

Perfect Solution for **Hyper-Critical Applications**



CE RoHS

Astra
Series
1 KVA - 250 KVA

- Double Conversion IGBT based On-Line UPS
- Advanced IGBT based Rectifier Design
- High Efficiency and Low Distortion
- Digital PWM DSP/Microprocessor based Controls
- Inbuilt Isolation Transformer
- Extended Battery Runtimes
- Superior Dynamic Performance
- Designed for Harsh Environments
- Compatible with Solar Power (Optional)

ORION ASTRA SERIES ON-LINE UPS

The ORION ASTRA Series On-Line UPS includes the 1 KVA to 250 KVA Three/Single phase Input and Three/Single Phase output Double Conversion On-Line Technology (CVFI) with an isolation transformer on the Inverter Output. The Load is supplied continuously by the inverter with clean, stabilized and regulated sine-wave output power. Input & Output filters increase the immunity of load from power disturbances and surges. The ASTRA series UPS is used for mission critical applications like Data Centres, Telecom, LAN/WAN, Healthcare, Industrial Automation, Process Control etc. The ASTRA series UPS features state-of-the-art microprocessor or DSP based advanced technology design. These UPS are also available with power management software which can be used for monitoring various parameters of the UPS and can also be useful for remote monitoring / control on the web by adding SNMP Card.

ISOLATION TRANSFORMER

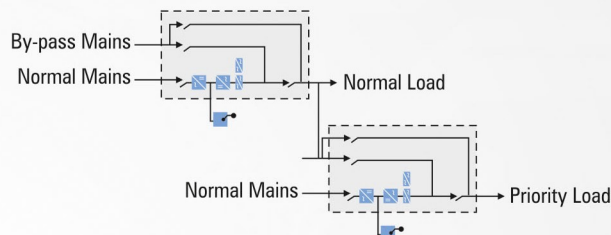
The isolation transformer at the output provides galvanic isolation. A UPS without isolation transformer at its output may cause danger to the connected loads in case of a short circuit in the IGBT blocks of the inverter unit. In such cases there is a high probability that the connected loads will be burnt or damaged due to high DC Voltage. Another advantage of the galvanic isolation transformer is that it eliminates the peaks (electrical noise or instant peaks) that might appear at the phase, neutral or earth line. For example, during rainy season, if lightning strikes the input, the electrical noise will not be able to pass through the UPS output and as a result the load will remain safe.

SALIENT FEATURES

- Wide Input Voltage & Frequency Window
- Generator Compatible
- High Input Power Factor
- Micro Processor/ DSP based design
- Float Cum Boost Charger
- High Frequency IGBT based PWM Inverter
- Soft Start & Cold Start Facility
- High Efficiency > 94%
- Sinewave with Distortion less than 1%
- Crystal Controlled Output Frequency (50 Hz $\pm$ 0.01 %)
- Low Noise
- Output Galvanic Isolation
- High Crest Factor = 4 : 1
- Slew rate of 1 Hz / Sec
- Extended Battery Back-Up time
- Fully Programmable Rectifier, Inverter, Batteries, Static Switch
- Advanced Battery Management
- Hot Standby and Parallel Redundant Configurations

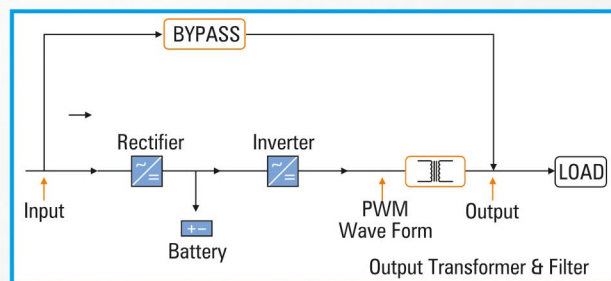
HOT STAND-BY CONFIGURATION

- Feed one (priority) or two (priority & normal) load banks depending on the application need.
- Increase the reliability of the priority load.
- Increase the maintainability.
- Easy connection.
- Can be implemented in the existing installation regardless of the UPS size, the generation (of device, technology or control mechanism) and the manufacturer.



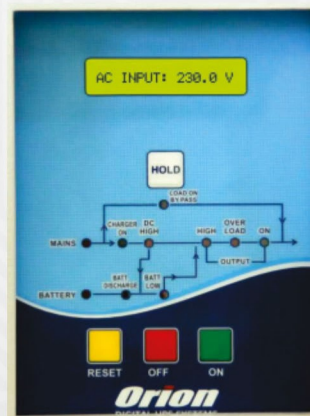
IGBT & PWM TECHNOLOGY

A widely used and developed semiconductor, IGBT (INSULATED GATE BIPOLAR TRANSISTOR), is used in the Inverter section of the UPS. With the Sinusoidal Pulse Width Modulation Technique, maximum operational efficiency is obtained and thus even the non-linear loads are fed with a precise sinusoidal signal.



