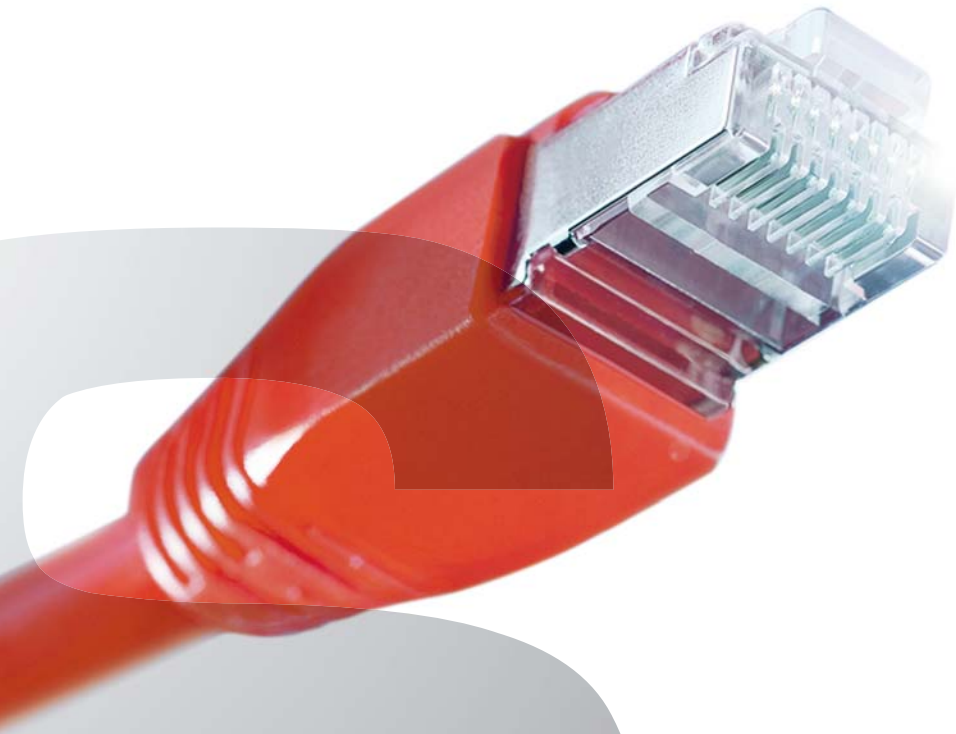**sercos**
the automation bus

Product and
Manufacturer´s Guide

Sercos – the automation bus

Launched at the beginning of the 90s, Sercos® has reached worldwide acceptance in all large automation markets as the de-facto standard for demanding applications with high requirements for dynamics and precision. The basis for its success in all kinds of industries and applications lies in its efficient and deterministic communication protocol. However, Sercos not only specifies a real-time communication system, but also more than 700 standardized parameters, which define the interaction of controls and peripheral devices in multi-manufacturer systems. This is the basis for interoperability of devices from different manufacturers.

Today, more than 4 million Sercos real-time nodes are in use.

9x
Advantages of Sercos

Proven

- Sercos is an open, international standard (IEC 61784, IEC 61158, IEC 61800-7)
- Consistent backwards compatibility assures long term investment protection
- Leading automation vendors support Sercos with broad product portfolios
- High acceptance of Sercos technology in many industries particularly in demanding applications
- More than 4 million real-time nodes in over 500,000 applications are currently in use – and the numbers are growing day by day
- Standard Ethernet is used as the physical layer and protocol

Simple

- Sercos devices can easily be configured and commissioned
- Easy servicing as the protocol automatically detects the device and where it is connected in the topology
- Easy wiring, as neither the physical order of the devices nor the order of connection of the two Sercos ports is relevant

Fast

- High speed due to the use of Fast Ethernet (100 Mbit/s Full-Duplex)
- Short runtimes: Collective frames, "on the fly"-processing and direct cross communication reduce the runtimes through the network to a minimum
- Selectable cycle time: The communication cycle can be varied between 31.25 µs and 65 ms

Efficient

- Hot-plugging without interfering the real-time or synchronization functions
- Optimal utilization of bandwidth via collective frames and multiplexing techniques
- All Ethernet-based protocols (including office communication) can be transmitted in parallel to real-time data via the same cable

Reliable

- Communication redundancy assures greater machine up-time
- Sub-microsecond synchronization accuracy assures deterministic and synchronous communication throughout the Sercos network
- Sercos automatically offers fail-safe communication: A cable break is detected within 25 µs, so at most the data from only one cycle could be lost
- Robust cabling using copper or fiber optics

Economical

- Sercos energy: saving energy while still achieving full productivity
- Machine controls can switch components into energy-saving conditions
- Intelligent controls, axes and components can be switched off when idle

Flexible

- Flexible network topologies (ring, line, star/tree)
- Comprehensive device profiles for all sorts of automation devices
- Innovative communication functions, e.g. direct cross communication and ring redundancy

Safe

- Safety functions up to SIL3 according to IEC 61508 can be implemented with CIP Safety on Sercos
- Safe and non-safe data are transmitted via the same cable
- The routing capability of CIP Safety supports safe device communication across network boundaries
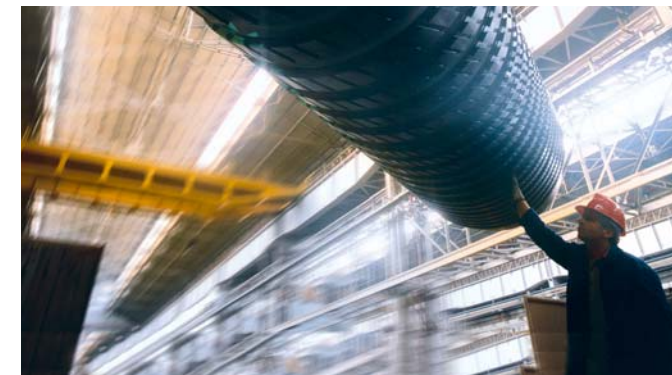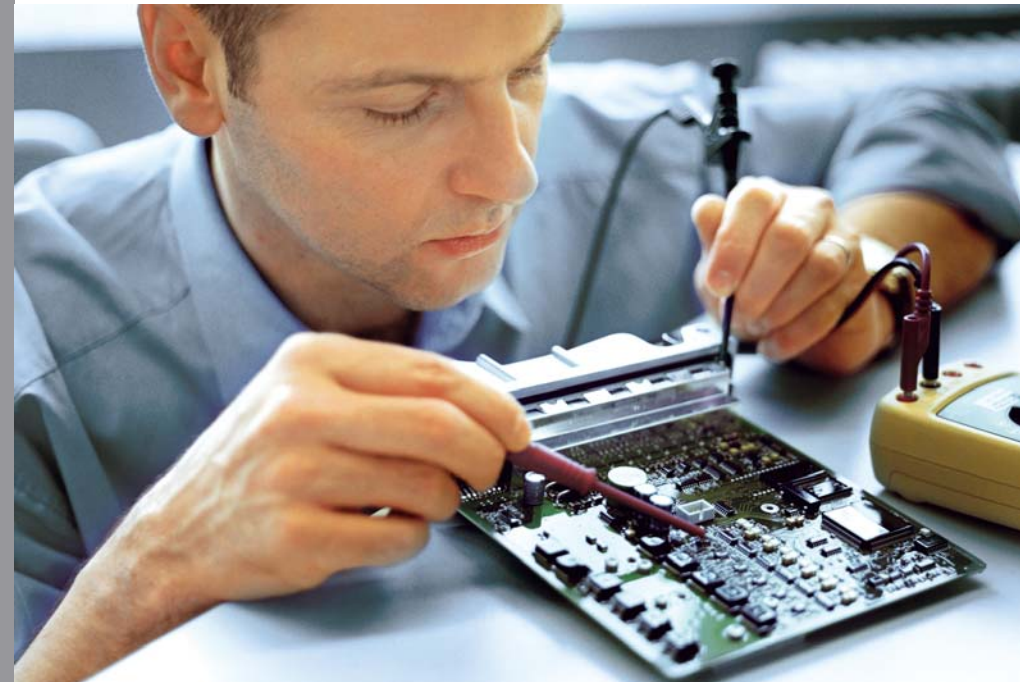
Independent

- Sercos is a manufacturer independent technology: all rights regarding the Sercos technology are with the user organization Sercos International e.V.
- Specifications are maintained and enhanced by non-proprietary working groups
- Specifications are openly accessible
- No membership needed to use the Sercos technology

Simple implementation of Sercos

Manufacturers can easily integrate Sercos into their own systems. Various hardware and software options are available for this. Sercos connectivity is provided by a communication controller based on an FPGA logic chip, or a general-purpose multiprotocol Ethernet controller, or on a standard Ethernet controller (soft master). FPGA devices of the major FPGA manufacturers are supported. The Sercos IP core is licensed from Sercos International and is provided either as a bitstream or as a netlist. The later option allows the combination of the Sercos IP core with other IPs (e.g., CPU core, PCI core) to realize SoPC (System on a Programmable Chip) solutions. Hilscher's netX multiprotocol Ethernet controller supports Sercos master and slave connectivity. The netX controllers are available in a number of versions which cover the performance spectrum from simple I/O controllers and drives to master controllers and control systems.

Fully assembled hardware boards can be used to connect standard PCs to a Sercos network. Versions are available with a dedicated CPU (active boards) and without a CPU (passive boards). Cards are integrated via common bus systems such as PCI or SPI. To make the transition to Sercos even easier, PCI boards for standard PCs, along with master or slave software, are available for training purposes. Several companies offer drivers or protocol stack software for master and slave implementations on different operating systems. Furthermore, training, consulting and support are offered.

Using a soft master, a Sercos master can be implemented without any special hardware. Standard Ethernet controllers are used instead of the specific Sercos hardware. Sercos specific hardware functions are moved to the hardware-related and real-time capable part of the master driver. Thus, a master can be fully implemented in the software. Such a concept is interesting for PC-based control platforms that have an "onboard" Ethernet interface.
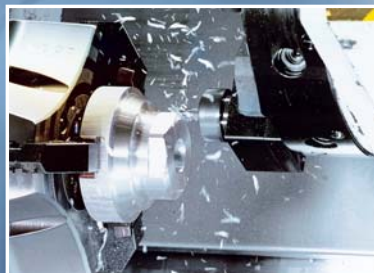
Certification of Sercos devices

Sercos devices are tested in the certification laboratory of Sercos International e.V. at the University of Stuttgart. The Sercos Conformizer certification tool is also made available to manufacturers that have an interest in ensuring the best possible quality and conformity of their Sercos devices. Twice a year, Sercos International e.V. organizes free PlugFests in which interoperability tests are executed by the device manufacturers.

Safety

CIP Safety on Sercos is a reliable protocol to transfer safety-relevant data via Sercos. It was defined along with the ODVA (Open DeviceNet Vendor Association) and is certified up to SIL 3 in accordance with IEC 61508. CIP Safety on Sercos is especially easy to use, as safety-relevant information is transferred in real-time along with the standard process data. This does away with the need for a separate safety bus, which reduces the costs for hardware and installation. Besides, there is another advantage to integration of the drive, peripherals, and safety in the same network: It permits reliable communication on all network levels and even peer-to-peer and cross-network communication is possible.

