SERTEL ELECTRONICS

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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
  - Alarm Annunciators with soft input through DNP3 / MODBUS / IEC61850 protocols
  - Time Synchronisation system
  - Time and frequency products satellite based Indian satellite & Global position satellite (GPS).
  - C37.118 Synchrophasor Measurement Units

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.

Introduction

- Sertel Alarm Annunciator (T-AA-300) is a persistent surveillance system deployed to watch and sense devices of many types and functions.

- T-AA-300 can be configured to provide the best solution for various size and complex alarm scheme. Wide range of channels (8 Channel, 16 channel,32 channel,64 channel and so on expandable) with window size(48*72, 30*50 …) with multi colors for alarm by using multi color LED's available .

- Each individual alarm windows can be pre programmed as required by end user with respective of that project as a unique design concept. *** Refer system Programming and diagnostics**. This allows the user to select many different features giving thousands of possible combinations. With respect to ISA format standards ISA-18.1 annunciation sequences and also if any user/projects special sequences can be integrated with respect to programming sequences.

- Sertel annunciator's can be if required synchronized to GPS for timing of sequences with accurate time stamped better than 1us to facilitate to use as SoE sequential event recording.

Alarm Annunciators

Our Clients

Industries:

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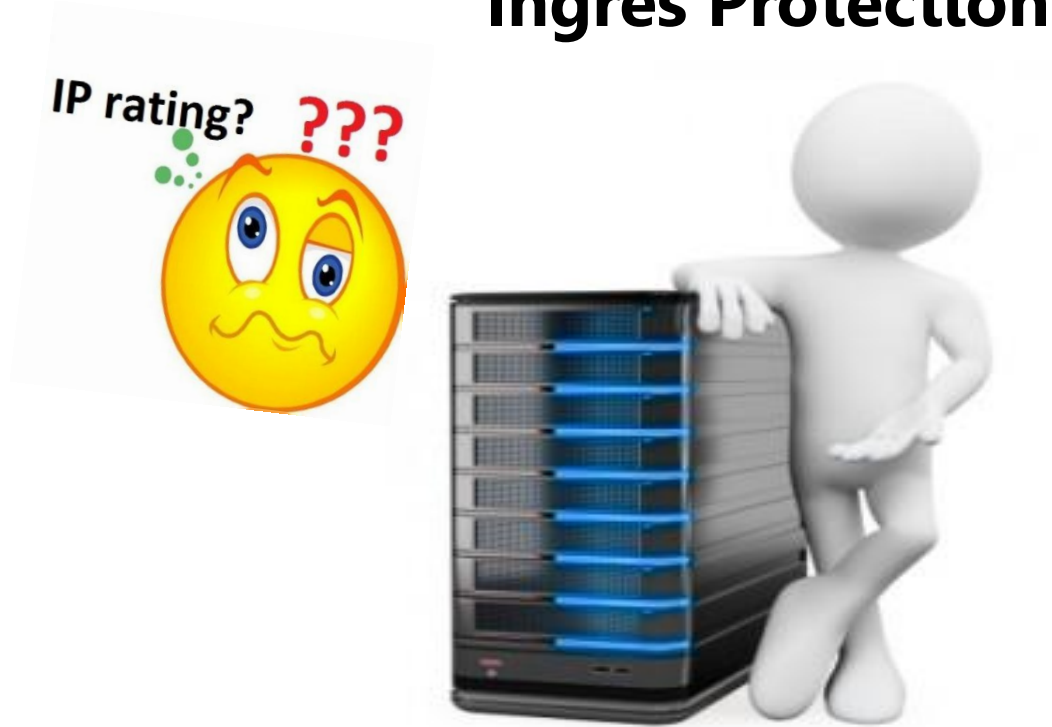- Banks
- Airport
- Networking
- Medicine
- Energy

RAS Function of Annunciator

- a) M/s Sertel is a technology oriented company with expertise in State-of-art technology. We design products with high reliability and real time working 24*7 throughout for Plant safety. We are organic growing company with a CSIR approved R&D facility indigenously designed. All products are developed from the concept understanding the design thoroughly to meet the international standards for continuous operations of our Sertel products. Our rich supply base across India and our long history in this field of expertise has given us a solid sustainable platform across all industries.

- b) Sertel Products are modularly structurally designed for easiness of manufacturing for the mass production so that the availability of the production in a short duration.

