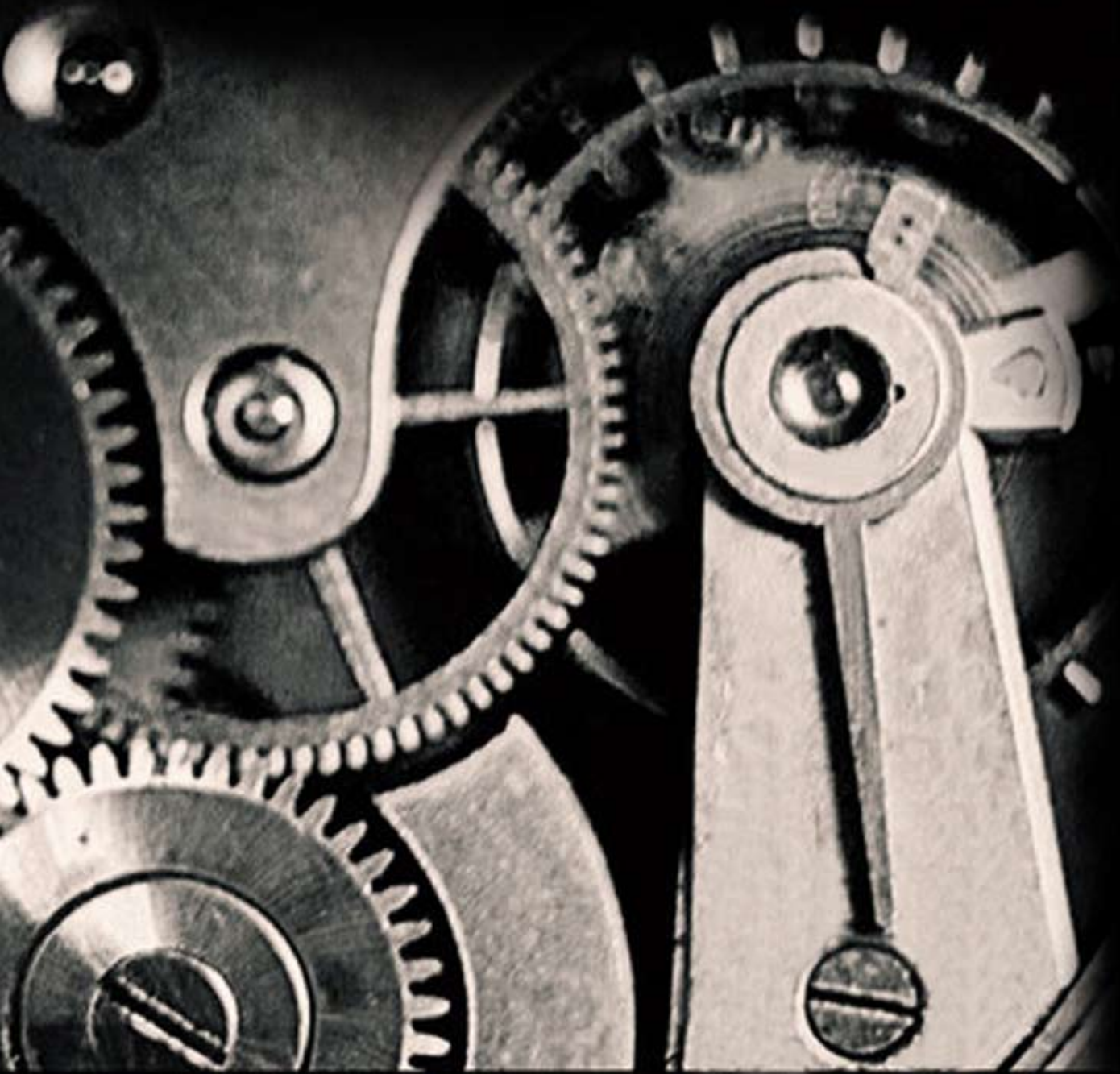
