AEG

POWER
SOLUTIONS

PROFITEC S N1

Analog Rectifier – The Power Plant Charger

Input	380 / 400 / 415 / 500 / 690 V 3 phase	
DC-output	24 V / 63 A	– 2500 A
	48 V / 63A	– 1250 A*
	60 V / 63 A	– 1250 A*
	110 V / 63 A	– 1250 A*
	220 V / 63 A	– 1250 A

*Different power stacks on request

The Profitec S N1 is an analog rectifier 100 % software-free from AEG Power Solutions which ensures the continuous availability of power requirements in nuclear power plants, power generation, oil & gas, transportation and other heavy-duty industries with high level of security requirements.

With more than 50 years of experience in nuclear power technologies and with customers around the world, AEG PS is a truly global player and one of the premium suppliers of equipment for nuclear and fossil power generation.

Typical applications

- Nuclear power plants, heavy duty applications with high level of security requirement

CERTIFICATIONS

- Safety IEC 62040-1-2
- EMC 61000-6-2; 61000-6-4
- Performance IEC 62040-1-1; 62040-1-2; 60146-1-1
- Protection IEC 60529; IEC 60364-4-41
- Environmental IEC 60721-3-3
- Qualification via IEC, KTA 3703
- Qualification via KTA 3503 in cooperation with AREVA
- Qualification via RCC-E 2012, “Design and Construction Rules for Electrical Equipment of Nuclear Islands”
- Qualification to IEEE is possible

BENEFITS

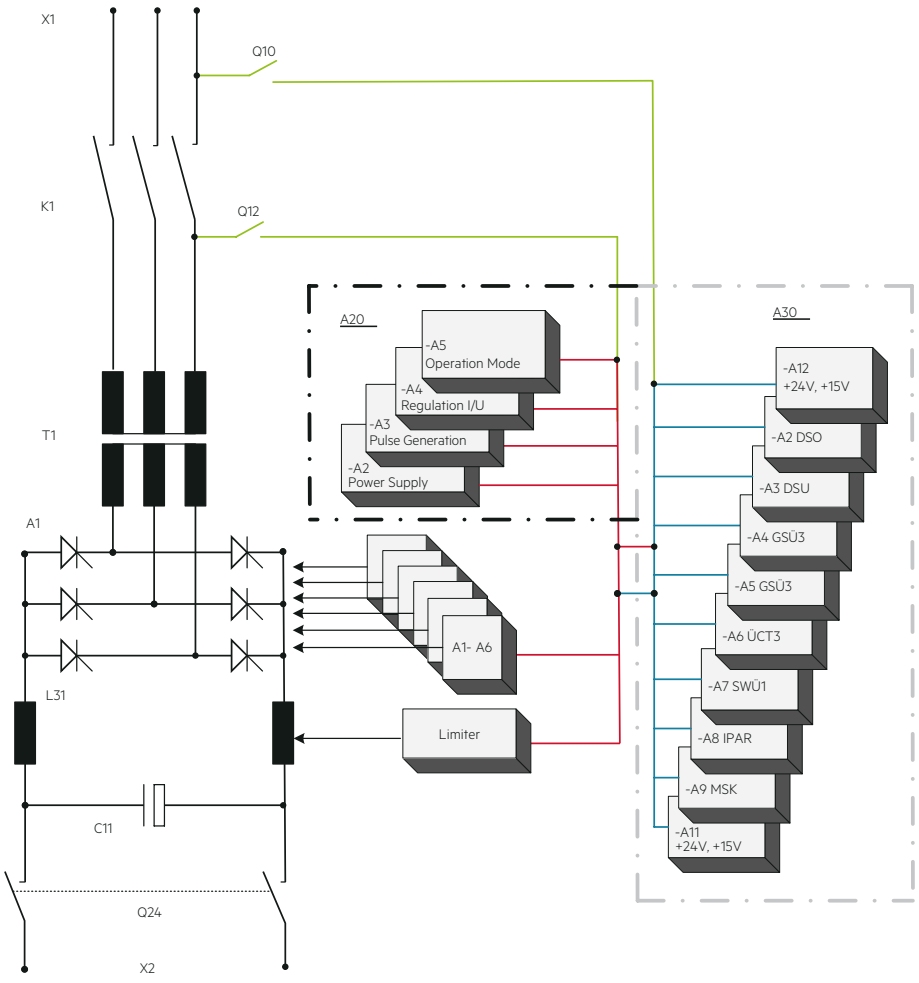
- 100 % analog regulation and control
- No software or programmable devices
- Seismic-proofed technology
- Natural air cooling
- Secure DC supply in any case of input mains voltage variation
- Top or bottom entry
- Maximum reliability
- High availability / MTBF
- Design lifetime >30 years
- Designed for use in harsh environments
- Easy maintenance via diagnostic device
- 160 % mains input overvoltage threshold

The Profitec S N1 is a 100 % analog charger. All regulation and monitoring PCBs (built up in SMD method) contain no software and no programmable components or devices. AEG Power Solutions designed a 100 % software-free rectifier to guarantee the highest level of security of the DC power supply and comply with the latest requirements for safety and qualification processes.

For over 10 years now, after Forsmark event, overvoltage limitation has become a standard feature and is embedded in our systems. In case of input voltage variation, independent of the input voltage gradient, the duration and its maximum value, the patented overvoltage limiter reduces the value of the DC output voltage to less than 115 % of the nominal DC voltage. The overvoltage detection is a selfacknowledging fault.

