

Online UPS

Falcon 7000

Transformerless UPS

40 KVA - 500 KVA

Three Phase Input / Three Phase Output



Reliability & Performance By Design

The Falcon 7000 (Uninterruptible Power Supply) has been developed by a World Class R&D team, with over three decades of power electronics experience for the harsh power and site conditions prevalent in India and other developing countries. The Falcon 7000 shares the characteristics of the Falcon birds which is a rugged and an incredible flying machine and one of the fastest creatures on the planet with the ability to move and change direction very quickly. Similarly, the Falcon UPS is an incredible power protection system designed and manufactured in India to global IEC standards.



Features



RELIABILITY

Thermal design and component selection for longer life when operating at higher ambient temperature and in harsh power and site conditions.

Advanced technology of CAN bus and 32 bit micro processor.



USER FRIENDLINESS

Intuitive HMI and Wide range of connectivity options.



SCALABILITY

Upto 8 units in parallel for Capacity or Redundancy.



ROBUSTNESS

Designed to continue functioning without going to battery even when there are severe disturbances in input mains.

Designed to operate at 40°C continuously



FLEXIBILITY

Can handle loads of many kinds including steps loads, 100% Non-linear loads and loads with leading and lagging power factor.

4 quadrant rectifier to handle regenerative loads.



SERVICEABILITY

Easy access to critical components allowing low MTTR (Mean Time To Repair) and modular construction for low spare part count.



GREEN TECHNOLOGY

Input PF > 0.99
THDi < 5%
Intelligent Eco Mode operation for 99% efficiency



SAVING

Advanced battery management for longer battery life.

Input IGBT Rectifier means no need to oversize DG set and can operate without air-conditioning.

High Reliability

Falcon 7000 provides a higher level reliability

Thanks to the modular constructions, Shorter mean time to repair with side out modules for easy serviceability.

High Level of internal redundancy providing N+1 Redundant Fans and Failure of modules leads only to reduce capacity.

Advanced thermal protection of IGBT using on chip built-in temperature sensor.

Pulse by pulse current limit and Desaturation protection IGBT from short circuits is implemented.

Internal protection for capacitors against Overload and Failure, to prevent it from bursting.

The Falcon UPS family is designed for harsh conditions which prevail in india, Like high ambient temperature, very high humidity, wide input voltage fluctuations, and operation on DG Sets during power cuts which are not seen in many parts of the world. The Falcon UPS is designed for continuous operation at 40°C ambient temperature with special attention to details in component selection and design to improve reliability and life under demanding conditions.

Green Input Performances

Falcon 7000 is designed with active front end IGBT rectifier.

High input power factor (PF>0.99) and Low current harmonic distortions (THDi <5%) irrespective of the power factor or harmonics generated by the load.

This low THDi and high PF in the input of UPS ensures the UPS will not create unwanted problems due to harmonics created by older generation UPS. Also ensures that DG sets, power cables and switch gear rating need not be over-sized and thereby saving considerably on infrastructure costs. This feature also helps avoid any penalty charged by Utility companies for low power factor or high harmonics input.

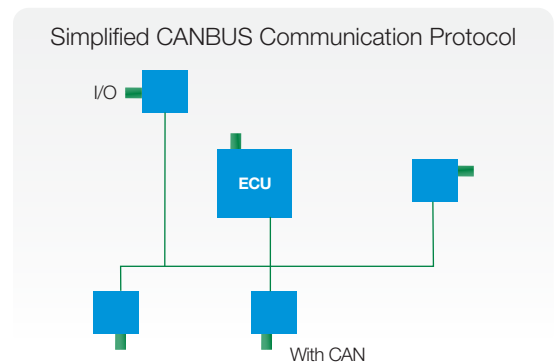
Advanced Battery Characteristic

Advanced battery management techniques to improve battery life.

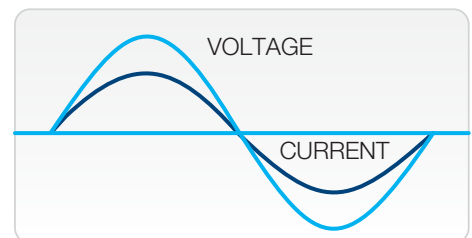
- Auto Float Boost Charger Topology for VRLA (SMF).
- Three stage charging which also auto equalizes charging at pre-determined intervals to improve battery life.
- Temperature Compensated battery Charging. (Optional)
- Adjustable algorithm for test of battery based on Capacity of battery, connected load etc.
- Configurable DoD (Depth of Discharge)
- Compatible with Lithium Ion Battery.



Complexity of control wiring within the UPS has been simplified using CANBUS communication protocol for higher reliability and trouble-free operations.



Input Phase sequence correction provided as standard to avoid UPS transferring to Battery mode in case of Phase sequence change at input. UPS will continue to work on mains mode without discharging battery resulting in optimised usage of battery.



