

- SAFE
- RELIABLE
- INTEGRATED



A functional test bench for Preliminary Evaluation of Railway Electronics Signaling Products at HBL Power Systems Limited



HBL RAIL

HBL Rail, a unit of HBL Power Systems Limited has been a regular supplier of Batteries & Power systems to the Indian Railways for over 20 years. Close interaction with Indian Railways on the domain and understanding of their requirements, prompted HBL to develop and offer electronics based products and solutions for signaling applications. HBL Rail has positioned itself as a committed provider of end to end solutions i.e., provide all services from initial **concept to product support** for its Railway Signaling Products & Solutions.

The goal is to help Indian Railways achieve its objective of providing safe & efficient transport at optimum levels of asset utilisation. We aim to achieve this through development of reliable products & solutions indigenously, manufacture, supply and provide timely installation and service support.

The Products & solutions developed / under development can be classified in the following categories.

- ◆ **Signaling works Contracts**
- ◆ **Electronic Signaling Solutions**
- ◆ **Track Proving Systems**
- ◆ **Safety & Assets Protection Solutions**
- ◆ **Power Backup & Monitoring Systems**

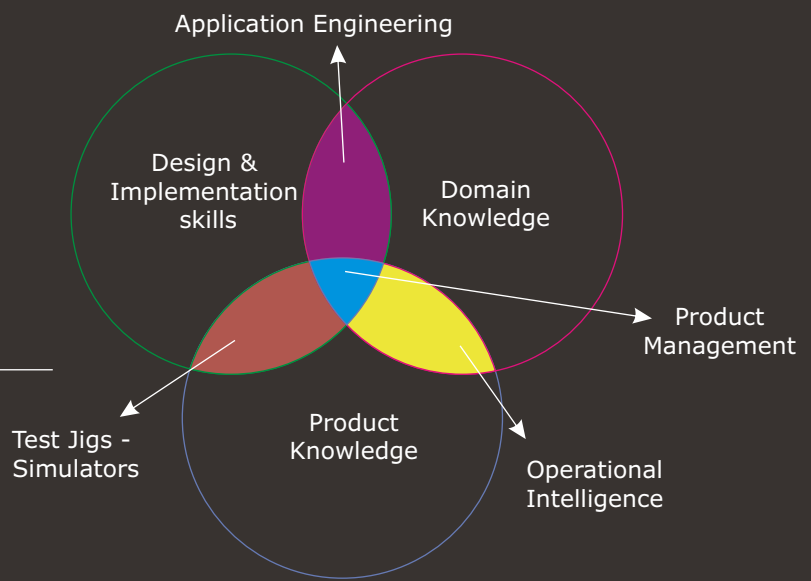
RSWC

RSWC is the Signaling Works Contracts arm of HBL Rail, set up with the purpose of taking HBL Rail's signaling products to the field where they are installed, commissioned & put to use.

HBL Rail has already won the confidence of Indian Railways with swift and successful execution of turnkey signalling works in various zones of Northern & Western India. The competencies & skills acquired by this group of HBL Rail will be fully utilised in quick installation of its electronic signalling products once they are ready for the field.



Our Strengths



HBL Rail has put in place, an effective process driven model that ensures strict **Compliance to Standards & Specifications** and perfect traceability to all phases of development. HBL Rail today thus has all the processes & procedures that are required in the development of safety critical products like AFTC, DAC & EIS, that have to meet the highest Safety Integrity Level. Besides complying to CENELEC standards and stringent quality requirements of the independent validators, each of HBL Rail's product/solution can be fully traced forward / reverse to the relevant RDSO's specification

Principles that ensure product **reliability, availability & safety** are built in from the concept stage itself and taken through all subsequent processes. Products are designed with adequate openness in the architecture for facilitating scalability, future upgradability and inter-operability with products of other vendors.

Training of people in all aspects of domain such as operational intelligence, application engineering, processes & techniques to ensure predictable, skills and knowledge is done without compromise. Successful completion of internal tests, administered through in house tools, is a must for every HBL engineer/technician working in Railway Electronics Products Division.

HBL has set-up a new electronics **manufacturing** facility having a built up area of 25000 sft, and equipped with automatic assembly equipment for through hole, SMD, multilayer PCBs with automated testing capability.