Product Guide
Sercos II

Manufacturer	Complete Automation Package	CNC/Soft CNC	Motion Control/Soft Motion	PLC/Soft PLC	Drives/Frequency Converters	Modular & Compact I/Os	Other Devices	Development Tools/Software Tools	Controllers/HW Boards/Eval.Kits	Drivers/Stacks	Cables/Plugs/Optical Components	Engineering/Training/Testing Services
3S-Smart Software Solutions GmbH — www.codesys.com		■	■	■				■				
ABB — www.abb.com					■							
ACD Antriebstechnik GmbH — www.acd-elektronik.de		■	■		■							
Alexandria Technical College — www.camc-online.org												■
AMK Arnold Müller GmbH & Co. KG — www.amk-antriebe.de			■	■	■							
Amphenol-Air LB — www.amphenol-airlb.de											■	
andron GmbH — www.andron.de	■	■			■							
Automata GmbH & Co. KG — www.cannon-automata.com			■	■				■	■	■		■
Avago Technologies — www.avagotech.com											■	
Axystems Ltd. — www.axy-systems.com			■		■							
B&R Industrie Elektronik GmbH — www.br-automation.at			■	■								
Bachmann electronic GmbH — www.bachmann.at	■	■	■		■							
Baumüller Nürnberg GmbH — www.baumueller.com	■		■		■							
Beckhoff Automation GmbH — www.beckhoff.com	■	■	■	■	■	■			■			
Bosch Rexroth AG — www.boschrexroth.com	■	■	■	■	■	■		■	■		■	
BWO Elektronik GmbH — www.bwo-elektronik.de		■							■			
Consysta Automation AG — www.contraves-drives.com					■							
Control Techniques Ltd. — www.controltechniques.com					■							
Cranfield Precision — www.cranfieldprecision.com		■										
DLR, Institut für Robotik — www.op.dlr.de/FF-DR					■							
Dresden Elektronik GmbH — www.dresden-elektronik.de			■	■								
E.C.S. S.p.A — www.ecsitaly.it	■	■	■		■							
Eckelmann AG — www.eckelmann.de		■	■	■								
Ehret GmbH & Co. KG — www.ehret.de											■	
ESA/GV S.r.l. — www.esagv.it		■										
ESR Pollmeier — www.esr-pollmeier.de					■							
Etel S.A. — www.etel.ch			■		■							
Eurolan GmbH — www.eurolan.de											■	
Fagor Automation S. Coop. — www.fagorautomation.com	■	■	■		■							
Festo AG & Co. KG — www.festo.com					■							
FIDIA S.p.A. — www.fidia.it		■										
Föhrenbach GmbH — www.foehrenbach.com	■	■			■							
Friedrich Lütze GmbH & Co.KG — www.luetze.de						■					■	
G&L Motion Control Inc. — www.glcontrols.com			■		■							
Harmonic Drive Antriebstechnik GmbH — www.harmonicdrive.de					■							
Hilscher GmbH — www.hilscher.com								■	■	■		■
Hitachi IES Co., Ltd. — www.hitachi-ies.co.jp					■							
Honeywell International Inc. — www.honeywell.com											■	
IBH Automation GmbH — www.ibh-automation.de			■	■								
Industrial Fiber Optics, Inc. — www.i-fiberoptics.com											■	
Industrial Indexing Systems, Inc. — www.iis-servo.com	■		■	■	■							
Industrielle Steuerungstechnik GmbH — www.isg-stuttgart.de		■	■							■		■
ISW Institut für Steuerungstechnik — www.isw.uni-stuttgart.de												■
Janz Automationssysteme AG — www.janz.de									■			
KEB GmbH — www.keb.de					■							
KEBA AG — www.keba.com			■	■					■			
Kollmorgen Europe GmbH — www.kollmorgen.com			■	■	■							
KW-Software GmbH — www.kw-software.com			■	■				■				
LinMot (NTI AG) — www.linmot.com					■							
LTi DRiVES GmbH — www.lt-i.com	■	■			■							
LWL-Sachsenkabel GmbH — www.sachsenkabel.de											■	
Manz AG — www.manz.com			■									
MDSI — www.mdsi2.com		■	■									
Optronic AG — www.optronic.ch		■									■	
Parker Hannifin Corp. — www.parker.com					■							
Phoenix Contact GmbH & Co. KG — www.phoenixcontact.com			■	■		■					■	
Power Automation AG — www.powerautomation.com		■									■	
Prima Electro S.p.A. — www.primaelectro.com	■	■	■									
ProCom GmbH — www.procom.de		■										
Ratioplast-Optoelectronics GmbH — www.ratioplast.de											■	
Robotic Systems Integration Inc. — www.roboticsys.com			■									■
Rockwell Automation, Inc. — www.rockwell.com	■		■		■							
Sanyo Denki Co. Ltd. — www.sanyodenki.com	■		■		■	■		■				
Schleicher Electronic GmbH & Co. KG — www.schleicher-electronic.com		■	■	■								
Schleifring und Apparatebau GmbH — www.schleifring.de											■	
Schneider Electric — www.schneider-electric.com	■		■	■	■							
Sercos International e.V. — www.sercos.de									■	■	■	■
Servotronix Motion Control Ltd. — http://www.servotronix.com			■									
Smitec S.p.A — www.smitec.it	■		■	■	■	■	■					
SoftPLC Inc. — www.softplc.com			■	■						■		
Souriau SAS — www.souriau.com											■	
ST Microelectronics — www.st.com											■	
Stögra Antriebstechnik GmbH — www.stoegra.de					■							
Tews Technologies GmbH — www.tews.com											■	
Triomotion Technology — www.triomotion.com	■		■		■							
VIPA GmbH — www.vipa.de						■						
Yaskawa Electric — www.yaskawa.com			■									

This information is subject to revision without notice.

Product Guide Sercos III

Column legend: C1 = Complete Automation Package · C2 = CNC/Soft CNC · C3 = Motion Control/Soft Motion · C4 = PLC/Soft PLC · C5 = Drives/Frequency Converters · C6 = Modular & Compact I/Os · C7 = Other Devices (e.g., Sensors, Laser) · C8 = Gateways/Switches · C9 = Development Tools/Software Tools · C10 = Controllers/HW Boards/Eval.Kits · C11 = Drivers/Stacks/Soft Master · C12 = Transceivers/Cables/Plugs · C13 = Engineering/Training/Testing Services

Manufacturer	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
3S-Smart Software Solutions GmbH www.codesys.com		■	■	■					■				
acontis technologies GmbH www.acontis.de											■		■
Altera GmbH www.altera.com										■	■		
AMK Arnold Müller GmbH & Co. KG www.amk-antriebe.de			■	■	■								
andron GmbH www.andron.de	■	■				■							
Automata GmbH & Co. KG www.cannon-automata.com			■	■				■	■	■	■	■	■
Axystems Ltd. www.axy-systems.com						■							
B&R Industrie Elektronik GmbH www.br-automation.at					■								
Beckhoff Automation GmbH www.beckhoff.com					■								
Bihl+Wiedemann www.biehl-wiedemann.de							■	■					
Bosch Rexroth AG www.boschrexroth.com	■	■	■	■	■	■	■	■	■	■	■		■
Broadcom Corp. www.broadcom.com											■		
Cobham Sliprings www.cobham.com							■				■		
Cortina Systems, Inc. www.cortina-systems.com											■		
Cranfield Precision www.cranfieldprecision.com		■											
Dürr Systems GmbH www.durr.com			■			■							
EBV Elektronik GmbH & Co. KG www.ebv.com										■	■		
Eckelmann AG www.eckelmann.de	■	■	■	■	■	■							
Ernst & Engbring GmbH & Co. KG www.eue-kabel.de												■	
ESCHA Bauelemente GmbH www.escha.de												■	
Fagor Automation S. Coop. www.fagorautomation.com	■	■	■		■								
Feller Engineering GmbH www.fellereng.de						■							
Festo AG & Co. KG www.festo.com					■								
Foba Technology + Services GmbH www.foba.de							■						
Friedrich Lütze GmbH & Co.KG www.luetze.de												■	
halstrup-walcher GmbH www.halstrup-walcher.com			■										
Harmonic Drive Antriebstechnik GmbH www.harmonicdrive.de			■										

Manufacturer	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
HARTING Electronics GmbH www.harting.com								■				■	
Hilscher GmbH www.hilscher.com									■	■	■	■	■
HMS Industrial Networks www.anybus.com											■		
Industrial Indexing Systems, Inc. www.iis-servo.com	■		■	■	■								
Industrielle Steuerungstechnik GmbH www.isg-stuttgart.de		■	■										■
Institut für Steuerungstechnik www.isw.uni-stuttgart.de									■				■
IXXAT Automation GmbH www.ixxat.de									■	■	■		■
JVL Industri Elektronik www.jvl.dk					■								
KEBA AG www.keba.com	■		■	■	■								
Kollmorgen Europe GmbH www.kollmorgen.com					■								
Kunbus GmbH www.kunbus.de											■		■
KW-Software GmbH www.kw-software.com			■	■					■				
Lapp Holding AG www.lappgroup.com												■	
Lattice Semiconductor Corp. www.latticesemi.com										■	■		
LAUMAS Elettronica S.r.l. www.laumas.com								■					
Leoni AG www.leoni.com												■	
LinMot (NTI AG) www.linmot.com					■								
LTi DRiVES GmbH www.lt-i.com					■								
Manz AG www.manz.com			■		■								
Maxim Integrated Products, Inc. www.maxim-ic.com												■	
Metronix Meßgeräte u. Elektronik GmbH www.metronix.de					■								
Moog GmbH www.moog.com/industrial					■								
Murrelektronik GmbH www.murrelektronik.de												■	
Opdi-tex GmbH www.opdi-tex.de							■						
OSADL eG www.osadl.org											■		
Phoenix Contact GmbH & Co. KG www.phoenixcontact.com									■	■	■		■
Pilz GmbH & Co. KG www.pilz.com									■	■			

Manufacturer	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
Port GmbH www.port.de													■
Prima Electro S.p.A. www.primaelectro.com		■	■	■									
Profimatics GmbH www.profimatics.de												■	■
Ratioplast GmbH www.ratioplast.de												■	■
Renesas Electronics Corp. www.renesas.com													■
RIE-TECH GmbH www.rie-tech.de							■						■
Rovema Verpackungsmaschinen GmbH www.rovema.com			■										
Sartorius AG www.sartorius.com							■						
Schleicher Electronic GmbH & Co. KG www.schleicher-electronic.com		■	■	■	■	■			■	■			
Schneider Electric www.schneider-electric.com	■		■	■	■	■							
SCHUNK GmbH & Co. KG www.schunk.com							■						
Sercos International e.V. www.sercos.de										■	■	■	■
SEW Eurodrive www.sew-eurodrive.com					■								
SIKO GmbH www.siko.de					■		■						
Smitec S.p.A www.smitec.it	■		■	■	■	■	■				■		
Stäubli Robotics www.staubli.com	■		■				■						
Steinbeiszentrum TZ Systemtechnik www.steinbeis-tzs.de											■	■	■
Sybera GmbH www.sybera.de					■						■	■	■
Texas Instruments www.ti.com											■	■	■
TR-Electronic GmbH www.tr-electronic.com							■						
Vision & Control GmbH www.vision-control.com							■						
Wago Kontakttechnik GmbH & Co. KG www.wago.com						■							
Weidmüller GmbH & Co. KG www.weidmueller.com												■	
Xilinx Inc. www.xilinx.com											■	■	
Yamaichi Deutschland GmbH www.yamaichi.eu												■	

This information is subject to revision without notice.

List of Manufacturers and their product offerings

The Sercos interface provides the flexibility of configuring multi-vendor control systems with plug and play interoperability. Designers are not limited to products from one manufacturer, but are free to choose the best-in-breed to solve their individual automation applications.

The following section lists Sercos products from a number of manufacturers. For more information, please visit www.sercos.org.

AMK Arnold Müller GmbH & Co. KG

Antriebs- und Steuerungstechnik

Gaußstr. 37 - 39

73230 Kirchheim/Teck - Germany   www.amk-antriebe.de

AMKASMART servo controller iX

The iX series includes servo controllers with high-voltage intermediate circuits in a range from 2 kVA to 5 kVA and comes with an excellent level of protection and vibration resistance. In the iDT series, the servo controller is directly installed on the motor. Real-time Ethernet communication takes place via Sercos III or Ethercat.