Service ability & user Friendliness by Design

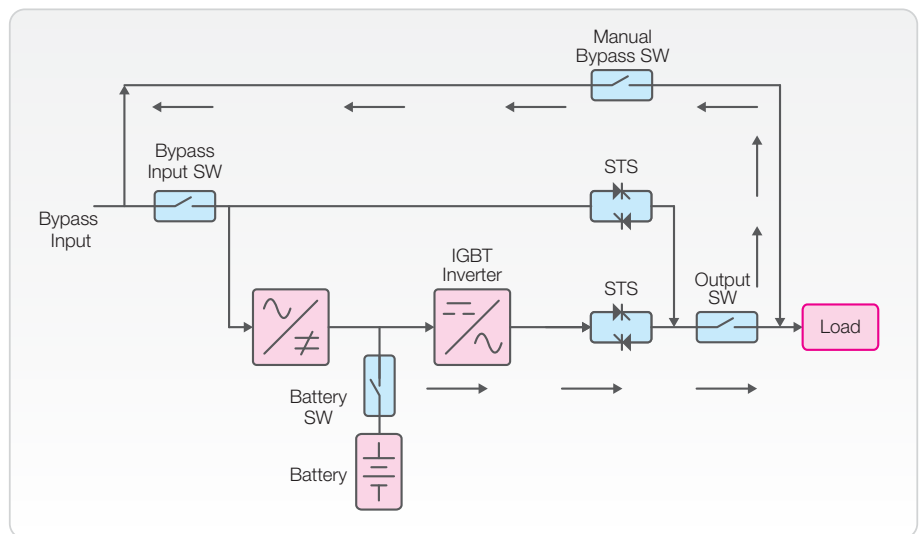
Reduced MTTR

The Falcon UPS is designed with a focus on serviceability to reduce the Mean Time To Repair (MTTR) in the unlikely event of a failure and all modules are on pullout trays which can slide out for quick diagnostics and replacement. The Falcon UPS also comes with built-in SD card and RAM where all events, alarms and error logs are stored for analysis remote or on site.



Intelligent Testing of UPS System

Falcon 7000 has a special function of performing a full load on itself and can also perform battery discharge test without any additional load banks. This allows the UPS to be tested at different load levels and can be easily performed by a qualified technician at site.



Total Cost of Ownership

Optimized cost of ownership with Falcon 7000

Falcon 7000 can be operated upto 40°C (ambient temperature) without precision air conditioning as required by most UPS. This helps large saving for the customer in capex and opex costs associated with cooling required for the UPS. The UPS batteries must be kept in a separate room for safety and temperature must be maintained below 27°C to maximize the life of the batteries.

Long life power Electronic grade capacitors are being used in the UPS which doesn't warrant for the replacement of capacitors during its lifetime. Falcon 7000 is specially designed with four quadrant IGBT rectifier designed to handle regenerative loads and feeds back the regenerative power to the mains providing considerable energy savings.

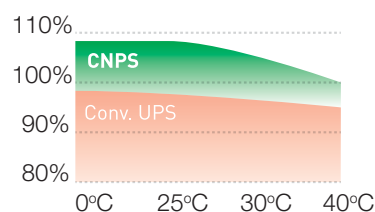
Intelligent Eco Mode

Energy Efficient System

Falcon 7000 has a intelligent high efficiency Eco Mode operations which can be enabled for energy savings (99% Efficiency). The Firmware, tested to indian power conditions monitors the quality of the input power, and enables the Eco Mode operations on bypass only when input power conditions are stable. Otherwise the UPS transfer back to double conversion mode in less than 2ms whereby the reliability of power is ensured to the critical load.

Higher Power Density

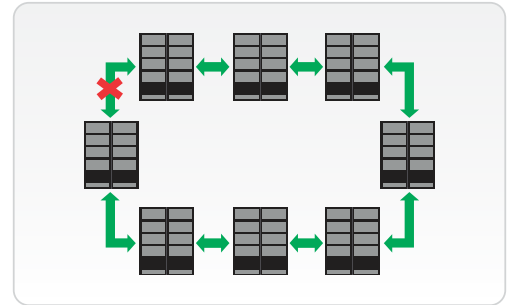
Optimized UPS Capacity



10% More real power @ 25°C

Flexibility & Scalability

Falcon UPS can be configured with upto 8 units in parallel for both capacity and redundancy. Falcon UPS uses space vector pulse width modulations (SPPWM) to ensure uniform sharing of load even with dynamic load changes. The Parallel Redundant System (PRS) architecture does not have any single common point of failure, making it the most reliable UPS & true redundant UPS configuration for critical applications. Falcon UPS can also be configured to support Tier-1 to Tier-4 data centre designs.



User Friendliness


Falcon 7000 has HMI & Communication options



The Human Machine Interface (HMI) is intuitive and user friendly with a LCD screen and LED mimics.