- c) We ensure in all respects so that there is no serviceability on products once energized commissioned properly with the great MTBF and MTTF.

Mean Time Between Failure

- All our products are designed to work on hard conditions in a tropicalised Indian conditions without failure continuously throughout the year (24*7 365 days).

- Our products have very large MTBFs and we have many installation sites in India & Abroad where our systems are working for continuous operations without any failures.

- With high MTBF the experiences of supplied earlier we can assure very long mean time between failure(with the continuous operation of last one decades)

- M/s Sertel has a very good service team to cater immediately to attend services if need be to take care of MTTF.

Ingres Protection

- IP protection for annunciator enclosures can be of any type IP classes such as IP 54, IP55, and IP 66 etc.

Key Features

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- Highly customizable configurations

- Optically isolated fault inputs

- Facias with back-lit facility

- User Selectable Fault contact configurations

- Modern aesthetic design

- ISA-18.1 annunciation sequences: A, M, R, F1A, R-12-User Selectable

- Ruggedized to meet industrial, utility standards

- Serial ports, TCP/IP outputs available for communication with other devices

- Front Panel configuration access provided

- RS485/IRIG-B input with 1 ms SER time-stamping for Event Recording

- Programmable PC software interface provided optional

- Spare Windows provided for Emergency situations

- Split type, field/panel separate instrument

- 1-4000 points

- External Time Synchronization RS232/IRIG-B

- External GPS time synchronization

- SoE Testing-optional

- GSM/GPRS ON Request

- Can Read Soft inputs From **MODBUS – DNP3 – IEC61850 – OPC** protocols & annunciate critical Alarms.

Test and Standards

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Sertel products Alarm annunciator, GPS and all our products are type tested and they are certified by NABL Accredited lab.

Sertel is certified with ISO 9001:2008,ISO 14001:2004, ISO 18001:2007.

Sertel products are CE marked & comply with Industrial environment acceptance to cater to varied temperature ranges of -40˚C to 80 ˚C.

- Electrostatic Discharge   : IEC 61000-4-2, 2008
- Electrical Fast Transient   : IEC 61000-4-4, 2011
- High Energy Surge Immunity   : IEC 61000-4-5, 2005
- Damped Oscillatory   : IEC 61000-4-12, 2006
- Radiated Susceptibility   : IEC 61000-4-3, 2010
- Conducted RF Immunity   : IEC 61000-4-6, 2004
- Dry Heat   : IEC 60068-2-2
- Damp Heat (Steady)   : IEC 60068-2-78
- Vibration (Sine)   : IEC 60068-2-6

System Configuration

- Sertel design of Alarm Annnunciators can be of following types

    – Split Type Architecture

    – Distributed Architecture

    – Stand Alone Architecture types.

- s

System Redundancy

M/s Sertel has design technology keeping in view as a master slave concept and also the Redundancy as a major threshold in the design to facilitate any type of hot redundancy for all our system integrated products either be Annunciator/ GPS receivers has been proven for last 3 decades.

Diagnostic Capability – Functionality Test

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- M/s Sertel annunciators is manufactured with the rugged test facility. This provides system integrators with design features to test system functionality easily. In a end users perspective software's are integrated to test the hardware with all test channels or each channels tested by group.

- The key salient features of our annunciators is configurability built into our Software designs , if any changes on input they are configurable at site. There is no need for hardware modification or manual intervention as being most advantage of design.