3S-Smart Software Solutions GmbH

Memminger Straße 151

87439 Kempten - Germany

📞 : +49 831 54031-0

www.codesys.com

CODESYS Development System

CODESYS – The manufacturer-independent IEC 61131-3 automation software from 3S-Smart Software Solutions.

andron GmbH

Schlätterstraße 2

88142 Wasserburg - Germany

📞 : +49 8382 9855-0

📠 : +49 8382 9855-50

www.andron.de

andronic 3060 high-dynamic CNC control with Sercos interface

As PC-based high-end CNC control, the andronic with Sercos III interface is known for its extremely high processing speed and the openness of the system. Machine tools which are continuously advanced by the latest machine and processing technologies require ever increasing performance of CNC control units. Quick data processing, short block cycle times, high computational accuracy and interpolation speed are important prerequisites which must be fulfilled by quick machine tool control systems.For years, andron has been focusing on the highest performance, and with the andronic series, it offers high-end CNC control systems with Sercos III interface for demanding applications of all kinds.

AUTOMATA GmbH & Co. KG
Gewerbering 5
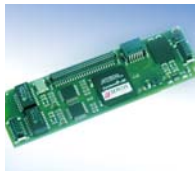86510 Ried - Germany

📞 : +49 8233 7916-0
🖨 :+49 8233 7916-99
info@automata.de
www.cannon-automata.com

A2-PAC
The A2-PAC is a programmable automation controller with scalable performance (Intel Atom up to i-Series CPUs), Sercos III master, CAN, onboard I/Os, CoDeSys IEC 61131-3 or C/C++, 3 different panel interfaces and various expansion options (field busses, WLAN, 2nd LAN, ...)

ALTERA FPGA module
The FPGA module is assembled with an ALTERA Cyclone III FPGA, 8 MB FLASH and 8 MB SDRAM. It is designed to be used as intelligent Sercos III master or slave interface with onboard NIOS II CPU in field devices or for development purposes in combination with the EVAL board 700383x0.

B4
The B4 is a Programmable Automation Controller (PAC) with various real-time Ethernet and field bus interfaces. Features: Intel® AtomTM CPU up to 1.6 GHz, Sercos III (optional Ethercat or Profinet), CAN (optional Profibus), fast integrated IOs, integrated watchdog, IEC 61131-3 or C/C++.

EVAL board 700383x0
The EVAL board is designed as hardware platform for the various FPGA modules with Sercos III master or slave interface. The board has 16DI and 16DO over pin headers and a socket for extension modules (e.g. analog IOs, CAN). It is ideal for the development of Sercos III slave devices.
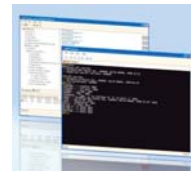
F3-PAC
The F3 is a Programmable Automation Controller (PAC). It combines the capabilities of a PC based control system with that of a typical PLC and motion control. Features: Intel® AtomTM CPU up to 1.6 GHz, Sercos III master, onboard or remote IOs, IEC 61131-3 or C/C++, Automata panel interface.

LATTICE FPGA module
The FPGA module is assembled with a LATTICE ECP3 FPGA, 8 MB FLASH and 8 MB SDRAM. It is designed to be used as intelligent Sercos III master or slave interface with onboard Lattice Mico32 CPU in field devices or for development purposes in combination with the EVAL board 700383x0.

MDT-Parser
MDT-Parser is a PC based Sercos III master with integrated script language to verify slave implementations and for system and production end test. The tool runs under Windows® XP/7/8 on any standard PC and includes full Sercos III master functionality with real-time capability.

OptinJect
OptinJect is a PC based control dedicated to plastic processing machines. The all-in-one solution consists of a control unit with onboard IOs and an easy to customize operator panel. Additional IOs or drives can be connected over Sercos III or CAN. OptinJect is programmable with CoDeSys.

PCI 700311x0
The Sercos II PCI board 700331x0 is available with 1 or 2 interfaces based on the SERCON816 ASIC. Each interface can be used as master or slave interface. Software: CoDeSys, SERCdrv, SERCslave.
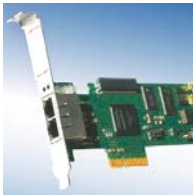
PCI 7003530x

The Sercos III PCI board 7003530x is available with 1 or 2 interfaces based on XILINX XC3S400 FPGAs. Each interface can be used as master or slave interface. An optional 64 kByte NVRAM is available. Software: CoDeSys, MDT-Parser and a free of charge Windows® XP Sercos III master DLL.

PCI 7003678x

The Sercos III PCI board 7003678x is available with 1 or 2 interfaces based on an ALTERA EP3C16/40 FPGA. Each interface can be used as master or slave interface. Options: DMA, 512 kB NVRAM, onboard CPU with 8 MB FLASH, 8 MB RAM. Software: MDT-Parser and a free of charge Windows® XP Sercos III master DLL.

PCIe 7003880x

The Sercos III PCIexpress board 7003880x is based on an ALTERA Cyclone IV FPGA. The interface can be used as Sercos III master or slave. Options: DMA, 512 kB NVRAM, onboard CPU with 8 MB FLASH, 8 MB RAM. Software: MDT-Parser and a free of charge Windows® XP Sercos III master DLL.

S3MDRV

S3MDRV is a Sercos III master communication stack available as 'C' source code. Thanks to its independence from any OS or HW platform it is easy to port and has low resource consumption. S3MDRV is based on the Common Sercos master (COSEMA).

S3SDRV

S3SDRV is a Sercos III slave communication stack available as 'C' source code. Thanks to its independence from any OS or HW platform it is easy to port and has low resource consumption. A wide range of SCP and GDP classes as well as SMP, S/IP and multi sub-device capability are already included.

SCS3 24DI 16DO

The SCS3 device family is a compact, modular control and I/O-System with Sercos III interface. The SCS3 24DI 16 DO is available as Sercos III slave with fast and highly synchronous IOs or as low-cost master programmable with CoDeSys IEC 61131-3 or C/C++.

SCS3 MTR

The SCS3 device family is a compact, modular control and I/O-System with Sercos III interface. The SCS3 MTR is available as modular Sercos III slave able to carry various IO and field bus modules or as low-cost master programmable with CoDeSys IEC 61131-3 or C/C++.

SMC3
RT-Ethernet Stepper Motor Controller

sercos drive profile
Positioning mode
Open-loop or closed-loop mode
Onboard I/Os
2-phase stepper motor interface

AUTOMATA GmbH & Co. KG

info@automata.de
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CANNON AUTOMATA

SERCdrv

SERCdrv is a Sercos II master communication stack available as 'C' source code. Thanks to its independence from any OS or HW platform it is easy to port and has low resource consumption. SERCdrv is based on the SERCON816 ASIC and is multi master capable.

SERCslave

SERCslave is a Sercos II slave communication stack available as 'C' source code. Thanks to its independence from any OS or HW platform it is easy to port and has low resource consumption. SERCslave is based on the SERCON816 ASIC and is multi sub device capable.

Service

Automata develops and produces Sercos III hardware and software components for use in drives, controls, sensors/actuators and IO systems as well as complete automation devices. Well known manufacturers like Phoenix Contact, WAGO, LTi, Festo, MANZ etc. trust in our Sercos III competence.

SMC3

The SMC3 is a compact stepper motor controller with Sercos III slave interface. Features: Sercos III drive profile, open-loop and closed-loop mode, positioning function, onboard IOs, 2-phase stepper motor interface with max. 6 A current per phase.

SSI-Gateway 70069300

The SSI-Gateway allows to connect any standard SSI encoder to the Sercos III bus. Features: FSP-Encoder, Preset & DIR outputs, 2 diagnostic inputs, 24VDC or 5VDC encoder power supply.

CANNON AUTOMATA

TopoExtension 70069200

The Sercos III TopoExtension was designed for the simple extension of the ring topology on large or modular machines across multiple electric cabinets. It also allows to connect slave devices over a single cable with integrated power supply.

XILINX FPGA module

The FPGA module is assembled with a XILINX Spartan 3 FPGA, 8 MB FLASH and 8 MB SDRAM. It is designed to be used as intelligent Sercos III master or slave interface with onboard MicroBlaze CPU in field devices or for development purposes in combination with the EVAL board 700383x0.

AVAGO TECHNOLOGIES

Avago Technologies Fiber GmbH
Wernerwerkstrasse 2
93049 Regensburg   www.avagotech.com

HFBR-2555AFZ Sercos 650 nm optical receiver

The new Avago Technologies HFBR-2555AFZ Sercos 650 nm optical receiver with SMA port is housed in a dual-in-line metal package that is high strength. The package is designed for auto-insertion and wave soldering so it is ideal for high volume production applications. Thanks to its integrated PhotoDiode and its very symmetric layout, Avago HFBR-2555AFZ shows exceptional EMI performances. Low current consumption and low PWD will satisfy your most tough design requirements. It supports Sercos 4, 8 and 16 MBd. We recommend our HFBR-1505AFZ transmitter for operating with the HFBR-2555AFZ receiver.

BECKHOFF

Beckhoff Automation GmbH

Eiserstr. 5

33415 Verl - Germany

📞 : +49 5246 963-0

www.beckhoff.com

BK7520 | Sercos Bus Coupler

The Bus Coupler BK7520 connects the Sercos bus system with the electronic terminal blocks, which can be extended in modular fashion. With the K-bus extension technology, up to 255 Bus Terminals can be connected to one Bus Coupler.

Digital Compact Servo Drives AX2000/AX2500

Fully digital Servo Drives as an intelligent backbone.
Servo Drives from the AX2000/AX2500 series are integrated as components of drive systems in electrical equipment or machines. The devices drive the brushless Synchronous Servomotors AM2000 and Linear Servomotors AL2000 with regulation of torque, speed or position. The digital Servo Drives are available in two versions. The AX2000 series is a powerful variant with Servo Drives designed for nominal current of up to 70/80 A. The AX2500 series Servo Drives are modularly expandable and optimised for applications where space is tight. The maximum nominal current is 6 A. Both series are fully software-compatible among each other and are integrated in the TwinCAT control software.

EK9700 | Sercos Bus Coupler for Ethercat Terminals

The EK9700 Bus Coupler connects Sercos III networks to the Ethercat Terminals as well as the Ethercat Box modules and converts the telegrams from Sercos III to the E-bus signal representation. The coupler is connected to Sercos III via RJ 45.

FC750x | PCI Sercos interface

The Sercos interface PCI Fieldbus Cards from Beckhoff allow direct access to the SERCON816-ASIC. The driver for these passive cards is incorporated into the TwinCAT software and allows optimum access to the Sercos interface.

Bihl + Wiedemann

Bihl+Wiedemann GmbH

Flosswoerthstr. 41

68199 Mannheim - Germany

📞 : +49 621 339960

www.bihl-wiedemann.com

AS-i 3.0 Sercos Gateway

- Gateway in a stainless steel housing
- 1 AS-i master
- Ethernet programming and diagnostic interface
- Expanded Bihl+Wiedemann AS-i diagnostics including recognition of duplicate AS-i addresses, AS-i earth fault detector and AS-i noise detector

AS-i 3.0 Sercos Gateway with integrated safety monitor and Safe Link over Ethernet

- Single gateway with safety monitor for 2 AS-i networks, 32 release circuits
- 2 relays and 2 electronic safe outputs
- Safe Link over Ethernet:
  - Collect and evaluate nearly 2000 safe, 2-channel input signals
  - Centralized or decentralized

AS-i 3.0 Sercos Gateway with integrated safety monitor, CIP Safety on Sercos

CIP Safety for 2 AS-i networks: indicate AS-i Safety input slave over CIP Safety, switch AS-i Safety output slave over CIP Safety

- 2 AS-i masters, version
  „1 gateway + 1 power supply for 2 AS-i networks"
- Switch 6 safe outputs SIL 3, Cat. 4 in the device via CIP Safety
- Support of safe outputs in both AS-i networks
- With Ethernet diagnostic interface

Rexroth
Bosch Group

Bosch Rexroth AG
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr - Germany

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info@boschrexroth.de
www.boschrexroth.com

4WRxD

Integrated axis controller for high-response valves
from Bosch Rexroth.
- Best-in-Class control
  - valve-integrated axis-control
  - easy installation and quick start-up
  - compact design
- High performance valve program
  - wide range of products with approved technology

BDC-B

Sercos bus coupler for pneumatic valve manifolds
- Bus Direct Control (BDC) architecture is the most simple,
  yet very flexible solution
- First choice for general automation applications
- 4 output bytes (32 coils or outputs)
- Several valve terminal systems of different sizes

Compact System CS351

Sercos-capable compact single-channel controller for Rexroth electric
nutrunner (torque and angle of turn controlled)
- Secure and fast commissioning
- Tightening results at a glance
- Sturdy: IP54, EMC severity level IV
- USB and Ethernet based bus systems

Rexroth
Bosch Group

DDL Buscoupler

Sercos bus coupler for pneumatic valve terminal systems,
electro-pneumatic converters and analog or digital I/O blocks
- Drive & Diagnostic Link (DDL) architecture offers sophisticated
  diagnostics
- First-Choice for Proportional Control, CL03, sophisticated
  diagnostics and/or minimum node configuration

HNC 100

Motion-Controller for hydraulic axes from Bosch Rexroth.
- Robust for tough industrial environments
- Supports decentralised motion control and CNC
- Control loop closed in HNC100

IndraControl L25

The IndraControl L25 is a compact, modular and scalable control for
usage in PLC and Motion Control based applications with low and mid-
range requirements. I/O expansion can be performed with modular
I/O units. Sercos is the standard communication interface for the
complete control peripherals like drives and I/O.

