Fuji Electric

Innovating Energy Technology

Online Double Conversion UPS

Falcon 8500

UPS 10 KVA -300 KVA

The Falcon 8500 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.

Falcon 8500 shares the characteristics of the Falcon birds which is a rugged and an incredible flying machine and one of the fastest creature 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.

Highlights of Falcon 8500 UPS at a Glance

Flexibility

- Inbuilt Isolation Transfomer
- Compatible for medical imaging equipment requiring low mains resistance
- Compatible with all types of loads including regener ative loads, lifts, escalators and lighting loads
- 1+1 parallel redundant configuration with Common battery bank
- Rectifier current limit setting for optimised upstream infrastructure
- Parallel upto 3 units for capacity or redundancy

Reliability

- Operating temperature of 0-40°C with special attention in component selection and design to improve reliability
- Advanced battery management techniques to improve battery life with three stage charging and with auto equalizing charge at predefined intervals
- Advanced thermal protection of IGBT.

*Glow bar is applicable for 60 - 120kVA

Total Cost of Ownership

- Intelligent Eco mode operation with an efficiency of upto 99%
- Long Life power electronics grade capacitors

Applications

- Infrastructure
- Commercial Offices & Malls
- Lifts & Escalators
- Medical Imaging Equipment
- Engineering Industry
- Process Industry

Reliability

The Falcon UPS family is designed for harsh conditions seen in India, Middle East, Africa and ASEAN countries., Like high ambient temperatures, very high humidity, wide input voltage fluctuations, and operation on DG Sets during powercuts 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. Complexity of control wiring within the UPS has been simplified using CANBUS communication protocol for higher reliability and trouble - free operations.

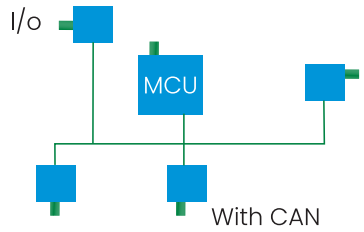
Flexibility

Falcon 8500 deploys a sophisticated control circuit with power walk-in function to achieve progressive rectifier start-up to avoid the impact of inrush current on the upstream breakers and to avoid the step loading on generators.

Falcon 8500 has also been designed with Rectifier current Limit function, taking into account the short term momentary loads which allows the system to work in parallel with the battery and to reduce the maximum demand on the mains or avoids the need to enhance the maximum demand sanctioned by the utility provider or generator.

Inbuilt isolator switches for input, output, battery and maintenance bypass gives the flexibility to connect the cables directly on the UPS system without any external distribution panel requirement.

■ *CANBUS Communication*

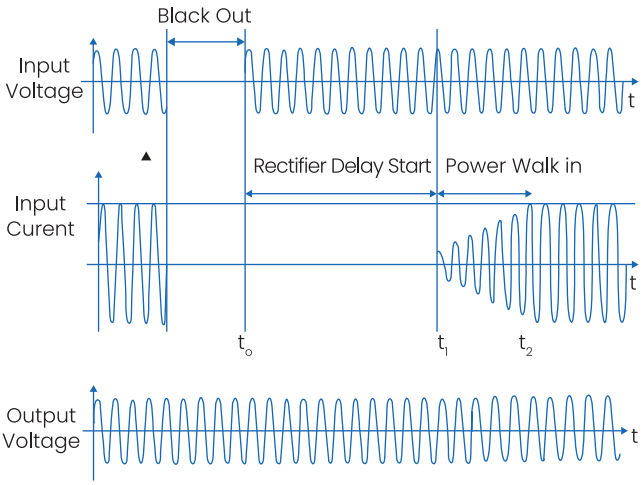


Simplified CANBUS Communication Protocol

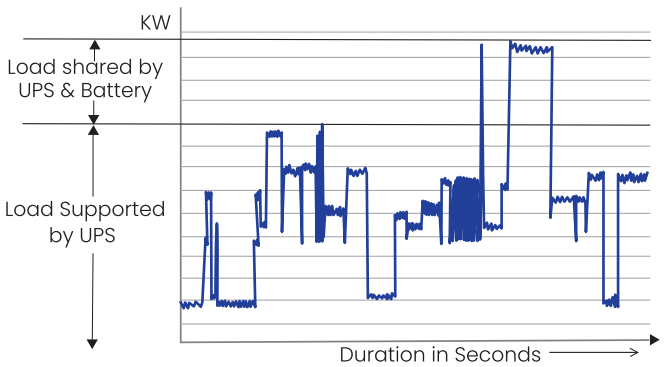
■ *Special Design Heat Sink*

Special Heat Sinks with large surface area for effective heat dissipation in small volume.

