# **Service Brochure**





Power Quality & Energy Conservation Group



AMTECH, established in 1987 is a leader in Motor Control, Automation and Power Electronics products & Customized solutions. AMTECH has always been instrumental in driving success across the world.

At AMTECH the mission is to develop superior technology and provide total solutions to customers in the field of motor control, automation, power quality & energy conservation and industrial electronics. Amtech assists the most discerning clients across sectors to achieve their goals by providing custom-built engineering solutions and dedicating a competent team of professionals to implement projects of varying scales.

## Vision

To provide optimized end-to-end solutions in the field of energy conservation with continuous support to make it sustainable.

## Offered Services

- ✓ Complete Energy Audit
- ✓ Power Quality audit to comply with IEEE-519 standard
- ✓ System design, optimization & pay-back analysis
- ✓ DSM (Demand Side Management)
- ✓ Installation and commissioning of Active harmonic filters, Passive harmonic filters, Static VAR Compensator (STATCON), APFC, VFD, Soft starters, Automation system etc...
- ✓ Continuous post audit support for implementations
- ✓ Training and Seminar on Power Quality & Energy Conservation
- ✓ Guidance for financing of Energy Conservation Projects

## **Electrical Load Analysis**

- ✓ Load Pattern Analysis
- ✓ Specific Power Consumption
- ✓ Correlation of energy & production
- ✓ Internal/External bench marking
- ✓ Maximum Demand Reduction
- ✓ Cable Loss
- ✓ Power factor study
- ✓ Active Reactive power demand



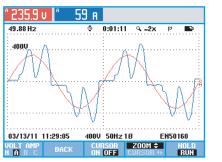


# Distribution Transformer

- ✓ Transformer efficiency calculation
- ✓ Optimized loading of transformer
- ✓ Voltage regulation calculation
- ✓ Effect of frequency variation
- ✓ Load Balancing
- ✓ Guidance for specialized transformer tests like DGA, sweep frequency etc...

# Electrical Motor System

- ✓ Motor efficiency calculation
- ✓ Motor suitability for application based on speedtorque curve
- ✓ Identification of over-loaded and under-loaded motors
- ✓ Study of existing motor speed control system
- ✓ Feasibility of energy efficient control method
- ✓ Effect of voltage and frequency variation
- ✓ Study of existing drive transmission method



# General Lighting System

- ✓ Lighting system energy efficiency
- ✓ Study of luminance requirements
- ✓ Feasibility of energy efficient lighting control method
- ✓ Identification of low cost energy conservation opportunities



# Power Quality Study

- ✓ Harmonics measurement
- ✓ Root cause analysis of harmonic related problems
- ✓ Active/Passive filter design
- ✓ Equipment de-rating based on harmonic level
- ✓ Power Factor measurement & solutions





# Pumping System

- ✓ Pumping system efficiency measurement
- ✓ Identification of pump cavitation
- ✓ Pressure drop in the system
- ✓ Leakages in the system
- ✓ Study of existing flow control methods
- $\checkmark$  Flow optimization
- $\checkmark$  Scheduling for optimized operation of pump

# Compressed Air System

- ✓ Air compressor efficiency measurement
- ✓ Air distribution system assessment
- ✓ Air leakage/pressure drop identification
- Performance of Intercooler, after cooler, moisture trap, filters etc...
- Scheduling for optimized operation of air compressor
- ✓ Identification of load reduction opportunities



## HVAC System

- ✓ HVAC system efficiency
- ✓ Evaporator / Condenser performance
- ✓ Condensation losses in line
- ✓ Heat load calculation & optimization
- ✓ Feasibility of energy efficient control method



# Fans & Blower

- ✓ Fans and Blowers efficiency
- ✓ Study of present ducting system
- ✓ Identification of air leakages in ducting system
- ✓ Suitability of fan-blower for application
- ✓ Feasibility of energy efficient control method



# Heat Exchanger System

- ✓ Measurement of overall heat transfer co-efficient
- ✓ Efficiency and effectiveness calculation of HX
- ✓ Fouling in HX
- ✓ Pressure drop in HX
- $\checkmark$  Flow optimization to achieve optimum heat capacity







