



# SMART GRID POWER SOLUTIONS

POWER PLANT & POWER TRANSMISSION & DISTRIBUTION

**AEG**  
POWER SOLUTIONS

# Protect RCS - Rectifier, Charger and DC System



## Main Features:

- Heavy Duty Design
- Proven microprocessor-controlled thyristor technology
- Building block modular design
- High availability (internal redundancy N+1)
- Built-in Intelligent Battery Management
- **Robust Design – 20 years expected lifetime**

## Technical Details:

- Input Voltage: 1 phase 230VAC or 3 phase 400VAC
- DC Voltage: 24/48/110/125/220VDC
- Rating: 25-1000A

## Notes:

- High MTBF and low MTTR
- Built-in protection
- Digital processing and setting of all parameters
- Monitoring of all parameters on the front panel display
- Temperature-compensated charge voltage regulation
- Manual or automatic high rate charge
- Parallel operation
- Ease of installation, start-up & maintenance
- International service support
- Industrial standards: EN50178, IEC62040-1, IEC62040-2, IEC61000-6-2, IEC61000-6-4
- Certification/Approval: Shell DEP 33.65.50.31 , Type test acc to IEC60146-1-1 by KEMA

# Protect MIP - Modular switch-mode industrial applications rectifier



## Main Features:

- Heavy Duty Design
- Modular switch mode technology
- High availability (internal redundancy N+1)
- Modular, Hot-swappable rectifier modules
- Flexibility of scalable power
- **Robust Design – 20 years expected lifetime**

## Technical Details:

- Input Voltage: 1 phase 230VAC or 3 phase 400VAC
- DC Voltage: 24/48/110//220VDC
- Rating: 10-1000A

## Notes:

- Compact design and light weight
- Built-in Intelligent Battery Management
- High power density
- Sinusoidal input current and low harmonics to reduce installations and operating costs
- High efficiency to reduce operating costs
- Low MTTR due to modular design
- Low voltage ripple to prolong battery life time
- Reliable operation due to advance protection (input, output, temperature, current, power) and high MTBF
- Control and alarm functions for remote management
- Simplicity of use
- Easy maintenance

# Protect 8



## Mains Features:

- Stand Alone design
- Thyristor based Rectifier
- IGBT Inverter
- Low input THDI with Filter
- up to 8 Systems in parallel
- **Robust Design – 20 years expected lifetime**

## Technical Details:

- Input Voltage: 400VAC (380V, 415V) – UL voltage on request
- **DC Voltage: 220 & 384VDC**
- Input Power Factor: 0.84 at full load
- Input THDI: <8% with 12Pulse rectifier and PFC
- Output Power Factor: 0.8
- Efficiency normal mode: 92% - Eco mode available as an option

## Notes:

- Customizable to customer requirements
- **Input Transformer – Full Galvanic Isolation**
- Inverter Output Transformer
- Industrial Grade Technical Design
- Easy Maintenance, main components accessible from the front door
- up to 50 degree C Operation
- Adapted for harsh environment (Temp, Humidity, Dust, Sand etc...)
- **IGBT rectifier will be available in 2012**

# Transokraft INV 1 and INV 3



## Main Features:

- Analog Technology
- High Efficiency
- Fans in redundant configuration
- Fast dynamic response
- Short circuit proof, constant current source, high short circuit resistance
- Fast overload response
- Offers high startup current
- 100% asymmetric load
- KTA design including seismic test certificate

## Technical Details:

- **DC Voltage:** 220VDC
- Output Power Factor: 0.8
- Efficiency normal mode: 94% - typical
- 1Ph from 10 to 80kVA
- 3Ph from 30 to 220kVA

## Highlights:

- KTA1401 Compliant (German Nuclear Power Plants)
- Seismic tests following IEC60068-28
- Industrial Grade Technical Design
- Easy Maintenance, main components accessible from the front door
- up to 50 degree C Operation
- Adapted for very harsh environment (Temp, Humidity, Dust, Sand etc...)

# Protect 8 INV 1 and INV 3



## Main Features:

- Stand Alone inverter design
- IGBT Inverter
- Low input THDI with Filter
- up to 8 Systems in parallel
- Robust Design – 20 years expected lifetime