■ *Rectifier Delay Start*



■ *Rectifier Current Limit*



Compatibility with Loads

An advanced PWM (Pulse Width Modulation) SVM (Space Vector Modulation) digitalcontrol technique, to modulate the inverter, provides fast transient response with high efficiency. SVM also allows the UPS to adapt the PWM switching to different loading conditions such as: partial load, full load, linear load, non-linear load, static load, pulsating load.

Falcon 8500 comes in-built* with Special IGBT controller for adding external breaking resistors to make the UPS compatible with regenerative loads like Metal forming and Elevators.

Easy Installation

Falcon 8500 has a compact footprint and requires a very small for installation.

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

Total Cost of Ownership

Falcon 8500 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.

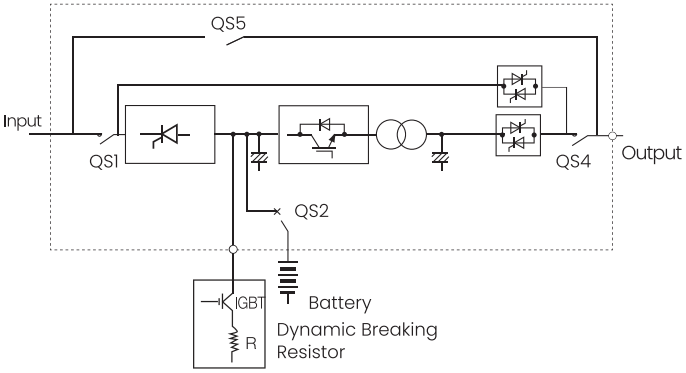
Long Life Power Electronic grade capacitors are being used in the UPS which reduces need for replacement cost of capacitors during the life time of the UPS.

Intelligent High Efficiency

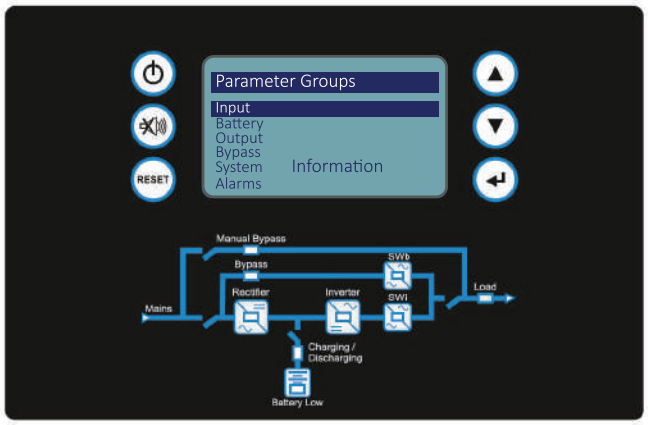
Eco Mode operations which can be enabled for energy savings (Upto 99% Efficiency). The firmware, tested to Indian power conditions monitors the quality of the input power, and enables the Eco Mode operations on bypass only when input power conditions are stable. Other wise the UPS transfers back to double conversion mode in less than 5ms whereby the reliability of power is ensured to the critical load.

*inbuilt upto 20KVA (optional)

