

# Power Safety

## Protect 4.33

Online UPS systems for data centres and co-location sites 160-1000 kVA



Classification VFI SS 111 according IEC/EN62040-3

**The PROTECT 4 - synonymous with a new dimension in the world of UPS systems**

The PROTECT 4. is a compact ready-to-install unit, with a maximum single unit capacity of 1000 kVA available now for the first time and opening up completely new dimensions in protection.

Whether used to protect computer centres, file servers, telecommunications or industrial processes, the PROTECT 4. means additional safety and reliability for your systems.



PERFECT IN FORM AND FUNCTION

**AEG**

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### Environmentally friendly

The PROTECT 4. offers the highest reliability with efficient modern technology and 12 pulse rectifier for sinusoidal input current consumption to DIN 41773. Thanks to its excellent efficiency level of up to 94 %, up to 8000 € can be saved per year in every day online use.

### Increased power and reliability through parallel operation

The PROTECT 4. can be used in parallel operation with up to 8 units. This increases the power capacity, or allows for even greater safety via N+1 redundancy.

### Key features

- Highest operating safety
- Optimum efficiency, even in the partial load range
- Fully loadable neutral conductor
- Short circuit proof
- Overload capacity available
- Standardised components
- Intelligent battery charging management
- Integrated logbook function with real time clock
- Terminal emulation/VT100 via RS232
- Security thanks to internal redundancy: separate microprocessor for control of rectifiers, inverters and electronic bypass

### Unique control capability with three custom microprocessors

A key feature of the unit's design are the three control microprocessors.

These were specially developed by AEG PSS for use in UPS. They monitor and control the rectifier, inverter and static switch units simultaneously. Nothing should be left to chance. An opinion we are certain that you will share.

- Ergonomic full graphical display for ease of operation (clear letter indication 17 diff. languages)
- Integrated network interface incl. SNMP agent for network management (optional)
- Reliable shutdown and reboot using AEG PSS network software CompuWatch via RS232-C bridge
- Manufactured to DIN ISO 9001
- CE-compliant
- Low maintenance requirement
- Remote servicing via modem
- Comprehensive service support
- Redundant fans

| Type power at $\cos \varphi$ 0,8 lag. in kVA          | 160             | 220 | 300 | 400 | 500  | 600  | 800  | 1000 |
|---|-----------------|-----|-----|-----|------|------|------|------|
| <b>RECTIFIER UNIT</b>                                 |                 |     |     |     |      |      |      |      |
| Nominal voltage in V                                  | 3 x 400         |     |     |     |      |      |      |      |
| Operating range min./max. in V                        | 340/460         |     |     |     |      |      |      |      |
| Frequency in Hz                                       | 45-66           |     |     |     |      |      |      |      |
| Input current in A at nominal load                    | 259             | 357 | 486 | 649 | 811  | 973  | 1300 | 1624 |
| Input current in A at nominal load + battery charging | 328             | 451 | 615 | 820 | 1025 | 1230 | 1600 | 2000 |
| Charging characteristic acc. IEC 478-10               | IU              |     |     |     |      |      |      |      |
| Nominal DC voltage                                    | 384             |     |     |     |      |      |      |      |
| Max. charging voltage in V                            | 461             |     |     |     |      |      |      |      |
| Total harmonic distortion standard/option (pulse)     | 6/12            | 12  | 12  | 12  | 12   | 12   | 12   | 12   |
| <b>INVERTER UNIT</b>                                  |                 |     |     |     |      |      |      |      |
| Nominal DC voltage min./max. in V                     | 307/461         |     |     |     |      |      |      |      |
| Nominal AC voltage in V                               | 3 x 400         |     |     |     |      |      |      |      |
| Adjustable min./max. in V                             | 380/415         |     |     |     |      |      |      |      |
| Static response                                       | < $\pm 1$ %     |     |     |     |      |      |      |      |
| Dynamic response 0 %-100 %-0 %                        | < $\pm 5$ %     |     |     |     |      |      |      |      |
| Correction time                                       | 2 ms            |     |     |     |      |      |      |      |
| Frequency in Hz                                       | 50/60           |     |     |     |      |      |      |      |
| Frequency tolerance without mains                     | $\pm 0,1$ %     |     |     |     |      |      |      |      |
| Frequency synchronisation range                       | $\pm 1$ %       |     |     |     |      |      |      |      |
| Power factor range $\cos \varphi$                     | cap-1-ind       |     |     |     |      |      |      |      |
| Output phase current in A                             | 231             | 318 | 434 | 578 | 723  | 867  | 1156 | 1445 |
| Voltage wave form                                     | sinus           |     |     |     |      |      |      |      |
| Voltage distortion                                    | $\leq 3$ %      |     |     |     |      |      |      |      |
| Crest factor  | max. 3          |     |     |     |      |      |      |      |
| Overload response for 1 min.                          | 150 %           |     |     |     |      |      |      |      |
| Overload response for 10 min.                         | 125 %           |     |     |     |      |      |      |      |
| Short circuit response of $I_{nom}$ typical           | 300 %           |     |     |     |      |      |      |      |
| <b>STATIC BYPASS SWITCH</b>                           |                 |     |     |     |      |      |      |      |
| AC voltage min./nominal/max. in V                     | 3 x 380/400/415 |     |     |     |      |      |      |      |
| Frequency in Hz                                       | 50/60           |     |     |     |      |      |      |      |
| Nominal power in kVA                                  | 160             | 220 | 300 | 400 | 500  | 600  | 800  | 1000 |
| Overload  | 500 %           |     |     |     |      |      |      |      |