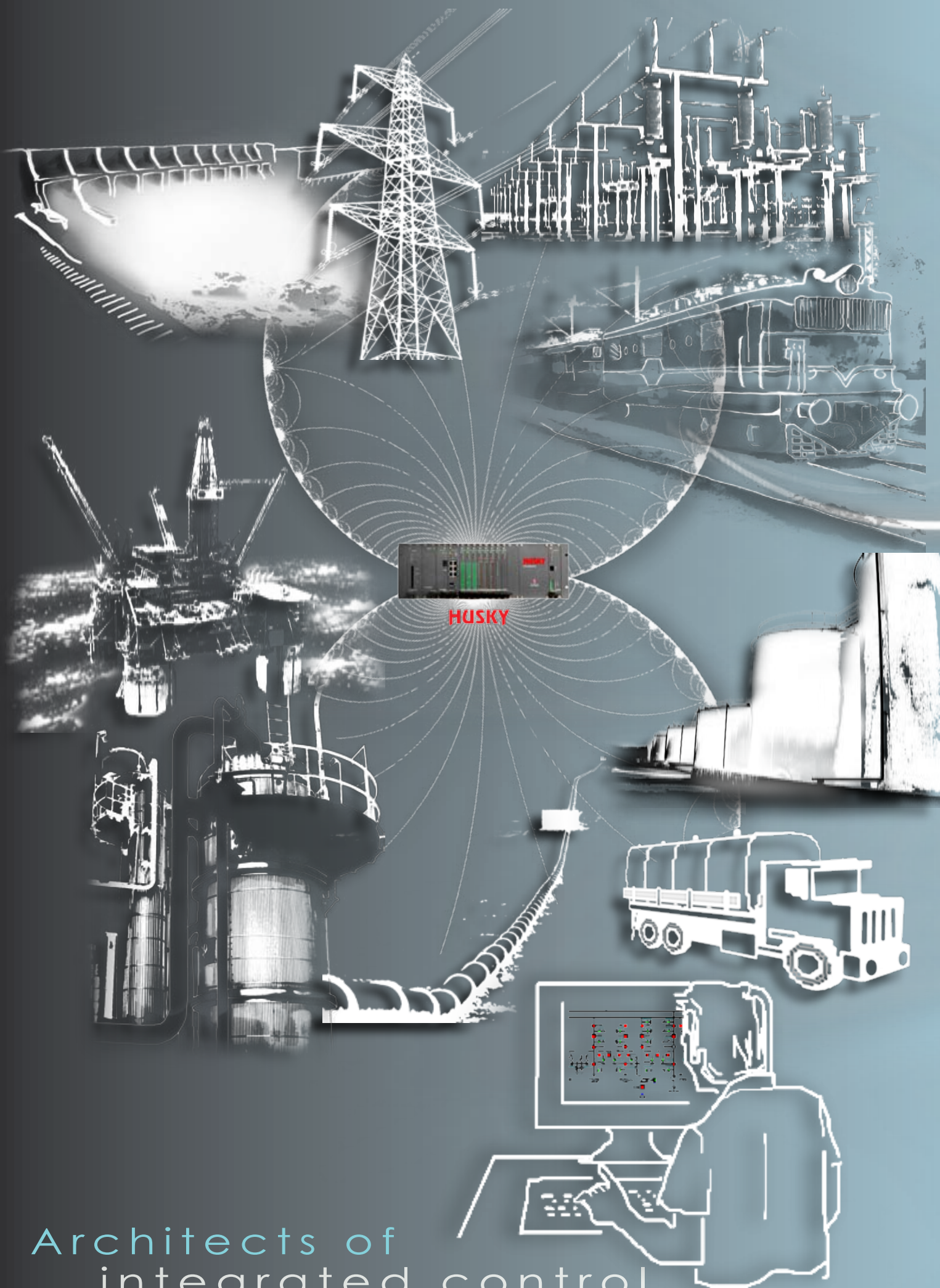




