

# AMTECH News



FOR PRIVATE CIRCULATION ONLY

March 2024

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When obstacles  
arise, change your  
direction to reach  
your goal, not the  
decision to get  
there.

Editor:  
Atul Suthar

## From the Desk of Managing Director



### The Journey Is Short

An elderly person got on a bus and sat down on an empty seat. At the next station, a strong, grumpy young person climbed up and sat down sharply beside the old person. While taking seat, the young person hit the old person with his heavy bag.

The old person, without getting disturbed with the rude behaviour of the person sitting next to him, remained silent and continued to look outside the window. The young person was surprised and asked the old person, "Why did you not complain even when you were hit by my heavy bag?"

The old person replied, "There is no need to be rude or discuss something which is so insignificant as my trip with you as a co-passenger is going to be very short and I am going to get down at the next stop."

The answer given by the old person is an eye opener for all of us.

Our time in the world is so short that darkening with struggles, use less arguments, jealousy, discontent and not forgiving others is a ridiculous waste of time and energy.

In our day-to-day interaction with others, it may happen that someone cheats, intimidates, humiliates, betrays us, someone insults without reason, we must learn to stay calm and ignore such insignificant behaviour.

Whatever the problem someone has brought us, we must remember that the journey is too short. No one knows the length of the trip or when the next stop will come where we are supposed to get down. Our trip together with others is very short.

Instead of getting affected by others, let us share our smile and prepare ourselves to sail through the life happily.

Piyush Patel (M.D.)

### TOTAL SOLUTION

**Motor Control**  
AC Drive, MVD & Soft Starter

AXPERT-EAZY+

AXPERT-EAZY mini

AXPERT-VT 240S

AXPERT-HIVERT MVD

AXPERT-OPTI TORQUE

**Industrial Automation**  
Controlling ■ Driving  
Operating ■ Networking

MACHINE AUTOMATION

LINE AUTOMATION

PLANT AUTOMATION

NETWORKING AUTOMATION

**Power Quality**  
Active Harmonic Filter,  
Active Front End Converter,  
Active Static VAR Compensator,  
Wideband Harmonic Filter

ACTIVE HARMONIC FILTER

ACTIVE FRONT END CONVERTER

STATCON: MULTIFUNCTIONAL  
ACTIVE STATIC VAR COMPENSATOR

WIDEBAND HARMONIC FILTER

**Industrial Electronics**  
Design & Development  
for Customers in  
Power Electronics

TRACTION DRIVE

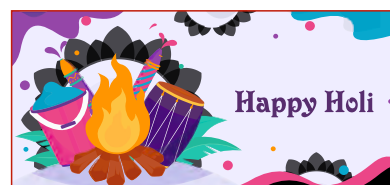
WIND POWER CONVERTER

HIGH VOLTAGE POWER SUPPLY

AXPERT-OPTI POWER SERIES  
POWER CONTROLLER

### DRIVE FOR SUCCESS

AN ISO 9001 : 2015 COMPANY



AMTECH News

# Power Quality & Energy Conservation Group

## Axpert-i-Sine STATCON - Multi-functional Active Static VAR Compensator

Amtech Electronics is a leader in design and manufacturing of Power Electronics product like Variable Frequency Drive, Regenerative Drive, Soft Starter, Active Harmonic Filter, Static VAR compensator, Heater controller and customized power supplies. We at Amtech, feel proud to support “**Aatmanirbhar Bharat**” campaign as all our products are designed, developed and manufactured in our state-of-the-art facility at Gandhinagar, Gujarat. We are continuously investing in R&D to remain ahead in technology to have an edge over competitors in the business we are. In this article, we will have an overview of our one of the flagship product Axpert-i-Sine Series Static VAR Compensator STATCON in Power Quality Business segment.

Amtech offers range of products, solutions and services for power quality improvement, energy conservation, enhanced operational efficiency and reliability improvement.

Our STATCON is equipped with a user-friendly control panel, which has self-explanatory full parameter names, easy navigation of parameters and functional keys. It also simultaneously displays 8-selectable parameters on single screen.

The STATCON is available in different ratings from 100...300 kVAR. Above 300 kVAR requirement, multiple units are connected in parallel. Up to 40 units can be connected in parallel.

Some of the unique features are,

- Reactive power compensation and load balancing with priority selection
- Step-less response improves voltage stability
- Capacitive and Inductive compensation
- Ability of parallel operation to increase power capacity
- Inherent current limiting
- Shunt connection
- User can program different power factor for utility and auxiliary power.
- LCD display with backlit
- Modbus-RTU communication compatible
- Protection against over current, phase loss, ground fault, overload, external fault, DC bus over voltage and under voltage, charging fault, over temperature condition.
- Metering - THDv, Line Frequency, DC bus voltage, PF, DPF, kW, kVA, kVAR, kWH, MWH,  $V_{LL}$ , Current of Load / Source / STATCON side for each phase, THDi of Load and Source side.