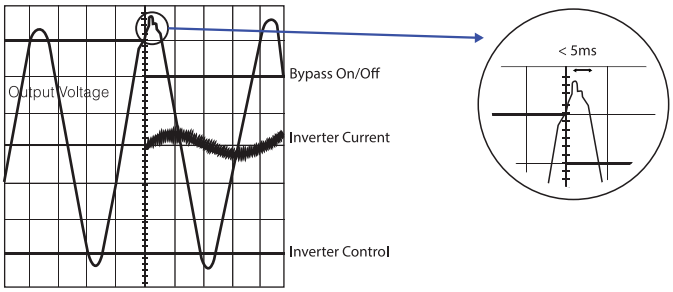
■ UPS with DBR



■ User-Friendly HMI



■ Eco mode of Operation



Technical Specification

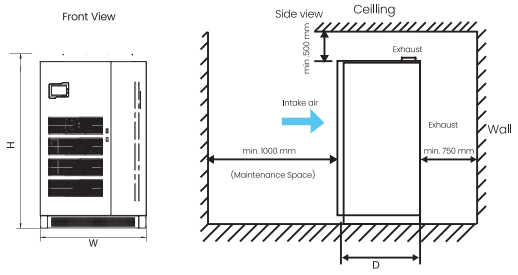
Online Double Conversion UPS

Falcon 8500

UPS 10KVA -300KVA

Series		Falcon 8500														
Model	**UPS Rating (KVA)**	10KVA	20KVA	30KVA	10KVA	20KVA	30KVA	40KVA	60KVA	80KVA	100KVA	120KVA	160KVA	200KVA	250KVA	300KVA
Input Parameters	Rated Voltage	415 V, 3-Phase + N + PE														
	Rated Voltage Tolerance	±15%														
	Rated Frequency	50 ± 6% (60 Hz Optional)														
Bypass Parameters	Rated Voltage	230/240 V, Single Phase			400/415 V ±10% (5-15% Selectable) 3-Phase + N + PE											
	Rated Frequency	50/60 Hz														
	Connection	Separate From Mains Input			Common with Mains Input									Separate From Mains Input		
Output Parameters	Rated Voltage	230/240 V, Single Phase			400 V, 3 Phase + N + PE (380/415 V Selectable)											
	Rated Frequency	50 or 60 Hz ± 0.1 Hz (Configurable)														
	Output Power Factor	0.8 PF														
	Voltage Variation - Static Load	±1%														
	Crest Factor	3:1														
	Voltage Distortion at Linear Load	≤2% (Typical)														
	Voltage Distortion at Non-Linear Load	≤5% (as per IEC62040-3)														
	Overload Capacity	110% for 60 Mins, 125% for 10 Mins, 150% for 1 Min														
	Load Power Factor	0.6 to Unity With In KW / KVA Rating														
	Efficiency	Up to 99% in Eco Mode and Upto 90% in Online Mode					Up to 99% in Eco Mode and Upto 92% in Online Mode						Up to 99% in Eco Mode and Upto 93% in Online Mode			
	Isolation Transformer	Inbuilt														
Battery Parameters	Nominal Battery Voltage	360Vdc						384Vdc								
	Compatibility	Compatible with SMF, Tubular, Ni-Cd, Li-Ion Battery														
Environmental Parameters	Ambient Temperature for the UPS	0 to 40°C (at Rated Input and Load)														
	Ingress Protection	IP20 (IP31 Optional)														
	Range of Relative Humidity	Upto 95% Max (Non - Condensing)														
	Maximum Operating Altitude	Up to 1000 above MSL														
	Storage Temperature	From 0°C to 60°C (UPS)														
	Acoustic Noise at 1m from Panel Front	< 65 dBA(Ref ISO3746)											< 68 dBA(Ref ISO3746)			
others	Display	128x64 LCD Graphic Display with LED Mimic														
	Colors	RAL-7016														
	Cooling System	Forced Air Cooling														
	Installation	Free Standing with Wheels							Free Standing Floor Mounting							
	Cable Entry	Back - Bottom Entry							Front - Bottom Entry							
	Communication Interface (Optional)	Simple Network Management Protocol (SNMP), MODBUD-RTU , Dry Contacts														
Standards	Safety	IEC62040 - 1														
	Electromagnetic compatibility (EMC)	IEC62040 - 2														
	Performance	IEC62040 - 3														
Mechanical Parameters	Width (in mm)	500	500	500	500	500	500	500	600	600	600	600	1100	1200	1200	1200
	Depth (in mm)	700	700	800	700	700	800	800	900	900	900	900	900	1000	1000	1000
	Height (in mm)	1010	1010	1088	1010	1010	1080	1080	1400	1400	1400	1400	1750	1850	1850	1850
	Weight (in Kgs)	300	300	350	300	300	300	300	550	550	550	550	1250	1400	1700	1700

