Controls news

3

For Unique Control Solutions ?

In the first edition of Control News we presented our technical direction to you, with the message: „The Ultimate with PLC based Control". In this autumn edition I would now like to set out for you our commercial profile objective, which is underpinned by our technical direction.

We would like our customers to view us not just as one among many good, reliable controls suppliers. With the phrase „For Unique Control Solutions" we want to keep ever present both internally and externally that factor which, for our target customers, should be decisive in choosing Saia-Burgess Controls as a supplier. Together with us, our customers should be able to use PLC-based technology to produce control solutions with attributes that will position them uniquely. They should be able to operate unique systems and business models which, particularly in difficult economic times, ensure the necessary commercial success.

This is not just grey theory - it is borne out by the course of the year 2002 to date. Where as general market development in the main European markets for DDC/PLC technology has been around 20 - 30 percent below that of the previous year and the building industry in the whole of Europe has been shrinking, we are 10 - 15 percent up on 2001 in building and infrastructural automation.

The new products PCD3 and PCD2.M48x, which we present to you in this issue, are intended to help us live up to our message in industrial automation too, so that shared success will be possible even when the commercial trend is negative ●

Saia-Burgess Controls
..for Unique Control Solutions

Jürgen Lauber, Divisional Manager

Contents

Market volume

Saia-Burgess Controls

2001   2002

Differentiation helps buck the trend

GO Automation 2002
exhibition in Basel

The first ever „go automation days" exhibition in Basel was a complete success. The trend is consistently towards the increasing integration of automation components to achieve continuous, overall solutions for industrial and production automation. In the field bus area, Ethernet is emerging as a seriously growing competitor for the familiar Profibus and CAN standards.

For us, this exhibition was the ideal platform to launch our new PCD2.M48x controller generations and the decentralized I/O modules: PCD3.LIO and RIO. Interest in these new system components was correspondingly large and the reception both from existing and new customers was welcoming.

Customers were impressed by the new Coldfire CPU PCD2.M480 with its 8 interfaces, possibility of expansion to 1024 I/Os with our own LIOs, and its massively increased processing speed. Our own Profibus DP RIOs, based on the existing I/O modules, will in the future persuade customers to implement a total solution with SBC, rather than solutions with foreign products. We look forward to showing these product innovations to visitors at other exhibitions still to come, such as BIAS (Italy), SPS/IPC/Drives (Germany) and ELEC (France) ●

Training in Batam

A good knowledge transfer of our products to our local partners is the key for the development of Saia-Burgess Controls on global markets.

A good knowledge transfer of our products to our local partners is the key for the development of Saia-Burgess Controls on global markets. The recent workshop in Batam, an Indonesian Island located next to Singapore gathered participants from Allco Star Intracon, of Jakarta (Indonesia) and ESSA Technologies of Kuala Lumpur (Malaysia).

The training focussed on Building Automation, the main field of activities of both companies. The participants enjoyed the flexibility and clear structures of our PG5 programming tool and the numerous possibilities of SAIA® 's HVAC library. Project discussions belong also to such meetings. System engineers allways underline the unique openness and flexibility of PCD based controls solutions which allows them daily to add substantial value in the projects they are doing. Another important competitve advantage for all SAIA® PCD partners. Trainings represent an important part of the international activities of Saia-Burgess Controls to ensure constant technology transfer and know-how improvements to our worldwide agent network ●

SAIA® PCD
on Emperor's service

Often called the 8th wonder of the world, the Terra Cotta army of Emperor Quin Shi Huang Di, buried for over 2200 years, is today one of the most visited places in China. Discovered in 1974 by a group of peasants near to the city of Xi'an, this army has over 8000 life-sized terracotta warriors, horses and chariots spread over more than 50 km2. As this famous place annually attracts tens of thousands people from all over the world, the technical infrastructure must ensure a high level of comfort to all visitors.

The role of SAIA® PCD controllers is important because they control the HEAVAC facilities as well as the energy management of the Visitors' Center. This modern installation integrates a network of PCD2.M170s with Ethernet TCP/IP co-processor modules, and has been in service for over a year.