- Any ISA sequence program can be programmed even from a remote location.
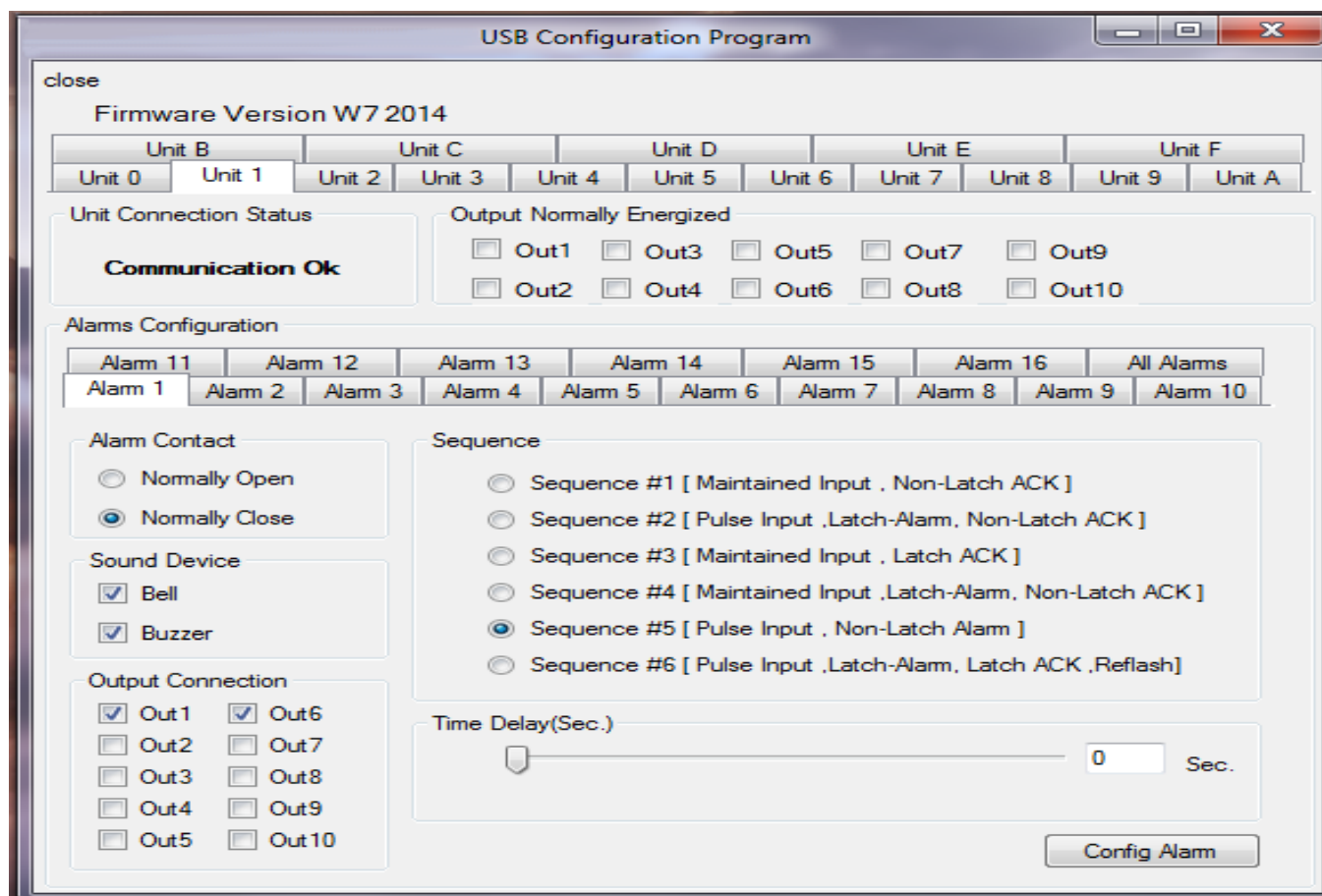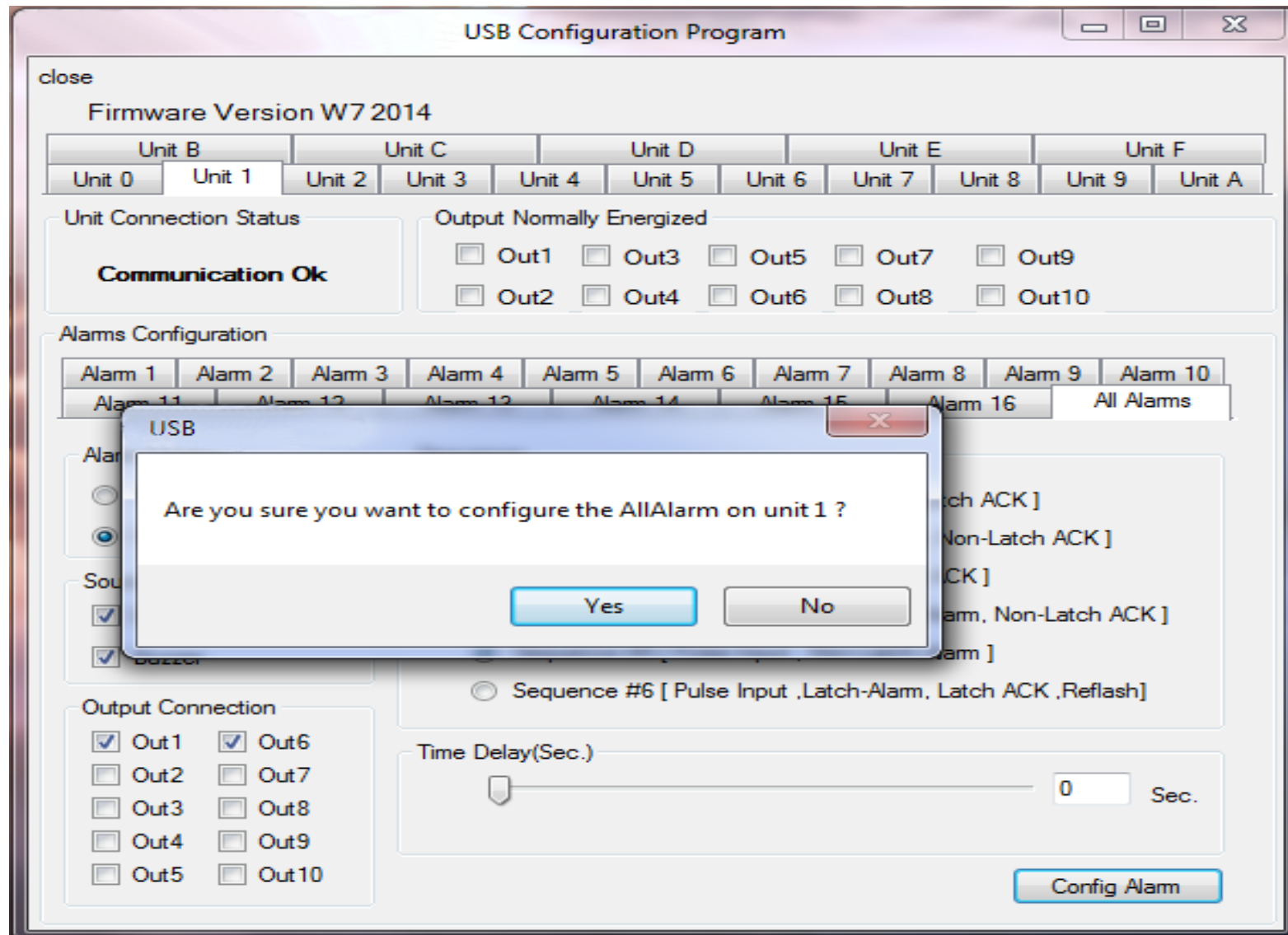
Diagnostic Capability – Ease of use