We offer complete solution for the reactive power problems. Today, we have so many success stories to share with you as our products are performing up to the mark in the field.

The STATCON is used to maintain Power Factor at LT / HT Side. The cost effective solution is a combination of STACON and Fixed Capacitor Bank without compromising the benefits of STATCON.

**If you are facing any of the below problems, Axpert-i-Sine STATCON is the ideal solution.**

- Poor power factor and increased Electricity Bill.
- Capacitive Reactive power due to long transmission line.
- Poor power factor at Solar Plant especially at night when there is no solar power generation.
- Facing Not utilizing the full installed capacity of Generators.
- Not able to maintain the power factor.
- Penalty in the energy bill from the state electricity board.
- Overheating, burnout or generation of vibration and beat noise in capacitors, reactors, generators and transformers.

To arrange a call with our Power Quality specialist, write to us at,  
[energy@amtechelectronics.com](mailto:energy@amtechelectronics.com) / [pqec@amtechelectronics.com](mailto:pqec@amtechelectronics.com)

**“True Quality Power Solution”**

### Product Portfolio



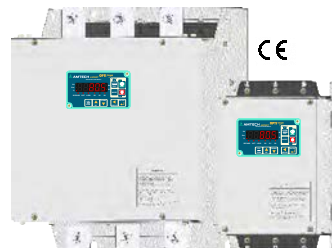
**AXPERT-EAZY\* SERIES  
VFD**

0.75...2100 kW (1...2815 HP)  
380...480 V, 500...600 V & 601...690 V



**AXPERT-EAZY MINI SERIES  
VFD**

400 V System (380...480 V)  
0.75...7.5 kW (1...10 HP)



**AXPERT-OPTI TORQUE SERIES  
SOFT STARTER**

15...1065 A, 3.7...1000 kW (5...1340 HP)  
200...690 V



**AXPERT-HIVERT SERIES  
MVD**

200...12500 kW (270...16750 HP)  
3.3 kV, 4.16 kV, 6.6 kV & 11 kV

### Reason For Grounding The System:

The intentional connection of the neutral points of transformers, generators and rotating machinery to the earth ground network provides a reference point of zero volts.

This protective measure offers many advantages over an ungrounded system, including:

- Reduced magnitude of transient over-voltages
- Simplified ground fault location
- Improved system and equipment fault protection
- Reduced maintenance time and expense
- Greater safety for personnel
- Improved lightning protection
- Reduction in frequency of faults

### Solidly Grounded System Versus Ungrounded System:

While solidly grounded systems are an improvement over ungrounded systems and speed the location of faults, they lack the current limiting ability of resistance grounding and the extra protection this provides. The destructive nature of arcing ground faults in solidly grounded systems is well known and documented and is caused by the energy dissipated in the fault.

### Advantage Of Resistance Grounding:

Resistance grounding is by far the most effective and preferred method of ground fault protection. It solves the problem of transient over-voltages, thereby reducing equipment damage.

It accomplishes this by allowing the magnitude of the fault current to be predetermined by a simple ohms law calculation. The fault current can be limited, in order to prevent equipment damage.

In addition, limiting fault currents to predetermined maximum values permits the designer to selectively co-ordinate the operation of protective devices, minimizing system disruption and allowing for quick location of a fault.

### Limiting The Current Through Resistance Grounding:

- To reduce burning and melting effects in faulted electric equipment, such as switch gear, transformers, cables and rotating machines.
- To reduce mechanical stresses in circuits and apparatus carrying fault currents.
- To reduce electric shock hazards to personnel caused by stray ground fault currents in the ground return path.
- To reduce arc blast or flash hazard to personnel who may have accidentally caused or who happen to be in close proximity to the fault current.
- To reduce the momentary line voltage dip occasioned by the occurrence and clearing of a ground fault.
- To secure control of transient over voltages while at the same time avoiding the shutdown of a faulty circuit on the occurrence of the first ground fault.

### Limiting Ground Fault Current:

By limiting the ground fault current, the fault can be tolerated on the system until it can be located, and then isolated or removed at a convenient time. This permits continued production, providing a second ground fault does not occur.