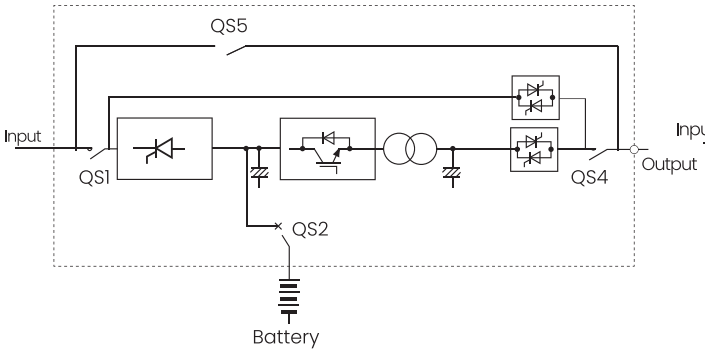
UPS Main Unit



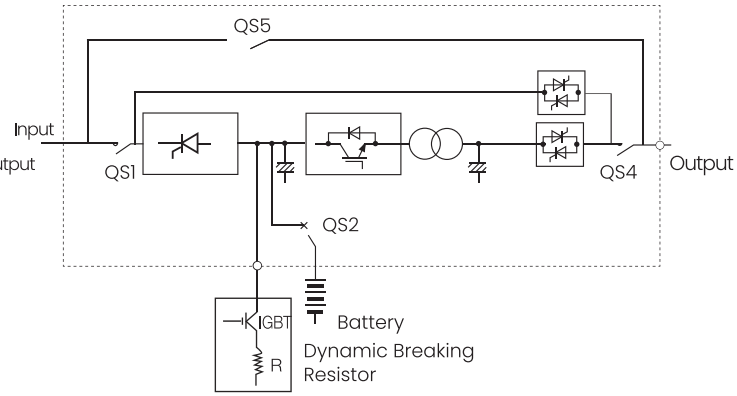
Note : Specifications are subject to Change