The system, sub system, module and component level **testing** procedures, jigs & simulators custom built for HBL products in both hardware and software based systems, provide adequate evidence of compliance to Tolerable Hazard Rate & MTBF for every system that is shipped out.

A well trained team of technicians and engineers, located at all **service** centers equipped with high precision test and measurement tools, and spread across the country, provide the required **support** to customer and the product in the field to maintain high system uptime. To ensure that the customer is never kept waiting too long, it is expected that by 2015, HBL's engineers would be located within a maximum distance of 50KM from any station where its equipments are installed.

Electronic Signaling Solutions

Electronic Interlocking Systems are gradually replacing conventional interlocking systems the world over due to increasing complexity and frequent changes to yards and in order to facilitate safe and efficient traffic management.

HBL Rail has developed India's first Electronic Interlocking with 2/3 architecture that does not need a separate standby system. This system is developed with Object Controllers that help reduce cabling costs (one time purchase as well as maintenance) significantly. The system is designed and developed to meet Indian yard conditions and has been evaluated successfully for over two years during trials.



Track Proving Systems



Having successfully developed the High Frequency Track Circuit for Indian Railways, HBL Rail has developed the first indigenous Audio Frequency Track Circuit. HBL Rail believes that its AFTC is the solution to the mixed experiences that IR has had with the imported AFTCs. HBL has considered the operating conditions of Indian Railways from the design stage itself to develop a suitable AFTC that gives more track coverage than any other existing system. HBL Rail expects its AFTC to be ready for market by April 2010. A quick list of features of HFTC & AFTC:

HFTC	60-120mts. track length, non-coded, single frequency, suitable for station areas / LC Gates
AFTC	750-1500mts. track length, Digitally coded, eight frequencies, suitable for all RE & Non-RE areas
DAC	HBL Rail's Digital Axle Counter is under development.

Safety & Assets Protection Solutions

HBL Rail realises the importance of making rail travel a safe experience and in the process, also protect the rolling stock and other assets of Indian Railways. Over a period of time, HBL Rail expects to be able to provide wider asset protection solutions.

A majority of train involved accidents take place at Level Crossings. HBL Rail has developed a microprocessor based Train Actuated Warning Device (TAWD) that alerts road users with audio visual alarms of on-coming trains at Level Crossings.

HBL has indicated to the Indian Railways, its seriousness to develop an advanced Train Protection and Warning System with features of all types of train collision avoidance. The system will be designed to be compatible to RDSO standards besides being interoperable with existing ETCS / ERTMS solutions.

IPS

HBL introduced India's first Integrated Power Supply System in 1999 to help provide reliable & continuous power at the lowest cost considering both capital & maintenance.

With backup from a single battery, IPS ensures power availability of all voltages, AC or DC, for all the S&T loads in yard obviating the need for independent UPS for each yard element.

HBL is now developing a State of the Art IPS that is designed to operate at higher efficiency and enhanced reliability levels.



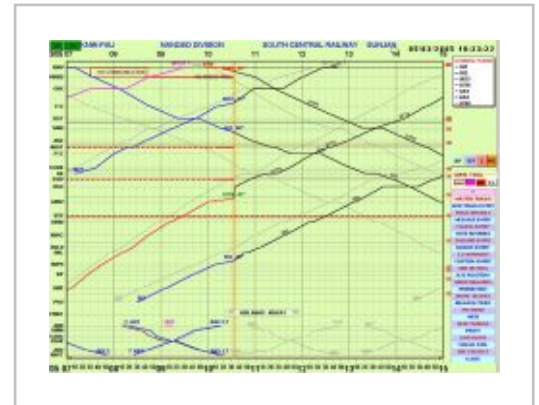
Data Loggers

HBL Data Logger System is designed to monitor and provide predictive maintenance for various signaling gears in a yard. HBL Data Logger can interoperate with other signalling equipments like EIS and be a building block for applications to track train position and train movements.

Automatic Train Charting

Automatic Train Charting Software (ATCS) helps automate the process of monitoring train movements and traffic management.