(Concluded)

### Product Portfolio



**ENGINEERED SYSTEMS**

Customized as per requirements



**AXPERT- i-Sine Series  
Active Harmonic Filter**

400...600 V  
60...300 A,  
>300 A connect in parallel



**AXPERT- i-Sine Series  
Active Front-end Converter**

400...690 V  
45...2100 kVA



**AXPERT- i-Sine Series  
STATCON**

400...600 V,  
up to 12000 kVA



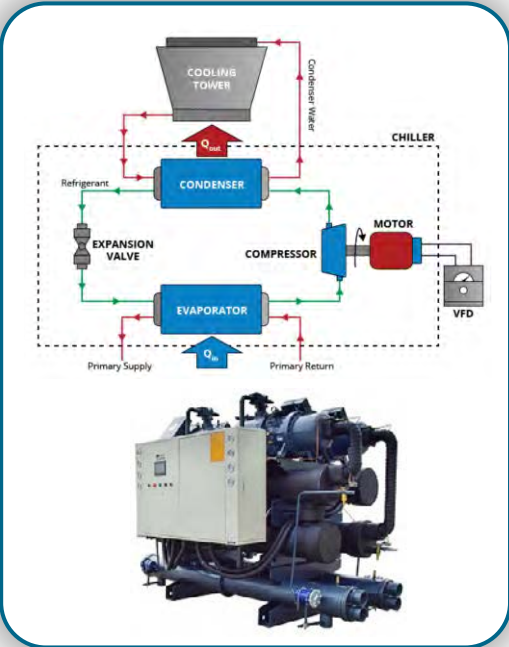
**AXPERT-OPTI POWER SERIES  
POWER CONTROLLER**

20...1200 A, 7...1400 kW  
200...690 V

# APPLICATION CASE STUDY

**Application** : Chiller Compressor  
**Industry** : HVAC (Airport/Industry/Building/Complex/Hospital)

**Are you Looking for AC VFD to HVAC - Chiller application?**  
**Amtech Electronics India Has This Solution.**



HVAC Chillers are critical equipment of various industrial and commercial applications, including Airport, complex hospitals, data centers and manufacturing plants.

These chillers help to cool water or other fluids to provide air conditioning or process cooling.

The Purpose of chiller is to utilize the power of outside air and water to maintain the target temperature at a constant level.

Therefore, it can be used to cool or heat. Because it is necessary to keep the temperature constant at all times, it is not limited to cooling.

Chillers transfer heat away from a space that requires climate control much like a traditional split system or package unit does, but they use water (or a water solution) to do so instead of air. There are two types of chillers: water-cooled and air-cooled.

**New system:** AMTECH has successful installed AMT-1265A-4 VFD at Airport HVAC application.

CHALLENGES	SOLUTIONS
<ul style="list-style-type: none"><li>Reliable and trouble free operation of chiller</li></ul>	<ul style="list-style-type: none"><li>AMTECH Make advance design VFD use for drive the application</li></ul>
<ul style="list-style-type: none"><li>Minimize the starting current and smooth operation</li></ul>	<ul style="list-style-type: none"><li>Selecting VFD linear curve with Accelerating speed smoothly</li></ul>
<ul style="list-style-type: none"><li>Flexibility of Operation from remote communication</li></ul>	<ul style="list-style-type: none"><li>VFD Speed control from DCS using advance communication</li></ul>
<ul style="list-style-type: none"><li>Protection of Motor</li></ul>	<ul style="list-style-type: none"><li>AMTECH VFD protect Motor of various protection (OC/OV/GND/UNB/OL/Etc) with advance design</li></ul>
<ul style="list-style-type: none"><li>Adequate service support from VFD manufacturer</li></ul>	<ul style="list-style-type: none"><li>Amtech customer support dept is easily accessible for customer service</li></ul>

- Benefits:**
- Reduced System Downtime.
  - Improve the Working Life of Components.
  - Advanced Capabilities.
  - Improved Energy efficiency



## EVER WONDERED, WHO IMPROVES THE EFFICIENCY OF MOST POWER PLANT

**Amtech Power Ltd, a company dedicated to provide complete Electrical Solutions in Power Plants**

**Analog To Digital... Its Never Too Late To Change**

### Brushless & Static Excitation System



- Variety of custom and standard excitation system design options
- Provide up to 10,000 Adc of excitation current
- Multiple redundancy options available for the control channel and power stage
- Provides precise excitation control for synchronous generators and motors
- Ideal for new installations and retrofit applications

### Numerical Protection System



- One relay for multiple applications
- Intuitive software simplifies complex protection schemes, reduces risk of errors
- Built-in simulation & analysis capabilities help eliminate errors, reduce commissioning effort
- Multiple case design save panel space

#### Applications

Feeder	Motor	Generator
Bus	Transformer	Synchronizing

### Electrical Control Panels



- Electrical Control and Monitoring Panels
- Motor Control Center (MCC Panel)
- Power Control Center (PCC Panel)
- Automatic Power Factor Correction System (APFC).
  - Contactor Based APFC
  - Thyristor Based APFC
- Instrumentation Control System

### DG Set Control & Protection System



- Complete range in Genset control, metering, and protection
- Simple configuration eases integration of multiple machines, busses, mains, and breakers
  - Flexible control with integrated PLC functionality and expandable I/O adds value to the system and eliminates peripheral devices.