SYNERGY SYSTEMS AND SOLUTIONS





Profile

ABOUT US

Synergy Systems & Solutions, established in 1994, has come a long way to become one of the leading companies in control systems market in India. With more than 15 years of experience behind, it provides turnkey solutions to the automation needs of its customers. Right at the onset, SSS developed a state-of-the-art Supervisory Control and Data Acquisition (SCADA) software- SIRIUS™. Since its introduction to the automation market in the year 2000, SIRIUS has been deployed at numerous prestigious projects in Power, Railways, Oil & Gas sectors. Another landmark development by SSS is now an intelligent Remote Terminal Unit (RTU)-HUSKY™, which complements its range to offer total in-house solutions to its customers. SSS, with its core team, has an edge to offer competitive solutions which not only includes the supply, commissioning and maintenance of complete control systems, but also provide customized solutions and integration services. SSS aims to become the leader in the field of control systems in India.

OUR BUSINESS

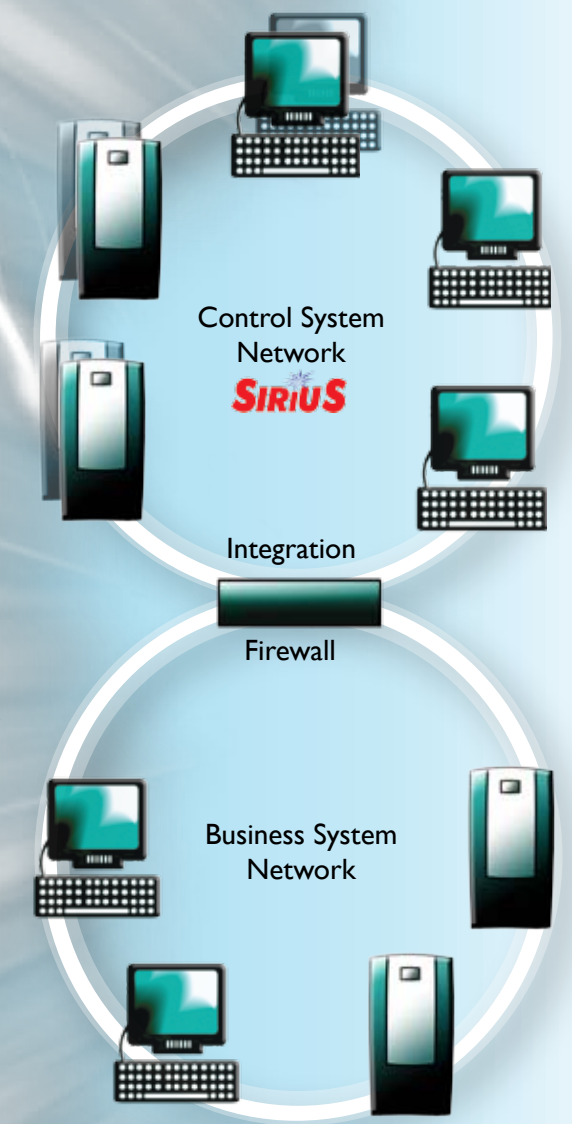
Execution of turnkey projects comprising of Master Control Centre, Remote Terminal Units, Programmable Logic Controllers & Field Instruments. Our scope of work includes System Study, Design, Detailed Engineering, Testing, Supply, Commissioning, Integration, Warranty and Maintenance.

Upgrading of SCADA systems facing obsolescence of computer hardware and software. Effective solution to such problems are provided by upgrading the computer hardware and software while retaining the original controllers and RTUs thus protecting customer's investment. Our specialization in upgrading the existing SCADA systems gives us an edge in this segment as it requires interfacing with legacy equipment and delivering a tailor-made solution.

SSS also provides SIRIUS SCADA Software and Husky RTUs to system integrators, consultants and industry as an OEM supplier with system design, development and support services wherever required.

OUR CUSTOMERS

- Various Power Utilities:
- Power Grid Corporation Of India Limited
 - Indian Railways
 - Rail Vikas Nigam Limited
 - IRCON International Limited
 - Maharashtra State Electricity Trans. Co. Limited
- Oil & Gas Companies:
- Indian Oil Corporation Limited
 - Bharat Petroleum Corporation Limited
- Private EPC Contractors



Architects of
integrated control



Sirius

SIRIUS is a Supervisory Control and Data Acquisition System (SCADA), that can be adapted to almost any real time process. It is state of the art software, based on Window technology which runs even on desktop computers.