This example, entirely engineered and installed by a local company, Xian Han Ming M&E Equipments Ltd, illustrates perfectly the high level of competence of our partners and system integrators worldwide. Saia-Burgess Controls greatly values its international presence. If over 40 countries on all 5 continents are able to provide technical service, training and spare parts, it is of great benefit to all our exporting customers ●
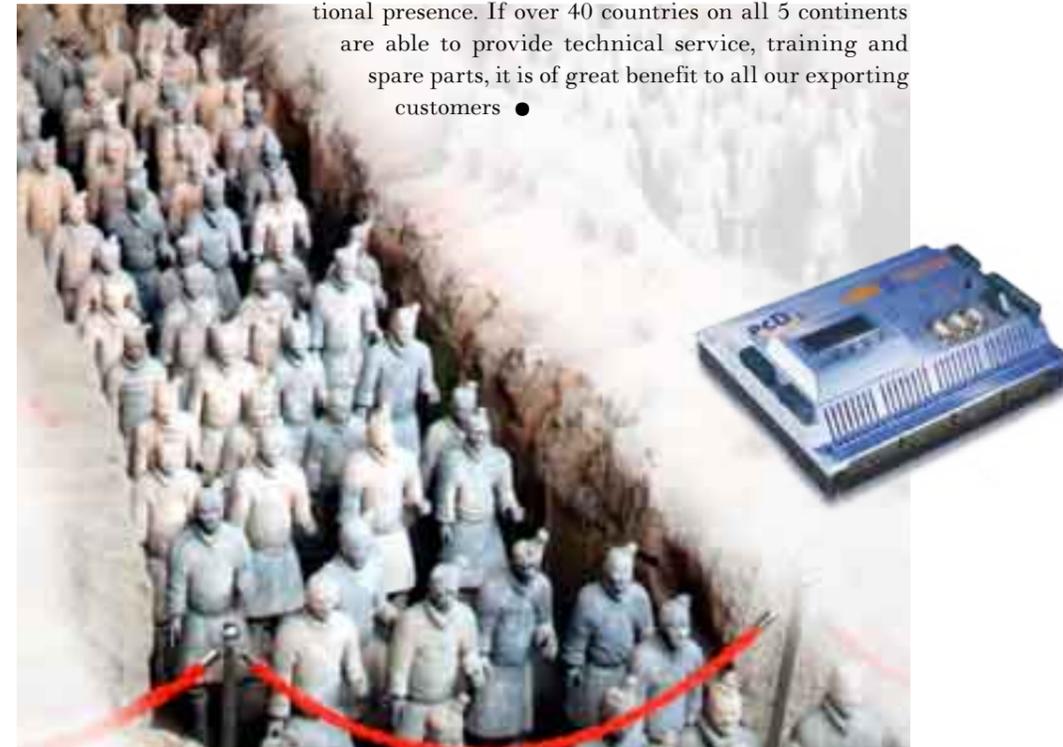
For unique control solutions

In recent years, Saia-Burgess Controls has invested above-average amounts in the development of new technologies. The first products to reach market-readiness are the CPU PCD2.M48x and the PCD3.LIO/RIO.

PCD2.M48x – faster, more versatile, better value.

From the outside, it is hard to see any difference from the PCD2.M170. However, the M48x contains a completely new controller platform.

New performance benchmarks due to Coldfire microcontroller technology: Equipped with the latest Coldfire microcontroller generation (cf5407), the M48x offers extremely high power. Combined with 1 MByte of user memory and fast data access, completely new performance benchmarks emerge for PLC-based automation and communication solutions.

4× more I/O points: With the PCD2.M48x and PCD3.LIO (local I/O) up to 1024 local I/Os are now available. Moreover, the PCD3.LIO/RIOs permit to double the number of I/Os per unit of area and the maximum flexibility with regard to I/O assignment, modularity and connection techniques.

Up to 8 interfaces: SBC has exceeded itself. Unlike the M170's maximum of 6, the PCD2.M48x now allows up to 8 interfaces to be used simultaneously. On board, the M48x offers a serial interface and a Profibus connection (DP/MPI/S-Net) and, as options, additional serial ports or communications coprocessors (LON, Profibus, Ethernet). The integral USB port for imminent connection to the PC world is also worth mentioning.

Optionally programmable with PG5 or STEP® 7 from Siemens®: The M48x is the first PCD that can, without hardware modification, be run with the SAIA® PCD operating system and the xx7 operating system. This is more than just a logistical advantage, because it also produces a welcome synergy. Users can now employ functions that were previously reserved for xx7 customers only, e.g. the MPI protocol for driving terminals.