OPTIONS

- Parallel mode (for output current extension or redundancy)
- Diagnostic device for annual checks as required by NPPs
- Cooling for ambient temperatures up to 50° without de-rating
- Design as +/- system
- Higher IP rating
- Battery feeder cubicles, seismic-proofed
- Battery symmetry monitoring
- Battery charging circuit monitoring



Blockdiagram Profitec S N1

Specifications

PROFITEC S N1								
Rectifier type	D 400G ... / ... BWLrug							
Connected voltage*	3 x 400 V ±10 % / 50 Hz with N conductor							
Type series	24 V / 48V / 60 V / 110 V / 220 V							
Overall efficiency	24 V unit		48 / 60 V unit		110 V unit		220 V unit	
	approx. 85 %		approx. 88 %		approx. 91 %		approx. 93 %	
Power factor cos φ	24 V unit		48 / 60 V unit		110 V unit		220 V unit	
	approx. 0.72				approx. 0.78			
Type of battery and number of cells	24 V unit		48 / 60 V unit		110 V unit		220 V unit	
	11 – 13	18 – 20	27 – 30	43 – 46	50 – 55	80 – 85	100 – 110	160 – 170
	Cells Pb	Cells NiCd	Cells Pb	Cells NiCd	Cells Pb	Cells NiCd	Cells Pb	Cells NiCd
Characteristic line	IU to DIN 41 773							
Thyristor circuit*	6-pulse circuit							
	24 V unit		48 / 60 V unit		110 V unit		220 V unit	
Voltage ripple	5 % SS without parallel battery							
Spurious emissions	To EN 61000-6-4 interference to EN 55011 class "A"							
Noise immunity	to EN 61000-6-2							
Design	Steel cabinet with front door, seismic-proofed Double door cabinet width from 1200 mm Top or bottom entry							
Cabinet protection*	IP20 (standard) to EN 60529 / IEC 529							
Cooling system*	Air natural cooling							
Noise level	≤65 dB(A)							
Ambient temperature	0 °C to +40 °C (+50 °C forced air cooling)							
Color*	RAL 7035, structured (powder coated)							

*Different input voltages and frequency, higher IP rating, forced cooling, different color or different thyristor circuit on request.

Specifications

Rated current (A)	Type	3-phase power input		Losses	Weight	Dimensions		
		Current (A)	Power (kVA)	(kW)	(kg)	W (mm)	D (mm)	H (mm)
RATED VOLTAGE 24 V								
63	D400G24 / 63 BWL.rug	4.0	2.8	0.4	100	600	600	2200*
125	D400G24 / 125 BWL.rug	8.0	5.6	0.6	170	600	600	2200*
200	D400G24 / 200 BWL.rug	13	9.0	1.0	280	600	600	2200
400	D400G24 / 400 BWL.rug	27	18.6	2.0	500	900	600	2200
630	D400G24 / 630 BWL.rug	42	29.0	3.2	700	900	800	2200
800	D400G24 / 800 BWL.rug	52	36	3.8	800	900	800	2200
1250	D400G24 / 1250 BWL.rug	80	55	5.9	1200	900	800	2200
1600	D400G24 / 1600 BWL.rug	104	72	7.6	1500	1200	800	2200
2500	D400G24 / 2500 BWL.rug	163	112	11.9	2000	1800	800	2200
RATED VOLTAGE 48 / 60 V								
63	D400G60 / 63 BWL.rug	8.8	6.1	0.6	175	600	600	2200
125	D400G60 / 125 BWL.rug	17	11.7	1.2	300	600	600	2200
200	D400G60 / 200 BWL.rug	27.5	19.0	1.9	450	600	600	2200
400	D400G60 / 400 BWL.rug	55	38.0	3.8	800	900	800	2200
630	D400G60 / 630 BWL.rug	87	60.0	6.0	1100	1200	800	2200
800	D400G60 / 800 BWL.rug	112	77.7	9.3	1150	1200	800	2200*
1250	D400G60 / 1250 BWL.rug	175	121.5	14.6	1250	1500	800	2200*
RATED VOLTAGE 110 V								
63	D400G106 / 63 BWL.rug	15.7	10.8	0.8	250	600	600	2200
125	D400G106 / 125 BWL.rug	31	21.4	1.6	500	600	600	2200
200	D400G106 / 200 BWL.rug	50	34.5	2.5	600	900	600	2200
400	D400G106 / 400 BWL.rug	100	69.0	4.9	1100	900	800	2200
630	D400G106 / 630 BWL.rug	155	107	7.9	1400	1200	800	2200
800	D400G106 / 800 BWL.rug	199	137.8	12.4	1500	1500	800	2200*
1250	D400G106 / 1250 BWL.rug	311	215.3	19.4	1600	1800	800	2200*
RATED VOLTAGE 220 V								
63	D400G212 / 63 BWL.rug	31	21.4	1.1	360	600	600	2200
125	D400G212 / 125 BWL.rug	61	42.1	2.3	650	900	600	2200
200	D400G212 / 200 BWL.rug	98	67.6	3.6	880	900	800	2200
400	D400G212 / 400 BWL.rug	195	135	7.2	1100	1200	800	2200
630	D400G212 / 630 BWL.rug	308	213	11.4	1500	1200	800	2200
800	D400G212 / 800 BWL.rug	390	269	14.5	1600	1500	800	2200
1250	D400G212 / 1250 BWL.rug	610	420	22.6	2600	2 X 1200	800	2200

Values all approx. Depending on options and other factors.
*Different dimensions are available on request / custom design is possible