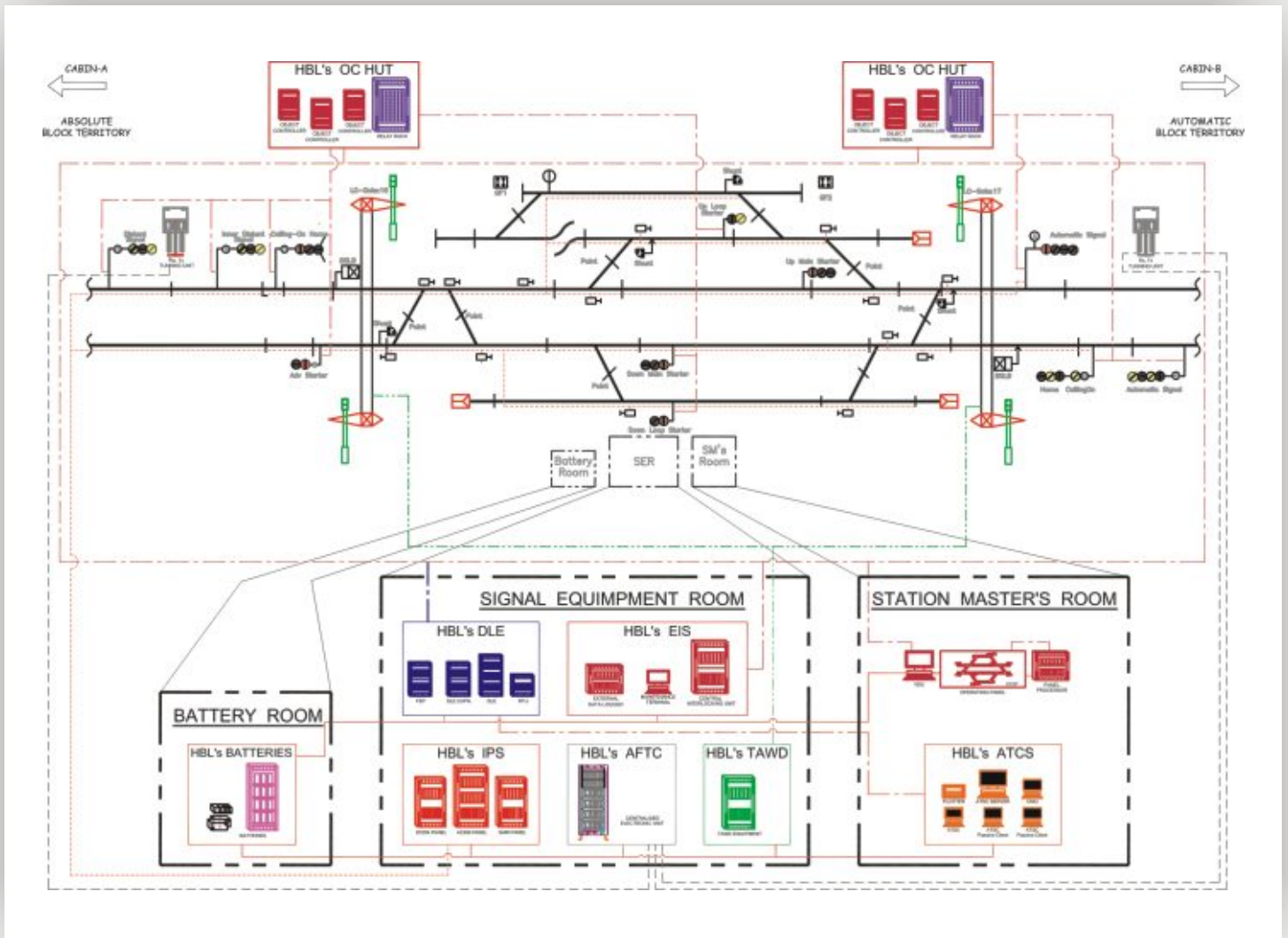
ATCS provides a graphical representation of train movements from origin to destination, actual arrival and departure timings of trains at different stations in a Railway section and the projected train movements for the next specified period or until the destination of the train. Input to ATCS is either manual or can be picked from all makes of Data Loggers, wherever available. The solution can be easily customized for any division or section. User-friendly operations, high reliability and flexible reports make this an asset to every division of the Indian Railways.



Batteries

HBL's capability to manufacture and supply a wide range of Batteries in Nickel Cadmium and Lead Acid technologies helps the company provide appropriate solutions based on the application and specific customer requirements. HBL Rail provides reliable Power supplies for Train Lighting, AC Coaches, Loco Start and Signaling applications

HBL RAIL PRODUCTS FOR ALL YOUR REQUIREMENTS



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