PCD2.M48x essential data

- Proven housing and connection technology (as PCD2.M170)
- 20x faster than the PCD2.M170
- Up to 1024 I/Os centrally with use of PCD3.LIO
- Up to 8 communication interfaces
- On board: RS232 up to 115 kBit/s, RS485 to 115 kBit/s, MPI or DP slave or S-Net for PCD3.RIO
- Optional: RS232, RS485, RS422, MP bus at sockets A, B1 and B2, plus PROFIBUS DP master or Slave to 12 MBit/s or Ethernet TCP/IP at space B
- Ready for USB communication

PCD3.LIO/RIO essential data

- Space saving
- More than 30 different I/O modules in cassette housing
- Plug-in connection technique, optionally with screw or spring terminals
- PCD3.LIOs can be connected to PCD2s and PCD3.RIOs
- PCD3.RIOs communicate with Profibus DP or SAIA S-Net
- Decentralized data processing with plug-in concept
- Integrated web server for convenient commissioning, diagnosis and service

PCD3.LIO/RIO – for decentralized automation

The I/O connection modules with new functions and extreme flexibility in I/O assignment, modularity and connection technique.

PCD3.LIOs (local I/Os) and PCD3.RIOs (remote I/Os) are used for capturing local and remote I/O signals. The base units fit on a DIN rail and can respectively accommodate 2 or 4 I/O modules. The PCD3 I/O electronics derive from the PCD2 family. Therefore, more than 30 I/O cassettes are already available for digital and analogue I/Os and counters. Compared with the PCD2, double the number of I/Os can be achieved on the same area.

I/O connection can be done either with screw or with spring terminals. Compatible with the existing PCD2 and open to new controller generations, PCD3.LIOs can be connected as I/O extensions to a PCD2 or to a PCD3.RIO.

Unique extras in PCD3.RIOs:

Integrated field bus protocols: PCD3.RIOs communicate via PROFIBUS-DP or via the SAIA®-specific protocol S-Net with the PCD2.M48x. The S-Net protocol is based on the PROFIBUS FDL layer and includes special features, such as transmission of alarms and events, cross-communication between slaves, transmission of plug-ins, etc.

Plug In's (user-specific program parts): are the highlight of the PCD3 RIO. They are stored in the master PLC's user memory and transferred to the PCD3.RIO, where they are then processed autonomously.

Examples of possible applications for plug-ins include front-end data processing, fast counters, driving the serial port, processing emergency programs or data loggers. Thanks to this revolutionary approach, for the first time in PLC history the genuine decentralization of control tasks can be achieved, without having to program the remote units.

Integrated web server for commissioning, diagnosis and service: The web server integrated in PCD3.RIO offers great benefits for commissioning, diagnosis and service. All data can be accessed with easy-to-use standard web browsers. The status of I/O signals can be checked at any time and output states can be modified specifically. ●

Summary

The new PCD2.M48x and the new PCD3.RIO/LIO are milestones in PLC technology and substantiate the claim of Saia-Burgess Controls that it offers users powerful, innovative products. This uncompromising commitment to PLC culture enables our customers to realize unique control solutions that safeguard their economic success, even in difficult times.

