Introduction

- Designers and Manufacturers of GPS based Time Synchronization System, Alarm Annunciators, Time Code Displays, Converters, Wireless, IoT Solutions for Smart Grids

Our Products
Our Clients

Industries:
- Oil & gas
- Power & Utility
- Nuclear
- Automation
- Banks
- Airport
- Networking
- Medicine
- Energy
Objectives

• Creating innovative Business Units Revenue Streams catering to different sectors/segments of the market.

• Creating Sustainable innovative home-grown solutions for manufacturing scenario with less dependency on imports from foreign sources.

• Better balance of trade policies with absolutely less imports and aim of exporting our Products

• Creating a Research oriented work-force across globe who can create, innovate & offer international solutions catering to various market geographies.

These driving factors have forced us to be an R&D oriented organization.
VISION & MISSION

• To achieve & provide value added solutions to customer to reduce cost in high end technology.

• Enable Applied Research & Innovation to propel competencies & adaptation of Sertel in a competitive market landscape.

Our main strengths & sustainability mantra
• Design & manufacture Quality product of high end technology, Make it available to market geographies on low market oriented cost basis.

• Start to End solution. Enable customers & manage suppliers to produce high quality products/solutions.

• High Quality product manufacturing objective. All our products are real time applications with need to work continuously 24x7 basis throughout the year.

• Take up Contract Jobs & collaborations from Universities, Governmental organization & provide complete tech-support enabling expansion for the future technology growth in organic way.
Brief Profile

• Aimed at being a manufacturing company with focus on building a healthy R&D set-up & creating Skill-set in field of Embedded Electronics.

• SERTEL started with indigenisation of products/solutions in the year 1990 - with ambition of our objectives in mind

• Started with low Key products handheld

• Now manufacturing/designing State of art Technology intensive products catering to various industry verticals
  – Time Synchronisation system
  – Time and frequency products satellite based Indian satellite & Global position satellite (GPS).
  – C37.118 Synchrophasor Measurement Units
  – Alarm Annunciators with DNP3 protocols
**Brief Profile**

- Successfully developed products for lower end mass manufacturing and high end technology oriented products.

- Perseverance of R&D on high end products competing with international products on maintaining a cost basis & high quality manufacturing gave us recognition, brand Name & sustainability in business. Now we are proud to announce ourselves as company recognised as R&D lab by Department of Science & Technology, India & won recognitions from GE, USA Labs & Labs across UK.

- Customer satisfaction was our key achievement on all our products. Sertel brand is well recognised & accepted by all power sector & process industry segments across India, South East Asia & Europe.

- Achieved approvals of leading power sector corporations NTPC/Power grid /OEMs BHEL, Alstom, Siemens, ABB & all leading consultancy groups in power sector.

- Acceptance of products & solutions/service in nuclear/Defence /power hydro/space-organizations.

Sertel is proud of close to 1500 installations of its Time Synch systems in almost all Power Generation plants & T&D across India which are working 24*7 & installed periods ranging from 23 years (oldest).

Sertel UK is proud of 1200 installations of our Annunciators in Power Substation Environment across North America through PSEG Authorities.
Sertel’s R&D Vision

• We believe in investment of R&D for growth of business on manufacturing and sustainability in the market. Sertel’s R&D focus has enabled to train and improve skill-sets of our employees and improve our national assets.

• Average 10%-15% of turn over is invested in R&D since 1990.

• Currently having State-of-Art facility and wonderful R&D environment from niche developments at our premises.

• Invested on plant and machinery over the years for R&D activity

• Skill Sets - range from Embedded ARM processors , Wi-Fi Wireless technology, Microcontroller technologies , Protocol Stack development . Hardware & software development, prototyping to production design & testing.

• Also enable Extended Services such as Production automation & Research for Cost-cutting of existing product prototype designs & enable low cost production.
Achievement of Design & Development Since 1990

• Applied R&D is our Forte. Our R&D is based on appropriate technology for appropriate application.

• Designed products with discrete components & to latest State-of-Art SMD components upto 1206 & 0805 packages. Controllers to FPGAs.

• Right from 1991 we have experienced changing dynamics of Electronics industry manufacturing process. We have skill-sets who can cope with entire horizon of product development keeping in mind the market oriented cost implications of the design.