IndraControl L40

The IndraControl L40 is a compact, modular and scalable control
for usage in PLC, Motion Control and CNC applications with
mid-range and high requirements. I/O expansion can be performed
with modular I/O units. Sercos II is the standard communication
interface for the drive control.

IndraControl L45

The IndraControl L45 is a compact, modular and scalable control
for usage in PLC, Motion Control and CNC applications with
mid-range requirements. I/O expansion can be performed with
modular I/O units. Sercos is the standard communication interface for
the complete control peripherals like drives and I/O.

Rexroth
Bosch Group

IndraControl L65

The IndraControl L65 is a compact, modular and scalable control for usage in PLC, Motion Control and CNC applications with high requirements. I/O expansion can be performed with modular I/O units. Sercos is the standard communication interface for the complete control peripherals like drives and I/O.

IndraControl L85

The IndraControl L85 is a compact, modular and scalable control for usage in CNC applications with extended requirements. I/O expansion can be performed with modular I/O units. Sercos is the standard communication interface for the complete control peripherals like drives and I/O.

IndraControl S20 bus coupler

Sercos bus coupler for the I/O component family from Bosch Rexroth providing:
- Fastest signal processing (1µs per module)
- Robust electromechanics
- Simple wiring
- Low EMC emission (EN 55022 class B) and best robustness

IndraControl S67 bus coupler

Sercos bus coupler with 8 digital inputs for the IndraControl S67 I/O component family from Bosch Rexroth.

IndraControl XM21

IndraControl XM21 with Sercos on-board. This controller is characterized by its robust and modular design. In connection with fastest I/O processing, standard PLC and Motion-Logic application with medium to high performance requirements are feasible.

IndraControl XM22

IndraControl XM22 with Sercos on-board. This controller is characterized by its robust and modular design. In connection with fastest I/O processing, standard PLC and Motion-Logic application with highest performance requirements are feasible.

Ingenious solution, freedom in engineering } Exactly

OPEN CORE ENGINEERING

Freedom and efficiency redefined
Open Core Engineering increases software engineering efficiency and offers an unprecedented level of freedom through extended access to the control core: Independent creation of customized functions with high-level languages, simultaneously running on your firmware as well as on smart devices. Differentiate yourself from your competition and protect your expert knowledge.

10 TENTH ANNIVERSARY

HERMES AWARD 2013

Bosch Rexroth AG
www.boschrexroth.com/oce

The Drive & Control Company

Rexroth
Bosch Group

Rexroth
Bosch Group

IndraDrive C

Compact Servo Drive System from Bosch Rexroth.
- Continuous power from 1.5 kW to 630 kW
- Maximum current from 12 A to 1540 A
- Compact design for single-axis applications
- Can be connected to inverters for cost-effective solutions
- Extremely high overload capacity
- Direct mains connection from 200 V to 500 V

IndraDrive Cs

Compact Servo Drive from Bosch Rexroth.
- Power range from 100 W to 9 kW
- Extremly compact design
- IEC-compliant motion logic IndraMotion MLD
- Integrated safety technology STO (Safe Torque Off)
- Compliant with EN 13849-1 Cat. 4 PL e and EN 62061 SIL 3

IndraDrive M

Modular Servo Drive System from Bosch Rexroth.
- Single-axis inverter with maximum current from 20 A to 350 A
- Double-axis inverter with maximum current from 12 A to 36 A
- Power supplies with power from 15 kW to 120 kW
- Space-saving design for multi-axis applications

IndraDrive Mi

Cabinet free Drive Technology from Bosch Rexroth reduces control cabinet size up to 90% and also needs 90% less wiring due to hybrid cable technology. Reduction in power required to cool control cabinet by up to 90%. Optimum integration into Sercos based automation systems as those of Bosch Rexroth. Multi-Ethernet communication for alternative automation environments.

IndraDrive ML

Modular und compact frequency converter with single power stages from 110 kW up to 500 kW and by parallel operation up to 4 MW. For realization of simple drive tasks up to complex motion tasks with asynchronuous and synchronuous motors.

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Bosch Group

IndraLogic XLC

IndraLogic XLC is the homogenous overall solution comprising state-of-the-art control hardware, PLC functionality, Motion Control, and Ethernet-based real-time communication for all applications in general automation.

IndraMotion for Handling

Turnkey Automation Solution for All Handling Tasks from Bosch Rexroth. Ideal system solution for efficient coordinated-axis motion in fully-automated production environments. Easy handling with ready-to-go HMI devices, configurator for the machine and programming language for Sequential Motion Control.

IndraMotion for Metal Forming

IndraMotion for Metal Forming is the highly productive system solution for presses, shears and blanking lines.

IndraMotion for Packaging

Flexible Automation Systems for Food and Packaging Machines from Bosch Rexroth.

IndraMotion for Printing

Innovative Automation Solution for the Printing and Converting Industries from Bosch Rexroth.

IndraMotion MLC

The compact Motion Logic system Rexroth IndraMotion MLC with Logic, Motion and Robot Control provides you with the freedom necessary for continuous and modern machine automation. Innovative software and firmware functions with easy engineering and open interfaces offer you maximum flexibility in all motion applications with real-time.

Rexroth
Bosch Group

IndraMotion MLD

Drive-Based Automation Solution for Single-Axis and Multi-Axis Applications from Bosch Rexroth. IndraMotion MLD combines motion and PLC functions to form modular machine designs. Compact systems of up to 4 I/Os, as well as modules in a complex system, that demand extremely precise and fast drive synchronization are controlled with IndraMotion MLD.

IndraMotion MTX

Scalable CNC solution for universal machine tools and high performance machining centers provides up to 64 axes in 12 independent CNC channels. Multi core processor and large memory assure optimal performance for sophisticated Applications in Turning, Milling, Grinding, Toothing and Laser-Cutting.

IndraMotion MTXmicro

Compact turn-key CNC turning and milling solution
- Compact, maintenance-free, all-in-one system especially for standard milling and turning machines
- Drives for up to 4 axis already integrated
- Integrated operating panel with display, ASCII-keyboard, machine operating panel, Ethernet, USB, 32 DI/16 DO
- Up to 3 additional axes via Sercos III

IndraSize

IndraSize – the user-friendly program for drive sizing – is the quickest way to find the optimum drive for your machine. Regardless of whether you are using a conventional servo axis or direct drive, IndraSize allows you to define the ideal motor/drive combination in a few steps.

Inline block I/O analog

Sercos Inline Block I/O module with 2 analog inputs and 2 analog outputs.

Rexroth
Bosch Group

Inline block I/O digital

Sercos Inline Block I/O module with 16 digital inputs and 16 digital in- or outputs.

Inline Sercos axes module

Sercos axes module for interfacing of electro-hydraulic axes.

Ingenious solution, freedom in engineering } **Exactly**

OPEN CORE ENGINEERING

Freedom and efficiency redefined
Open Core Engineering increases software engineering efficiency and offers an unprecedented level of freedom through extended access to the control core: Independent creation of customized functions with high-level languages, simultaneously running on your firmware as well as on smart devices. Differentiate yourself from your competition and protect your expert knowledge.

Bosch Rexroth AG
www.boschrexroth.com/oce

The Drive & Control Company

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Rexroth
Bosch Group

Rexroth
Bosch Group

Inline Sercos bus coupler

Sercos bus coupler with local digital inputs and outputs
for the I/O component family from Bosch Rexroth.

NYCe 4000

Integrated system solution for the semiconductor and solar industry.
- Wide range of motors and encoders supported
- Integrated drive cards to control different motor types (<1 kW)
- Sercos III master to control external drives (>1 kW)

PSI 63C0 Inverter

The integrated system for perfect resistance welding.
- High reliability achieved through the use of well tried
  and tested technology
- Flexibility for retrofitting function and module
- 100% quality control and documentation of spot welds
- Innovative functions for process monitoring

SafeLogic

Complete safety PLC as a function module. Overall width of 20 mm,
safety solutions up to Cat. 4 PL e (EN ISO 13849-1) or SIL 3 (IEC 62061)
and with an integrated system expansion with max. 96 safe devices.
The PLC offers distributed safe digital input/output and relay modules
with internal evaluation of feedback contacts.

SafeLogic compact

Compact safety controller with safe logic processing up to
Cat. 4 PL e (ISO 13849) or SIL 3 (IEC 62061), CPU modules with/
without EFI interface and interface modules for system integration
(standard & safe Sercos slave (CIP Safety on Sercos) and standard
Profinet, Profibus slave). The controller offers also digital input/output
modules and relay modules with feedback contacts.

Rexroth
Bosch Group

SERCANS III

The active PC plug-in card with Sercos III master functionality
supports up to 128 nodes and is independent from any operating
system. It offers a redundancy function, synchronizes several cards
and has a minimal cycle time of 125 μs.

Sytronix FcP 7010

Frequency-Controlled Pump Drive System
- System pressure control and open loop axis control in
  open hydraulic circuits
- Allows constant pressure and open loop p/Q-control

Sytronix SvP 7010

Servo Variable Pump Drive System
- Closed loop axis control for open and closed hydraulic circuits
- Allows control of pressure, flow, force, velocity, position including
  alternating control
- Power: Up to 60kW

VAM 10.3/40.3

Machine control panels for standardized machine tools with interface
for Sercos III including:
- Feed and spindle override
- 2×15 short stroke keys
- External handwheel connection
- Additional 16 inputs and 16 outputs

EBVElektronik
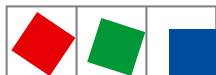I An Avnet Company I

EBV Elektronik GmbH & Co. KG

Im Technologiepark 2 - 8

85586 Poing - Germany

📞 : +49 8121 774-0

info@ebv.com

Sercos III Slave Development Board DBC5CEFA7 (EBV MercuryCode)

The DBC5CEFA7 (MercuryCode) is an Altera® Cyclone® V development board with several I/O transceiver for industrial communication purposes.

ECKELMANN AG

Berliner Str. 161

65205 Wiesbaden - Germany

📞 : +49 (0) 611 71 03-0

www.eckelmann.de

Controller E°EXC 88

This new generation of controllers for PLC, motion, and CNC applications is impressive due to its small dimensions, low power consumption, and the large instruction set of the CNC kernel.

E°Darc

FPGA based servo controller for applications of 2 kW to 16 kW. Operation and control of linear motors and of synchronous and asynchronous motors with high resolution motor feedback. Connection to control unit via Sercos III bus and CAN-Bus.

E°EXC66/H43: CNC with Sercos III interface

Embedded Controller for CNC, motion control and PLC applications. As ENC66 for CNC applications with additional NC-operating system, standard HMI and NC-programming. Real-time Ethernet interface with two connectors (Sercos III).