Technology
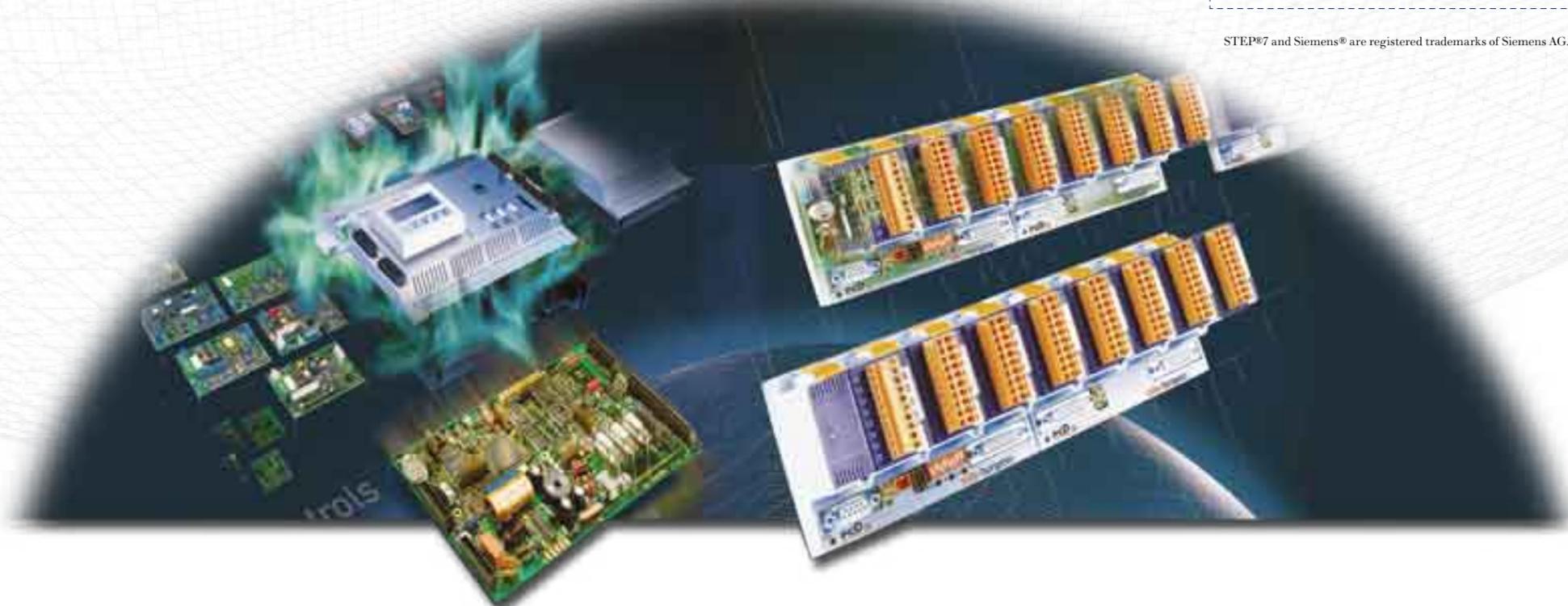
STEP®7 and Siemens® are registered trademarks of Siemens AG.

Easy and comfortable axis positioning
– with the MotionX configuration and commissioning tool

The task of problem definition for moving axes still has an aura of complexity and awkwardness surrounding parameter settings. The MotionX software tool proves that this is not necessarily so. It supports the PLC user in all project phases. MotionX offers the complete scope of functions, facilitating the fast, efficient realization of motion control. These include the automatic generation of program code, the setting of axes parameters up to optimization of control coefficients, and analytical or test functions for commissioning.

- Direct access to H-module functions from a Windows interface
- Automatic generation of program code and setting of function block parameters for motion control
- Movement of axis and adjustment of control parameters without writing a single line of code
- Fast commissioning and optimization due to convenient plotting and the graphical representation of motion sequences

A particular strength is the plotting of any required PLC data (e.g. inputs/outputs, flags) and their graphical representation together with the motion sequences of positioning. With the software tool, axes can be configured, travelled and analysed almost „by hand". Once suitable settings have been found, they are transferred to the user program with a mouse-click.

MotionX can be used both with the PCD Classic range, which is programmed with PG5, and the PCD xx7 controllers, programmable with STEP®7 of Siemens. It runs under Windows 98, Me, 2000 and NT ●