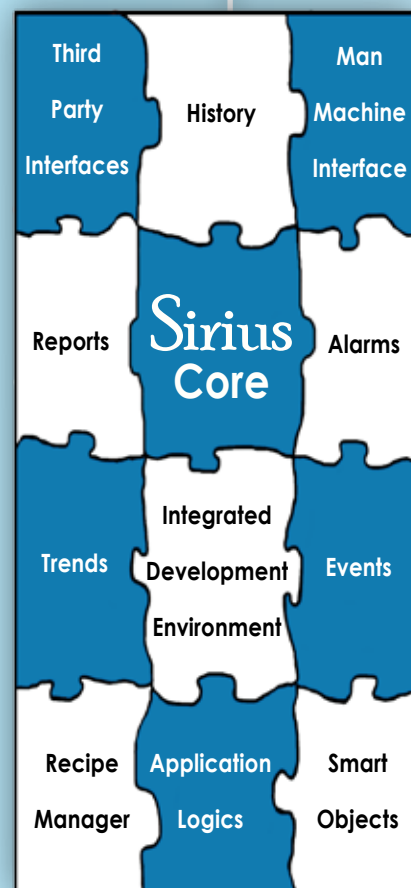
The system is modular in design and expandable in stages, thereby resulting in protection of customers capital investment and extending the product life cycle. SIRIUS's architecture and design enables it to be customized for adapting to various industry segments. The system's core has been designed in such a way that any application can be supported by building a customized layer on top of the core. It provides a fault tolerant system by using its redundancy option which is available at every level. SIRIUS has already been put to use in mission critical applications in industry segments like Oil & Gas, Power Generation, Transmission & Distribution, Traction Power Monitoring and Control for Railways.

SIRIUS's Integrated Development Environment is an easy configuration tool which makes it possible to convert an abstract automation idea to a fully engineered solution.

Man Machine Interface provides operator with an extremely user friendly, easy to navigate graphics tool to monitor and control the process. SIRIUS also allows to program a project specific application using its own high level programming language.

Any type of process and management information report can be developed through Crystal reports or Microsoft Excel. For offline analysis & MIS requirements an SQL Server based separate historical data base is provided.

SIRIUS has evolved over the years and is capable to integrate with various devices using both industry standard and legacy communication protocols.



32 bit high performance CPU
Multiple Roles - Master, Slave, Data Concentrator Simultaneously
Intelligence at each level
Various I/O modules

Upto 4096 Digital & 1024 Analog I/O
19", 4U high rack mountable
Redundant CPU, Comm. Line & Power Supply
Hot Swap Capability

Serial & Ethernet Interfaces
Supports IEC & DNP Protocols
Supports Multiple Masters
Application Specific Logics
Time Synchronization

RTU 6049-E70 is the latest generation in the HUSKY™ series Remote Terminal Units (RTUs) from SSS. Based on the experience of previous models, the RTU 6049-E70 has been redesigned to cater to different industry-specific needs in a modular and expandable fashion.

RTU complies with EMI/EMC regulation specified by ISO/IEC standards. The RTU has been certified by the regional test laboratories for conformance to these standards.