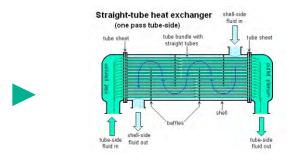
# Cooling Tower System

- ✓ Cooling Tower effectiveness measurement
- ✓ Cooling capacity calculation
- Evaporation loss measurement
- ✓ Blow down losses calculation
- ✓ Heat load calculation
- ✓ Feasibility of energy efficient flow control method



# Boiler & Steam Distribution System

- ✓ Boiler efficiency measurement
- ✓ Steam distribution system assessment
- ✓ Feasibility of flash steam recovery
- ✓ Feasibility of Economizer, Air Pre-heater
- ✓ A/F ratio optimization
- ✓ Energy analysis



# Turbine System

- ✓ Turbine heat rate
- ✓ Turbine cycle efficiency
- ✓ Turbine cylinder efficiency

# List of Instruments



3 **Φ** Power Quality Analyzer







Vane Type Anemometer



**Hot Wire Anemometer** 

477

**Digital Thermometer** 











**Digital Infra Red Thermometer** 

Data logger

Flue Gas Analyzer

**Digital Lux Meter** 





Hand held Psychrometer



**Digital Differential Pressure Meter** 





**Pitot Tubes** 







**Digital Conductivity Meter** 



**Digital stop Watch** 



**Digital Multi meter Fluke 87** 

# **Energy Conservation Potential**

Pumps	10-15%
Compressor	20-25%
Fans & Blowers	10-15%
Boiler & Steam	10%
Lightings	25-50%
Transformers	10%
Refrigeration System	10-15%
Cooling Tower	10-15%
Furnace	10-25%
Electric Motor	20-30%
Steam & Gas	3-10%

(Source: Bureau of Energy Efficiency, India)

