

# ControlsNews

The customer magazine of Controls Division



**saia-burgess**  
Smart solutions for comfort and safety

Powerful Networks with Saia®S-Net

Manual control modules for the Saia®PCD3 series

Saia®S-HMI portfolio for men-machine interfaces

**Innovation: Saia®PCD3 = Taking the Best of all Worlds!**



Jürgen Lauber  
Divisional Manager Saia-Burgess Controls

## Like a chameleon

Dear Reader

For this 7<sup>th</sup> edition of Controls News, we have copied the chameleon and adapted both content and layout to our current environment and situation. The first edition of Controls News, nearly 4 years ago, was designed to show that Saia®PCD business was well positioned in the race. Since then we have moved into the overtaking lane, practically overwhelming our customers with the pace and effect of our new technologies and products.

As a result, the need for more guidance and useful information has increased. Controls News has therefore been recast as a magazine and advice source with much more room for text, so that the most important topics can be handled in depth. In addition the magazine still has, of course, plenty of pictures and informative graphics.

«News Tickers» provide a fast overview of other main topics. Interested readers will find additional related information for downloading from Internet.

The section structure allows a better division into topics specific to target groups: for example, basic products (light blue), machine control (green), a special section for project business in infrastructure automation (mauve), etc.

The magazine has a “Technical Support” section as a systematic help desk and information platform for technical service personnel. These pages are intended to help users find solutions faster and more reliably, and avoid problems.

You may also see the modified layout of Controls News as evidence that our company shares some characteristics with the chameleon that are crucial to survival. Over the decades, in a tough, highly competitive environment, we too have won through adapting. Our PLC-based company culture is not normally very spectacular. It is unwavering, solid and quality conscious. However, when custom solutions are required, we are like the chameleon: highly efficient and surprisingly fast.

We can therefore live very happily with not being the cutest pet in the automation shop.

In the same spirit, I wish all our customers the chameleon's special characteristics, to help them win through in our globalized, ever more hectic world. ■

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## Saia® PCD3.M CPUs = Taking the Best of all Worlds!

With the new PCD3.M3 and PCD3.M5 CPUs, Saia-Burgess has redefined the mid-range for automation equipment and automation stations. Based on an economical CPU design, they offer the power and functionality of top-of-the-range controllers. A new kind of automation device has been created by integrating familiar, open standards from the worlds of Windows, communications, Internet, motion control, automation, etc. on a stable, industrial, low-cost PLC platform. It was not easy to achieve full market readiness for this series of automation devices with such diverse functions, but without the help of loyal pilot customers it would have been impossible.

### Thank you

The first Saia®PCD3 CPUs were commissioned in March 2004 for test machines in our Automotive Division, since then they have operated faultlessly as straight PLCs. Implementing and industrializing the many added functions took the whole second half of 2004. In February 2005 we released our first official firmware and hardware versions for unrestricted sale. Up to that date, 300 Saia®PCD3 CPUs had already been in real-life use in extremely varied conditions and operating modes. Despite comprehensive in-house system tests, not all practical conditions can be replicated in the laboratory. We therefore depend on customers who venture to use beta versions in their machines and installations. This requires great confidence in us and our products. On behalf of the entire company, we want to say thank you.

We view input from many customers in the pilot phase as an obligation to ensure that the young product has an interesting lifespan ahead of it. We are therefore already working on the integration of the HMI world on the PCD3 CPU platform.

### Short technical profile

A single base unit combines USB, Ethernet, RS485, Profibus or CAN and RS232. Other co-processor modules can be plugged in via 4 I/O slots. For use as a central controller, expansion is possible up to 1024 local I/Os. The PLC's memory ranges from 128 KBytes to 2 MByte. An



SD flash module option is also available. The integral web server can be accessed via all CPU ports and supports access to all PLC data. Alongside the usual web browsers, direct access is also possible via a CGI interface or Microsoft .NET web services (<http://192.168.10.10/cgi-bin/readVal.exe?pdp,,R1000,D>) from Windows, Linux and Unix applications. The file system of Saia®PCD3 CPUs uses an integral FTP server to create an easy, convenient connection to every IT setting. Process data from the Saia®PCD file system can be processed directly with applications like Excel.

Applications with Saia®PCD3.M can be programmed as preferred using Saia®PG5 or Siemens® STEP®7, and then checked and configured with web browser or Windows.NET devices.