E°EXC66/H43: Motion controller with Sercos III interface

Embedded Controller for motion control, PLC and CNC applications. As EMC66 for motion control applications with additional motion library according to PLCopen. Real-time Ethernet interface with two connectors (Sercos III).

E°EXC66/H43: PLC with Sercos III interface

Embedded Controller for PLC, CNC and motion control applications. As ELC66 for PLC applications with CoDeSys, IEC 61131-3 compatible. Real-time Ethernet interface with two connectors (Sercos III).

E°XBM-Module system

Fast, easy to install and robust I/O-System with Sercos III bus coupler and a growing number of modules. Digital and analog IO-modules and special function modules (such as counter/incremental encoder).

ESCHA

ESCHA Bauelemente GmbH
Elberfelder Str. 32
58553 Halver - Germany

📞 : +49 2353 708-800
🖨 : +49 2353 708-400
www.escha.de

ESCHA's connector and wiring portfolio for Sercos

ESCHA – as an expert for connectivity – offers a complete portfolio for Sercos III networks. The Sercos product portfolio offers manufacturers as well as users the right wiring components according to the Sercos specification.

FELLER ENGINEERING

FELLER ENGINEERING GmbH
Carl-Zeiss-Str. 14
63322 Rödermark - Germany

📞 : +49 6074 8949-0
🖨 : +49 6074 8949-49
www.fellereng.de

FP160 Multi-Channel Temperature Controller

The FP160 temperature controller is a 16-series product.
A single processor can be used to set up 8 or 16 zones for 2-point or 3-point control. The default interface RS485 with FE3 protocol enables a direct connection to operator panels or higher level systems. Users can also select an optional extension featuring an Ethernet interface compatible with Sercos III and other protocols.

halstrup walcher

halstrup-walcher GmbH
Stegener Straße 10
79199 Kirchzarten - Germany

📞 : +49 7661 3963-0
www.halstrup-walcher.de

Sercos III for intelligent positioning systems from halstrup-walcher

Drive systems from halstrup-walcher with a Sercos III connection can be integrated seamlessly into real-time ethernet solutions, allowing users to precisely synchronize positioning axes.
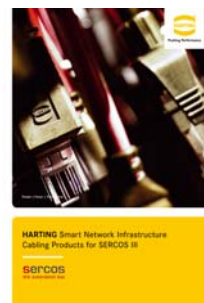
HARTING

HARTING Electronics GmbH
Marienwerderstraße 3
32339 Espelkamp - Germany

📞 : +49 30 56582782
🖨 : +49 30 56582858
www.HARTING.com

HARTING offers a range of cabling products for profilespecific infrastructure that are tailored to Sercos III applications. The cabling components are designed and tested to deliver reliable performance in harsh industrial environments. The connectors reflect HARTING's extensive experience in connector design. Continuous shielding of the cable and connection components provides effective protection against electromagnetic interference.

Hilscher Gesellschaft für
Systemautomation mbH

Rheinstr. 15

65795 Hattersheim - Germany

📞 : +49 6190 9907-0

info@hilscher.de

www.hilscher.com

all-purpose circuit board

NXIO 100-RE all-purpose circuit board from Hilscher.

cifX - PC card as Sercos interface

Intelligent Sercos master or slave card for PC based automation. Data exchange to the host process is carried out via Dual-Port Memory or by DMA transfer. cifX is available in all common form factors and supports all major real-time Ethernet protocols on a single hardware.

comX - Sercos as flexible Communication Module

comX is a complete network interface in the standardized compact dimension of 30 mm x 70 mm. It is based on netX 100 network controller and contains all network specific components, like 2-Port Switch, Hub and connector. Data exchange to the host is carried out via 16kByte Dual-Port Memory and all major real-time Ethernet protocols are supported as master or slave on a single hardware.

IO-Link

Hilscher's development board with an integrated IO-Link master controller supports 8 IO-link channels and a Sercos III slave interface. The board is based on a Hilscher netX 51 network controller. Intelligent sensors and actuators can thus be easier and faster integrated into the established Sercos automation bus via the IO-Link communication.

netAnalyzer

NANL C500-RE netAnalyzer PCI-Card real-time-Ethernet from Hilscher.

netBRICK 100 - IP67 Sercos III Gateway

Continuous communication for your plant – upgrade existing installations to Sercos III with a netBRICK gateway. Robust design for direct field mounting, extended temperature range support and the approval for use in hazardous locations are its key benefits. netBRICK features the conversion to all major industrial networks as master or slave.

netIC - Sercos slave as compact DIL-32 module

netIC is a complete 'Single Chip Module' in the dimensions of a compact DIL-32 IC. It is based on netX 50 network controller and contains all network specific components of a fieldbus or real-time Ethernet interface with integrated 2-Port Switch and Hub. Data exchange to the host process is carried out via a simple serial port and all major real-time Ethernet protocols are supported as slave on a single hardware.

netJACK - Sercos as Exchangeable Module

netJACK is a complete network interface as closed IP40 module. It is based on netX technology and can be mounted via slide-in mechanism without tools at any point of the delivery chain. Data exchange to the host is carried out via PCI-Express Bus or traditional Dual-Port Memory. All major real-time Ethernet protocols are supported as master or slave on a single hardware.

netSWITCH for Sercos III

NS-S3-1NRT netSWITCH with Ethernet-Port for Sercos III from Hilscher.

netTAP 100 - IP20 Sercos III Gateway

netTAP 100 blows protocol boundaries. Whether it's master or slave for Profibus, CANopen, DeviceNet, Modbus RTU, ASCII, 3964R or netSCRIPT there will be a suitable conversion solution available for your Sercos III application. netTAP 100 features transparent data transfer between the protocols, is compatible with all major PLCs and is easy to commission with a common FDT/DTM based configuration tool.

netX – Network Controller

The netX network controller family is the intelligent solution for implementing all proven fieldbus and real-time Ethernet systems in a minimum of space. The diversity and flexibility of this controller enable you to implement any type of use case needed in factory automation, thereby opening the doors to all industrial automation markets.

Sercos III Support

As one of the world leaders in industrial communication we offer our customers and partners free technical support. If you have questions to our products or you need for example support during putting into operation or you have programming questions, then you can contact us:
- via email (info@hilscher.de)
- via phone (+49 (0) 6190 9907-0)
- after verbal arrangement via phone and internet

HMS Industrial Networks GmbH

Emmy-Noether-Str. 17

76131 Karlsruhe - Germany

📞 : +49 721 989777000

www.anybus.de

Anybus® NP40™ – New multi-network processor

The Anybus NP40 is a cutting-edge network processor, especially suitable for high-end real-time industrial Ethernet applications with fast network cycles and synchronization demands.

Communication module for Sercos III

The Anybus CompactCom module for Sercos contains the complete functionality required for a Sercos III network interface and works as a slave on the network. The functionality of the interface is according to the Sercos FSP IO Profile. The integrated microprocessor offloads the host processor from all communication tasks.

ISG - Industrielle Steuerungstechnik GmbH

Rosenbergstraße 28

70174 Stuttgart - Germany

📞 : +49 711 22992-30

🖨 : +49 711 22992-25

www.isg-stuttgart.de

Real-time simulation software ISG-virtuos

The real-time simulation software ISG-virtuos operates 100% synchronously to the control cycle. Replace real hardware by close-to-reality simulation models – and all the sudden, a 30t machine fits on your notebook!

Institut für Steuerungstechnik der Werkzeugmaschinen und Fertigungseinrichtungen (ISW)

Seidenstraße 36

70174 Stuttgart - Germany

📞 : +49 711 685-82410

www.isw.uni-stuttgart.de

Sercos III conformance test software

Sercos III conformance test software to perform conformance tests for Sercos III slave and CIP Safety on Sercos devices.

Sercos MultiSlave Emulator

The Sercos MultiSlave Emulator is a versatile, PC-based software tool that supports machinery and control manufacturers as well as system integrators.

IXXAT

Member of the HMS group

IXXAT Automation GmbH
Leibnizstr. 15
88250 Weingarten - Germany   www.ixxat.com

CIP Safety protocol stack for Sercos

The CIP Safety software for the third generation of Sercos uses the SMP (Sercos Messaging Protocol), which enables the representation of the CIP data and services on configured, cyclic data containers in the Sercos telegram. Due to the modular architecture of the CIP Safety protocol software, the stack can be used for Sercos III as well as for EtherNet/IP without any restrictions.

Engineering Services

Based on our years of experience in the Industrial Ethernet area, we support our customers with development and consulting services.

Industrial Ethernet Module (IEM)

The IEM enables the easy implementation of Sercos into customer specific devices. At this, the module provides the communication stack running on the FPGA softcore as well as the Ethernet ports with RJ45 connectors. In addition, the IEM is offered as design-in solution.

Safety consultation

Safety Cooperation between Sercos International and IXXAT Automation GmbH.

KEBA

Automation by innovation.

KEBA AG
Gewerbepark Urfahr   📞 : +43 732 7090-0
4041 Linz - Austria   www.keba.com

FX 271/A

Sercos III master module for installation in a KEBA K2-200 (CP 250, CP 260) control.

KeControl C3 - CP 330/360 («Cube»)

Combination of a high-performance industrial PC and an embedded system.
- Robot control, visualization, closed-loop control, image processing and standardized PLC on one single control system
- CP 330 (short)/CP 360 with 2 PCIe

KeControl from KEBA

Integrated overall solution to control machines and robots.

Sercos III drives

Drives from the KeDrive series D2, D4, and D6 offer complete drive technology for every application.

Sercos master onboard on a PLC

Sercos III master integrated in a KEBA K2-200 (CP 240, CP 3xx) control. Thanks to the hard connection of the Sercos III cycle to the PLC cycle, the motion functions of the drive are always synchronous with the control and regulation functions.

KOLLMORGEN
Because Motion Matters™

KOLLMORGEN Europe GmbH
Pempelfurtstraße 1
40880 Ratingen - Germany

📞 : +49 2102 9394-0
🖨 : +49 2102 9394-2155
www.kollmorgen.com

AKD® Advanced Kollmorgen Servo Drives

The Kollmorgen AKD® Series includes a complete range of Ethernet-based servo drives that are fast, feature-rich, flexible and easy to integrate into any application. These next-generation drives offer plug-and-play commissioning for instant, seamless access to everything in your machine.

KUNBUS
industrial communication

KUNBUS GmbH
Heerweg 15C
73770 Denkendorf - Germany

www.kunbus.de

KUNBUS-COM

The KUNBUS-COM (slave) communication Sercos interface products are the evolution of the KUNBUS-IC family. The KUNBUS-COM modules simply can be plugged into the control board or can be connected by cable.

KW software

KW-Software GmbH
Langenbruch 6
32657 Lemgo - Germany

📞 : +49 5261 9373-0
🖨 : +49 5261 9373726
www.kw-software.com

Technology for Automation Leaders

KW-Software is a leading international provider in the field of software development for automation. As leading supplier in the industry, we have been developing software technologies for the global players in automation for more than 30 years. Our products prove their quality and reliability on a daily basis in hundreds of thousands of automation systems. The range of the applications comprises almost all industries.

LATTICE
SEMICONDUCTOR

Lattice Semiconductor Corporation
5555 N.E. Moore Court
Hillsboro, Oregon 97124-6421 - U.S.A

📞 :+1 503 268-8000

Lattice FPGA Module (ECP3)

The FPGA module is assembled with a LATTICE ECP3 FPGA, 8 MB FLASH and 8 MB SDRAM. It is designed to be used as intelligent Sercos III master or slave interface with onboard Lattice Mico32 CPU in field devices or for development purposes in combination with the Automata EVAL board 700383x0.

Sercos III Eval-Kit with Lattice FPGA (ECP3)

The EVAL-kit consists of a FPGA module with the LATTICE ECP3 FPGA, a carrier board with 16DI/16DO and a socket for extension modules (e.g. analog IOs, CAN). It is ideal for the development of Sercos III slave devices. The FPGA module has 8 MB FLASH and 8 MB SDRAM and the softcore µP Mico32.