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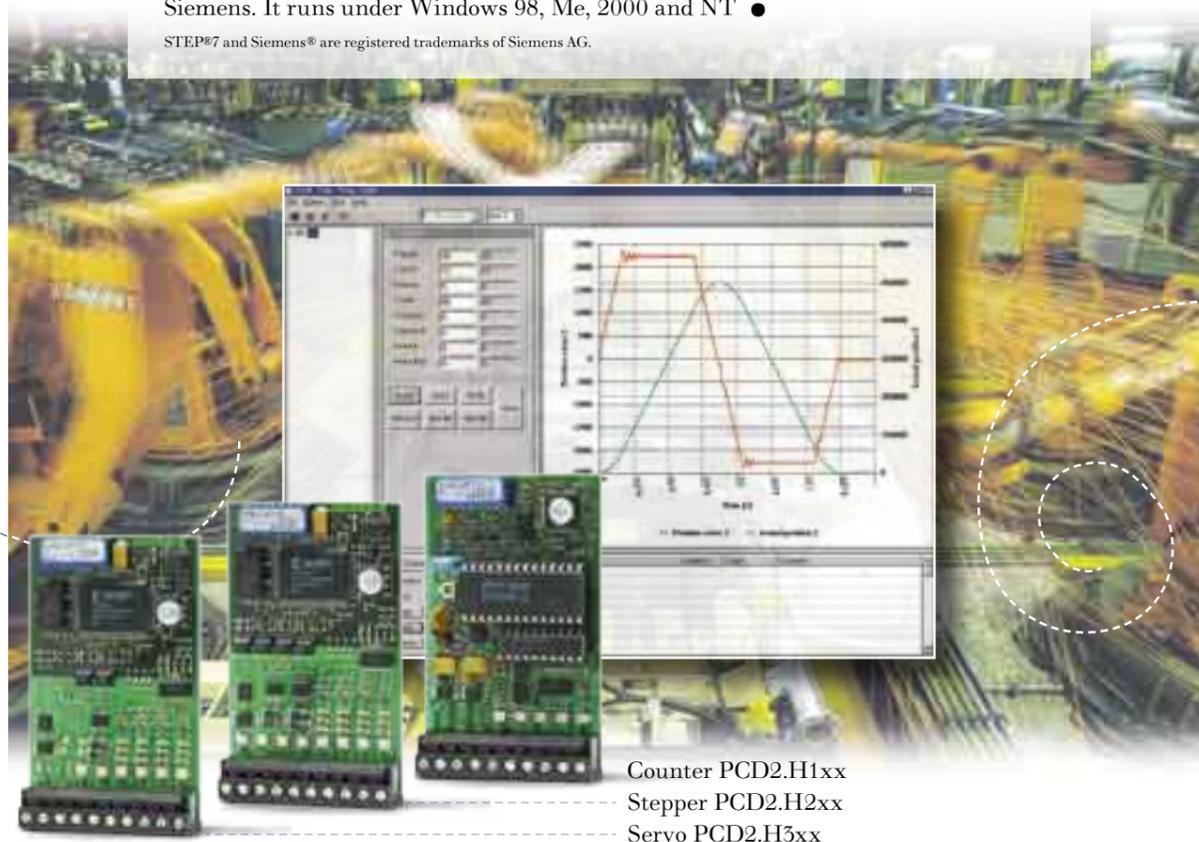
Counter PCD2.H1xx
Stepper PCD2.H2xx
Servo PCD2.H3xx

Communication and power in the smallest space
The new PCD4.M170

With the new PCD4.M170 CPU, a module is available that combines and incorporates many communication interfaces directly into the processor module:

- Up to 6 serial data ports (RS232/RS422/RS485/TTY)
- Wide spectrum of field bus communications:
  - SAIA®S-Bus
  - PROFIBUS DP, 12 MBit/s, master connection
  - PROFIBUS DP, 12 MBit/s, slave connection
  - PROFIBUS FMS, 500 kBit/s
  - Ethernet TCP/IP connection

Unlike other solutions commonly available on the market, this large number of communication interfaces is built into the CPU module. Additional communication processors are not therefore necessary and so do not take up additional sockets or room in the switch cabinet. The PCD4.M170 offers 6 serial data ports in an area of just 109 mm x 186 mm (including power supply). With the PCD4.M170's five internal sockets for different communication modules, individual combinations of data ports, field bus and network connections are possible. This makes the PCD4.M170 ideally suited to applications in the field of gateways, data concentrators and in association with modems for telecommunication. An ample user program memory of 1024 kBytes and integrated web server further underline its high level of flexibility in the area of communication ●

Industry

Individual operating system extension
opens up new fields of business

PLC users frequently have specialized knowledge in areas of automation technology. This know-how is mostly produced in the form of PLC programs and is used in association with engineering projects, which naturally represent a limited market. Wider marketing of the know-how – without the engineering – has until now failed due to a lack of copy protection for PLC programs.

With the concept of operating system extensions, individual program blocks - or even complete PLC programs - can now be protected against reading, copying or modification. The corresponding blocks are bound to the operating system and therefore become a fixed part of the CPU hardware. In this way specialized technology functions can now be commercialised across a broad base.