### Resonance

To date, this compact package of innova-

tion and technology, the Saia®PCD3.M, has met with an extremely positive reaction from our customers. As a result, we have had to make great efforts to adapt production volumes to meet demand. We are particularly pleased that we have already won many new applications and new customers for the Saia®PCD3.M. The competitive advantages and cost benefits from using Saia®PCD3 are highly persuasive, even for companies that are (or were) long-standing customers of our rivals. ■

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**Saia®PCD2**  
Flat, compact construction combined with modular plug-in interface technology

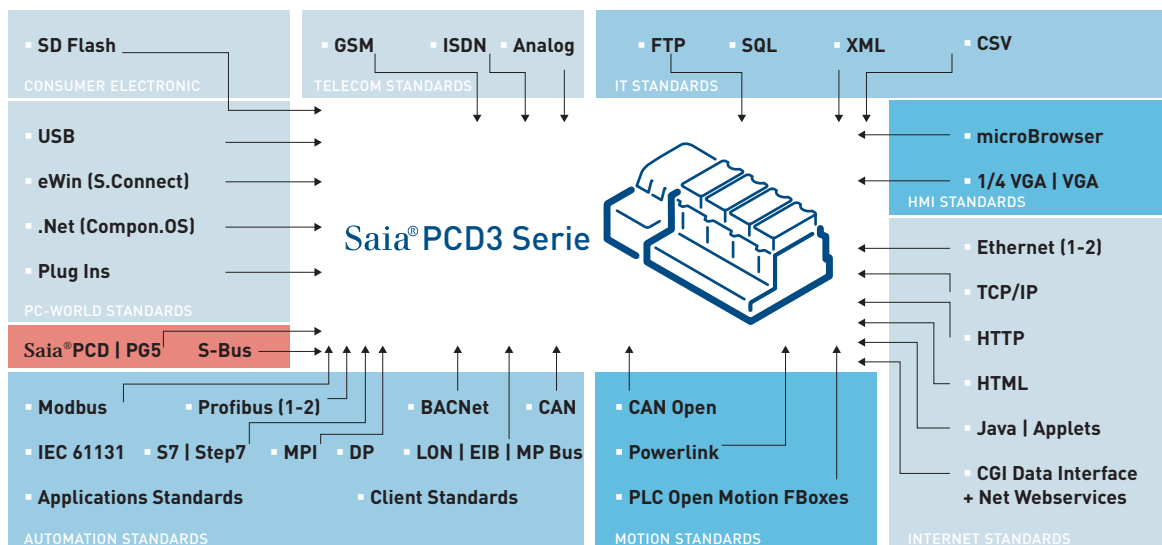
**Saia®PCD3**  
Series of devices with CPU in back wall and interface modules plugged in front

**Saia®S-Net**  
Fully continuous multiprotocol operation via Profibus and Ethernet. From management level via automation level to field level

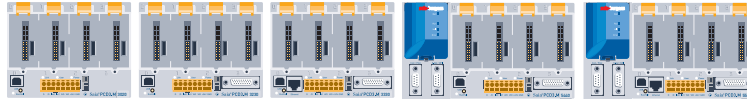
**Saia®S-HMI**  
Saia® range of devices and technology for man↔machine interfaces

**Saia®S-Web**  
Web server continuous in all new controllers and accessible via all interfaces

Technologies already implemented or planned in the Saia®PCD3 series



Overview



PCD Classic	PDC3.M	3020	3230	3330	5440	5540
PCD Serie xx7					5447	5547
Number of inputs/outputs		Bis 64 E/A		Bis 1023 E/A		
Main memory (RAM) for user program, text/DB		128 KByte	256 KByte		512 KByte	
Backup on-board memory (Flash)		128 KByte	256 KByte			
Multi-master Profi-S-Bus on board		Up to 187.5 kBit/s			Up to 1.5 Mbit/s	
RS485 on-board for free protocols		(or) up to 115 kBit/s			Up to 115 kBit/s	
Additional RS232 interface		No	No	No	Yes	Yes
Ethernet 10/100 on board		No	No	Yes	No	Yes
Integral web server		Yes	Yes	Yes	Yes	Yes
Optional communications modules at slot 0		RS232,RS422/RS485,TTY/20mA,Belimo MP-Bus				

News Ticker

New Saia®PCD1 CPUs



The Saia®PCD1.M125 and M135 are two new CPU types that represent entry-level models to the Saia®PCD1/2 series. The PCD1.M offers space for up to 64 local I/Os. With the new CPUs, available memory is extended to 512 kByte RAM and the Saia®PCD web server has been integrated.