A TFT touch screen is also available as an optional interface True RMS readings of more than 25 parameters of the UPS is available.



The Falcon UPS also provides a wide range of connectivity options including Serial-RS232; Rs485, Modbus RTU, SNMP - (10/100Mbps auto-select) - (optional), Datacard with 3G/4G for remote monitoring (optional) and Profibus (optional). Also there are six programmable potential free alarm contacts.

Standards & Certifications

Standard	
Safety	IEC 62040-1
Testing and Performance	IEC 62040-3
EMC/EMI	IEC 62040-2 Category C3
IP Protection Class	IEC 60529
Noise Level	ISO 3746
Quality Standards	ISO 9001 : 2008
Environment Management System	ISO 14001 : 2004
OHSAS	OHSAS 18001 : 2007



Technical Specification
Falcon 7000

Transformerless UPS

40 KVA - 500 KVA

Three Phase Input / Three Phase Output

General		Falcon 7000											
Rating in KVA @ 40°C		40	60	80	100	120	160	200	250	300	400	500	
Rating in KVA @ 25°C		44	66	88	110	132	172	220	275	320	440	550	
Input													
Normal Voltage		415 V AC 3 Ph + N (± 15%)											
Nominal Frequency		50 Hz (46 to 54 Hz)											
Power Factor		≥ 0.99											
THDi (@ Vthd < 1%)		< 5%											
Topology		32 bit DSP controlled											
Output													
Power in KW		0.9											
Power Factor Handling Capacity		0.6 to Unity within KVA and KW rating											
Voltage		400 V / 415 V AC (± 1%) 3 Ph (380 V Optional)											
Frequency		50 Hz / 60 Hz (± 0.1 Hz)											
Transient Response		± 5%, Recovery within one cycle to 98%											
Waveform		Sinusoidal											
Total Harmonic Distortion		< 2% for Linear Load											
		< 5% for Non-Linear Load (Ref IEEE 62040-3)											
Overload Capacity		110% for 60 min, 125% for 10 min, 150% for 60 sec											
Efficiency		Up to 99% @ Energy saving mode											
Bypass													
Voltage & Frequency		415 V AC + 15%, 50 Hz (+ 2.5 Hz) settable, 3 Phase + Neutral											
Transfer Time		Synchronous mode: No break											
		Asynchronous mode < 10 ms											
Manual Bypass		Provided											
Environment													
Operating Temperature		0 to 40°C											
Storage Temperature		0 to 70°C											
Relative Humidity		upto 95% RH (Non-condensing)											
Maximum Operating Altitude		1000m (without de-rating)											
Acoustic Noise @ 1m (Ref. ISO 3746)		≤ 68 dBA					≤ 70 dBA						
Enclosure Protection Grade		IP 20					≤ 72 dBA						
Ventilation		Forced air cooling											
Cable Entry		Top / Bottom (Standard)											
Dimensions													
Width (mm)		600			710			1000			1520		1800
Depth (mm)		800			900			900			900		900
Height (mm)		1300			1300			1750			1750		1750
Weight (Kg)		300	325	400	400	850	850	1050	1300				
Cabinet Finish		RAL 7016											
Communication													
Interface & Protocol		Ethernet RJ45											
Available Options		SNMP, MODBUS											

* The information contained in this publication is subject to change without prior notice.

*Specifications are subject to change

Ref. Standards IEC 62040-1, IEC 62040-2, IEC 62040-3










**WE UNDERSTAND
INDIAN POWER ENVIRONMENT**

FCN is the No.1 indian power electronics company. It is the only indian company to offer a comprehensive range of power electronics products - power backup, power conditioning, energy conservation, solar and custom solutions. This includes mission critical UPS solutions. Over the last 30 years the company has built up an enviable understanding of the indian power environment which has enabled it to design and develop cutting edge power electronics products at it DSIR approved R&D centre that can perform flawlessly in challenging power environments. The company manufactures its products at its modern manufacturing facilities in chennai & Pune. It supports customers across India with a service network covering over 75 locations in the country.

FCN has completed over 300,000 installations across India, Middle East & Africa delivering over 1000 megawatt of power conditioning & power backup products.

OUR SOLUTIONS

POWER ISSUES	 POWER FAILURE	 UNDER VOLTAGE	 OVER VOLTAGE	 LINE NOISE	 SWITCHING TRANSIENTS	 FREQUENCY VARIATION	 HARMONIC DISTORTION
OUR SOLUTIONS	VOLTAGE STABILIZER		ISOLATION TRANSFORMER			HARMONIC FILTER	
	UNINTERRUPTED POWER SYSTEM(UPS)						
	INVERTER						
	SOLAR PCU / INVERTER						
	CUSTOM INDUSTRIAL UNINTERRUPTED POWER SYSTEM & STS						