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- The front facia can be engraved for functional parameter display at site or you may simply replace with a transparent projector sheet and text can be printed from available printer at site.

- M/s Sertel can provide very tiny annunciators as requirement need be to follow international DIN standard using mosaic grid panel to follow any DIN Sizes.

- We designed both hardware and software to facilitate the program through PC configuration. M/s Sertel has developed front end programmable software to program the M/s Sertel Annunciator hardware.

System Programming and Diagnostics

- The programming flexibility creates option for the users to easily configure many operations including alarm sequence, time delays, relay operation, first-up grouping, functionality, and communications and so on.

System Programming and Diagnostics

ALARM ANNUNCIATOR
T-AA-300

T-AA-300-B08

Overview

Sertel Alarm Annunciator is a persistent surveillance system deployed to watch and sense devices of many types and functions. T-AA-300 can be configured to provide the best solution for various size and complex alarm scheme.
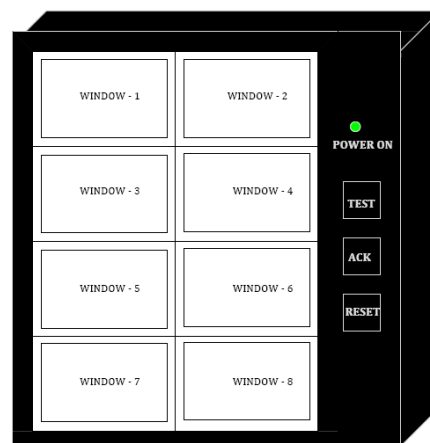
Wide range of window size, colours could be accustomed as required. Each individual alarm is fully programmable from the front end using the integrated programming module. This allows the user to select many different features giving thousands of possible combinations.

