



Uninterruptible Power Supply Systems

True On-Line Technology. 3 Phase in- 3 Phase out

- True on-line double conversion technology
- High efficiency > 94%
- Built-in maintenance and automatic by-pass
- State of the art IGBT based PWM technology
- Capacity enhancement and redundancy guaranteed
- Galvanic isolation and/or modification for special voltages
- Expandable and variable battery banks
- Communication with computer and network systems and SNMP solutions
- Continuous monitoring via Tele Service
- 12 pulse rectifier option





EVEREST-EX SERIES

Technology

True on-line, double conversion technology of **EVEREST-EX** ensures trouble free, reliable operation and protects valuable and critical equipment load by maintaining precise and pure sinusoidal output. Rugged IGBT based PWM technology provides high current capability and protects the system against high instantaneous overload that improves the reliability even more. The IGBT power devices, combined with numeric command by micro-controllers, means we can meet our user's most demanding requirements such as:

- Supply continuous power to non-linear loads
- Improve the reliability of both the UPS and its battery
- Facilitate smooth operation and serviceability
- Reduce size and sound level
- Highly efficient operation reducing running costs.

Inverter

The inverter supplies the loads with high quality power. In order to provide optimum performance, the **EVEREST-EX** Inverter employs IGBT technology (Insulated Gate Bipolar Transistor) with high frequency switching. The system is managed by micro-controllers that constantly monitor over 100 parameters.

The **EVEREST-EX** range is thus designed to:

- Supply non-linear loads without degrading the UPS performance and simultaneously ensure very low input voltage distortion.
- Provide high quality power even in extreme transient conditions.
- Increase the reliability by simplifying circuits.

Battery

The battery is an essential element of the UPS; it provides an independent reservoir of DC power supply. Battery reliability is enhanced by the intelligent control of its recharge; current and voltage (e.g. according to ambient temperature) and the low residual ripple ratio of the rectifier.

The battery's health and capacity are monitored by an automatic battery test function.

Rectifier

The rectifier transforms alternating current from the line supply to direct current, supplies the input power to inverter, and keeps the battery charged. It has a soft start, thus avoiding inrush current from the commercial line.

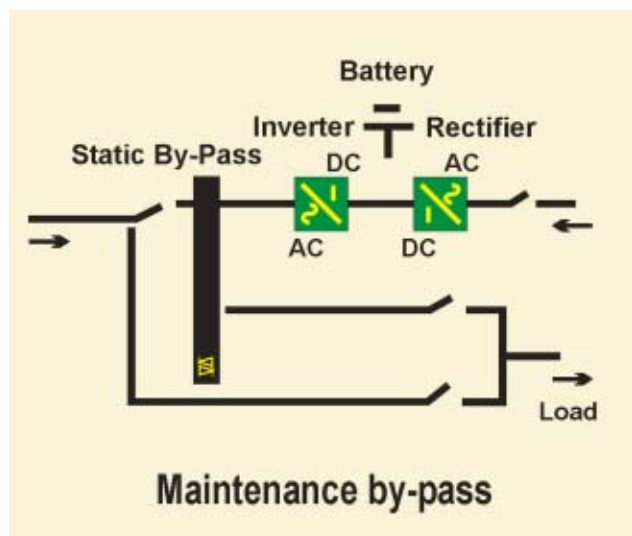
In order to reduce power consumption when running on generator sets, its logic enables it to delay battery recharge. The rectifier is especially designed to reduce harmonics feedback into the mains.

Automatic By-Pass

In cases of high overload or some defect, the **EVEREST-EX** Automatic by-pass transfers the loads to the commercial line without interruption.

Maintenance By-Pass

If the manual by-pass is activated, the Line powers the load, and the **EVEREST-EX** UPS is effectively isolated from the power supply circuit and can be switched off.



It permits continuous power supply of the load while the necessary verifications or repairs are made on the machine without any risk for the user.