# Partial list of industries where Harmonic Audit / Energy Audit conducted

Aarti Industries Limited, Bharuch, Gujarat - Chemical	ACME Solar Limited, Gujarat Solar - Plant
Aditya Paptech Limited, Dehgam, Gujarat - Pulp & Paper	Ambuja Cement Limited, Ropar, Punjab - Cement
Amneal Pharmaceuticals Limited, Ahmedabad, Gujarat - Pharmaceutical	Astron Board & Paper Mills Limited, Halvad, Gujarat – Pulp & Paper
Atul Limited, Valsad, Gujarat - Chemical	Balaram Papers Private Limited, Mehsana, Gujarat - Pulp & Paper
Banas Dairy, Palanpur, Gujarat - Dairy	Banas Dairy, Cattle Feed Plant Katarva, Deesa - Dairy
Bosch Rexroth Limited, Sanand, Gujarat - Engineering	Bundy India Limited, Baroda, Gujarat - Automobile
Cadila Health Care Limited, Ankleshwar, Gujarat - Pharmaceutical	Cadila Health Care Limited, Baroda, Gujarat - Pharmaceutical
Century Enka Limited, Pune - Chemical	Claris Life Sciences Limited, Ahmedabad, Gujarat - Pharmaceutical
Concord Biotech Limited, Dholka, Gujarat - Pharmaceutical	Dresser Rand India Pvt. Limited, Ahmedabad, Gujarat - Engineering
Deepak Spinners Limited, Guna, MP - Textile	Delphi-TVS Diesel Systems Limited, Chennai - Automobile
Diamond Power Infrastructure Limited, Baroda, Gujarat - Metal	Essar Oil Limited, Vadinar, Gujarat - Oil & Gas
GEA Pharma Systems Private Limited, Baroda, Gujarat - Pharmaceutical	Gea Pharma Systems Pvt. Limited, Savli, Baroda, Gujarat - Pharmaceutical
Grasim Industries Limited (Grasilene Division), Karnataka - Chemical	Grasim Industries Limited (Harihar Poly fibers), Karnataka - Plastic
Grasim Industries Limited (HPF Plant), Karnataka - Chemical	Grasim Industries Limited (Staple Fibre Division), Nagda, MP - Power Plant
Gujarat Polyfils Limited, Surat, Gujarat - Plastic	Gujarat Water & Sewerage Supply Board (GWSSB), Mehsana - Water Pumping
Gujarat Water & Sewerage Supply Board (GWSSB), Palitana - Dam Water Pumping	Harmony Plastic Limited, Udaipur - Plastic
Harsha Engineers Limited, Ahmedabad, Gujarat - Engineering	Hester Bio Sciences Limited, Mehsana, Gujarat - Pharmaceutical
Indo Amines Limited, Baroda, Gujarat - Chemical	Indo-baijin Chemicals Limited, Dahej, Gujarat - Chemical
Indofil Industries Limited, Dahej, Gujarat - Chemical	IOCL Regional Offices MP & CG Commercial
J. M. Huber India Private Limited, Jhagadia, Gujarat - Chemical	Janta Glass Limited, Baroda, Gujarat - Glass
Jaypee Power Plant Beena, MP - Power Plant	JK Cement Limited, Bagalkot - Cement
Amul Dairy, Cattle Feed Plant, Kapdivav, Gujarat - Dairy	Amul Dairy, Choco Plant Mogar, Anand, Gujarat - Dairy
Amul Dairy, Virar, MH - Dairy	Kalpataru Power Transmission Limited, Gandhinagar, Gujarat - Metal
Kalyani Steels Limited (Hospet Steels), Koppla, Karnataka - Steel	KOCH Chemical Technology Group (I) Pvt. Limited, Savli, Baroda - Chemical
Lafarge India Private Limited, Raipur, CG - Cement	Lakme Lever Private Limited, Gandhidham - Chemical
Limited (Sumul Dairy), Food Factory, Chalthan, Surat, Gujarat - Dairy	Lupin Limited Tarapur, MH - Pharmaceutical
Madhubhan Resorts & Spa (Elecon Group), V.V. Nagar, Gujarat - Hotel	Mehsana District Co-Operative Milk Producer's Union Limited (Dudh Sagar Dairy), Mehsana
Moksha Thermoplastics Pvt. Limited, Ahmedabad, Gujarat - Plastic	Mornet Ispat Limited, Chhattisgarh - Steel
Mumbai Waste Management Limited, Taloja, MH - Waste Management	National Institute of Technology (NIT) Warangal Commercial
OM Shree Paper Mills Nashik, MH - Pulp & Paper	Pidilite Industries Limited, Vapi, Gujarat - Chemical
Prayas Engineering Limited (Elecon Group), V.V. Nagar, Gujarat - Engineering	Royal Cushion Vinyl Products Limited, Baroda, Gujarat - Chemical
RPG Life Sciences Limited (Bio tech Plant), Ankleshwar, Gujarat - Pharmaceutical	RPG Life Sciences Limited (formulation Plant 1 & 2), Ankleshwar - Pharmaceutical
RS Infra Limited, Jaipur - Steel	Sabarmati Papers Private Limited, Vijapur, Gujarat - Pup & Paper
	Shree Cement Limited (RAS & BEWAR Plant), Rajasthan - Cement
SICGIL Industrial Gases Limited, Baroda, Gujarat - Chemical	Sintex - BAPL Limited Ulberia, WB - Plastic
Sintex Industries Limited (Plastic Division) Kalol, Gujarat - Plastic	Sintex Industries Limited (Plastic Division), Nagpur - Plastic
Sri Venketarama Oil Industries Limited, Andhra Pradesh - Food	Sun Pharmaceuticals Limited, Baroda, Gujarat - Pharmaceutical
Surat District Co-Operative Milk Producer's Union	Sumul Cattle Feed Plant, Vyara, Gujarat - Dairy
	The India Cement Limited, Banswara - Cement
Time Technoplast Private Limited, Daman, Gujarat - Plastic	Torrent Power Limited, Ahmedabad Power - Plant
	Ultratech Cement Limited (Rajashree Cement works), Karnataka - Cement
SH Kelkar & Co. Limited, Raigad, MH - Chemical      SICGIL Industrial Gases Limited, Baroda, Gujarat - Chemical      Sintex Industries Limited (Plastic Division) Kalol, Gujarat - Plastic      Sri Venketarama Oil Industries Limited, Andhra Pradesh - Food      Surat District Co-Operative Milk Producer's Union      Surat District Co-Operative Milk Producer's Union	Shree Cement Limited (RAS & BEWAR Plant), Rajasthan - Cement Sintex - BAPL Limited Ulberia, WB - Plastic Sintex Industries Limited (Plastic Division), Nagpur - Plastic Sun Pharmaceuticals Limited, Baroda, Gujarat - Pharmaceutical Sumul Cattle Feed Plant, Vyara, Gujarat - Dairy The India Cement Limited, Banswara - Cement Torrent Power Limited, Ahmedabad Power - Plant