Numerous relay outputs are included as standard output to connect to external equipment and individual repeat relays or communications can be supplied as an optional output.

The programming flexibility creates option for the users to easily configure many operations including alarm sequence, time delays, relay operation, first-up grouping, functionality, communications and so on.

Multiple back lit windows are provided, each engraved with the name of the process alarm.

Display	:	Back-Lit
No. of Channels	:	8 Channels
Window Dimension	:	30 x 50 mm, 48 x 72 mm
Type	:	White Acrylic Flat Lens
Colour	:	Red, Amber
Flash Time	:	Fast – 15 Hz (0.4 s ON, 0.4 s OFF)
		Slow – 0.1 Hz (1.1 s ON, 1.1 s OFF)
		Intermittent – (0.4 s ON, 1.8 s OFF)
Type of Mounting	:	Panel Mounting

Panel Mountable Alarm Annunciators

T-AA-300-B16

Display	:	Back-Lit
No. of Channels	:	16 Channels
Window Dimension	:	30 x 50 mm
Type	:	White Acrylic Flat Lens
Colour	:	Red, Amber
Flash Time	:	Fast – 15 Hz (0.4 s ON, 0.4 s OFF)
		Slow – 0.1 Hz (1.1 s ON, 1.1 s OFF)
		Intermittent – (0.4 s ON, 1.8 s OFF)
Type of Mounting	:	Panel Mounting

Alarm Contact Inputs

Voltage	: 12V DC (as per requirement)
Input Current	: 1 mA (typical)

Auxillary Power Input

Voltage	: 90 – 240 V AC/DC
Power Consumption	: 600 mW per window

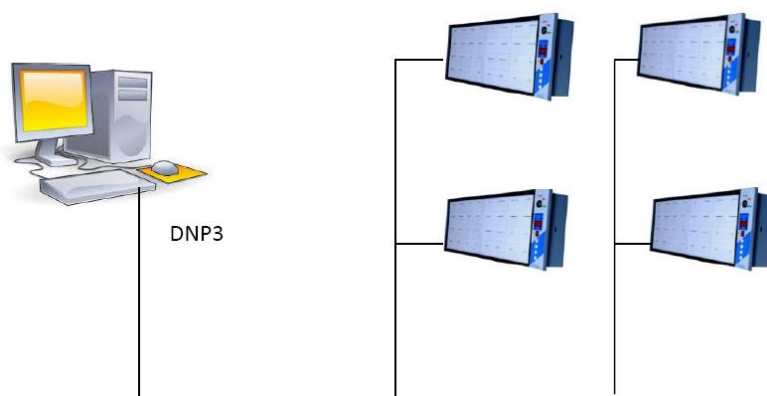**Relay Outputs**

Repeat Relays	: Potential free for each alarm points 5 A at 250 V AC, 3A at 30 V DC. Resistive Load
Alarm, RBACK	: 5 A at 250 V AC, 5 A at 30 V DC. Resistive Load.

Communication of Alarm Annunciators

DNP3

Operation

The annunciation unit is built with panel mountable and wall mountable types which can be supplied as per requirement. In front side, removable Legend display Facias are installed in A4 size standard sheets. In the rear side, the input connections and power supply connections are provided.

Input card and the mother board cards are completely isolated. Input cards have connection to the input field contacts, power supply unit and external push button connections. All inputs are completely isolated from the mother board. This input card can serve from 8 to 1000 channels by cascading them.
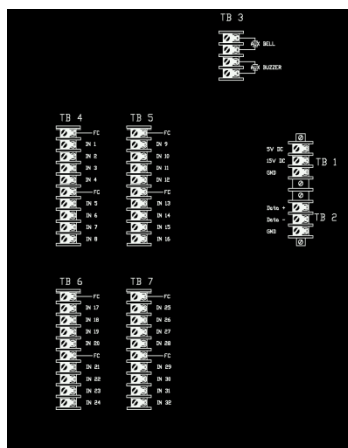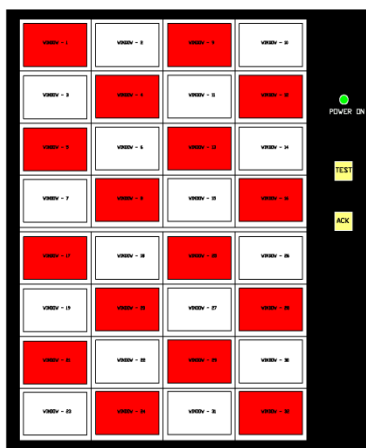
Card extensions are provided for easy increase in channels by creating a daisy-chain network of Input, Output, Repeat Relay cards. The alarm contact relays and hooter contacts are present in the input card.

