Sercos Multi-Vendor Demo 1

Sercos blended infrastructure

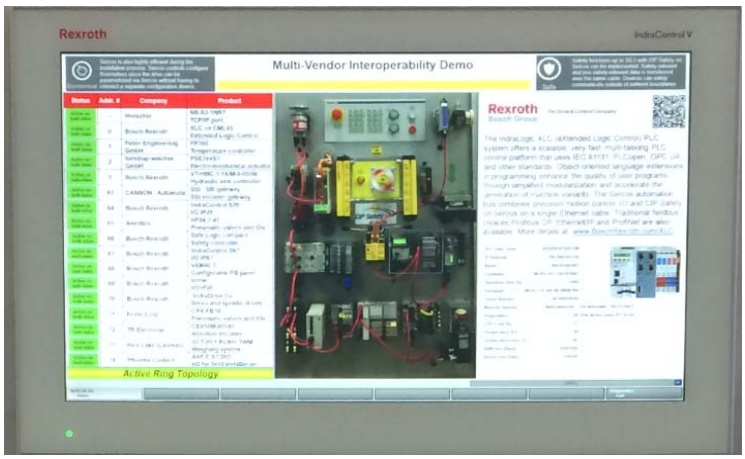
Enables Sercos, EtherNet/IP, TCP/IP and CIP Safety messages to be transmitted over a single Ethernet cable.

Neither additional hardware nor tunneling of the protocols is required for that purpose.

This multi-vendor demo presents several Sercos automation bus user benefits:

- Certified products from numerous vendors work together on the same Ethernet cable
- Maximum Ethernet network reliability with real-time network redundancy
- Proven very fast Ethernet communication
- Easy to understand and use due to IEC standards
- Supports I/O, motion and other peripherals
- Easy, fast and reliable integration of safety functionality with CIP Safety on Sercos
- New possibilities with direct communication (DCC) between network devices
- Configure/troubleshoot a device at any time using Ethernet TCP/IP (UCC) communication, even if real-time Sercos communication is not operating
- Standardized parameters across different products save time in training, setup and troubleshooting
- More at www.sercos.org/technology

Demo use



The user can select the specific products via the touch screen to obtain brief product information. QR-codes link to additional product details.

User interaction is encouraged: rotate the encoders; perform safe motion while light curtain is broken; push on a load cell for readout; command the actuator.

Real-time redundancy can be shown by disrupting and restoring one Sercos connection at a time. The system detects the interruption within one cycle, indicates the point of interruption on the screen, switches to line mode and continues operating. After the Ethernet cable is reconnected, the network heals itself into redundant ring mode within one cycle while all functions continue working.

Product descriptions

A Absolute multi-turn encoder from **TR Electronic** merges seamlessly into Sercos networks. TR Electronic's ultra-long lasting gearbox and high resolution glass main disc detect position changes even without power, independent from counters or batteries. Absolute position values can be read out instantaneously across the Sercos network after re-applying power to the encoder.
http://trelectronic.com/product-category/absolute-rotary-encoders

B The **Bosch Rexroth** IndraControl VAM 10/40 machine control panel features 2x15 short-stroke buttons and programmable LED indicators. Feedrate and spindle speed override switches can be scaled in software. E-stop and power ON/OFF pushbuttons can be wired into the machine's power circuit.
www.boschrexroth.com.

C The **CANNON-Automata** SSI-Gateway is a simple and inexpensive device that allows the connection of SSI absolute encoders from any vendor to the Sercos network, with up to four Sercos real-time data connections. Thus, it is possible to make the acquired position available to any other device connected to the Sercos network – an important feature for applications with master and slave axes, cam profiles, or electronic gears. Position values and measured actual velocity and acceleration can be transmitted. www.cannon-automata.com/index.php?Sercos-SSI-Gateway-en

D **Feller Engineering's** FP160 modular temperature controller with diverse extensions to fit in control cabinets is a multi-channel controller for temperature and process. The user benefits from central/decentralized use, very small footprint design, lower cost, and energy savings. In addition to the Sercos interface, the FP160 features 2- or 3-point controller for 8 or 16 zones, 8/16 inputs (thermocouple or Pt100/2-wire), 16/32 outputs for heating, cooling or alarm functions, and more. fellereng.de/en/portfolio/fp160/