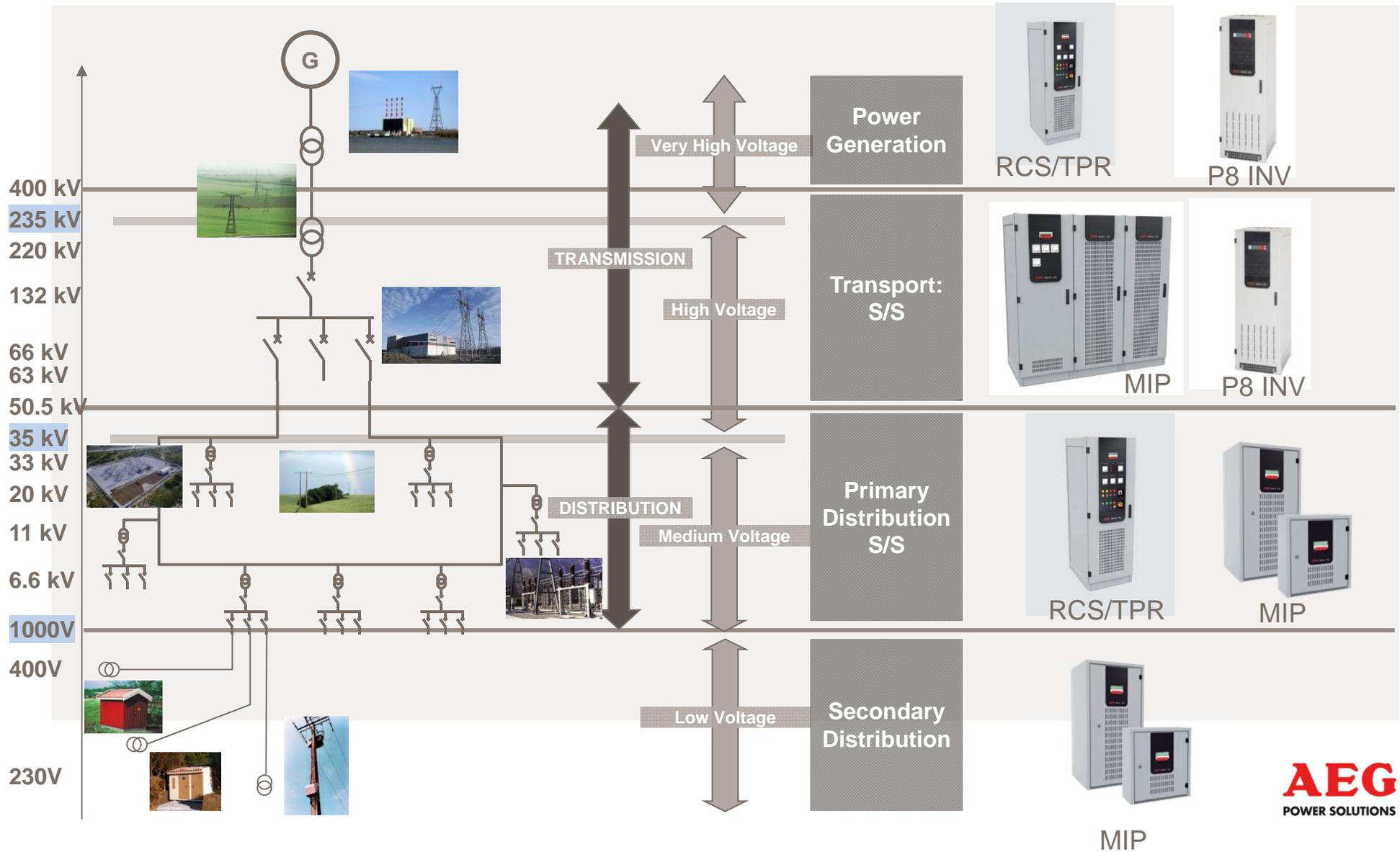
## Technical Details:

- **DC Voltage:** 110/125/220VDC
- **Output Power Factor:** 0.8
- **Efficiency normal mode:** 94% - Eco mode available as an option
- **From 10 to 120kVA**

## Highlights:

- Customizable to customer requirements
- Inverter Output Transformer
- Industrial Grade Technical Design
- Easy Maintenance, main components accessible from the front door
- up to 50 degree C Operation
- Adapted for harsh environment (Temp, Humidity, Dust, Sand etc...)

# AEG Power Generation and T&D offering



# PROFITEC SN 1 – Software-free rectifier



## Main Features:

- 100 % analog controlled charger
- No software or programmable devices
- Seismic-proofed technology
- Forced or natural air cooling
- Secure DC supply in any case of input voltage variation
- High availability / MTBF
- Design lifetime >30 years
- Designed for use in harsh environments
- Easy maintenance via diagnostic device
- 160 % input overvoltage threshold

## Technical Details:

- Voltage: 380 / 400 / 415 / 500 / 690 V 3-phase
- DC Voltage: 24/60/110/220VDC
- Rating: 40-2500A

## Highlights:

Many options, such as:

- Overvoltage limiter (Forsmark-event)
- Parallel mode (for output current extension or redundancy)
- Diagnostic device for annual checks as required by NPPs
- Forced 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

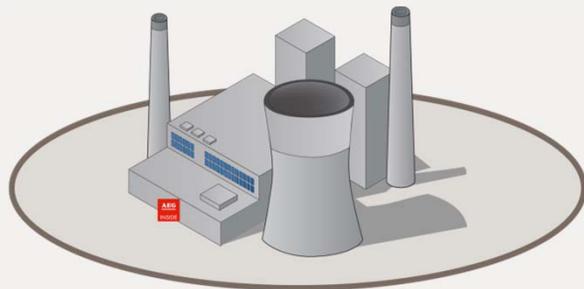
# SOLAR POWER PLANT – AEG PS SMART GRID POWER SOLUTIONS .....



Protect RCS



Transokraft



6 POWER PLANT



P8 INV

## Contribution to power continuity and grid stability:

- High Efficiency conversion to reduce power losses
- Clean Sinewave to eliminate Network voltage & frequency disturbances
- Operate in harsh environment
- Industrial Grade Design
- 20 years lifetime expectation
- High Reliability / High availability
- Customisation