| Type power at cos $\varphi$ 0,8 lag. in kVA   | 160        | 220  | 300  | 400  | 500  | 600  | 800  | 1000 |
|---|------------|------|------|------|------|------|------|------|
| <b>GENERAL DATA</b>                           |            |      |      |      |      |      |      |      |
| Efficiency total up to                        | 94 %       |      |      |      |      |      |      |      |
| ECOp <sub>px</sub> <sup>®</sup>               | up to 98 % |      |      |      |      |      |      |      |
| Noise level in dB(A) depending on type        | > 69       |      |      |      |      |      |      |      |
| EMC compatibility acc. EN 60040-2             | C 2        |      |      |      |      |      |      |      |
| Air cooling with redundant/<br>monitored fans | yes        |      |      |      |      |      |      |      |
| Operating-temperature range min./max. in °C   | -5/+40     |      |      |      |      |      |      |      |
| Storage-temperature range min./max. in °C     | -30/+75    |      |      |      |      |      |      |      |
| Installation height NN                        | 1000 m     |      |      |      |      |      |      |      |
| Protection degree acc. IEC 529/EN 60529       | IP 20      |      |      |      |      |      |      |      |
| Equipment colour                              | RAL 7035   |      |      |      |      |      |      |      |
| <b>DIMENSIONS</b>                             |            |      |      |      |      |      |      |      |
| Height standard device in mm                  | 1910       | 1915 | 1925 | 1915 | 1915 | 1960 | 2210 |      |
| Height with max. options in mm                | 2015       | 2210 | 2210 | 2210 | 2210 | 2210 | 2210 |      |
| Width in mm                                   | 1200       | 1200 | 1500 | 2100 | 2100 | 2400 | 4050 |      |
| Depth in mm                                   | 960        | 960  | 960  | 960  | 960  | 960  | 1060 |      |
| Weight in kg                                  | 1670       | 1950 | 2030 | 3200 | 3480 | 3800 | 5700 |      |

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AEG Power Supply Systems GmbH  
 Emil-Siepmann-Straße 32  
 D-59581 Warstein/Belecke  
 GERMANY  
 Tel.: +49 2902 763 141  
 Fax: +49 2902 763 1239  
[www.powersuppliesystems.com](http://www.powersuppliesystems.com)

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