Each channel can be configured for Trip / Non-trip Alarm and N.O. / N.C. Input configurations. The whole unit has self-diagnostic features, power failure management and other redundancy features. Power failure indications are provided in the front side of the annunciator.

Environment

Operating Temperature	: 20 °C – 60 °C
Storage Temperature	: 20 °C – 80 °C
Humidity	: 0-95% RH, non condensing

Key Features

- Highly customizable configurations.
- Optically isolated fault inputs.
- Facias with back-lit facility.
- User Selectable Fault contact configurations.
- Modern aesthetic design.
- ISA-18.1 annunciation sequences: A, M, R, F1A, R-12-User Selectable.
- Ruggedized to meet industrial, utility standards.
- Serial ports, TCP/IP outputs available for communication with other devices.
- Front Panel configuration access provided.
- RS485/IRIG-B input with 1 ms SER time-stamping for Event Recording.
- Programmable PC software interface provided optional.
- Spare Windows provided for Emergency situations.
- Split type, field/panel separate instrument.
- 1-4000 points.
- External Time Synchronization RS232/IRIG-B.
- External GPS time synchronization.
- SoE Testing-optional.
- Fast Response.
- GSM/GPRS On Request.
- IST Time Synchronization.
- Can synchronize from MODBUS, PROFIBUS, DNP3, IEC 61850

Test and Standards

Dry Heat Test	: IEC 60068-2-2
Damp Heat (Steady State) Test	: IEC 60068-2-3
Sinusoidal Vibration Test	: IEC 60068-2-6
Electrostatic Discharge Immunity	: IEC 61000-4-2,2001
Radiated Susceptibility Test	: IEC 61000-4-3,2006
Electrical Fast Transient Immunity	: IEC 61000-4-4,2004
High Energy Surge Immunity Test	: IEC 61000-4-5,2006
Conducted RF Immunity Test	: IEC 61000-4-6,2004
Power Frequency Magnetic Field	: IEC 61000-4-8,2001
Damped Oscillatory Wave Immunity	: IEC 61000-4-12,2001
Dust / Water	: IP 55

T-AA-300-B32

Product Ordering:

Windows	Ordering Code
8 Window	T-AA-300-B08
16 Window	T-AA-300-B16
24 Window	T-AA-300-B24
32 Window	T-AA-300-B32

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भारत हेवी इलेक्ट्रिकल्स लिमिटेड

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(A Government of India Undertaking)
ELECTRONICS DIVISION
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An ISO 9001, ISO 14001 & OHSAS 18001 COMPANY

