

PROTECT RCS OUTDOOR

Thyristor controlled, premium industrial rectifier & battery charger

Input 400/480 VAC 3 phase; 50/60 Hz

Output 24 VDC; 50 – 250 A

Stainless steel IP65 natural convection cooling cabinet



AEG Power Solutions' rectifiers assure the permanent availability of all demanding industrial applications in the toughest environmental conditions.

Protect RCS is designed to provide high reliability power supply and battery charging capability. The Outdoor version provides the same level of protection to your equipment and processes and complies with the stringent protection standards according to IEC 60529 (IP65). Protect RCS is a thyristor-controlled rectifier suitable for charging nickel-cadmium or lead-acid batteries while supplying DC loads. It can also be used without batteries as a direct power supply. The rectifier is built from independent building blocks and can be supplied with optional equipment as required.

Cabinets are floor mounted. The batteries are installed in a separate cabinet from the rectifier.

Typical applications

- Oil & Gas and petrochemical industrial processes
- Power generation
- Transportation and all types of infrastructures and processes in harsh environments

FEATURES

- Heavy duty design
- Natural cooling
- Outdoor cabinet (IP65 compliant according to IEC 60529)
- Proven microprocessor-controlled thyristor technology
- Building block design
- Built-in protection
- Digital processing and setting of all parameters
- Monitoring of all parameters via the front panel display
- Built-in intelligent battery management
- Temperature-compensated charge voltage regulation
- Manual or automatic high rate charge
- Parallel operation
- Alarm and event logger, including a date and time-stamped event log memory

BENEFITS

- Designed to resist to the most challenging climate conditions
- Natural cooling process simplifies maintenance and decreases total cost of ownership
- High MTBF and low MTTR
- Ease of installation, start-up and maintenance
- Global service support

PROTECT RCS OUTDOOR

STANDARD SYSTEM

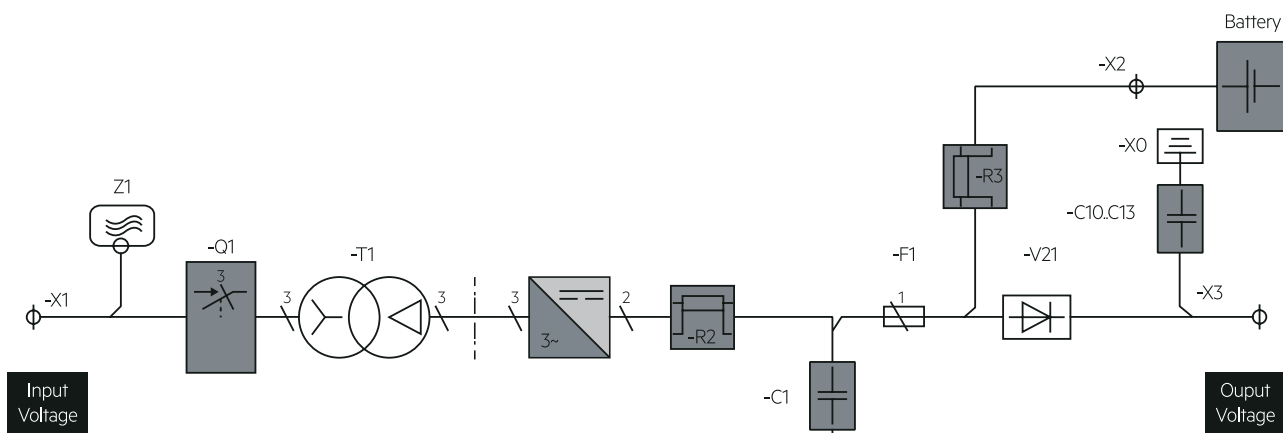
Protect RCS range has been preconfigured with a number of the most commonly requested features built-in as standard.

These systems are available “off-the-shelf” with standard drawings and standard user documentation.



Standard configuration

- Internal rectifier input switch Q1
- 6-pulse or 12-pulse rectifier bridge with input isolation transformer
- Digital control
- Rectifier F1 fuse and rectifier shunt R2
- Blocking diode V21
- Multi-functional LCD with 2 LEDs indicating system status
- Tropicalized control electronics' boards
- Common fault remote alarm
- Power and control cable marking
- Detailed 3D layout and component marking presented on rear door
- Door able to open to 120° with nine key locks
- Bottom cable entry
- Input / battery / output terminals X1, X2 and X3
- Standard labeling / nameplate



OPTIONS

As needed, the standard system can be enhanced by the additional options available. System specific drawing packages and user documentation will be automatically generated to reflect the actual options configured.