MIMIC PANEL

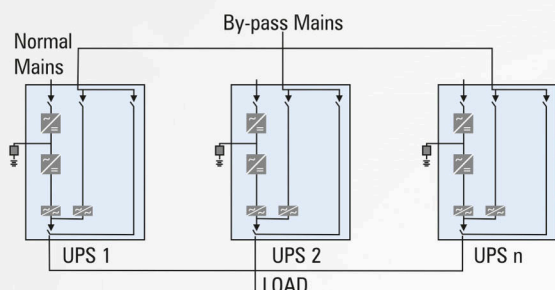
Display to provide instant view of UPS status. The LED's quickly identify Input Power, Battery Status, Alarm Status. The LCD provides comprehensive information of Input & Output Voltage, DC Voltage, Current & Output Frequency. The front panel also allows UPS control.



POWER FACTOR CORRECTION (PFC): (OPTIONAL)

Power Factor Correction unit is available at the input stage of the ORION ASTRA Series UPS System.

The input power factor is around 0.8 in a normal device without PFC unit. The closer the power factor is to 1 (unity), the energy charges paid for the reactive power used is proportionately reduced. At the same time the system efficiency is enhanced and less current is drawn at the UPS Input. As the input current is less, one can benefit by purchasing a generator with low current rating. Another advantage of using a UPS with PFC unit is that it does not distort the mains supply. As a result the other electronic devices connected to the mains run safely without any interruption.

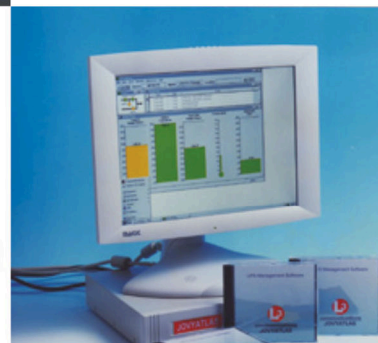


PARALLEL CONFIGURATION

Parallel configuration is a system, which increases system availability and ensures more reliable operation of the UPS feeding the critical loads. In a parallel configuration all UPS modules share the load evenly. In the event of any one of the modules going out of order, the other units still operate and thus ensure continuous feeding of the load without transferring the load to bypass. In this system $n+1$ units can be connected in parallel and thus, the total capacity of the system increases. Whenever required, the user can add an extra unit to feed a larger load system.

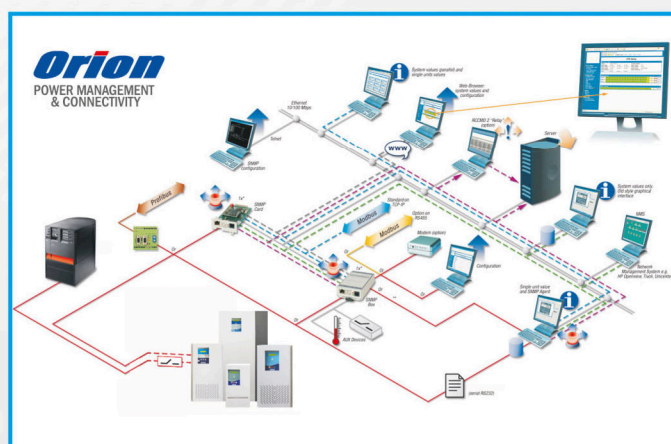
ORION UPS MANAGER NETWORK SOFTWARE

The ORION UPS Manager software family has been developed in order to observe UPS parameters from a PC. This program provides communication between the RS 232 port (COM port) of a PC and the RS 232 port of the UPS. Thus the information obtained can be observed easily on the PC monitor. With the aid of its serial communication port, the UPS can be connected either to the server or to one of the client computers. The ORION UPS Manager software is compatible with Windows 95, Windows XP, Windows NT workstation and Windows NT Server. The ORION UPS Manager Software can also be used in a network consisting of more than one server. In such a case the UPS can be connected to any one of the servers or terminal computers, provided that compatible operating system is installed. UPS observation and control operations are performed from this connected PC screen. Moreover, in case of mains failure the server or terminal PCs can also be shutdown in a safe and orderly manner.



SNMP VIEW SOFTWARE

When computers (connected to a network) need to communicate with each other in order to exchange data, they are required to talk in the same "Language". This type of Language is termed as Protocol in the computer and communication world and SNMP (Simple Network Management Protocol) is one such protocol. The main purpose of using SNMP protocol is to administer computers and other Network devices from one or more than one center. It is only possible to watch SNMP devices from one center with the aid of SNMP administration software programs. SNMP View Program is a Windows based network observation and administration software that facilitates observing all the SNMP devices connected to the network from one center. With the help of this software program the UPS devices can be monitored too. As soon as the UPS devices are connected to the network through SNMP adapters and their proper network settings are completed, the UPS devices are ready to send all their parameters to this software program. By using the main window of this software program, it is possible to observe SNMP compatible devices from any location in the world simultaneously. With the aid of developed listing options it is easy to administer the devices or to obtain detail information of the devices just by one click of the mouse. Through SNMP View Program one can observe and obtain detailed information not only of UPS devices, but also of all SNMP compatible network devices. SNMP view Program supports Windows 9x, 2000, XP, NT, 2003, Vista, Linux, Free BSD, SUN OS, SUN Solaris, SUN Solaris X 86, HP-UX, DEC OSF/1, IBM AIX, UNIX and XENIX etc.