# Partial list of customers of Axpert-i-Sine Multi-Functional Active Harmonic Filter

Actavis Pharmaceuticals Limited, Chennai	Ambuja Cement Limited, Ropar, Punjab
Amul Dairy (Cattle Feed Plant), Kapadivav	Atul Limited Valsad, Gujarat
Banas Dairy, Palanpur, Gujarat	Bharat Petroleum Corporation Limited, Malda, West Bengal
Bhilai Steel Limited, Bhilai	Bosch Rexroth (India) Limited, Sanand, Ahmedabad, Gujarat
Can-Pack India Private Limited, Aurangabad	CEAT Tyres Limited, Baroda, Gujarat
Century Reyon, Thane	Chemplast Sanmar Limited, Cuddalore, Tamilnadu
Chennai Petroleum Corporation Limited, Manali, Chennai	Ennadu Press, Hyderabad
GMR (I. G. International Airport, New Delhi)	Gujarat Water and Sewage Supply Board (GWSSB), Dahej, Gujarat
Gujarat Water and Sewage Supply Board (GWSSB), Rajkot, Gujarat	HPCL Corporate Office, Madurai
J.M. Huber India Pvt. Limited, Bharuch, Gujarat	Jeppiaar Furnace & Steels Limited, Pune
Jubliant Life Sciences Limited, Dahej SEZ, Gujarat	Lupin Limited Tarapur, Maharashtra
Madras Hard Tools Limited, Tamilnadu	P. T. Indo - Bharat Rayon, Indonasia
PSP Projects Limited (PSP House), Ahmedabad, Gujarat	Puniska Healthcare Limited, Sanand, Ahmedabad, Gujarat
Rotofilt Engineers Limited (For Turkey Project), Ahmedabad, Gujarat	Sabarmati Papers Private Limited, Vijapur, Mehsana, Gujarat
Sanmar Foundries Limited, Trichy, Tamilandu	SBI Life Insurance Co. Ltd. (Corporate Office), Navi Mumbai
Shasun Pharmaceuticals Limited, Cuddalore, Tamilnadu	Shree Hari Steel & Alloys, Tamilnadu
Sintex - BAPL Limited, Chennai	Sintex Industries Limited, Nammakal, Tamilnadu
SNF India Limited, Vizag	Sumul Dairy (Cattle Feed Plant), Bajipura, Vyara, Gujarat
Tamilnadu Petroproducts Limited, Chennai	Time Technoplast Llmited, Hosur, Tamilnadu
Ultratech Cement Limited (Rajashree Cement Works), Karnataka	Verka Dairy, Mohali