LAUMAS ELETTRONICA
Innovation in Weighing

LAUMAS Elettronica S.r.l. 📞 : +39 0521 683124
Via I Maggio, 6 🖨 : +39 0521 681091
43022 Montechiarugolo (PR) sales@laumas.it
Italy www.laumas.com

Weight transmitter TLB Sercos III

TLB Sercos III is a weight transmitter fitted with an Ethernet Sercos III port for PLC connection. The TLB Sercos III is a user friendly weight transmitter suitable for any industrial automation. Saving space shape, OIML R76 and OIML R61 approved, fitted with a 24bit converter, a display to visualize the weight, a keyboard for the calibration, 2 logic inputs, 3 relay outputs, an RS485 port and an Ethernet Sercos III port for the PLC connection.

LinMot®

NTI AG
LinMot & MagSpring
Haerdlistrasse 15 📞 : +41 56 4199191
8957 Spreitenbach - Switzerland www.linmot.com

LinMot - Servo Drives C1250/E1250/E1450

Servo drives for Industrial linear Motors, AC-Servomotors
and DC brushless motors.
24-72VDC: C1250/E1250
3 x 200 - 480 VAC: E1400

LTi

LTi DRiVES GmbH 📞 : +49 6441 966-0
Gewerbestr. 5-9 info@lt-i.com
35633 Lahnau - Germany www.lt-i.com

ServoOne – High Performance Servodrive

- ServoOne AC-single axis system from 4 A up to 450 A
- ServoOne DC-multi axis system from 4 A up to 450 A
- DC-power supply units from 26 up to 360 kW
  with active energy efficient power regeneration
- Overload capability up to 300%
- Programmable functional safety system according SIL3/PLe as option
- Sercos II or Sercos III types with cycle times up to 125 μs

ServoOne junior – High Performance Servodrive

- 3 A up to 8 A rated current at 1/3 x 230 V
- 2 A up to 20 A rated current at 3 x 400 V
- 300% overload capability
- Safe Torque Off (STO) according SIL3/PLe integrated
- Integrated PLC according IEC61131-3 standards
- Sercos II or Sercos III types with cycle times up to 125 μs

Manz AG

Steigaeckerstr. 5
72768 Reutlingen - Germany

: +49 7121 900-0
www.manz.com

Manz ServoDrive

- Sercos III
- 15-48VDC BUS
- 7 Amps cont./12Amps peak
- Dimensions: 117 × 84 × 22mm
- Brushless, Stepper or Brush-Type DC motors
- Current, velocity or position modes
- Switching frequency up to 100 kHz
- Separated logic and BUS power supplies

Multi Axis Motion Controller

- Open and modular machine control system
- PC based architecture (CPU type: ATOM/Celeron)
- High performance motion control capablilities
- Up to 64 axes interpolated
- Extensive robot support
- Integrated high speed I/Os
- Comprehensive development environment
- Programming options:
  - Open real-time Basic interpreter programming
  - IEC 61131-3 conform based on CoDeSys
- Ethernet, Sercos III, Profibus, CanOpen, Ethercat, serial, etc.
- Optional: Teach pendant, machine vision, GUI, drives, metrology features

Metronix Meßgeräte und Elektronik GmbH

Kocherstr. 3
38120 Braunschweig - Germany

: +49 531 8668-0
www.metronix.de

ARS 2000 FS

(designed for Functional Safety)
- Short cycle times down to 31µs
- 4-times over-current
- Integrated motion controller*

- Sercos II + Sercos III supported*
- IPO-cycle < 1ms
- Functional safety according to EN 61800-5-2 supported*

(* = optional)

Moog GmbH

Hanns-Klemm-Strasse 28
71034 Böblingen - Germany

: + 49 7031 622-0
www.moog.com/industrial

Programmable Multi-Axis Servo Drive System (MSD)

Servo Drives provide fully digital control over position, velocity or torque for synchronous, asynchronous, linear or torque servo motors. Moog specializes in high performance Servo Drives with a wide selection of power sizes that are flexible to work with a variety of machine designs. Higher performance machines can mean a real advantage in productivity and profitability and Moog's Multi-Axis Servo Drive System is a key enabler in achieving this objective. This integrated family of products provides the highest levels of dynamic response, smooth performance and application versatility. This system includes both modular and single-axis servo drive options, a common shared power supply and a motion controller to coordinate the motion across multiple axes.

opdi-tex GmbH
Wir bringen Maschinen das Sehen bei

PHŒNIX CONTACT
INSPIRING INNOVATIONS

opdi-tex GmbH

Gewerbering 9
86922 Eresing - Germany

📞 : +49 8193 937103
www.opdi-tex.de

opdi-SK2 kompakt

Stereo-smart-camera with integrated Ethernet and Sercos interface.
opdi-tex GmbH's smart stereo camera with integrated image processing offers numerous options for production and tool monitoring. It may be used as a:
- stereo camera
- stereo camera with synchronized pattern beamer
  for recognition or as a
- multiple photoelectric switch, replacing up to 30 photocells at once
Unlike common reflex switches, this camera is able to detect and track the distance to an object or marker.

PHŒNIX CONTACT
INSPIRING INNOVATIONS

PHOENIX CONTACT GmbH & Co.KG

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32825 Blomberg - Germany

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www.phoenixcontact.com

Axioline E

Thanks to the SPEEDCON rapid interlock system, the I/O-System for field installation enables fast installation. The extremely vibration and shock-resistant housings are available in two versions: metal and plastic. Suitable marking material and clear signaling make the system even easier to handle.
- Digital functions and IO-Link
- M12 Power: up to 2 x 12 A in a particularly compact design
- Fast, robust, easy

Axioline F

The world's fastest I/O-System provides the shortest response time as well as synchronized processes. Thanks to Push-in connection technology, Axioline F enables fast installation, has an extremely robust design and mechanics and at the same time, is very easy to handle.
- 1 µs update time per I/O module
- Always synchronous with the higher-level network
- Fast, robust, easy

Inline Block I/O

Especially economic, thanks to the combination of bus connection and high functionality in a compact design.
- 4 analog inputs, can be parameterized
- 2 analog outputs, can be parameterized
- Easy installation, thanks to user-friendly operation and integration
- Flexible, reliable, economic

Inline Block I/O digital

Especially economic, thanks to the combination of bus connection and high functionality in a compact design.
- Easy installation, thanks to user-friendly operation and integration
- 16 digital inputs
- 16 configurable inputs/outputs
- Easy installation, thanks to user-friendly operation and integration
- Flexible, reliable, economic

Inline Block I/O - positioning control for two axes

The module provides motion control for two drive axes:
- Point-to-point positioning controller
- Cam controller
- Homing
- Probe function
For each axis, one drive controller (using +/-10 V signal) and one position encoder (using incremental signal) can be connected to the digital I/Os for the limit and home position switches.

Inline Bus Coupler

According to the principle of "plug-in instead of wiring", the Inline bus coupler provides optimum connectivity to sensors and actuators and maximum flexibility for system concepts.
- Up to 61 Inline terminal blocks can be aligned
- Flexible, reliable, economic

SafetyBridge Technology

I/O modules with integrated SafetyBridge Technology form a flexible safety system – without any need for a safety controller or safe bus system.
- Functional safety for all Sercos machines and systems
- Intelligent logic module with 8 safe outputs
- Can be combined with up to 16 safe I/O modules
- Simple configuration with SAFEconf software
- Certified for use in safety applications up to SIL3
- Controller and network-independent

Prima Electro S.p.A
Strada Carignano 48/2
10024 Moncalieri (TO) - Italy

📞 : +39 011 9899800
sales@primaelectro.com
www.primaelectro.com

10/Series

OSAI 10/Series CNC, by Prima Electro, is an open-architecture with integrated soft PLC and configurable advanced CNC features. Its network-based HMI is fully customizable. OSAI WinMedia Operator Panels range, is the most appropriate user interface.

OPENcontrol

OSAI OPENcontrol new CNC/GMC, by Prima Electro, is an open-architecture, fully customizable at machine code and HMI level, with an integrated soft PLC. OPENcontrol manages a multi-channel architecture controlling up to 64 migrating axes and 24 channels.

Pilz GmbH & Co. KG
Felix-Wankel-Str. 2
73760 Ostfildern - Germany

📞 :+49 711 3409-0
www.pilz.com

PNOZmulti - as simple as a PNOZ, as flexible as a controller

Configurable control systems bridge the gap between classic safety relays and programmable control systems.

Renesas Electronics Europe GmbH
Arcadiastr. 10
40472 Düsseldorf - Germany

📞 : +49 211 6503-0
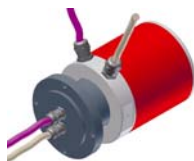www.renesas.eu/automation

Dual-Channel Ethernet PHY Family

Low latency Industrial Ethernet PHY with cable quality tracking, fast link-up, sophisticated link-down recognition and excellent ESD behavior. Comes with a high-accuracy IEEE1588-V2 implementation. Sercos qualified.

RENESAS

Single-Channel Ethernet PHY Family

Low latency Industrial Ethernet PHY with cable quality tracking, fast link-up, sophisticated link-down recognition and excellent ESD behavior. Additional high-accuracy IEEE1588-V2 implementation. Sercos qualified.

RIE-TECH

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🖨 : +49 7771 7010
info@RIE-TECH.de
www.rie-tech.de

Slip ring SRK

RIE-TECH is a manufacturer of electric slip ring systems for transmission of Sercos III. Market-leading gold to gold technology allows the transmission of data as well as current and supply voltage required for the motor, from stationary to rotating parts.

The transmission technology was developped together with Bosch Rexroth. Extensive tests with 2 IndraDrive Mi V2 Drives at RIE-TECH resulted in a function-safe system, enabling to transmit Sercos III data, supply voltage and power from stationary to rotating side.

sartorius

Sartorius
Mechatronics T&H GmbH
Meiendorfer Str. 205
22145 Hamburg - Germany

📞 : +49 40 67960
ext. 303
www.sartorius.com

PR5220/08 Sercos transmitter for scales

Compact solution to connect load cells, platform or process vessel scales. The transmitter provides an easy calibration routine for strain gauges or digital scales. Additional options are EtherNet TCP/IP, serial, digital I/Os or analog outputs.

schleicher
control systems

Schleicher Electronic
GmbH & Co. KG
Pichelswerder Str. 3-5
13597 Berlin - Germany

📞 : +49 30 33005-0
www.schleicher-electronic.com

Machine Control System XCx 1277

The XCx 1277 now enables running applications with 64 interpolated axes and 32 systems. Windows 7 embedded, the Intel i7 Multicore and a 32 GB Solid State Disk all optimize the performance and reduce maintenance costs tremendously. The XCx 1277 is outfitted with a variety of interfaces for communication with peripherals; such as an integrated Sercos III interface.

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control systems

Mobile Operating Unit OP 50M

The first mobile operating unit, for applications with
Sercos III and Ethercat.
Optimum for:
- Setting robots
- Approaching workpieces
- Optimizing the CNC program
- Lighting the working point
- Connecting to controllers independently from the manufacturers

RIO IL S3 BK DI8 DO4

Sercos III field bus module (I/O image V1.1.1)
- 8 inputs DC 24 V
- 4 outputs DC 24 V/500 mA
- 2 x RJ45 connectors

XCx 400

- CNC Controller for 16 interpolated axes
- CNC operating system with synchronous PLC

XCx 800

- CNC Controller for 32 interpolated axes
- CNC operating system with synchronous PLC
- 24 VDC Power supply integrated
- Graphic display
- Ethernet TCP/IP
- Sercos III
- CANopen field bus
- RS232, RS422, RS485
- USB-Device, USB-Host
- 2 × combine I/O (24 V): 6 × inputs (24 V)
- 3 × fast differential inputs (5 V)
- 2 × fast differential outputs (5 V)

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control systems

XCx 1200

Real-life production performance springs from openness, flexibility
and ease of application. The XCx 1200 is the CNC/PLC controller for
complex tasks and the highest requirements of speed and precision.
Wherever a large number of NC axes have to be coordinated and
controlled and an even greater number of sensor signals and actuator
operations processed quickly – machining centres, robots, machine
sequences – that's the place for the XCx 1200.

