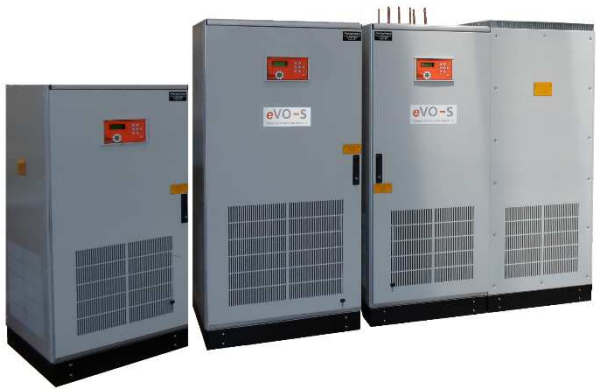
TECHNICAL DATA

e-fficient Energy

# eVO-S
# 1P & 3P
# Series Voltage Optimisation Plus Buck Regulation




The eVO-S Voltage Optimisation system uses the latest generation high speed processor controlled thyristors to provide plant and equipment with optimal & controlled voltage. This gives both energy saving and improved equipment life expectancy benefits by consistently operating electrical loads at their design voltage.

The eVO-S benefits from industry leading voltage detection and response times of <300mS to maintain voltage and protect equipment from an ever more unstable electrical supply stream.

- Product range 2kVA to 3000kVA
- Single phase and three phase output versions
- Latest generation power management technology suitable for all supply environments
- Microprocessor based control system
- Independent phase voltage control
- Fast reaction to changing voltage profiles (<300mS)
- Automatic bypass – able to transfer full load onto mains
- Manual bypass for statutory inspections
- Static modular structure with thyristor technology used in power control and SMPS technology
- Electronic protection for over load, over voltage, over temperature and short circuit
- Aesthetic and ergonomic design. Durable enclose design, powder coated with standard colour (RAL-7035)
- User friendly, comprehensive LCD screen
- Surge protection up to 40kA
- Remote network function and software support
- Manufactured under ISO9001:2008 quality management system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# Technical Specifications for eVO-S Voltage Optimiser

| | |
|---|---|
| Model Range | eVO-S 1 phase & 3 phase |
| kVA Range | 1 phase 2 – 50kVA, 3 phase 10 – 3200kVA |
| Power Factor | 0.8 |

## Input

| | |
|---|---|
| Voltage | 220 V 1 phase & 380V 3 phase + neutral |
| Voltage Tolerance | ±15% |
| Frequency | 50Hz ±5% |
| Protection | Copper busbar terminal |

## Output

| | |
|---|---|
| Voltage | 220 V 1 phase & 380V 3 phase + neutral (Programmable) |
| Voltage Tolerance | ±1.5% |
| Frequency | 50Hz ±5% |
| Voltage Adjustment Range | 220 +15% in 1 V increments |
| Current | Rating dependent |
| Overload Capability | 101% - 125% 3 Min, 126% - 150% 10 Sec higher loadings auto shut off |
| Response Time | 20m/sec |
| Correction Speed | 500V/sec |
| Efficiency | 1 phase >97%, 3 phase >98% typical |
| Output Connection | Copper busbar terminal |
| LCD Display | Input voltage, output voltage, output load %, output frequency, stabiliser condition and fault history, warnings (overload, over temp, input failure) |
| Communication | Optional network connectivity and remote management kit |

## Protection

| | |
|---|---|
| Input Voltage Protection | Automatic over/under voltage shutdown to mains supply |
| Output Voltage Protection | Automatic over/under voltage shutdown to mains supply |
| Input Current Protection | MCB/MCCB rating dependent |
| Output Current Protection | MCB/MCCB rating dependent |
| Output Overload Protection | 101% - 125% 3 Min, 126% - 150% 10 Sec higher loadings auto shut off |
| Over Temperature Protection | Automatic bypass for unit over temperature |
| Bypass Switch | Automatic electrical bypass & manual 1-0-11 position bypass |
| Surge Arrestor | Suitable surge arrestor for lighting and voltage surges |

## Environmental Protection

| | |
|---|---|
| Operational Temperature | -10 deg C to +40 deg C |
| Maximum Altitude | <3000 m |
| Maximum Humidity | <90 % Non condensing |
| Acoustic Noise | <65 db (rating dependent) |

## Enclosure Specification

| | |
|---|---|
| Type | Indoor (External option available) |
| IP Rating | IP21 |
| Standard Colour | RAL 7035 |
| Base | Plinth |
| Cooling | Temperature controlled fans |

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## eVO-S Ratings – Dimensions and Weights