To provide exact solutions for each application, we offer a wide range of options:

System

- Parallel redundant configuration with load sharing
- Special mains input voltages (180 – 690 V) 50/60 Hz
- Rectifier input MCB or fuse
- Battery MCB, fuse or switch in rectifier
- Battery MCB or fuse box
- Load MCB, fuse or switch
- Diode dropper
- DC distribution

Alarms /signaling / measurement

- LED alarm indicators in front panel
- Relay cards 2 x 8 free contacts
- Additional analog meters
- Low electrolyte level alarm
- Audible alarm
- Temperature charging compensation sensors & cables
- Temperature alarm
- High DC ripple voltage alarm
- Cable drop compensation
- Battery circuit failure alarm
- Ground fault alarm
- High rate interlock

Remote control options

- Rectifier shutdown command
- Forced floating charge command
- Alarm reset
- High rate charge command

Communication

- RS232/RS485 interface
- RS232/RS485 Modbus protocol
- TCP/IP interface
- Protocol converters (Profibus DP, J-bus DNP3, IEC 61850)
- Monitoring and management software
- Modem

Additional options are available upon request.



Specifications

PROTECT RCS STANDARD CONFIGURATION

INPUT	
Nominal input voltage	Three phase 400/480 V $\pm 10\%$ ($\pm 15\%$ – 20% functional)
Frequency	50 Hz or 60 Hz, $\pm 6\%$
Power factor	0.75 typical
Current harmonics	33% (6-pulse rectifier)
OUTPUT	
Voltage (UDC)	74 VDC
DC voltage settings range	Floating charge – 75% – 125% of UDC nominal at full load and nominal mains voltage ($\pm 10\%$) High-rate charge – 75% – 135% of UDC nominal at full load and nominal mains voltage (0 / $\pm 10\%$) Commissioning charge – 75% – 140% of UDC nominal at full load and nominal mains voltage (0 / $\pm 10\%$)
Static voltage regulation	$\pm 0.5\%$ at float voltage, 0 – 100% DC load variations, input nominal voltage $\pm 10\%$, frequency $\pm 6\%$, Temp. range 0°C to $+40^\circ\text{C}$, higher temperatures with derating
Dynamic voltage regulation	10 – 90%, 90% – 10% load step – deviation 15% without battery
DC ripple voltage	$< 5\%$ rms of UDC nominal with battery not connected
DC current	50 – 250 A
Current settings range	0 – 100%
DC current regulation	0 / $\pm 2\%$ of current limit
Long-term stability	0.15% per 1000 hrs
Temperature coefficient	$\pm 0.02\%$ per $^\circ\text{C}$
Charging characteristic	Constant current / constant voltage (I/U as per IEC 478 T) during float charge
Insulation resistance	$\geq 200\text{ M}\Omega$ / 500 VDC
Input / output isolation	2500 VAC between input / output and electrical earth
MECHANICAL	
Degree of protection	IP65 according to IEC 60529
Cabinet material	316 L stainless steel, color natural, finish sanded
Dimensions & weight	According to range
Acoustic noise @ 1m	$< 50\text{ dB(A)}$
Connections	Bottom
ENVIRONMENTAL	
Type of cooling	Natural convection
Operating temperature	0°C to $+40^\circ\text{C}$ and higher temperatures up to 56°C with derating
Operating humidity	10% to 100% RH non-condensing
Installation height	0 to 1,000 m – de rating @ 1% per 100 m above 1,000 m up to 3,000 m
STANDARDS	
Safety	IEC/EN 62040-1 / EN 50178
EMC	IEC/EN 61000-6-2, 4 / IEC 62040-2
Approvals & certification	CE-Label, NFC 58-311

PROTECT RCS - THREE PHASE RANGE

Cabinet height	2000 mm	2000 mm
Cabinet depth	700 mm	700 mm
Cabinet width	600 mm	1200 mm
Charger current	Up to 150 A at 40°C Up to 120 A at 56°C	Up to 250 A at 40°C Up to 200 A at 56°C

AEG Power Solutions

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