Measuring and generating analogue signals with Saia®PCD2 and Saia®PCD3

The new analogue module family PCD 2/3.W3x5 and PCD 2/3.W6x5 offers high functionality in limited space. Using a fast on-board microcontroller reduces the load on the PCD by decoupling it from highly computational tasks, such as scaling and filtering signal data. Features like the 500V electrical isolation of signals from the PCD supply, 2-wire connection and free parameter setting of module functionality are generally supported by all modules.

Variant versions

PCD2/3.W305	0...10V	Input module	(7 channel, 12-bit resolution)
PCD2/3.W315	0(4)...20mA	Input module	(7 channel, 12-bit resolution)
PCD2/3.W325	±10V	Input module	(7 channel, 12-bit resolution)
PCD2/3.W605	0...10V	Output module	(6 channel, 10-bit resolution)
PCD2/3.W615	0(4)...20mA	Output module	(4 channel, 10-bit resolution)
PCD2/3.W625	±10V	Output module	(6 channel, 10-bit resolution)

PCD2.M150

with web server

In Q3/2005, the Saia®PCD2.M150 will be equipped with a Saia®PCD web server. This mid-range CPU, which sells in large volumes, will then be fully integrated within the Saia®S-Web system.

## Saia®PCD1/Saia®PCD2 range

The performance and function of the PCD2.M48xx put it in the top range among automation devices. Recently it was also fitted with USB as standard and can be equipped with two Ethernet communications modules. These new features improve the product's impressive profile still further. Profibus and two serial ports have always been available on board in the basic version. Alongside LON and another Profibus, it is now possible to 'upgrade' with the option of four serial ports plus modem and MP bus.



Saia®PCD CPU power extends to top class

System control high power PLC	Saia®PCD2.M480
Complex DDC system mid-range PLC	Saia®PCD2.M170
Simple DDC system dedicated controller	Saia®PCD2.M150
Remote terminal unit small controller	Saia®PCD1.M110
	Saia®PCD1.M135

In addition to very fast machines, the Saia®PCD2.M48x is mainly used for system controllers, network gateways and data concentrators in infrastructure projects. For example, in the Lötshberg Tunnel 23 Saia®PCD2.M48x devices with redundant Ethernet communications have been deployed at the top automation level.

With the same flat shape and compact housing technology as the Saia®PCD2 series, 620 additional Saia®PCDs, with simpler CPU versions are in use for a wide variety of applications in this tunnel project. Saia®PCD2.M48x controllers therefore form the automation backbone of the project. ■

Electrical interfaces

Saia®PCD3 interface modules



By modifying the tools, it is now possible to equip all Saia®PCD3.M interface modules with a labelling clip. These clips are available as accessories, including printed samples.

This is a further step in the continuous care and improvement of Saia®PCD3 products.

PLC-based terminals

Saia®PCD7.D1xx/D2xx

Award for new D23x terminal

The March 2005 edition of «Control Engineering» magazine has named the PCD7.D23x small terminal of the year.

Success with new graphic functions

The success of the new D23x series is closely linked to the extension of its graphical functions. The HMI editor in Saia®PG5.ControlsSuite now supports customer-defined symbols and dynamic trend display.



Proprietary control panels

Saia®PCD7.D7xx

Bigger choice of panels

New arrivals to the product range are the large 10.4" and 12" touch-panels.

More function

The PCD7.D series (4 inch sw to 12 inch TFT touch) is fully capable throughout of multiprotocol, multimaster and multi-panel operation with Profi-S-Net and Ether-S-Net.

More comfort and efficiency

The specialized SW tool «VT Win» for the Saia®PCD7.D7xxx series can import resources directly from a PG5 project.

Saia®PCD web panels

Saia®PCD7.D5x/D6x

New series of operator panels, based on the Saia®S-Web concept and Saia®S-Web editor.

eWin CE web panels

Industrial touch-panel with 6.4 and 10.4 inch TFT display. The operating system used is Win CE.Net Version 4.2. Microsoft Internet Explorer is the browser, with a Java Virtual Machine.

For combining a web HMI with an open Windows application, Saia®PCD web panels are available with embedded Windows XP in 12 and 15 inch sizes.

# Saia®S-HMI: a range of devices and technologies for PLC-based automation

The Saia®S-HMI philosophy is to separate the man↔machine interface from critical core control processes. An application turns on the PLC/DDC CPU, with its powerful resources and standardized high performance interfaces (for example, the Saia®PCD3 and PCD2).



In its simplest form, the connected HMI system can consist of just a text or graphical display driven via a digital broadband signal (e.g. LVDS). However it may also be an intelligent HMI device, supporting printers, barcode readers, keyboards, etc. The highest form of «intelligence» is the touch-panel device with embedded Windows XP.