# Harmonic Study Conducted and Solution Provided

Alembic chemical works company Itd., Baroda	Aryan fine fab limited, Ahmedabad, Gujarat
Asian trading company, Surat, Gujarat	Associated pulp paper mills ltd., Bavala, Gujarat
Auro weaving mills, Baddi	Associated Cement Company Ltd, Wadi.
Ambuja cement eastern limited, Raipur.	Atul Ltd., Valsad, Gujarat
Asian Paint, Ankleshwar	A. K. Spintek, Bhilwara
Aditya Aluminum-Vyara, Gujarat	ACC - Katni
ATIRA, Ahmedabad, Gujarat	A. P. Solvex
Anant Syntax Ltd. Bhilwara	ACC, Jamul (Bhilai Power Station)
Ashima industry, Ahmedabad, Gujarat	ABB limited, Vadodara, Gujarat
Auro spinning mills, Baddi	Adani Port Ltd., Gandhidham, Gujarat
Afcons Inf. Ltd., Nagpur (M.S.)	Bell ceramic Itd., Baroda, Gujarat
Birla VXL Ltd., Jamnagar, Gujarat	BASF, Pune
Banswara Syntex Ltd., Banswara	Ballarpur Industries Limited, Ballarpur, Maharashtra.
Birla Cellulosic, Kharach.	Barakvelly Cement Company Ltd. (Assam)
Ciba-ckt biochem Itd., Mahad	Century Rayon (Power Div.) Kalyan, Bombay
CPRI, Trivendrum	Cadila health care, Ahmedabad, Gujarat
Davangere sugar factory ltd.	Dhawani polymers, Ahmedabad, Gujarat
Deep Jyoti Dyeing & Printing, Surat, Gujarat	Diamond crucible (P) Ltd, Kalol, Gujarat
Duke Fabrics Pvt. Ltd, Ludhiana	Gilt pack, (Pithampur) Indore
Grasim Industries, Nagda, M.P	Ganesh Laxmi Dyeing & Printing Mills (P) Ltd, Surat, Gujarat
GLAXO, Ankleshwar, Gujarat	Garuda Cotex Shades Ltd., Ankleshwar (Panoli), Gujarat
Grasim industries Ltd. Unit: Harihar Polyfibres, Kumarapatnam	Gopala Polypack Ltd, Santej, Gujarat
Gujarat multi gas base chemical Pvt. Ltd., Mehsana, Gujarat	Gujarat Florochemical Ltd. Dahej, Gujarat
Globus Agronic Ltd.	Holiday inn, Pune
HMT Ltd., Pinjore, Chandigarh.	Harikrishna, Ahmedabad, Vatva, Gujarat
Indian Rayon & Industries Ltd, Veraval, Gujarat	IRC, Verval, Gujarat
Indian Farmers Fertilizer co-operative limited, Bareilly	Jaisawal Neco Limited, Raipur
J.R.Synthetic Pvt.Ltd., Surat, Gujarat	Jindal Polyster, Nasik
Jov (Tex) link, Pali, Rajasthan	JMC Mining & Quarries Ltd, Sevalia, Gujarat
Kriti Ind. (I) Ltd., Pithampur	Kanoria Chemicals Ltd. Ankleshwar, Gujarat
Kisan Agro Products Ltd., Palanpur, Gujarat	Kaneria Granito Ltd. Surat, Gujarat, Gujarat
Kriplon Synthetics Pvt Ltd., Boisar	Lupin chemicals limited, Boisar, Gujarat
Le Meridian, Pune	Lupin chemicals ltd., Tarapur, Gujarat
Mahindra sona ltd., Nasik	Madhusudan industries ltd., Ahmedabad, Gujarat
Morarji Gokuldas spinning & weaving Mills, Mumbai	Moksha Thermo Plast Pvt. Ltd., Ahmedabad, Gujarat
Modern Insulator Itd., Abu road	Mewar Polytex Ltd., Udaipur
Mahindra & Mahindra Itd., Mumbai	Nahar Spinning Mill Ltd., Ludhiana
Nirma Limited, Moraiya, Ahmedabad, Gujarat	Nova Petrochemicals, Ahmedabad, Gujarat
Novartis India Ltd., Mahad, Raigad	Nirma Limited, Mandali, Gujarat
Praveen Textile, Surat, Gujarat	Pragati Dyeing & Printing, Surat, Gujarat
Rainbow paper ltd., Rajpur (Kadi)	Rohit pulp & paper mills Ltd., Udvada, Dist. Valsad, Gujarat
Remica Plastic Machine Manufacturer, Ahmedabad, Gujarat	Srinivasa cartons & container pvt. Ltd., Chennai
Sagar Cement Ltd., Hyderabad	Stalmac Engg. Ltd., Ahmedabad, Gujarat
Shelavi pulp & paper mills ltd., Kalol, Gujarat	Saurabh filaments ltd., Surat, Gujarat
Southern petrochemical Ind. Corporation, Madras	Sumeet Dyeing & Printing Mill Pvt Ltd., Surat, Gujarat
Sumul dairy	Sojitra Texturising Pvt Ltd., Surat, Gujarat
Sudershan Textile, Pali, Rajasthan	South India viscouse, Coimbatore
Shree synthetic, Ujjain	Stefab inda ltd., New delhi
Stadfast Paper Mill Pvt. Ltd., Dungra-Vapi, Gujarat	Savla chemical ltd., Ankleswar, Gujarat
Sir Sadhilal Distillary & Chemical Works, Muzaffarnagar, UP	Spentex Industries Itd., Chandrasan
Shree laxmi pulse rice & roller flour mills, Dahod, Gujarat	Shree cement ltd., Beawar (Rajastan)
Somani pilkington's limited, Kadi, Gujarat	Thermax Ltd. (Chemical Div.) -Khopoli
Tai Chon-Bang Textile Ltd, Sanand, Gujarat	Tata SSL - Boiser
T.I.Cycle of India Ltd., Chennai.	TATA Engineering, Jamshedpur
TISCO, Jojobers Cement Plant, Jamshedpur	Technofour, Pune (OME)
Universal chemical, Lote, Chiplun, Maharashtra	Ubique Systems, Pune
Vardhaman Acrylic Itd. Ankleshwar, Gujarat	Viramani Biscuits (Rose-Brand) Hyderabad
Viramani Biscuits (Rose - Brand) - Hyderabad	Zenith weaves pvt. Ltd., Surat, Gujarat