For example, the company i.p.a.s. has solid expertise in the area of adaptive control. Until recently, its auto-adaptive controller was mainly used in connection with engineering projects in process technology. In the form of an operating system extension, the controller is now also used in production machines. A manufacturer of gluing machines for the automotive industry is therefore using PCD controllers that incorporate an i.p.a.s. controller to regulate the viscosity of the adhesive ●

PCD controls

good climate

Air is more essential than anything else to human life. In the course of a 60-year lifetime, we will consume approximately 30 tonnes of food, 60 tonnes of drinks, but more than 300 tonnes of air. We choose our food and drink. We adapt ourselves to the external climate with appropriate clothing. Only the air we breathe must be taken as it comes. Wherever people live, work, relax, go shopping or spend their leisure time, enclosed space is critically important. Whether we feel comfortable in a room mainly depends on the air quality. This is determined by temperature, humidity, air pressure, oxygen content and the level of pollutants, but also by the speed at which air circulates in a room. All these factors, some of which work against each other, must be reconciled by air conditioning systems.
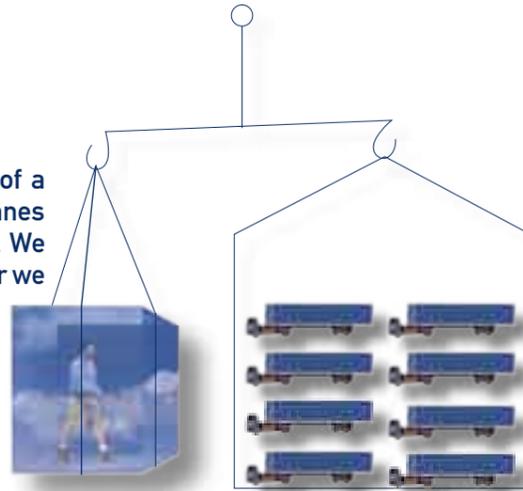
Hansa takes on this problem and, with a broad range of modular products for ventilation and air conditioning, offers the optimum solution for every potential application, both economically and in terms of air technology, either as a design in stages or as a complete system solution. This naturally also requires the use of equally flexible controller systems, which also have the open interfaces to allow integration within local building management systems.

For some time, climate applications by HANSA have been controlled by Saia PCD1 and PCD2 modules. The current highpoint of this collaboration is an OEM customer version based on a PCD1, which right now is coming into use for compact air-conditioning equipment. HANSA supplies such air-conditioning equipment, for example, to Deutsche Telekom, where they cool computer rooms and telecommunication shelters. But more complex system solutions, such as dehumidifying swimming pools or air conditioning for hospital operating theatres, are also supplied in ready-to-run form with PCD systems.

Using exclusively high value individual components to meet requirements, HANSA ensures the long service life and best possible quality of the overall system. The PCD has also met all demands in this regard. Customized solutions involve the use of standard PCD know-how, packaged and reduced to the maximum necessary: i.e. customer-specific ●

We denominate this

Lower investment and maintenance costs

thank to MP-Bus Interface:

Industrialists and construction developers are becoming increasingly interested in the bus connection to field devices. After all, they help minimize the costs of project realization and maintenance.

With the development of the two interface modules PCD7.T500 and PCD7.F180, Belimo actuators and drives can easily be integrated into network technology, with just one physical data point per drive. Moreover, one of the main benefits is the fact that conventional probes and sensors can be bound into a network directly, without additional wiring.

Saia-Burgess Controls is at present the only manufacturer in a position to offer fully matured solutions in hardware and software. Interfaces are available for 16 drives with the PCD7.T500 slot-in I/O card, or for 8 drives with the PCD7.F180 direct serial interface.

Software connection already exists for areas where Belimo drives are used in air, water, VAV or fire prevention. In addition, integration is already planned of the new FLS window ventilation drives.

