Custom Engineered Industrial UPS Systems

5kVA to 150kVA with single phase output and 10kVA to 400kVA with three phase output

This series of custom engineered Industrial Uninterruptible Power Supply systems is based on a well proven rugged design concept to which custom features are added to meet the specification of the purchaser. The control logic uses discrete section circuit boards dedicated for the rectifier, inverter and static bypass. The rectifier, inverter and bypass sections can be operated as individual elements, the inverter can also be started from the battery without the rectifier operating. The UPS is designed to start and run without a battery connected, the inverter output is via a static interrupter and not through an electro-mechanical contactor. The control logic is housed in a shielded "logic box" and enables the system to operate in the most contaminated environmental conditions. This product is designed to operate continuously for at least 20 years in an environment where there is a presence of stray field harmonics, electromagnetic radiation in power generation stations, high voltage Grid transformer sub-stations and in the metal smelting and processing industrial applications. These environmental conditions, often contaminated with airborne carbon dust, plasma discharges and emissions are well known contributors to the operational instability, unreliability and ultimate failure of microprocessor controlled logic of UPS systems as employed in the commercial type of UPS systems and power conversion systems.

The high standard of engineering, mechanical construction, ingress protection, thermal management and air flow control within the UPS enclosure enables our power conversion systems to operate in very high ambient temperatures and in humid environmental conditions where carbon dust and saline vapours are present in, for example, the aluminium smelting process.

Our custom engineered grade (CEG) product range provides an exceptionally high quality and reliable power source for the most critical load applications. The rectifiers, inverters and operating systems have been developed and evolved from extensive operational duty experience in many power generation stations including for the past 15 years on Nuclear power station Reactor safety systems and for the past 20 years in the Middle East on all aspects of Aluminium Smelting and refining.

This industrial product range is a True Active Online Double Conversion type UPS system and is supplied with a 6 pulse rectifier or with the optional 12 pulse rectifier. The product is available with three phase input and single phase output up to 150kVA (E21), and three phase input and three phase output in sizes up to 400kVA (E23). The standard single phase output is 230V AC 50Hz with an optional 110V AC 50Hz or 60Hz. The standard three phase

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output is 400V AC 50Hz, or 480V AC 60Hz, however, other voltages or frequencies are available to customer order and can be configured as a frequency converter.
Our inverter designs are all using the long established pulse width modulation (PWM) wave form generation technology using the latest IGBT power semiconductor devices. The use of PWM inverters ensures a precise ability to synchronise with the mains or with other inverters to operate in load sharing parallel or in hot standby as well as providing good performance, with a high efficient use of energy handling high crest factor non-linear loads.
We avoid the use of high velocity and noisy fans mounted in the roof top of UPS enclosures. This principle of providing cooling air produces excessive air movement and unwanted dust into the enclosures. Our products have cooling air redundant fans fitted on the heat sinks exactly where the heat is generated.

The CEG UPS systems have a galvanic isolation between the battery and the output, with optional galvanic isolation at the input. The DC bus voltage can be made according to the customer's specification and preferred battery type. The rectifier has float, boost and equalise facilities and is designed for use with any type of lead acid battery or NiCd batteries.
Metering, operational status, alarms and data logging is by a small display panel mounted on the front door and supplemented by direct reading analogue meters that operate without the control logic being energised.
The power flow is shown on an engraved aluminium mimic panel fixed to the front door of the UPS system. The mimic panel uses high brightness LED's to indicate the status of the rectifier, inverter and bypass and battery. Alarms are also shown on the mimic panel with audible as well as visual indication, there is also an emergency power off push button and alarm cancel and test facility on the mimic panel.

- **Features**
- **6 pulse or 12 pulse rectifiers**
- **Data-logger and battery test data**
- **Volt free contacts for remote alarms**
- **RS485 Port for remote data monitoring**
- **SNMP Adaptor for remote monitoring via LAN**
- **Battery earth leakage monitoring**
- **Temperature compensation for battery charging**
- **Low battery voltage disconnect**
- **Rectifier input isolation**
- **Inverter output isolation transformer**
- **Can be supplied as a frequency converter 50Hz to 60Hz or 60Hz to 50Hz**
- **High IP rating – maximum IP55**
- **Analogue metering**
- **Engraved mimic panel with LED power flow status**

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