# OUR OTHER OFFERINGS

## **MOTOR CONTROL**



### "DRIVE FOR SUCCESS"



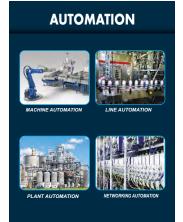
Our solutions are simple, compatible and environment friendly, resulting in efficient production, cost optimization and minimizing human intervention. It even leads to energy conservation especially in typical Fan, Blower, Pump applications.

### **Flagship Solutions**

- Axpert-Eazy+ Series VFD
- Axpert-VT240S Series VFD
- Axpert-Hivert Series Medium Voltage Drive
- Axpert-Opti torque Series Soft Starter
- Axpert-Eazy HF Series High Frequency Drive

### **Applications**

- Fans, Blowers, Pumps
- Compressors, Centrifuges
- Agitators & Conveyors
- Crane, Hoist & Elevator
- Rolling Mill, Sugar Mill, Pulp Mill, Coal/Raw Mill



### "AUTOMATION. MADE EASY"

"Automation Made Easy" is our philosophy to simplify the increasing complexity of modern production systems through our Amtech-Jetter PROCESS PLC technology platform.

Over 35 years experience in Machine, Line, Plant and Networking Automation has helped us to find the best solution in terms of functionality, sustainability and efficiency.

### **Flagship Solutions**

Jet Control series PLC Controllers, Expansion Modules, Jet view Soft SCADA, HMIs, Jet Move series Servo and Axes Control System.

### **Applications**

- Paper Machine Automation
- Textiles Manufacturing
- Packaging
- Winder Machine
- Crane & Material Handling Equipment
- CNC Machines
- Semiconductor Assembly Line
- Retrofit solutions



### "ONE STOP SOLUTION TO QUALITY POWER"

Amtech's Power Quality Solutions offer you the synergy of multiple benefits - energy conservation, enhanced operational efficiency and reliability through a dedicated range of products and services.

#### Products

- Axpert-i-Sine Series Active Frontend Converter
- Axpert-i-Sine Series Active Harmonic Filter (AHF)
- Axpert-i-Sine Series Active Static
  VAR Compensator (STATCON)
- Harmonic Reactor
- Sinus Filter
- EMI/RFI Filter

### Services

- Harmonic Audit and Solutions to comply with IEEE-519 standard
- System design, optimization & payback analysis
- Consultancy for Power Quality improvement
- Training on Power Quality Management
- Energy Audit and solutions by experienced BEE certified professionals

### **INDUSTRIAL ELECTRONICS**



### "YOUR TECHNOLOGY PARTNER"

Amtech's Power Electronics Engineering Services offer technology solutions to independent R&D labs, industrial segments like Traction, Oil & Gas, Automotive and Renewable Energy for wind to reduce your time to market.

### Products

- Traction Drive
- High Voltage Power Supply
- Battery back-up drive & systems for critical loads
- Wind Power Converter
- Digital Heater Controller
- Battery Charger
- Drive Train

#### Services

- Power Electronics Engineering Services
- Customized solutions for industry specific applications
- Solution for Oil, Gas & Mining
- Power Electronics product development & testing
- Product verification & validation
- Retrofit Solutions



## DRIVE FOR SUCCESS

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