• Sertel India Is Government of India Approved R&D Lab facility. [Department of Science and Industrial Research]

• Our mass produced product Includes
  • Alarm Annunciators for North American Market
  • GPS Based Time Synchronization Devices. - All protocols Time Sync
  • Hand-Held GPS
  • Digital Displays -25mm,50mm,100mm
GPS Based Time & Frequency System
- Master Clock/Slave Clock
- Time Code Generator
- Alarm Annunciation System - Protocol based
- Large Display Controllers for Time/Process/Power
- Signal Isolators Equivalent of P&F, MTL
- UTC/IST Time Display
- IRIG Time Code Generator - Supports all Formats maintaining 1micro-sec accuracy.
- IRIGB Based Display & Automation Monitoring Solutions.
- Up/Down Counter with high stability And high accuracy.
- UTC/IST-Time- Displays Various Format
- Large Video LCD/MatrixLED Display of plant variables across different locations of plant.
- Signal Conditioners - Isolators, Amplifiers, Protocol Converters.
- TCP/IP-NTP-Protocol
- Data / Time Video Inserter for CCTV Application
- Power Supply/Battery Charges
- Line Drivers/ Line Receivers

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Technology Intensive Product development Skill-Sets

- Embedded Skill sets on development on Microcontroller (Atmel, PIC)
- Manufacturers of our own ARM based boards
- We have our own Customisable Operating System catering to High Precision Real Time Applications
- Development of protocol Stacks over L1,L2,L3 layers such as Ethernet, RS485, RS232 etc. Sertel has our own Ethernet & Wireless Solutions based on ARM processor chipsets.
- Pioneers in long distance data collection & transmission. Our experience includes all Thermal Power plants throughout India for these solutions
- IoT Devices & Solutions
- Web Based Application development for Embedded Configuring & data management from Across LAN.
- Time & Position / Speed Tracking
- GSM / GPRS-Network SMS Connectivity
- Mapping Solutions
- Mapping & Report Generation

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Brief Profile

• Successfully developed products for lower end mass manufacturing and high end technology oriented products.

• Sertel India is proud of close to 1500 installations of its Time Synch systems in almost all Power Generation plants & T&D across India which are working 24*7 & installed periods ranging from 3-15 years.

• Sertel UK is proud of Supplying close to 1200 units of Alarm Annunciator Systems for Power Substation T&D Markets, which are working 24*7 in plant conditions across North America for past 4 years.

• Perseverance of R&D on high end products competing with international products on maintaining a cost basis & high quality manufacturing gave us recognition, brand Name & sustainability in business.

• Customer satisfaction is key achievement on all our products. We are accepted by all power sector segments.

• Achieved approvals of leading power sector corporations NTPC/Power grid /OEMs BHEL, Alstom, Siemens, ABB & all leading consultancy groups in power sector.

• Acceptance of our products & solutions/service in nuclear/Defence /power hydro/space-organizations.
Brief History of our Development capabilities

Satellite Based Time and Frequency Transfer Applied to various Verticals/ Sectors

• Power Sector Generation, T&D

  Uniform Time Synchronization of various recipient equipment's in Industry of Electrical/instrumentation and Computers maintaining same time throughout with accuracy levels less 1MicroSec levels.

  Use of Global position satellite/ NASA - U.S.A. Widely used in all major power sector specifications, power distribution specifications & process industries throughout the world.

• Space

  Up/Down counter with accuracy using reference time of atomic clock to monitor the events. This is used to monitor fast exothermic reactions and identify time base for their parameters.

• Defense

  Time video inserter from TV cameras/TV monitors are computer monitoring of Time display to record the time of event with respect to frames grabbed with uniform time of events. This technology is used for Missile testing & harsh environments video coverages.
Brief Outlook of our Development capabilities

- **GPS Disciplined Oscillators:**

  Sertel’s GPSDO have accuracy of 0.01ppm level for our oscillators. Such oscillators are usually available only from Europe or America. Sertel In-house R&D we have achieved completely indigenous design of this high precision oscillator which can be a part of any real time embedded System, which requires a time-critical execution.

- **UP/DOWN CONVERTOR:**

  With reference to standard time format generated increment/decrement of time in millisecond for the event to take place in various application. Also we can transfer this time over long distance say 1 to 2Kms for monitoring parameters from harsh environment Zone, sitting in a control room. Used in various applications of space, nuclear, oil rigs and other applications.
Brief Outlook of our Development capabilities

- **POWER GRID: Energy Trading & Smart Grid applications**

  **TIME AND FREQUENCY FOR DISTRIBUTION:**

  For event monitoring the status to have standard time stamp for the occurrence of event monitoring

  Developed & Supplied product for PGCIL India & PSEG USA with various outputs for Time Synchronization. Approved Supplier for various power OEMs.