Date : 14/11/2011

To whosoever it may concern

This is to certify that M/s Sertel Electronics Pvt Ltd., Chennai has been registered with our unit of BHEL vide vendor code:X604050. This supplier was earlier registered for GPS Based Master Slave Clock System. Now, the registration has been extended to "Alarm Annunciation System".
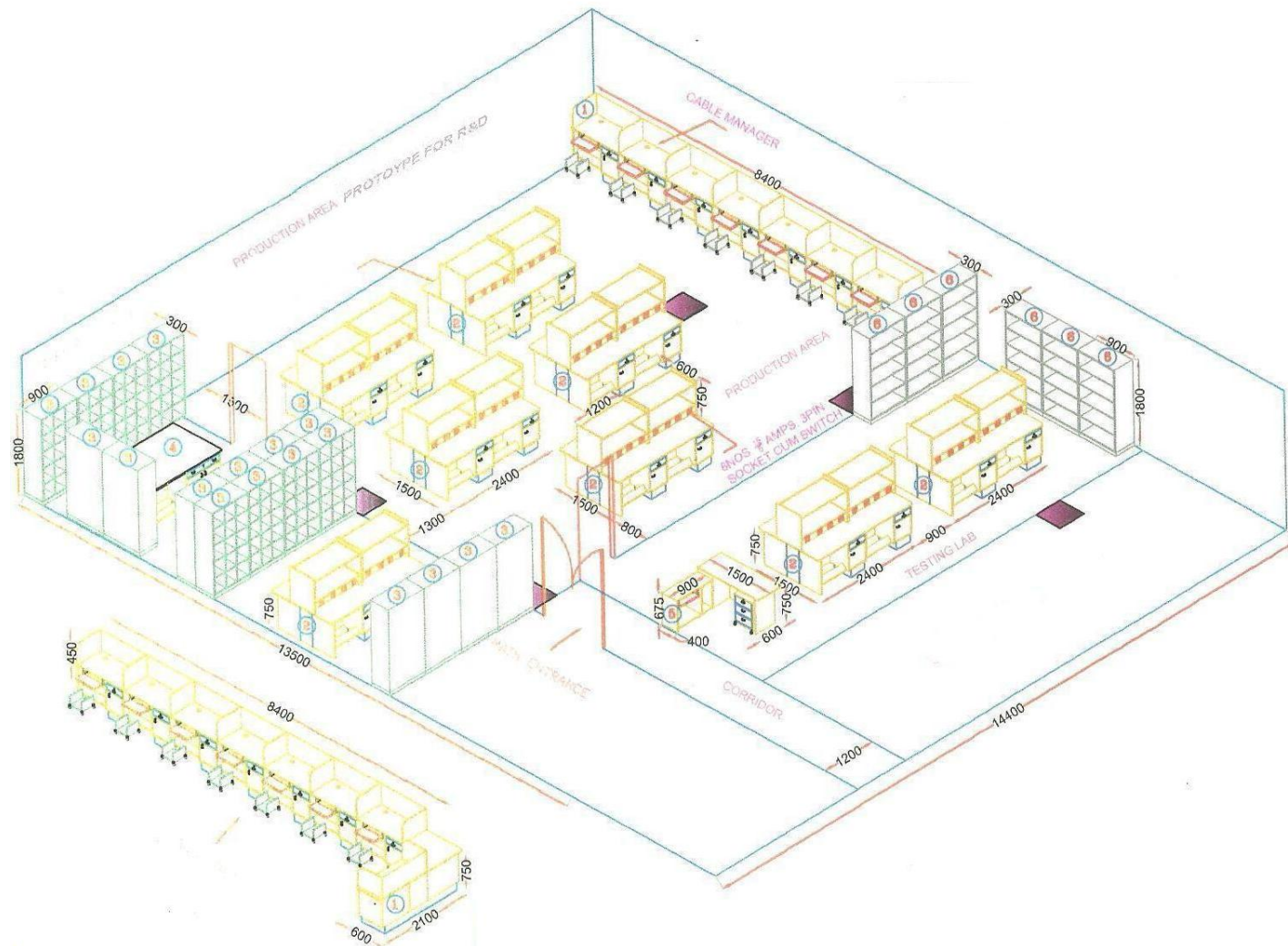
Type of Registration: Permanent.

(BK Dharmaraju)
Sr Manager (Supplier Devpt Cell)

Our Market Segment

- ➢ Power Plants
- ➢ Power Substation SAS Automation
- ➢ Automation Panels
- ➢ Control relay Manufacturers
- ➢ OEMs such as BHEL, Siemens, Alstom
- ➢ Power Distribution/Generation Sectors
- ➢ Distributed Control Systems Panel builders
- ➢ Oil Refinery – Alarm management Systems.

Location Layout

Manufacturing Location - Annunciators

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Installations in North America & Europe
Annunciators

M/s Sertel products

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Timing Hot redundant Configuration

- GPS Receiver-Time and Frequency
- Time Synchronization System
- Master/Slave clock
- Time Signal Conditioner
- Time Signal Receiver
- Time-NTP/SNTP- Server/PTP Server
- Time signal converter
- Time display-Time/Day/Date
- Tele clock-NPL-IST Time
- STFS-Satellite based time & Frequency
- Time code generator Up down counter
- Synthesized Frequency Counter-square/ Triangle/Sine Wave

Boiler inst

- Furnace view camera/Furnace Temperature

Process Control

- Large-Display-Process/Power
- Signal isolator AUX PS-Loop power for process/power
- Process/power panel indicator/controller
- Thermocouple/RTD –sensor

Network & communication

- GSM/GPRS Modem/V.SAT
- Remote monitoring –For communication network
- GPS Vehicle tracking AVL
- Fiber optics
- Wireless long distance on ISM Band
- Ethernet basics IEC 61850

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PVT LTD
IS/ISO 9001:2008 COMPANY

Thank you