| Input | Model | Electrical Rating (kVA) | Electrical Current (Amps) | Dimensions (CM) Width | Depth | Height | Weight KG |
|---|---|---|---|---|---|---|---|
| 1 Phase | eVO-S 1PH02 | 2 | 9 | 20 | 41 | 37 | 28 |
| | eVO-S 1PH03 | 3 | 14 | 20 | 41 | 37 | 33 |
| | eVO-S 1PH05 | 5 | 23 | 20 | 41 | 37 | 40 |
| | eVO-S 1PH7.5 | 7.5 | 34 | 27 | 45 | 46 | 45 |
| | eVO-S 1PH10 | 10 | 45 | 27 | 45 | 46 | 52 |
| | eVO-S 1PH15 | 15 | 68 | 27 | 45 | 46 | 65 |
| | eVO-S 1PH20 | 20 | 91 | 31 | 52 | 52 | 85 |
| | eVO-S 1PH30 | 30 | 136 | 31 | 52 | 52 | 100 |
| | eVO-S 1PH40 | 40 | 182 | 31 | 52 | 52 | 140 |
| | eVO-S 1PH50 | 50 | 227 | 33 | 76 | 76 | 160 |
| 3 Phase | eVO-S 3PH10 | 10 | 16 | 33 | 76 | 76 | 115 |
| | eVO-S 3PH15 | 15 | 23 | 33 | 76 | 76 | 125 |
| | eVO-S 3PH23 | 23 | 34 | 33 | 76 | 76 | 135 |
| | eVO-S 3PH30 | 30 | 45 | 33 | 76 | 76 | 150 |
| | eVO-S 3PH45 | 45 | 68 | 50 | 70 | 130 | 175 |
| | eVO-S 3PH60 | 60 | 91 | 50 | 70 | 130 | 220 |
| | eVO-S 3PH75 | 75 | 114 | 50 | 70 | 130 | 260 |
| | eVO-S 3PH100 | 100 | 152 | 50 | 70 | 130 | 300 |
| | eVO-S 3PH120 | 120 | 182 | 60 | 70 | 150 | 400 |
| | eVO-S 3PH150 | 150 | 227 | 80 | 80 | 160 | 400 |
| | eVO-S 3PH200 | 200 | 303 | 80 | 90 | 160 | 750 |
| | eVO-S 3PH250 | 250 | 397 | 80 | 90 | 160 | 800 |
| | eVO-S 3PH300 | 300 | 455 | 90 | 90 | 170 | 900 |
| | eVO-S 3PH400 | 400 | 606 | 90 | 100 | 170 | 1100 |
| | eVO-S 3PH500 | 500 | 758 | 90 | 100 | 170 | 1200 |
| | eVO-S 3PH600 | 600 | 909 | 90 | 120 | 170 | 1400 |
| | eVO-S 3PH700 | 700 | 1061 | 240 | 120 | 170 | 1900 |
| | eVO-S 3PH800 | 800 | 1212 | 240 | 80 | 170 | 2200 |
| | eVO-S 3PH900 | 900 | 1363 | 240 | 80 | 170 | 2500 |
| | eVO-S 3PH1000 | 1000 | 1515 | 250 | 80 | 170 | 2800 |
| | eVO-S 3PH1250 | 1250 | 1894 | 250 | 100 | 170 | 3000 |
| | eVO-S 3PH1600 | 1600 | 2273 | 260 | 100 | 170 | 3500 |
| | eVO-S 3PH2000 | 2000 | 3030 | 290 | 125 | 170 | 4000 |
| | eVO-S 3PH2500 | 2500 | 3788 | 330 | 125 | 220 | 4700 |
| | eVO-S 3PH3200 | 3200 | 4545 | 360 | 125 | 220 | 5500 |

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## eVO-S Options

| | | |
|---|---|---|
| Non-standard input voltage value | xxxV | eVO-S units can be manufactured for any required input voltage value |
| Non-standard input voltage range | XS,M,L,XL | eVO-S units can be manufactured for different input voltage ranges. |
| Non-standard output voltage value | xxxV | eVO-S units can be manufactured at any required output voltage value |
| Non-standard output voltage tolerance | R | Output voltage tolerances of eVO-S units can be +/-1%, +/-2%, +/-3%, +/-5% |
| Non-standard frequency | FRQ | eVO-S units can be manufactured for use on 60Hz network frequencies |
| Special enclosure | K | eVO-S units can be manufactured for both indoor and outdoor applications in special cabinets having different IPXX protection classes, e.g. IP54 |
| Input/output EMC filter | EMC | Specially designed EMC-Filters can be added to both the input and output of eVO-S unit |
| Input/output surge protector | ESD | High voltage protection and surge protection can be added to both the input and output of the eVO-S unit. The required protection classes and specifications should be provided at enquiry stage (CLASS-I, CLASS-II, CLASS III) |
| Remote monitoring and management unit | RMU | For remote access and control of the eVO-S unit, the remote management and monitoring module (RMU) can be added. No additional software is needed for the RMU unit. The RMU provides communication over LAN or Internet |
| Auxiliary contacts | C | NO-NC auxiliary contactor terminals can be installed for ON-OFF and Automatic Bypass modes of the eVO-S |
| Non-standard input/output terminal | T | According to site specification installation requirements, input & output terminals can be designed and located as required on the cabinet. The required terminal drawings must be supplied together with the offer/order |
| Special design and accessories | SPM | eVO-S units can be designed and constructed to meet specific customer requirements and technical specifications. All special requirements, detailed technical drawings and specifications must be provided by the customer at the offer/order stage |
| Parallel connection management units | PCM | Up to 4 eVO-S units can be connected in parallel for special high power applications. A PCM unit is used for management and synchronisation when units are connected in parallel |

The above are not included in the standard unit price. Details of any options required must be confirmed at the time of order. All options may not be suitable for a particular model or application. Please keep in touch with your sales representative for suitable options. The technical specifications given in this brochure are to be used as a guide. e-fficient Energy reserve the right to change without giving prior notice. The technical specifications in this brochure are for the eVO+S model. Please ask your sales representative for details and technical specifications for our extensive power management range.

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