  Sertel has State-of-Art Time Sync Devices which are compatible for Next Generation grids - Smart Grid technology which requires high precision outputs of order of 200ns accuracy & less than 14ns jitter.

  Sertel is rightly equipped with our R&D facility & test facility for testing/implementing next generation C37.118 Synchrophasor Measurement Products for T&D requirements in Smart Cities, Smart grid Applications. Right Collaborations can help us achieve right market access & product positioning.

- **POWER GENERATION**

  • Pioneers in Time Sync for generation plants. Have a installation base of close to 1000 systems across India.

  • Manufacture and Supply of Advanced Annunciations (equivalent of MTL, Alan, Ronan, RTK systems)/ Alarm management System. Over Ethernet.

  • Large Online Displays - LCD/Matrix LEDs to display Plant operation parameters. These systems interface with DCS/Control equipment's to gather information and Display vital parameters for immediate attention of the Operator.
Other Development capabilities & Skill Sets

• Along with our Expertise to develop products with micro controller and flash based processor technologies we have gained a wide experience on EMI/RFI conformity to develop products. To meet the international standards & stress levels. All our products are EMI/EMC tested in SAMEER as per IEC Standards (IEC61 series)

• Also our products are tested for IEC61 vibration in accordance with international standard tested in ETDC as per IEC std (IEC611, IEC602 series).

• All our products are CE marked & comply with Industrial environment acceptance to cater to Indian conditions of tropicalized country.

• All our products are Real Time & work for 24*7 conditions in harsh field conditions such as Power plants, Process Industries.

• Our products have very large MTBFs and we have many installation sites in India & Abroad where our systems are working for more than 15 years without any issues/ engineer support.
Ongoing Developments

- **ISOLATORS - Field Bus Signal ISolators**
  - Analog/Digital Isolation products:
    a) Analog isolated sensor and driver
    b) Analog isolated signal conditioner
    c) Analog isolated signal processor
    d) Field Bus Protocol Isolators
    e) Analyzer Systems.

- **GPS Based Analog Time Display**

- **IoT Compatible Devices**
  a) Wireless Technologies for Smart Grid applications
  b) Sensor Readers Analog 4-20mA, digital
  c) Web based Cloud computing & Smart phone application development
  d) Data Management and warehousing

- **Control Relay Panel**
  a) Control Relay Panel Electronics. -Meters(4-20mA), CRP controllers.
  b) Mosaic Mimic Panels & Display Controllers for processes.
Organisational achievements aiding our R&D activities

- **IS:ISO:9001:2008** Quality System
- ISO14001:2004 Health & Safety
- ISO18000:2004 Environmental
- Recognition by Department of Science & industrial Research as R&D lab.
- We have done well even in times of financial economic instability in Europe & Asia.
- Absolutely NIL liability to any organization either financially or IP/Patents technologies.
- Associations with organizations such as NPL, IGCAR for technical Know-how and bring such technologies to usage in Industrial environments.

**APPROVAL OF CONSULTANT AND POWER SECTORS**

- NTPC - Power Grid- EIL-TCS-Various Consultant- ISRO-Nuclear-Hydropower
- PSEG USA, SEC Saudi Arabia, ESKOM South Africa.
Location Layout

- R&D in Chennai
Location Layout

- R&D in Chennai
Our Workshop
Testing Area

- Test Environment Simulating Field Conditions
Power Generation Panels & Displays
Manufacturing Location - Annunciators
Installations in North America & Europe
Annunciators & Furnace Cameras
Future Expansions & Interests

- Need for collaborations with Universities and Standard Bodies to gain access to Research and Design.

- Interested to expand to Canada to develop products and solutions for the North American market.

- Communication Protocols - for Power Substation & Power Generation markets as market focus is shifting towards IEEE C37.118 standards.

- Association with Research & Innovation oriented establishments, universities and applying our skill-sets, assets for project requirements.

- Contract manufacturing, Value added services such as Design, Product integration, manufacturing.

- Smart Grid, Smart City Solutions development and Innovative IoT Designs.

- Market expansion into North America.