Schneider Electric

Schneider Electric SAS
Head Office
35, Rue Joseph Monier
F-92500 Rueil-Malmaison,
France

📞 : +33 1 41297000
www.schneider-electric.com

Lexium ILM62 - Integrated Servo Drives

The Lexium ILM62 integrated servo drives require up to 90% less
cabinet space and up to 90% less wiring in the control cabinet. ILM62
servo drives provide 70% shorter cable lengths and open the door to
full modular machine design.

Lexium LXM52 - Stand-alone Servo Drives

The LXM52 series stand-alone servo drives with integrated power
supply have been designed for developing cost-effective drive solutions
in less complex automation solutions with fewer servo axes. LXM52
servo drives are fully software compatible with the Lexium LXM62
multiaxis servo solution and the integrated servo drives of the Lexium
ILM62 series, both designed for PacDrive 3 based automation solutions.

Lexium LXM62 - Multiaxis Servo Drives

The Lexium LXM62 series offers universal single and double servo drives, using a shared power supply. This design provides less space required in the control cabinet and minimized installation times for multiaxis solutions.

Lexium LXM62 130A-Servo Drive

Schneider Electric introduces a servo drive with 130A peak current for main drives and other situations requiring high-performance servo motors. The LXM62 DC130A fits seamlessly into the design of the Lexium LXM62 multiaxis servo drive system in the PacDrive 3 automation solution.

Modicon SLC - Safe Logic Controllers

As a Sercos III slave, the Safe Logic Controller Modicon SLC controls the entire functional safety of a PacDrive 3 solution. The engineering workbench SoMachine Motion includes an IEC 61131-3-editor for programming the two available controller types.

Modicon TM5 - IP20 distributed I/Os

The new Sercos III bus interface for the universal Modicon TM5 I/O-System lets you create IP20 I/O solutions for rapid communication on the Sercos III bus. The available safety I/Os of the TM5 range can be mixed with standard I/Os.
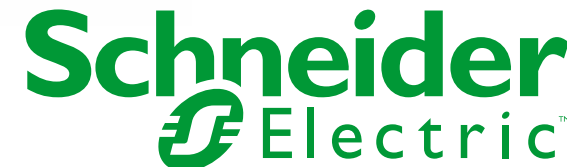
Modicon TM7 - IP67 distributed I/Os

The TM5 I/O-System provides the basis for connecting the IP67 TM7 modules to a Sercos III bus. Up to 25 remote units – TM5 or TM7 modules – can be connected with a TM5 distributed island. TM7 modules are available for safe communication as well.

Schneider Electric SAS
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35, Rue Joseph Monier
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France
Phone: +33 (0) 1 41 29 70 00
Fax: +33 (0) 1 41 29 71 00
www.schneider-electric.com

Schneider Electric's PacDrive 3 technology incorporates the advantages of the latest technologies into a proven concept for controlling modern production, assembly, and packaging machines with a motion/robotic component. PacDrive 3 unifies PLC, IT, and motion functionalities on a single hardware platform and is one of four hardware platforms of MachineStruxure, Schneider Electric´s solution package for general machinery applications. PacDrive 3's scalable controller performance allows economical automation of applications ranging from small systems with only a few servo axes to high-performance solutions with up to 99 servo axes or 30 robots.

With the addition of Sercos III, Schneider Electric has created the first fully Ethernet-based communication solution for PacDrive applications. Enabling communication with both drives and field devices, Sercos III also smoothes the way for the integration of safety automation:
In PacDrive 3, standard communication and safe communication merge into one - Sercos III is the basis. The Safe Logic Controller Modicon SLC permits programming of the safety functions, the Modicon TM5/TM7 safe I/O-System is connecting safety signals to the SLC.

Schneider Electric

PacDrive LMC - Logic Motion Controllers

The PacDrive LMC controllers provide scalable performance for controlling up to 99 servo axes or up to 30 robots. In addition to motion functionality, all controllers combine integrated PLC and IT functionalities on a single hardware platform.

PacDrive LMC 101C, 201C - Logic Motion Controllers

As an integral part of the PacDrive controller family the LMC 101C and LMC 201C refine performance scalability in particular for applications requiring up to eight axes. These controllers are a perfect match for the new Lexium LXM52 stand-alone servo drives.

SERVOTRONIX

SERVOTRONIX
21C Yagia Kapayim st.
Petach Tikva 49130 - Israel

📞 : +972 3 9273832
🖨 : +972 3 9228075
www.servotronix.com

LVD Sercos III

The LVD is a high performance low voltage servo drive in a compact package. This fully digital amplifier is ideal for driving Stepper, Brushed or Brushless DC motors. A high PWM switching frequency combined with state of the art space-vector modulation enables operation with low inductance motors while minimizing current ripple and eliminating acoustic noise.

50 YEARS SIKO

SIKO GmbH
Weihermattenweg 2
79256 Buchenbach - Germany

📞 : +49 7661 394-0
www.siko.de

Actuator AG05

- Easy mounting, no additional coupling needed
- Stainless steel 14 mm hollow shaft, glass fibre reinforced casing
- Brushless 24 VDC motor with long life cycle
- Solid absolute sensor, magnetic sensing technology
- 2-line LCD for target and position value and programming keys
- 2 LEDs for user prompting
- Integral RS485 or CANopen interface
- Integral position controller

Digital Position Indicator AP04

Absolute indicator for quick change over. The device is equipped with a bus interface for transmitting set values and current position as well as programming parameters. AP04 is an absolute position indicator, ie. capturing movements made when power off.

Digital Position Indicator AP04S

Position indicator with bus interface for quick change over. Suitable for direct linear length measurement in combination with magnetic sensor MS500H and magnetic tape MB500.

Remote Display AP24

- For tool change and setpoint setting
- Remote display without actual value measurement
- Control key for acknowledging
- Integrated bus interface (RS485)
- Two-line LCD display
- User guidance via bicolour LED
- M8 plug-in connector

smitec

Smitec S.p.A
Via Vittorio Veneto, 4
24016, San Pellegrino Terme (BG) - Italy

: +39 0345 40876
: +39 0345 40809
www.smitec.it

Contactless Ethernet rotary coupler Ethercap

10/100BASE-T Ethernet rotary coupler for industrial applications, housed in an IP54 tiny aluminium case. Capacitive coupling technology allows high-speed contactless communication between revolving parts on machinery and robots. Tested on high-speed real-time Sercos III protocol, it is ideal for Ethernet-based fieldbuses.

COSMOS 315 X & 325 X Digital Servodrive

High-performance digital servodrive, available for both brushless and asynchronous motors. Designed for challenging applications on modern machinery, it offers extraordinary flexibility thanks to reliable real-time buses, sophisticated control algorithms, flexibility on motors and encoders, integrated braking resistor, and Safe Torque Off SIL-2 function.

D-GATE Digital I/O Module

Digital I/O module housed in a sturdy IP64 plastic case. With 16 software-configurable digital 24 V I/Os, this unit is thought for distributed architecture machines whenvever sensors and actuators are very far from the electrical cabinet and long wiring is undesirable.

Industrial PC with Sercos III bus master

MST S3 is an industrial PC based on Intel x86 architecture with built-in Sercos IIII bus master housed in a very compact plastic case designed for mounting on a standard DIN rail and styled to be perfectly integrated in a FLXMOD TM automation system. It is the ideal complement to build an automation system based on Sercos III fieldbus and FLXMOD TM modules.

STÄUBLI

Stäubli Faverges Robotics World
Headquarters
74210 Faverges (Annecy) - France

Stäubli Tec-Systems GmbH Robotics
Theodor-Schmidt-Straße 19
95448 Bayreuth - Germany   www.staubli.com

uniVAL Drive Software

uniVAL Drive is a "ready to plug" solution to drive Stäubli's entire range of 4 and 6 axis robots with generic industrial multi-axis controllers. Machine builders are now able to drive a Stäubli robot as a standard machine suited for a wide range of applications, with no need for training on a new development environment. In addition, the human machine interface remains the same for the operator.

Steinbeis-Transferzentrum Systemtechnik

Steinbeis-Transferzentrum Systemtechnik

Prof. Keller und Partner   📞 : +49 711 35131-550

Martinstrasse 42-44   info@steinbeis-tzs.de

73728 Esslingen   www.steinbeis-tzs.de

Sercos EasySlave Evaluation Kit

The EasySlave evaluation kit is particularly suited for the quick start to Sercos III slave development. It comes with a development board based on a XILINX Spartan-6 FPGA including required equipment and documentation. Especially the operation with the license-free IP core variant (EasySlave-IO) allows an easy realization of Sercos III slaves.

Sercos Monitor – Analysis of Sercos networks

The Sercos Monitor is an extensive and flexible Windows XP/7 based tool for the analysis of Sercos III networks. It comes with easy-to-use features, providing a quick overview of typical Sercos characteristics, such as topology, communication phases and Service Channel transactions. Furthermore, the Sercos Monitor supports experienced Sercos users to perform profound analysis tasks. For this purpose, it provides various views and filtering mechanisms, which allow a comprehensive evaluation of Sercos telegram contents. In addition, the functionality of the Sercos Monitor may be extended by customers via user-specific plugins.

SYBERA GmbH

Hohenzollernstr. 2   📞 : +49 7031 744-608

71088 Holzgerlingen - Germany   www.sybera.de

SYBERA Sercos III master

The Sybera Sercos III master library for Windows controls IO devices and Drives. With a real-time engine there is no need of a separate controller hardware. The protocol handling is realized directly by a PC hardware with standard Ethernet adapter(s).

X-GO Logic Control

The software Sybera X-GO Logic Control for Windows allows the control of Sercos III fieldbus devices without the need of a separate controller hardware. The protocol handling is realized directly by a PC hardware with standard Ethernet adapter(s).

TEXAS INSTRUMENTS

Texas Instruments Deutschland GmbH

Haggertystr. 1   📞 : +49 8161 80-0
85356 Freising - Germany   www.ti.com

Industrial communications engine (ICE)

Multi-protocol cost and form-factor optimized reference design for
I/O devices and sensors.

The Sitara AM335x ARM® Cortex™-A8 microprocessors include a
Programmable Real-time Unit (PRU) interface created specifically to
enable real-time industrial communications capability (master and
slave) supporting popular protocols, such as Sercos III.

Industrial development kit (IDK)

AM3359 Industrial development kit (IDK) from TI is available for $895.
The IDK is an extensive development platform enabling
customers evaluate all popular industrial communications and
motor control applications. IDK has many different evaluation
options such as 512 MB of DDR2 memory, dual motor drivers, digital
I/O, TMS320F28027 with integrated A/D converters, LM3S5R31
Cortex-M3 Microcontroller, USB, Ethernet, SPI, 12C and much more.

TRelectronic

TR-Electronic GmbH

Eglishalde 6   📞 : +49 7425 228-0
78647 Trossingen - Germany   info@tr-electronic.de
                                          www.tr-electronic.de

Absolute encoder CEV58 with Sercos III

8192 steps/turn, 4096 turns, absolute.
Either as a solid shaft or blind shaft. Available with servo-flange,
clamping flange and further shaft/flange configurations.