The technical documentation and the software library can be downloaded free-of-charge via the Support homepage: www.sbc-support.ch ●
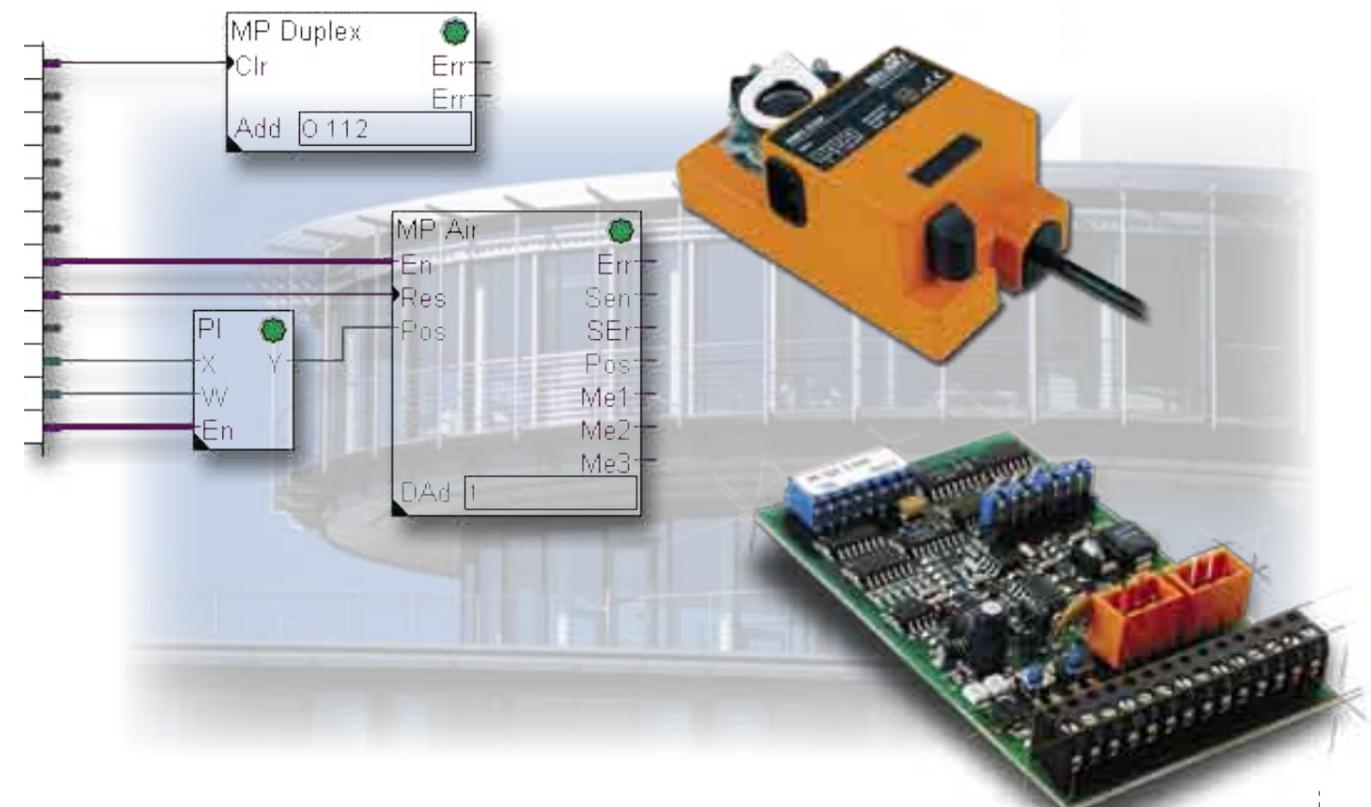
Agenda 2002/2

04.11.02-08.11.02, 09.00 – 17.30

Het Instrument
Utrecht, Netherlands
The event for industry and laboratory
http://www.hetinstrument.nl

19.11.2002-23.11.2002, 09:00-17:00

BIAS 2002
Milan, Italy
30th International Automation, Instrumentation and
Microelectronics Conference and Exhibition
Hall 11, Booth A15-21
http://www.bias-net.com/

26.11.2002-28.11.2002, 09.00-18.00

SPS/IPC/DRIVES 2002
Nuremberg, Germany
SPS/IPC/DRIVES Germany
SPS/IPC/DRIVES is the exhibition for electrical automation technology
Hall 1, Booth 325
http://www.mesago.de

09.12.2002-13.12.2002, 09:00-17:00

ELEC 2002
Paris, France
Booth 6-14M1
France Profibus: Booth 6-5A2
http://www.elec.fr