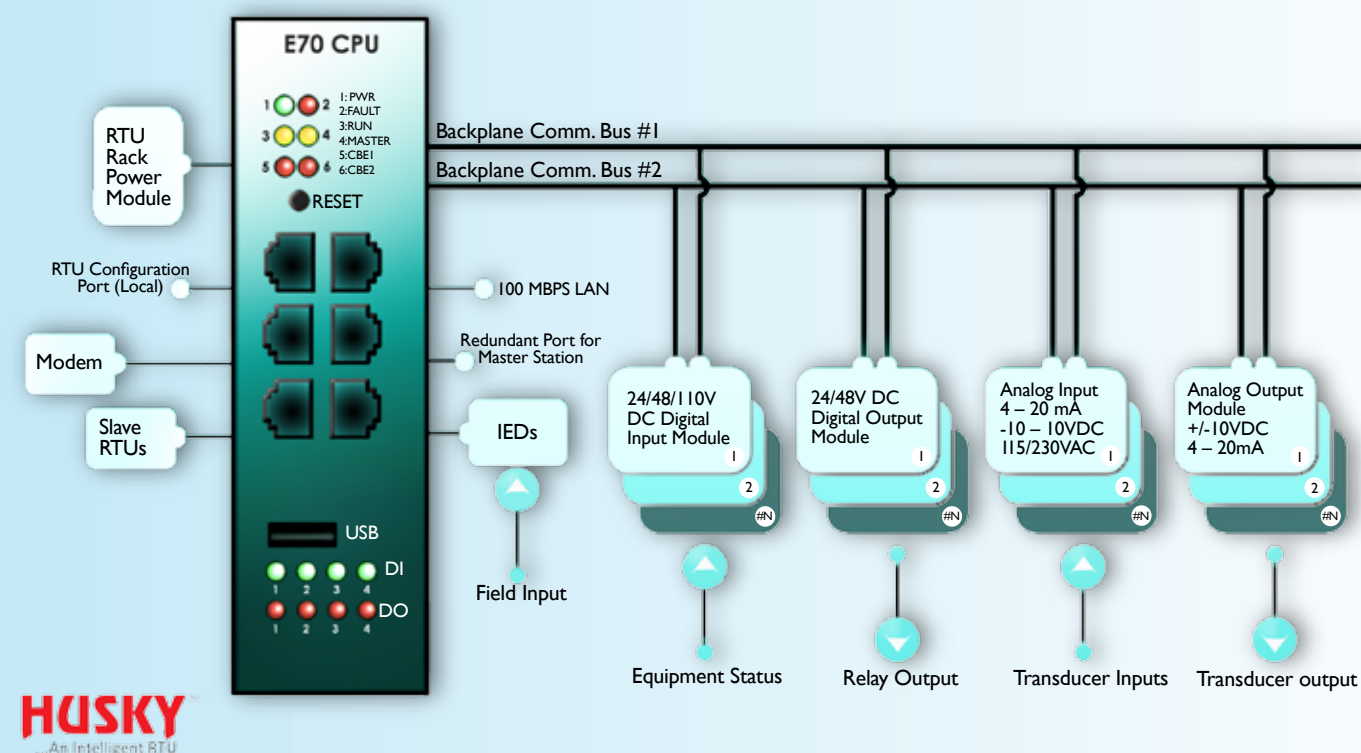
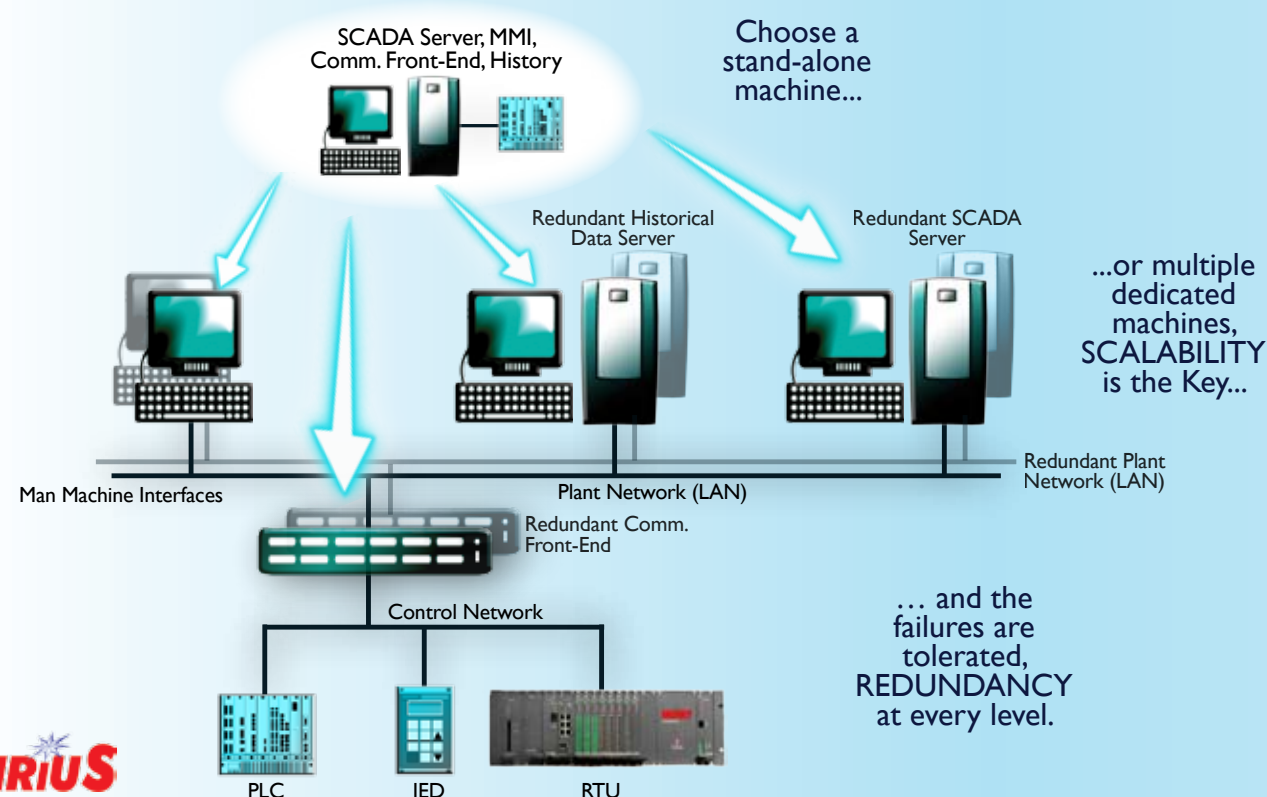
With a reduced footprint, the RTU requires lesser panel space. All I/O terminations are provided at the rear, for easy wiring and deployment.