Falcon 8500 UPS Configuration Examples

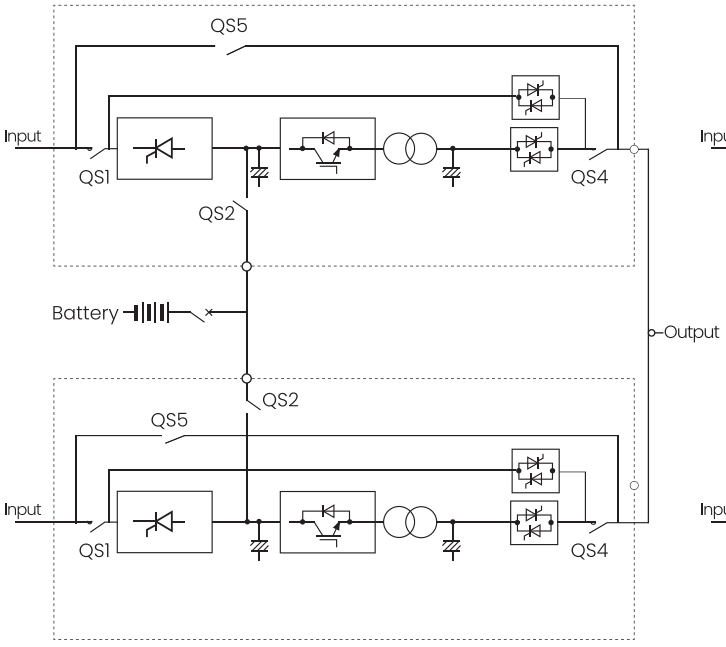
■ Standlone UPS Configuration



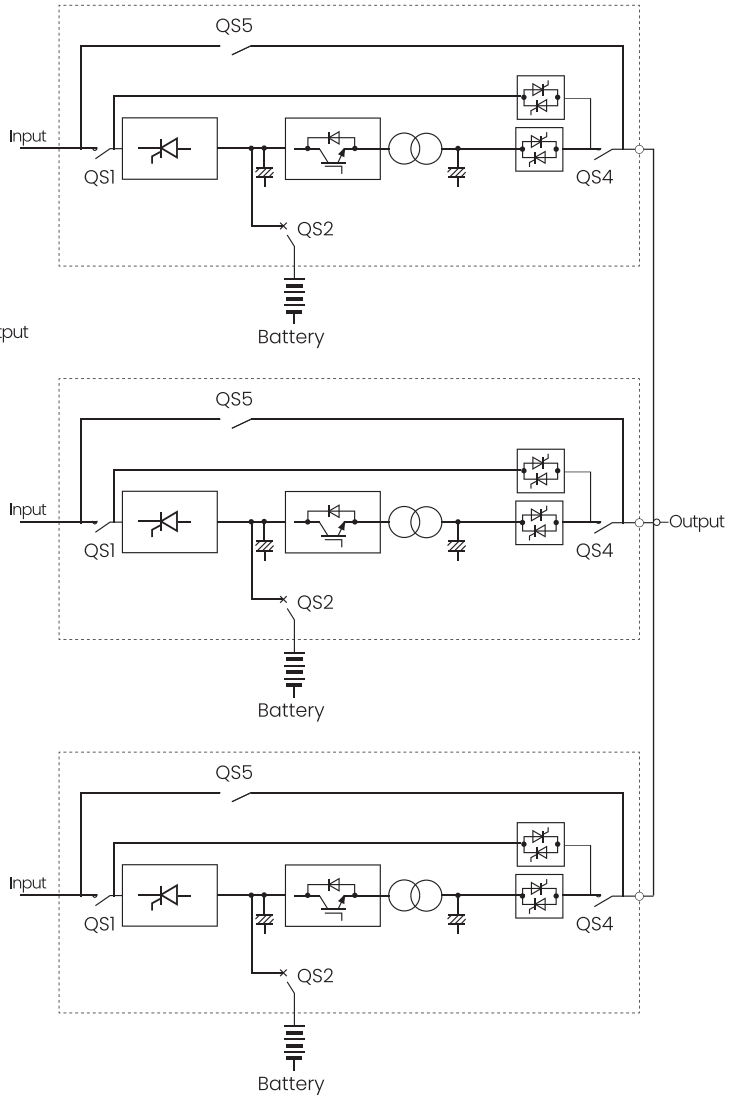
■ Stanlone UPS with DBR



■ 1+1 Parallel UPS with Common Battery Bank



■ Parallel UPS for Capacity or redundancy



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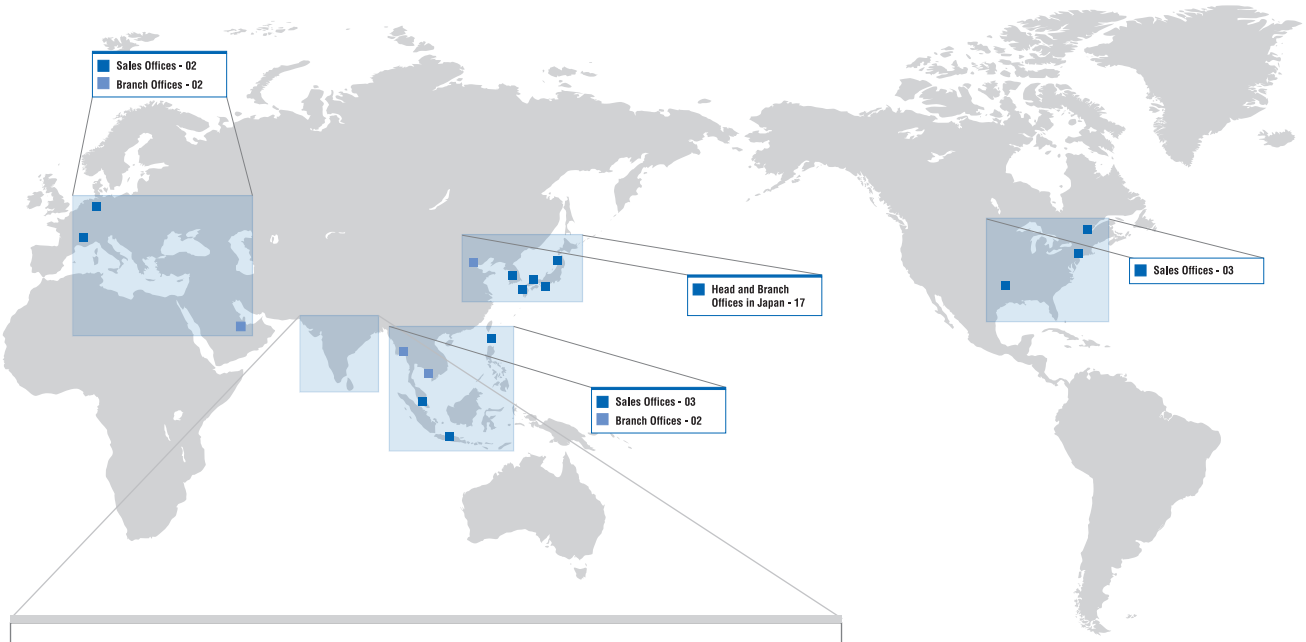
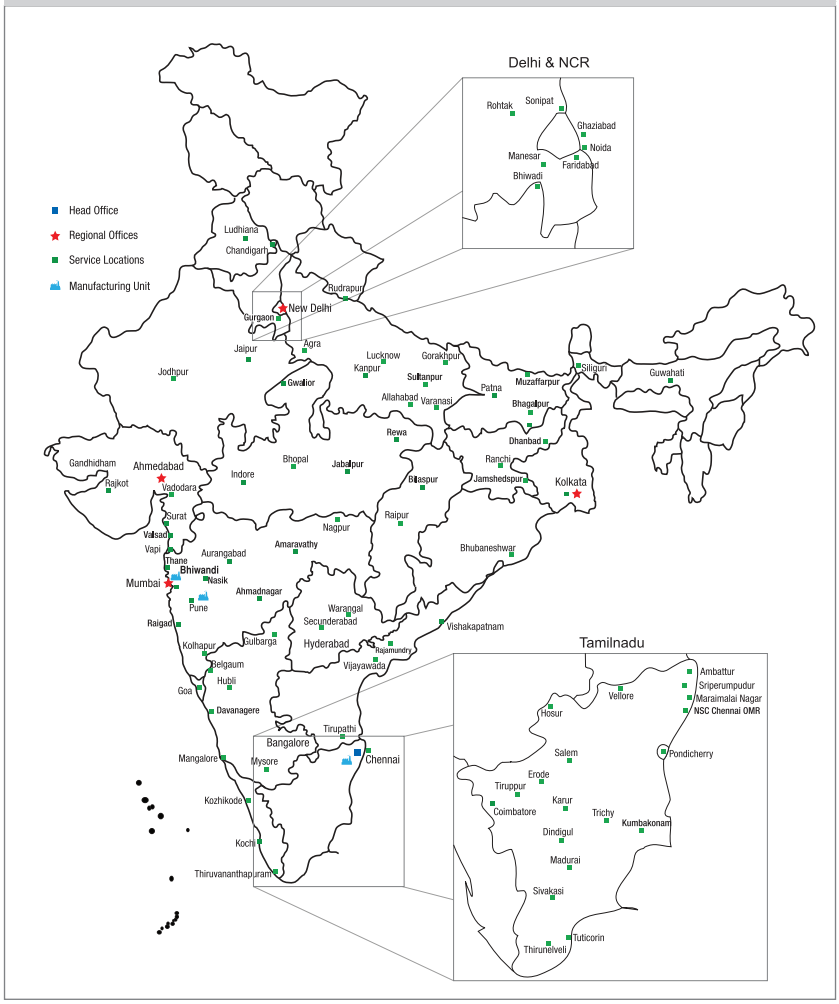
Global Presence





Product Offerings

- Online UPS (1-800 KVA)
- Servo Controlled Voltage Stabilizer (Oil Cooled / Air Cooled)
- Active Harmonic Filter
- Static Transfer Switch
- Isolation Transformer
- Solar Inverter
- Medium Voltage / Low Voltage VFD
- Instrumentation
- Factory Automation
- Process Automation (PLC/HMI/SCADA)

Service Offerings

- Comprehensive Annual Maintenance Contracts (CAMC)
- Annual Maintenance Contracts (Labour - AMC)
- AMC for Third Party Power Products
- Battery Replacement Services
- Power Audits
- Stabilizer Retrofits
- Rental UPS and Stabilizers
- Stabilizer Oil Replacement
- Remote Monitoring

FEI/FALCON 8500/07/2023

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