Forward planner 2003

21.-24.01.2003, 09.00 -17.00

Swissbau
Basel, Schweiz

19.-21.02.03, 09.00 - 17.00

MCS
Bologna, Italy

25.-29.03.03, 09.00-17.00

ISH Messe 2003
Frankfurt, Germany
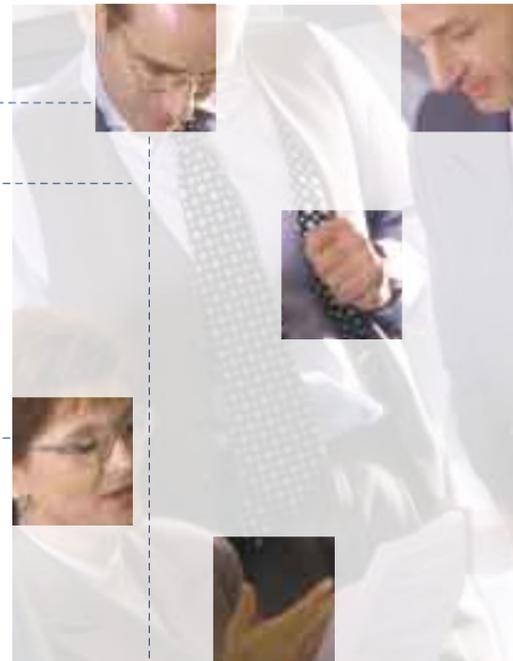
Agenda

Workshops

Holland:

18.-19.11.02
SAIA® PCD Basis

25.-26.11.02
SAIA® PCD PG5 Program

03.12.02
Ethernet-TPC/IP meet SAIA PCD

10.12.02
Telecommunication met modem

PCD Forum

Two German system houses - Uhlemann Techware and VN Datentechnik - have recently opened up a web forum for SAIA® PCD users:

www.pcd-forum.de

On this platform you will find news, discussions, questions and answers concerning our controllers.
The primary purpose of this forum is to share experiences and information, and to extend the network of relationships. Everyone is free to communicate, and the opinions expressed in contributions represent the relevant author's viewpoint only.
We would like to take this opportunity of thanking the forum hosts for their cooperation. Why not use it as a chance to exchange your ideas too? We hope you enjoy doing so ●

Controls News:
now also available
as a newsletter!

Make sure you have a head start in information and subscribe to our Controls Newsletter.

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www.controls-news.ch

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Workshop

Feeding coils
for small electric drives
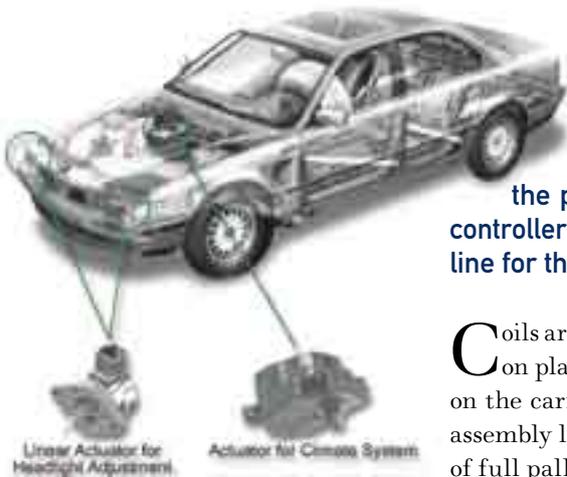
Saia-Burgess is not just a manufacturer of programmable logic controllers, it is also a user of automation technology. The Automotive Division is a leading supplier of small electric drives for use in motor vehicles. PCD controllers from the xx7 series are used for the production of these electric actuators. Specifically, PCD2.M157 type controllers have taken over the feeding of individual components to the assembly line for these small drives.

Linear Actuator for Headlight Adjustment

Actuator for Chassis System

C oils are an essential component of these small drives. They are supplied ready-made on plastic pallets. A handling robot takes the coils from the pallets and puts them on the carriers of a conveyor belt, which ultimately transfers the components to the assembly line. The pallets are inserted in the machine in stacks. Both the unstacking of full pallets and the restacking of empty pallets take place fully automatically.

From the pallets, coils are placed onto the conveyor belt with the help of a servo drive. This is triggered via Profibus-DP with the PCD7.F750 connection. The gripping of the coils and most of the actuators are pneumatic. Most of the actuators and sensors are triggered or input via an ASI bus system with up to 31 nodes. The ASI bus system is connected with a gateway to Profibus-DP.

The outstanding practical suitability of PCD controllers is justified not least by their use under tough industrial conditions within our own company ●

References