Technical Specifications

Orion Astra Series UPS (1 KVA - 250 KVA)

Orion
REALTIME PROTECTION

AC INPUT PARAMETERS	Nominal Input Voltage 230 V, Single Phase, 2 Wire + G, Variation 415 V, Three Phase, 4 Wire + G, Variation Input Power Factor Input Frequency & Range Input THDi	: 160-300 V AC, 110-300VAC (Load dependent) : 300-480 V AC, 240-480VAC (Load dependent) : ≥0.99 : 50/60 Hz (Range: 40~70 Hz) (Can also work on Generators) : ≤5% THDi for <10 KVA and ≤3% THDi for ≥10 KVA
DC OUTPUT (RECTIFIER)	UPS Capacity 10 KVA & above (3 Phase in) 1 KVA to 10 KVA (1 Phase in) Battery Recharge Time Charging Current	: DC Output Voltage (Nominal) : 240/336V/360 V/384V/480 V : 36/72/96/168/180/192 V (other DC Voltage available as option) : 4~6 hours max. (battery AH and capacity dependent) : 10A:1-3 KVA, 15~20A: 6-15 KVA, 30-40A: 15-100 KVA
OUTPUT PARAMETERS	Output Voltage (Nominal) Bypass Voltage & Frequency Voltage Stability Output Frequency Waveform Harmonic Distortion Efficiency Power Factor Overload Crest Factor Transient Response Phase Displacement for 3 Phase Output Transfer Time Audible Noise	: 220/230/240 V AC 1 Phase (2W + G) or 380/400/415 V AC Three Phase (4W + G), selectable : 230 VAC (2W) or 400 VAC(4W) ± 15 %; 50 Hz ± 5 % : ± 1 % for DC Input variation & Output load variations. : 50 Hz ± 0.05 Hz free run; ± 1 Hz (Synchronised) : Sinewave : < 1% (for linear loads) & <3% (for non linear loads) : ≥94% (≥96% for 3 Phase models) : 0.9 lagging to unity (1.0 available as option, i.e. KVA=KW) : 110% for 60 mins, 130% for 10 mins, 150% for 60 seconds : 4 : 1 : Dynamic variation ± 5%; recovery Within 3 cycles. : 120° ± 1° : No Break Transfer (0 msec) - Mains to Batt and Vice Versa : Fast Transfer (2 msec) - Inverter to Bypass and Vice Versa : <45 dB at 1 metre ≤10 KVA, <55 dB at 1 metre ≤30KVA, <65 dB ≤100 KVA and 75 dB >100 KVA
PROTECTION & SELF DIAGNOSTIC FEATURES	An electronics circuit with digital logics continuously searches for the following faults & trips the system with audio-visual indication: Battery Over Voltage/Under Voltage, Output AC Over/Under Voltage, Input Over/Under Voltage, Bypass abnormal Output Overload, Short Circuit, Over Temperature, Battery Deep Discharge, Earth Leakage Protection, Breakers	
AMBIENT CONDITIONS	• Operating Temp: 0°C - 45°C (0°C - 50°C with derating) • Storage Temp.: 0°C - 60°C • Relative Humidity : 0~95 % RH • Altitude : upto 3000 meters • Ingress : IP20 (IP 21 available as option)	
LCD DISPLAY & MONITORING	Input/Output/Bypass-Voltage / Current / Frequency, Power (KVA/KW) Battery-Voltage / Current/ Charge Level / Remaining Back-up time/Self-test, Fault Codes & Alarms, Overload/Short Circuit/Low Batt, Temperature, Charging Current, Event Logs	
FAULT INDICATION (ON LCD)	Main Input Fault, General Fault, Battery Fault, Bypass Static Switch Fault, Parallel Fault, DC Bus Fault, Output High/Low, Over Load, Short Circuit, Over Temperature, CAN Fault, Charger Fail, Battery Open, DC High/Low, Fan Lock, Line Phase Error, Parallel System Configuration Error, EPO enable/disable	
OTHER FEATURES	• Parallel Redundancy (N+1) upto 4 units and Series Redundancy (Hot Standby) • Manual & Static Bypass Switch, Serial RS 232 Interface/USB, REPO, Remote Indicator Panel • Auto Restart with Delay, Automatic Battery Test • Integrated Isolation Transformer (Input/Output) • SNMP Web Management Software, Modbus Communication (Modbus RTU Protocol)	

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