### Plant Automation



- One stop, single window solution provider for all needs of machine, Line, Plant and Networking Automation areas.

#### Applications

- Power Plant Automation
- Substation Automation
- Boiler Automation
- Modernization of old control System
- Energy Management System

### Digital Hydro Governing System



- Suitable for all types of turbines viz Francis, Kaplan and Pelton
- Protection for generator & turbine with sequence control, start-up & load control.
- Reliable, compact & modular controller for complete turbine-generator set
  - Measurement of power parameters voltage, current, frequency, kW, kVA, kVAR, PF

An established and reputed name in the field of Power Generation, Protection & Control.

Installations of Captive Power plants in every part of the country and international footprints.

Well known for technical strength and system solutions for Steam Turbine, Hydro Turbine, Co-generation plant, DG set.

Fully equipped to design, manufacture, install, commission and provide after sales service of all kinds of protection & control equipments.

## Total Solution in Power Generation, Protection & Control

# PRODUCT OVERVIEW - ENGINEERED SYSTEM

## Seamlessly Integrated Engineered Systems Designed, Developed & Manufactured by Indians for the World

At Amtech, our goal is to provide fast and flexible time-tested Engineered Systems for Motor Control for the changing process requirements across all sectors. We help you to choose right solution with our readily available Engineered System options and make your decision simpler.

Our Seamlessly Integrated Engineered Systems for Motor Control assures total solution customized to your needs. Each of these Engineered Systems is as unique as our customers. Our Engineered Systems are complying to the highest quality and safety standards.

### Offerings and Advantages

VFDs and soft starters are the key components of the Engineered System for Motor Control. We have range of options to choose for the Engineered System.

- IP 20, 21, 31, 41, 42, 54, 55 and IP 56 to NEMA 1, 12, 3R, 4 and 4X enclosure.
- Circuit breaker (MCCB), SFU (Switch Fuse Unit), Rotary handle mechanism for circuit breaker.
- Bypass options - 2-Contactor bypass, 3-Contactor bypass, 5-Contactor bypass or Soft starter bypass.
- EMI/RFI filter to reduce the disturbance.
- Line reactor (ACL), DC link reactor (DCL) for input harmonic reduction.
- Load reactor, dv/dt filter & sine filter to address long motor cable length.
- Regenerative type braking / External DB resistor and DB unit.
- Fuse / MCB protected control transformer.
- Door mounted keypad with protective cover option.
- Panel heater, air conditioner and other pilot accessories.
- Input rectifier with 6-pulse, 12-pulse, 18-pulse, Active Front-end Converter (AFC) or passive harmonic filters.
- Motor protection options.
- Individual single VFDs or common DC bus systems with multiple VFDs.
- Custom enclosures and custom paint colors.
- Modbus as standard communication protocol, optional Profibus / ProfiNet / DeviceNet / EtherCat / Ethernet IP.
- Flame proof Remote Box.

### Accessories

- Push-buttons
- Selector switches
- Potentio-meters & leg stand kit
- Analog Ammeter, Voltmeter
- Digital and Analog RPM, Voltage, Ampere, Power meter
- Space heater with / without Thermostat
- Signal converter
- Time Totalizer
- PID controllers
- Fault Annunciator / Hooter / Buzzer
- Glass Window Lockable for Keypad
- Panel light / Utility Board
- Remote Box

### Advantages

- Time tested proven solution
- Global compliance UL, CSA and CE
- Normal duty & heavy duty ratings
- UL / CSA panel shop
- Energy efficient systems
- Can be built to your specifications



## COMMISSIONING CERTIFICATE

To,  
M/s Amtech Electronics (India) Limited  
E-6, GIDC, Electronics zone,  
Gandhinagar- 382028  
Gujarat

Date: 19/01/2024.

**Work: Commissioning of AMTECH make 1200 Amp Active Harmonic Filter.**

Dear Sir,

This is certify that M/s Amtech Electronics (India) Limited has supplied, commissioning and tested of AMTECH make four nos. Active Harmonics filter **(AHF-300-4)**

- 1) Three nos. AHF in parallel system (Total capacity 900)**
- 2) One nos. individual (300A)**

AMTECH has successful handover the system on 26/09/2023 and system running smoothly at our plant.

(Authorized signature)  
Your Faith fully



# PRESENCE ACROSS THE GLOBE

AMTECH News

## H.O. and Service Center

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From



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