It is a mid-sized RTU designed for automation system requiring high availability and easy maintainability. Its scalable architecture allows the users to match their investment with different levels of expansion.

Features like redundant power supply, redundant CPUs and hot swappable I/O cards, field isolation ensure high availability of the system. A variety of I/O modules ensure that all type of field inputs and outputs can be interfaced with RTU.

The CPU and all I/O cards, each with their dedicated controllers, provide distributed processing power to the RTU. Implementation of data processing and buffering function at each I/O card ensure that the CPUs processor remains free for execution of other vital functions. Also, addition of more I/O cards has little impact on the CPU processing power.

With its multiple ports and support for a large set of communication protocols, the RTU can communicate with virtually any kind of IEDs like Numerical Relays, Event Recorders, Energy Meters, Governor Controllers, Temperature Scanners, Flow Computers etc.

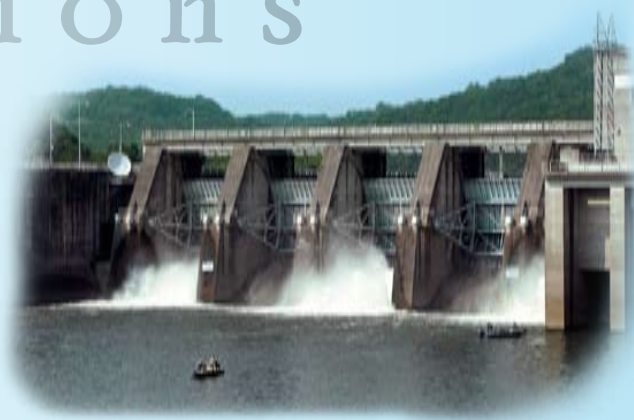


Applications

POWER

Generation- Hydro Power

SIRIUS SCADA system enables the operator to monitor and control a hydro-power plant by integrating with Governor controllers, protection equipment, energy meters, temperature scanners etc. Generating Units are auto-started through a sequence which completes with auto-synchronization of the unit with the grid. A comprehensive protection system ensures the safety of Generators, Transformers and Lines. A tripping in the plant is reported in SCADA system for immediate action and analysis. Events resulting from a tripping, known as Sequence of events (SOE), are time stamped at millisecond resolution for ensuring correct chronology which is essential for trip analysis. SCADA system keeps track of total energy imported/exported to the grid. Reports on total power production, plant's electrical/mechanical parameters, CB trips, line trips are generated.