The lowest costs and greatest comfort are offered by combining a simple keypad with an off-the-shelf PC. Since the machine/process control is completely independent of the PC, it is not a problem if, after a few years, the PC is changed.

Powerful software drivers (e.g. Saia®S-Connect) or easy access mechanisms via the CGI interface and .NET web services simplify and safeguard access to Saia®PCD systems from the PC, Unix and Linux worlds.

The special attraction of our S-HMI offering is the fact that it leans on the system products Saia®S-Web and Saia®S-Net. These Saia® systems were launched in 2004 and offer enormous technical

innovation in their HMI technology. The combination of S-Web and S-Net – particularly for network operation of HMI devices – considerably enhances convenience and simplicity.

As a company, Saia-Burgess Controls has set itself the strategic goal of becoming the automation technology supplier that offers the broadest range of HMI technologies and hardware. We hope this will make us the best possible partner for our customers when deciding on the HMI system for an application. We are helped in this by not having to defend old philosophies of HMI technology, nor old product lines with high margins.

We can therefore provide our customers with advice against a background in which we have no obsolete vested interests of a technical or commercial nature. Our sole interest is in YOUR success with the new application.

For the practical implementation of Saia®S-HMI, we have not only concluded close alliances with traditional HMI companies, but have also expanded our

competencies and capabilities by a business acquisition, particularly in the area of small, low-cost HMIs. In our Murten factory, we have started producing Windows CE CPUs for HMI technology and, by the end of 2005, will have set up a new production line for touch-panels.

The attraction and practicability of S-HMI is borne out by our winning an international machine engineering concern (turnover >400 million Euro) as a new customer. This customer uses practically all the technologies offered by S-HMI to cover its entire HMI requirement. In the next edition of Controls News we will report in detail on how this concern not only achieved progress in innovation, but also reduced costs. ■



## Powerful networks with Saia® S-Net

Have you ever wished you could simplify communications in an automation network? Reduce the wiring expenditure? Eliminate gateways? Increase speed and reliability? If the answer is yes, make sure you try Saia® S-Net.

The new S-Net communications architecture unites everything: simplicity, reliability, speed, cost reductions.

Through the systematic standardization of communications architecture, Saia-Burgess Controls Ltd has produced perfect coordination between harmonized communications mechanisms, from field to management level.

With its unique, transparent architecture, Saia® S-Net embraces not only serial communication with controllers, slaves and RIOs, but also multimaster

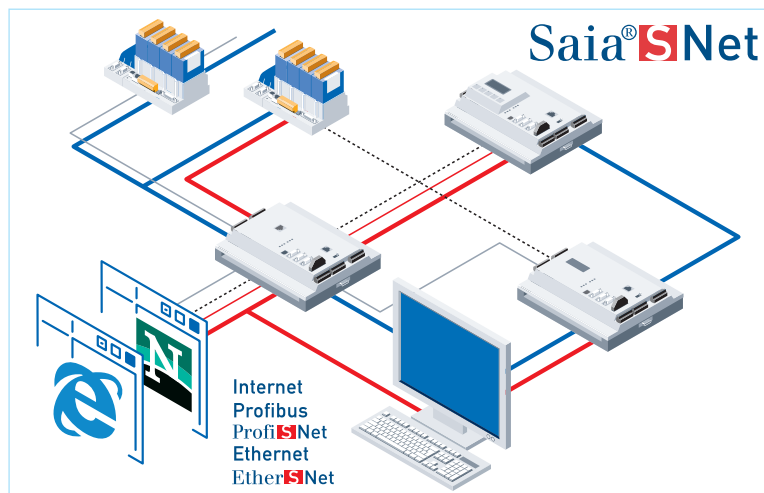
communication (FDL or TCP/IP) between controllers, HMIs and PCs.

Saia® S-Net offers a way of continuously accessing the integral web servers in Saia® PCD controllers and, alongside the usual exchange of data, using them to access visualization or documentation files.

The openness of Profi-S-Net is based on FDL, the OSI Level 2 of Profibus. FDL allows various protocols to operate in parallel on one physical line. Saia® PCDs can communicate simultaneously via Profi-S-Bus, Profibus, MPI and http.

This unique feature, together with an ability to communicate via RS485, RS232, modem, USB or Ethernet, massively simplifies the communications architecture.