Tele-Service

The state of your UPS System is continuously transferred through the telecom network to the after sales service center. Tele-service offers information / features such as:

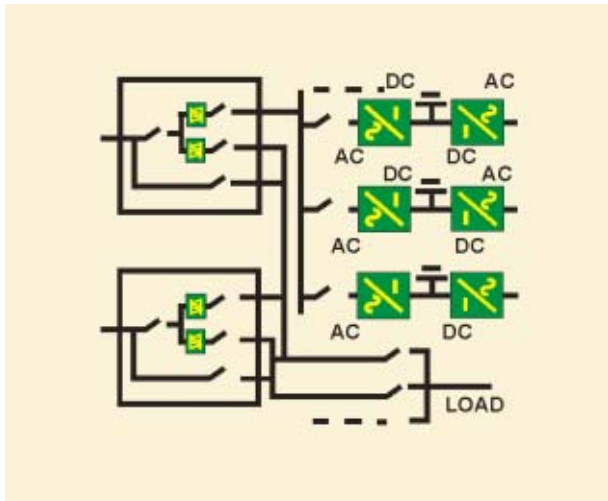
- consultations from a PC screen
- remote alarms,
- remote diagnostics.
- Battery
- Static By-Pass
- Inverter (DC AC)
- Rectifier (AC DC)



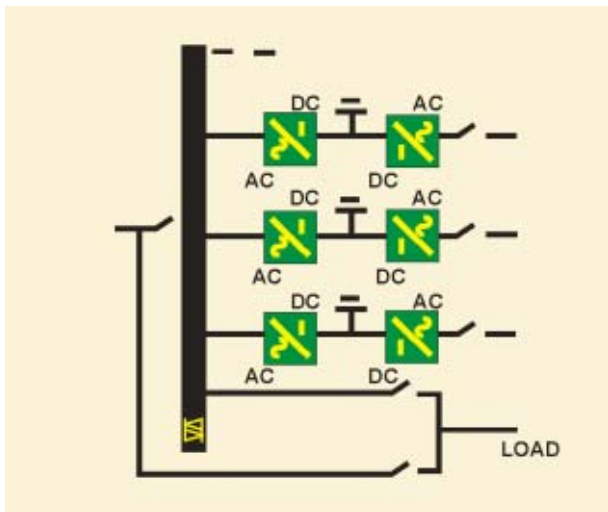
EVEREST-EX SERIES

Parallel Configuration

Parallel configuration is based on a modular concept and offers true flexibility. The Capacity of the system can be enhanced at any time, even after installation and commissioning.



Multi by-pass



Centralised by-pass

Remote Monitoring & Control

EVEREST-EX offers a wide choice of remote management systems:

- Dry contacts for remote signaling
- Remote signaling and control cabinets fitted with a screen keyboard offering the same functions as those fitted on EVEREST-EX

- **Embedded Software** allows EVEREST-EX to be monitored and controlled through a personal computer
- **Serial link** sets up a dialogue with BMS (Building Management Software System). All logic and analog information is transmitted by RS-485 serial link.
- **Tele-maintenance:** All EVEREST-EX data can be transmitted via telephone network for:
 - Consultations
 - Remote alarms
 - Remote diagnostics

Screen Keyboard

Managed by micro-controllers, a screen keyboard offers the following features:

- Rapid display of operation-mode by mimic panel.
- Load rate displayed by bar graph.

Sub-unit control

```
LOAD ON MAINS
COMMAND      ON  INV.
CONFIRM                                CANCEL
```

Measurements

```
MEASUREMENTS ON OUT.  SUPPLIED BY INV. ↑
U12=400V  V1=230V      I1=457A  S=315KVA
U31=400V  V2=230V      I2=458A  F=50.0Hz
U23=400V  V3=230V      I3=453A  RETURN ↓
```

Remaining back-up time

```
LOAD ON INVERTER  AUTONOMY  25mm
INVERTER ON BATTERY
MEASURE          CONTROL  MONITOR
```

Battery testing

```
NEXT BATTERY TEST SETTINGS ↑
DATE HOUR MINUTE Nb WEEKS
SATURDAY 18 0 4
NEXT VALID DELETED RETURN ↓
```

Event history log

```
001 INVERTER ON BATTERY N 10:33:32 05/12
002 LOAD ON MAINS Y 10:33:32 05/12
003 LOAD ON INVERTER N 10:33:32 05/12
004 BATTERY DISCHARGED Y 10:33:32 05/12
```

System configuration as per user requirement

```
LOAD ON INVERTER ██████████
LOAD RATE (%) 0 50 100
BUZZER LINK LANGUAGE RETURN
```



EVEREST-EX SERIES

Maintenance

Given the vital importance of UPS, offering prompt Quality Service is just as important as the Product Quality.

