V	110/120 V	220 V	
INPUT					
Nominal input voltage	230 V single phase $\pm 20\%$ ($+20\%$ - 60% functional) or 400 V three phase with neutral $\pm 10\%$ ($+15\%$ - 20% functional)				
Frequency	50 Hz or 60 Hz, $\pm 5\%$				
Current consumption	8 kW – 4 rectifier subrack 16 kW – 8 rectifier subrack 32kW - 16 rectifier subrack	37 A single phase mains – 24 A three phase with neutral – nominal mains voltage 74 A single phase mains – 36 A three phase with neutral – nominal mains voltage 72A three phase with neutral – nominal mains voltage			
Inrush current	1.5 nominal peak current				
THDI	<5 %				
Power factor	0.99				
Mains connections	Integrated mains terminal block compatible for single phase and three phase + neutral mains				
OUTPUT					
Maximum output current	8 kW – 4 rectifier subrack 16 kW – 8 rectifier subrack 32kW - 16 rectifier subrack	200 A 400 A 800 A	160 A 320 A 640 A	64 A 128 A 256 A	32 A 64 A 128 A
Voltage range	20 – 32.4 V		40 – 64.8 V	91 – 148.5 V	182 – 297 V
Commissioning voltage	33 V		66 V	166 V	308 V
System earth	Floating/positive or negative output connected to earth				
Static voltage regulation	<1 %				
Dynamic voltage regulation	Load change 10 – 90 %, 90 % – 10 % – deviation 5 %				
Current regulation	0 to +6 %				
Ripple voltage	Max. 0.2 % rms typical on rectifier output, battery not connected				
Output connections	Power connection to DC load and to battery through battery shunt 400 A max				
MANAGEMENT					
Common alarm connection	1 Form C relay contact – Rating 60 VAC @ 2 A, 24 VDC @ 2 A & 60 VDC @ 0.1 A				
Control panel (option)	Multi-functional LCD with 2 LEDs indicate the system status (delivered loose with a 2m cable for cabinet front door installation)				
PROTECTION					
Input/battery/load	To be installed separately in the cabinet				
Soft start	Yes				
Protection	The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature				
Decoupling fuse	Yes – within rectifier				
MECHANICAL					
Degree of protection	Standard IP20 from front after integration inside cabinet				
Equipment color	RAL 7035, powder coated, textured paint (special colors as option)				
Dimensions (H x W x D) & weight	19" compatible width – Front face height : 4U (177.8 mm) for 8 kW rack / 5U (222.3 mm) for 16 kW rack / 7U (311.2mm) for 32kW rack 600mm or 480mm depth versions - weights with rectifiers 8kW=22kg/16kW=32kg/32kW=63kg				
Acoustic noise @ 1 m	≤ 65 dBA				
Connections	At the back of the rack				
ENVIRONMENTAL					
Type of cooling	Rectifier modules are forced air cooling with electronic speed control				
Operating temperature	0 °C to +40 °C with a de-rating of 1.25 %/°C between 40 °C and 55 °C				
Storage temperature	-25 °C to +70 °C				
Operating humidity	10 % to 95 % R.H non-condensing				
Installation height	0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m				
STANDARDS					
Safety	EN 60950-1				
EMC	EN 55022 Level B, EN 61000.6-1,2,3,4, EN 61000.3-2, EN 61000.3-3, EN21000, EN 50121-3-2/IEC 62236-3-2 - EN 50121-4/IEC 62236-4 - EN 50121-5/IEC 62236-5 - IEC 60146-1-1 Class B 2kV				
Environment	ROHS WEEE				
Approvals & certification	CE				