VISION & CONTROL

Vision & Control GmbH

Mittelbergstraße 16   📞 : +49 3681 7974-0
98527 Suhl - Germany   www.vision-control.com

pictor® C - Intelligent Camera

The cameras of the pictor® C series are intuitive and easy to operate,
offering a quick and reliable option for entry-level machine vision
solutions. With a fixed inspection process, pre-configured inspection
functions and a Sercos interface, these devices provide effective
solutions for a wide range of machine vision tasks in automation
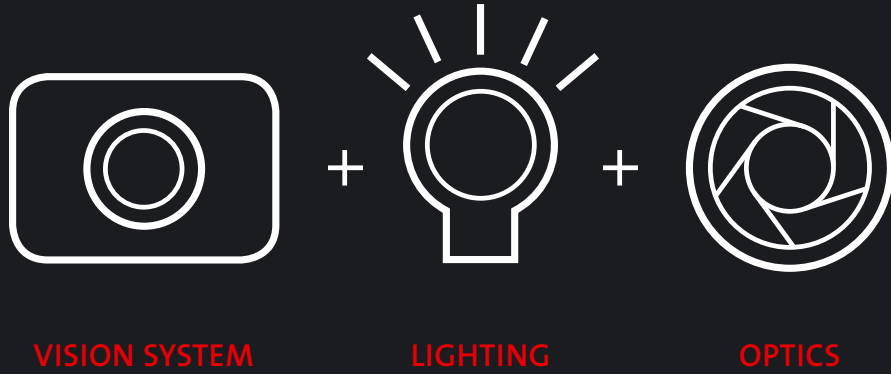engineering.

pictor® T - Intelligent Camera

The cameras of the pictor® T series combine powerful machine vision
solutions with the advantages of industrial real-time communication.
These devices feature clearly organised inspection functions and
straightforward structuring for companies beginning to work with
high-end machine vision. The Sercos interface enables a broad range
of applications for these devices in process automation.

the easy way of machine vision

VISION SYSTEM + **LIGHTING** + **OPTICS**

Vision & Control stands for the new era of user-friendly industrial image processing. For fast integration through perfectly matched components and simple and intuitive startup.

Enjoy personal support from a leading image processing manufacturer.

WWW.VISION-CONTROL.COM

VISION & CONTROL

VISION & CONTROL

vicolux® LED Lighting

The comprehensive vicolux® product portfolio provides the right LED lighting for any machine vision task. High-performance LED lighting guarantees a perfect and stable lighting of the inspection target. Product flexibility and standard components allow fast, tailor-made solutions.

vicosys® 4300 – Multi Camera System

These high-performance, fanless, compact and robust multi camera systems are highly flexible and user-friendly in operation.
They allow the connection of 8 GigE Vision cameras or four FireWire cameras (IEEE1394a/b) with different resolutions; monochrome, colour, thermal imaging, matrix and line scan cameras can be combined on a single device.

vicosys® 4400 – Multi Camera System

These multi camera systems feature the latest processor technology for rapid optical inspection, are highly flexible and user-friendly in operation. They allow the connection of up to four FireWire cameras (IEEE1394a/b) or 16 GigE Vision cameras with different resolutions; monochrome, colour, thermal imaging, matrix and line scan cameras can be combined on a single device.

vicotar® Optics

The outstanding optical properties of our telecentric vicotar® lenses capture every detail of the inspection object reliably and enable high-precision measurements in the µm range. The lens portfolio allows the inspection of objects/test areas from one millimetre to some metres.

"Hard" Real-Time with **sercos**

and WAGO-*SPEEDWAY 767*

WAGO®

sercos fieldbus coupler:
- 8 high-speed digital inputs
- 10 µs delay
- 31.25 µs **sercos** cycle
- Cycle time: 250 µs
- System bus synchronous to fieldbus
- ETHERNET-based real-time communication
- Industry standard to IEC 61158, 61784 and 61800-7
- Channel-by-channel configuration

Digital high-speed I/O modules:
- Versions: 8DI, 8DO, 4DIO
- 10 µs delay
- Channel-by-channel configuration

WAGO Kontakttechnik GmbH & Co. KG

Hansastraße 27   : +49 571 887-0

32423 Minden - Germany   www.wago.com

Sercos field bus coupler 750-351

Sercos field bus coupler from WAGO Kontakttechnik for the I/O-System IO-750. Connects more than 400 IO-interfaces of the I/O-System 750 from WAGO Kontakttechnik to Sercos fieldbus!
- Services: SVC, RTC, CC, IP
- Profiles: GDP_Basic, SCP_VarCFG, SCP_Sync, FSP-IO
- Protocol: Sercos V1.1, TCP/IP, FTP, HTTP

Sercos field bus coupler 767-1311

Sercos field bus coupler from WAGO Kontakttechnik for the I/O-System IO-767 with High-Speed IO.
- High-performance, Ethernet-based real-time communication
- Cycle time: 250 µs (system bus synchronous to fieldbus)
- Industry standard to IEC 61158, 61784 and 61800-7
- Protocols: Sercos v1.2, TCP/IP, FTP, HTTP
- Sercos services: SVC, RTC, CC, IP
- Sercos profiles: GDP_Basic, SCP_VarCfg, SCP_Diag, SCP_WD, SCP_NRT, FSP_IO
- 8 high-speed digital inputs, 10 µs delay, 31.25 µs Sercos cycle
- Channel-by-channel configuration (software filter, inversion, simulation and diagnostics), depends on operating mode

WAGO®

www.wago.com

Weidmüller

Weidmüller

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Industrial Ethernet cord sets

Weidmüller offers all combinations of cables that are possible with the extensive range of plug connections. This means flexibility and robustness through the high quality of the used components. The range comprises standard cables and customer-specific versions.

The Ethernet connector system: clever – flexible

Connectors for modern industrial applications need to be designed in such a way that they simplify processes and cope with faster data transmission. Thanks to the STEADYTEC® Technology in our IP20 and IP67 connectors you can securely plug the connector you need directly into your machinery with very little effort – and without a single tool!

The Weidmüller cable configuration tool

The cable configurator in Weidmüller's online catalogue makes it possible for you to create fully-assembled cables, customised specifically to your requirements and specifications. Different copper and fiber optic connectors from IP20 till IP67 are available. You can combine these connectors with the compatible cable in a standard or individual length.

sercos
the automation bus

Weidmüller

You want secured cabling
We make it easier to you
Let's connect.

High system security acc. to SERCOS-III-installation guideline is your requirement. Profit from the benefits of your **STEADY**TEC® connectors. Innovative contact technologies allow you to assemble the IP20 and IP67 connector easily in the field.

We provide the best connection. Let's connect.
www.weidmueller.com

Service and Consulting

Several service providers offer consultation and support for device manufacturers that do not intend to develop and integrate a Sercos interface completely by their own. The range of services covers development support, training, consultation, testing and even certification of Sercos devices.

www.acontis.com

Solutions for Industrial Automation and Embedded Technology

Real-time Ethernet products and services as well as real-time virtualization solutions for Windows and Linux are the company's core business activities. In close cooperation with Bosch Rexroth, acontis provides Sercos master software integration services for embedded operating systems like VxWorks or Windows CE – especially with regard to TCP/IP communication in combination with Sercos. Professional services also cover standard industrial communication protocols like CAN/CANopen. acontis offers embedded software development for customer-specific bootloaders, board support packages, device drivers and network drivers on various CPU architectures like x86, ARM and PowerPC.

www.cannon-automata.com

Components and tools from the leading Sercos II and Sercos III service provider

Since the introduction of the Sercos standard, Automata has supported device manufacturers in integration of this communication interface. On the basis of this more than 20-year experience, Automata offers components and services for an easy and cost efficient implementation of Sercos master and slave interfaces. Thanks to the status as official Sercos III FPGA solution center Automata is able to design and implement best possible solutions for their customers. Leading manufacturers of I/O-Systems, drives and other field devices rely on Automata's Sercos Know-how. Automata offers its OEM customers a wide range of products and services, from hardware and software component design services, up to the production of complete devices with the Sercos interface – always tailored to the respective application.

www.hilscher.com

netX-based products, technology and services for Sercos II and Sercos III master and slave devices

Hilscher is a ISO 9001 certified manufacturer of fieldbus products headquartered in Germany with subsidiaries in different countries all over the world. Hilscher offers products for many different fieldbus and real-time Ethernet technologies. The product architecture is truly scalable with a single driver interface for both masters and slave interfaces of all networks and all form factors. A single configuration tool SYCON.net is used to configure the different products. Drivers are available for all versions of Windows, QNX, Linux, and RTX, VxWorks, etc. Hilscher offers a broad range of netX-based hardware and software components for Sercos II and Sercos III master and slave devices, as well as Sercos III switch and gateway devices.

www.isw.uni-stuttgart.de

Test and Certification of Sercos devices

Certifications at the Sercos competence center of ISW at the University of Stuttgart are executed with the new Sercos III Conformizer. The Conformizer tool developed at ISW can be used by the device manufacturer before sending the device to the testing laboratory for the certification process. This guarantees a quick certification process of Sercos III devices. The modular and open Conformizer can also be expanded for product- and manufacturer-specific requirements and test. The tool runs on a conventional PC with a free PCI Slot and Microsoft® Windows. ISW also offers research, development, test and education services, and support in the field of Sercos and automation systems in general.

www.ixxat.de

Industrial Ethernet Module (IEM) for Sercos III

IXXAT's IEM enables customers to easily and cost-efficiently connect their devices to Sercos or other industrial Ethernet standards. The module is based on an Altera Cyclone III FPGA and in addition to an integrated 32-bit CPU and an Ethernet controller, it comprises the PHYs, the RJ45 jacks and an optional hub or switch. Using the included programming interface, the customer can connect his device using SPI or a standardized µC-Interface. The Host-API encapsulates the functions of the industrial Ethernet protocol thus the application can be developed independently of the underlying network. In addition, the module is available as a design-in solution. IXXAT offers the development of customer specific hardware and software as well as the implementation of various Industrial Ethernet standards into customer devices.

www.profimatics.de

SoftMaster for Sercos III

Profimatics GmbH is an embedded software system house and TenAsys distributor in Germany. Profimatics is specialized in providing consulting services and products in the areas of software design, hardware selection, system implementation, testing and training. Each member of their technical staff has a minimum of ten years experience in the area of real-time and embedded system software and hardware. Profimatics offers a soft master implementation for Sercos III based on the INtime real-time operating system for Windows.

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www.sercos.de

Sercos International – Vendor-independent training, support and certification

Sercos International is the user organization responsible for the technical development, standardization, certification and commercialization of the Sercos real-time communication standard. At present, more than 4 million Sercos real-time nodes have been implemented worldwide in over 500,000 applications. Sercos International organizes seminars, workshops and PlugFests to educate and support vendors and users with regard to applying the Sercos technology. Furthermore, Sercos International offers conformance testing to help ensure that products built to its specifications operate in multi-vendor systems. The organization, with its headquarters in Germany, presently has more than 70 member companies all over the world as well as regional trade associations in North America and Asia.

Steinbeis-Transferzentrum
Systemtechnik

www.steinbeis-tzs.de

Engineering services for Sercos III specification, development, test and certification

Steinbeis-Transferzentrum Systemtechnik (Steinbeis-TZS) in Esslingen/Germany is providing engineering services related to development and testing of embedded systems, automotive and industrial automation applications. Being one of the official Sercos competence centers, the Steinbeis-TZS supports customers during the specification, development as well as testing, verification and certification of Sercos products. As a member of various Sercos Technical Working Groups, Steinbeis-TZS actively takes part in the Sercos III specification process. In cooperation with Sercos International, Steinbeis-TZS provides an evaluation kit and support for the Sercos EasySlave, an FPGA-based single-chip controller for simple and inexpensive Sercos slave devices. Furthermore Steinbeis-TZS is in charge of the development of the Sercos Monitor, a comprehensive analysis software for Sercos networks. In cooperation with the ISW at the University of Stuttgart, Steinbeis-TZS is developing the Sercos III slave Conformizer and offers support during the entire certification process of Sercos slaves.

SYBERA

www.sybera.de

Sybera,
the company for real-time software and training

The mission of SYBERA is development of real-time software for Industrial Ethernet. With software master stack for Sercos and other real-time Ethernet protocols, SYBERA offers high-end solutions for developing applications for industrial automation. The SYBERA training center offers developer seminars on all topics related to Sercos III and real-time control. SYBERA provides modern classroom equipment and offers internal as well as external training.

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