E Sercos real-time Ethernet provides deterministic jitter-free data transmission for control and synchronization. In parallel, standard Ethernet TCP/IP telegrams can be transmitted via the UCC (Unified Communication Channel). The **Hilscher** NS-S3-1NRT Gateway Switch TCP/IP buffers these Ethernet telegrams for communication between the synchronized Sercos and standard Ethernet. Two Sercos Ethernet ports plus one Ethernet port for connection to normal Ethernet devices are provided, maintaining ring topology and avoiding data loss on higher data traffic of Ethernet telegrams.
www.hilscher.com

F **Bosch Rexroth's** IndraDrive platform offers power up to 4 MW, with the lower power range covered by the compact IndraDrive Cs (HCS01). Ethernet connectivity includes the highly synchronous real-time Ethernet Sercos. CIP Safety on Sercos (CSoS) offers easy integration with safety PLCs over one cable. The multi-encoder interface supports common encoder types. It features over 100 technology functions, optional IEC 61131, and PLCopen compliant motion logic. www.BoschRexroth.com/IndraDrive

G **Rice Lake's** compact SCT transmitter is DIN Rail mountable within a cabinet or control panel, where it converts digital scale load cell signals to analog output, serial output, or a specific network protocol, such as Sercos. The SCT has its own .3 inch weight display, with annunciators for unit and weighing status, plus push buttons for zero, tare and set point entry, simplifying scale setup, calibration and operation. www.ricelake.com/products/indicators-controllers/signal-conditioning-transmitter-indicators/sct-20

H The **Festo** CPX-FB39 electrical terminal offers scalable integration into higher-order controllers using the Sercos automation bus. It interfaces with general purpose MPA pneumatic valves, VPPM proportional valves, or ISO standard VTSA valves. Updates are accomplished via the free Festo Field Device Tool software. Channel- and module-oriented diagnostics include module under-voltage, short circuit, trace data, and more. CPX-FB39 provides access to acyclic/cyclic Sercos data, S/IP data, IP addressing via Sercos or operator unit, acyclic startup parameters and more. www.festo.us

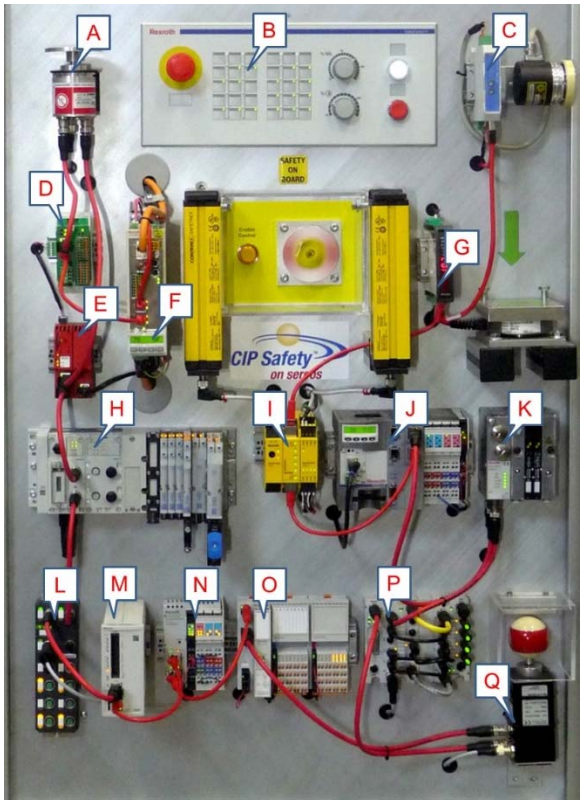
I The SafeLogic compact (SLc) from **Bosch Rexroth** provides safe logic processing in small to mid-range machines. Defined function blocks and graphic wiring simplify configuration and speed up the commissioning process. Using the Sercos gateway module, the safety logic directly communicates to the safety certified IndraDrive using CIP Safety on Sercos and provides status to the supervisory controller, e.g., a PLC. www.BoschRexroth.com/safelogiccompact