In order to increase reliability by reducing MTTR (Mean Time to Repair) by way of simple and rapid

maintenance, EVEREST-EX incorporates:

- a socket enabling maintenance engineers to connect a PC to carry out checks, diagnostics and configuration of sub-units.
- Modular design easily accessible components and subsystems.

Technical Specifications

	MODEL	EX300	EX400	EX500	EX600	EX800
	Output KVA	300	400	500	600	800
	Power Factor	0.85 lagging				
INPUT	Voltage	380V/400V/415V 3 phase				
	Tolerance	±15%				
	Frequency	50/60Hz				
	Tolerance	±10%				
OUTPUT	Voltage	380V/400V/415V 3 phase				
	Tolerance (steady condition)	<0.5%				
	Tolerance (dynamic condition)	±5%				
	Harmonic Distortion Rate on linear load	<1.5%				
	Total Harmonic Distortion	<5%				
	Crest Factor	3 : 1				
	Frequency	50 or 60Hz				
	Frequency Tolerance	±0.2%				
	Overload		125% load		10 min	
			150% load		1 min	
			200% load		100 ms	
Unbalanced Load	100%					
Overall Efficiency	Upto 94%					
BATTERY	Battery Voltage (nominal)	32 Battery (384V DC) typical				
GENERAL	Protection	Overload/Short circuit, DC Over/Under voltage and Over heat				
	Indication	Line on, Battery on, Mains abnormal, Load on Inv., Load on Aux. and Inv trip				
	Metering	Input volt., Batt. volt., Output volt., Bal. batt. autonomy output freq. and Load power (%)				
PHYSICAL	Weight w/o Battery (Kg)	1800	2000	4400	4500	5000
	Dimensions WxDxH mm	1600 x 800 x 1920			4300 x 800 x 1920	
ENVIRONMENT	Audible Noise	68 to 75 dBA				
	Standards	EN 50091 – IEC 146 - 4				
OPTIONS	Battery Cabinet, Parallel Redundancy, SNMP Interface, Remote Signaling and control Unit, Communication Software, Remote Signaling Interface, Common By-Pass for Parallel Systems, Galvanic Isolation, 12 Pulse Rectifier, Serial Port Interface, Dry Contact Interface					

Aplab Limited reserves all right to specifications and are subject to change without notice



APLAB LIMITED A-5, WAGLE ESTATE, THANE 400 604. INDIA. TEL: 022-2582 1861 FAX: 91-022-2582 3137 E-MAIL: powerelectronics@aplab.com VISIT: www.aplab.com

• **AGRA** Tel.: 2411414 Fax: 0562-2225797 • **AHMEDABAD** Telfax: 079-26589475 • **BANGALORE** Tel: 3463462, 3463465 Fax: 080-3464128 E-mail: aplablr@mantraonline.com
 • **CHANDIGARH** Tel.: 692466 Fax: 0172-693607 Email: aplab@glide.net.in • **CHENNAI** Tel: 24343107 Fax: 044-24344499 Email: aplabchn@md3.vsnl.net.in • **COCHIN** Telfax: 0484-2361623
 • **COIMBATORE** Tel: 2332612 Fax: 0422-2333407 Email: aplabcbe@md3.vsnl.net.in • **INDORE** Telfax: 0731-2575666 • **JAIPUR** Tel.: 2307023 Fax: 0141-2305817 • **KOLKATA** Tel: 22848834, 22455435 Fax: 033-22454294 Email: aplab@cal2.vsnl.net.in • **LUCKNOW** Tel.: 2230202 Fax: C/o.0522-2222061 Email: aplab03@sancharnet.in • **MUMBAI** Tel: 28501787, 8504642 Fax: 022-28509066 Email: aplabwr@aplab.com • **NEW DELHI** Tel.: 23627467/23618628 Telefax: 011-23515186/83 E-mail: aplabnd@aplab.com • **NAGPUR** Telfax: 0712-2523483 • **PUNE** Tel.: 020-56235061 Email: aplabpune@aplab.com • **SECUNDERABAD** Tel.: 27843351, 27897787 Fax: 27897788 Email: aplabhd@hd2.dot.net.in • **SURAT** Tel: 0261-2412922
 • **THIRUVANANTHAPURAM** Tel.: 2461095 Fax: 0471-2446859