Transmission & Distribution

SIRIUS can monitor and control power transmission lines, including EHV, HVAC, HVDC systems. Sequence of events recording, monitoring of analog parameters, generation of log sheets, etc. can be performed. Further, different makes/models of SERs, Disturbance recorders can be integrated into SIRIUS for a single point of monitoring/control access. SIRIUS can also act as a slave/master (Inter-Center Communication) for exchange of substation parameters in a hierarchical topology. With support for both proprietary and standard protocols (IEC 870-5, IEC 61850) SIRIUS can be employed in both old and modern substations.

Power distribution substation consist of a number of incoming and outgoing feeders, transformers for stepping up/down the voltage levels, equipment for reactive power control, circuit breakers and isolators etc. SIRIUS based Substation SCADA system performs the following functions:

- Status monitoring of all incoming and outgoing feeder CBs
- Monitoring of all electrical parameters and declaration of alarms
- Control operations
- Keeping track of energy import/exports
- Sequence of Events (SOE) for trip analysis. Time stamping at 1ms resolution
- Interface to protection system
- Comprehensive sets of reports including daily log sheets, voltage profile, CB trip time, Line trip report, disturbance report etc.

Husky RTU has been approved by Northern Region Power Committee for deployment in the Grid Substations.



RAILWAYS

Traction Power Monitoring & Control

SSS has been approved by Indian Railways through RDSO for supply of SCADA system for traction power monitoring and control in its electrified network. SIRIUS SCADA along with its latest generation of Husky RTUs have been deployed on various sections throughout the country. This system is used for remote monitoring and control of traction power distribution in Railway networks. System also helps in day-to-day maintenance of the traction power network by facilitating power block from the remote control room in the sections where maintenance work is to be carried-out. The system also helps in fast restoration of power in cases of failures such as transformer break down, by allowing extension of power from adjacent section. Automatic



Fault Localization function helps in locating and isolating the faulty sections. The system also monitors maximum demand, energy consumption and control of power factor.

OIL & GAS

Pipelines

Cross-Country Pipelines are used to transport crude oil, refined products and gas. SIRIUS SCADA system is installed for monitoring and control of pipeline & brings into its scope Pump Stations, Block Valve Stations, Tap-off-points and Terminal stations set up along the pipeline. SIRIUS SCADA system along with Husky RTUs are installed at each pump station, tap-of-point and terminal station for local monitoring and control of equipment. SCADA system installed at a central location called Master Control Station (MCS) remotely controls various equipment for each station so as to control the flow of oil/gas to terminal locations, as required to meet the daily delivery targets. MCS acquires hydraulic data (Pressure & Flow) and the physical data (Product Densities, Temperatures etc) available from various stations along the pipeline. This data is utilized by SSS's Pipeline Management System for a variety of applications, e.g., Leak detection and location, pig tracking, batch tracking, pipeline simulation etc.



Terminals

Oil companies distribute their refined products to retail outlets and bulk consumers from oil terminals. Such terminals are automated for business and loading operations.

SSS's ITAS is a Terminal Automation System with SIRIUS at its core for oil/gas truck and wagon loading, tank farm management, product dispensing control, product custody transfer monitoring and control. It is also integrated with customers' ERP based product ordering and invoicing system.



Retail Outlets

SSS's Retail Outlet Automation solution consists of Intelligent MPD electronics having capability of vehicle identification, integration with back-end computer system, payment by smart card/credit card enabling its use in self service mode. Tank level measurement system helps in online tracking of product inventory, calculation of water content & pilferage control. Using a back-end computer, operations of all dispensers are monitored. The back-end computer also forecasts demand for various products based on which their orders are placed with company's regional office through a communication link.



EMBEDDED CONTROLLERS

SSS has expertise to design and develop single board computers using embedded controllers. Various applications in higher level programming language using embedded platforms such as embedded Linux / Embedded Windows XP and Windows CE. Embedded controllers can be used as protocol converters, acting as both master and /or slave, supporting industry standard and legacy communication protocols. Taking it further, Synergy is working towards developing application specific intelligent electronic devices (IEDs)



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SYSTEMS & SOLUTIONS

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