J The **Bosch Rexroth** IndraLogic XLC (eXtended Logic Control) PLC system is a scalable, fast, multi-tasking PLC control using IEC 61131, PLCopen, OPC UA and other standards. Object-oriented programming language extensions enhance user programs through simplified modularization and accelerate the generation of machine variants. Via the Sercos automation bus, it combines precision motion control, I/O, and CIP Safety on Sercos on a single Ethernet cable. www.BoschRexroth.com/XLC

K The **Aventics** B-design bus direct control (BDC) module with Sercos interface allows operation of the HF and CD-PI family of pneumatic valve terminal systems, 0.4 to 4.8 Cv flow, on the Sercos bus. Additional control units allow multiple valve systems and discrete wiring of individual valves, all controlled via a single module. The BDC module enables you to set various parameters, configure module diagnostics, and read detailed diagnostics in addition to the onboard diagnostic LEDs. www.aventics.com/

L The **Phoenix Contact** Axioline E series is the I/O system with a block design for easy field installation. Various I/O types are available for today's leading Ethernet systems such as the Sercos automation bus. Exceptionally compact devices are available in two housing variants with different housing materials: plastic and metal. Axioline E is robust, with fast installation and easy handling. www.phoenixcontact.com.

M The functionality of the single-axis HMC controller for hydraulic drives from **Bosch Rexroth** covers many applications. Key features: IndraWorks software for uniform setup; fast control (position, force, pressure, alternating position/force, velocity); fast Ethernet support (Sercos automation bus, PROFINET RT, EtherNet/IP, EtherCAT, PROFIBUS, TCP/IP); digital position transducers (SSI, EnDat2.2, incremental); analog 0 to ±10V and 4 to 20 mA; voltage or current actuating variable output; and PLC according to IEC 61131-3. www.boschrexroth.com/HMC



N **Bosch Rexroth** Inline is a flexibly scalable modular I/O system with IP20 protection for time-saving installation in a control cabinet – locally at the IndraControl L or as distributed I/O stations on the Sercos automation bus. Removable connectors with cage clamps and 1 to 4 wire direct sensor/actor connection make it very compact and easy to install. A wide range of digital and analog I/O, temperature, communi-cation and function module slices with fast performance is available. www.boschrexroth.com

O The **Bosch Rexroth** IndraControl S20 is a state of the art modular I/O system for distributed control topologies. Very fast signal processing at 1µs per module together with the highly synchronous Sercos automation bus provides real-time performance benefits, for both cyclic and acyclic data. Its optimized design for industrial use offers tool-free and simplified direct wiring with easy installation and module exchange. The bus coupler communicates at 100 Mbit/s and supports up to 63 I/O modules, 8-32 channels per module and 1485 bytes of process data. www.boschrexroth.com

P The **Bosch Rexroth** IndraControl S67 enables reliable, cabinet-free installation near the machine, even in harsh environments. A wide range of digital and analog I/O, temperature, communication and function modules with fast performance is available. Built in diagnostics for supply voltage, overload and communication is available on Sercos. Standard M12 and M8 connections ensure quick and secure connections to peripherals. www.boschrexroth.com

Q The **halstrup-walcher** PSE3xxS3 positioning system is an intelligent, compact solution for positioning auxiliary and positioning axes. It consists of an EC motor, gear power amplifier, control electronics, and absolute measuring system connected to the Sercos automation bus. The integrated absolute measuring system eliminates the need for time-consuming homing. Ethernet-based Sercos simplifies the wiring. A hollow shaft with adjustable collar makes assembly quite simple. The product is especially suitable for automatically setting tools, stops or spindles.
https://www.halstrup-walcher.de/en/index.php

Sercos North America • 405 Loblolly Bay Drive • Santa Rosa Beach, FL 32459
Tel: 850/660-1293 or 800/573-7267 • info@sercos.com • www.sercos.com