Since Saia® S-Net is fully supported by Saia® PCD3 and Saia® PG5 Controls Suite v.1.3, these new capabilities are immediately available for all new projects. ■



- Multi-protocol and multi-vendor communications architecture
- Serial communications up to 1.5 MBit/s
- Transparent vertical and horizontal communication throughout the application
- No additional hardware required
- Simplified planning, programming and network architecture
- Integration of existing PCD components into new projects
- Redundant Ethernet communication possible

## Saia® S-Web editor

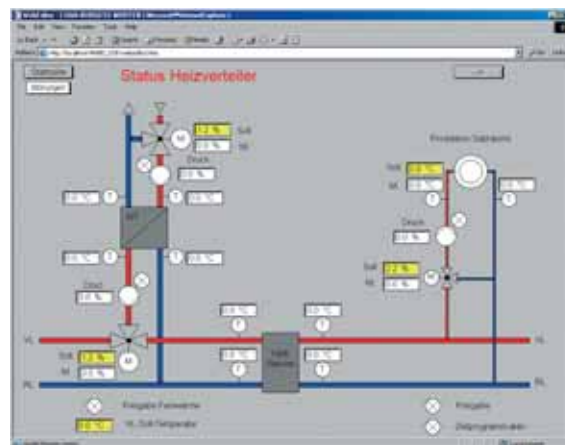
In 2001, the first Saia® PCDs with an integral web server came on the market. Many customers have since used the possibility offered by the Saia® S-Web concept for visualization, service and monitoring tasks.

Our customers edit web pages for PG5 projects using a standard HTML editor (e.g. Frontpage). For dynamic functions, however, they have to edit their own Java Applets HTML and load them into the Saia® PCD. For all those who have mastered Java programming, this has opened up the enormous freedom and functionality of the Java world.

At the end of 2004, Saia-Burgess Controls released the first version of a simple SW tool which – with no programming knowledge – allows Java functions to be used in association with web browsers. This tool is called the Saia® S-Web editor. Web pages are created in the editor by placing and parametrizing graphical objects that are specially matched to Saia® PCD devices. The S-Web editor is an add-on tool and has been seamlessly integrated into the Saia® PG5 programming tool.

The Saia® S-Web editor is at the start of its product life and much is currently being invested in further extending its functionality. Priority has been given to integrating convenient trend display and alarm functions, and all machine control functions used in association with our new Saia® PCD web panels. Despite its still limited

functional scope, more than 70 firms have already opted for licensing. ■



## Saia® S-Web

### News Ticker

#### Profi-S-Link

PC and terminals continuously integrated in Saia® S-Net



Standard PC systems and/or web terminals can be connected directly to a Profi-S-Net network with a Profi-S-Link adapter. With the web browser, HTML pages are uploaded via Profi-S-Bus and the HTTP protocol from web servers built into the controllers. The compactness of the Profi-S-Link adapter makes it ideally suited both for use in fixed installations and for mobile use with a notebook.

Unlike a fixed interface card installed in a PC, the Profi-S-Link adapter's easy connection to the Ethernet port allows it to be used with different PCs.

#### http Direct for PCD3

PCD3 controllers now support access to the web server via Ethernet directly with the http protocol, without using Web-Connect.

#### Flash memory modules for PCD3

The new plug-in flash memory modules PCD7, R55M01 and PCD3.R55M01 can be used to extend the PCD3's flash memory by 1MByte. A new I/O module is also in preparation to receive SD flash cards. Web pages and any data or files (log data, PG5 program backup, documents, etc.) can be stored in the file system of the flash cards. Files are accessed with standard tools (e.g. Internet Explorer) via Ethernet-TCP/IP across the integral FTP server. New firmware commands enable the file system to be accessed from the user program, to read data or write to files.

# Saia® FBox-Builder for Saia® PG5 FUPLA applications

A software tool as the key to more efficiency, reliability and profitability in automation.

## Management Summary

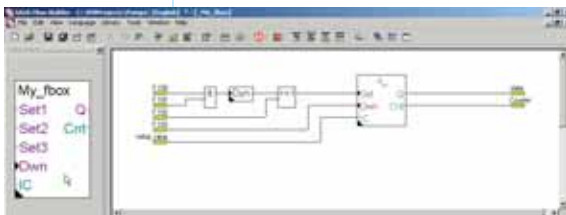
Greater use of Saia®PG5 FUPLA FBoxes not only makes implementing, commissioning and maintaining applications more comfortable for our customers, but also more profitable, due to higher reusability, lower error rates and reduced demands placed on staff on-site.



Development of a custom FBox

## Positive experiences in the market

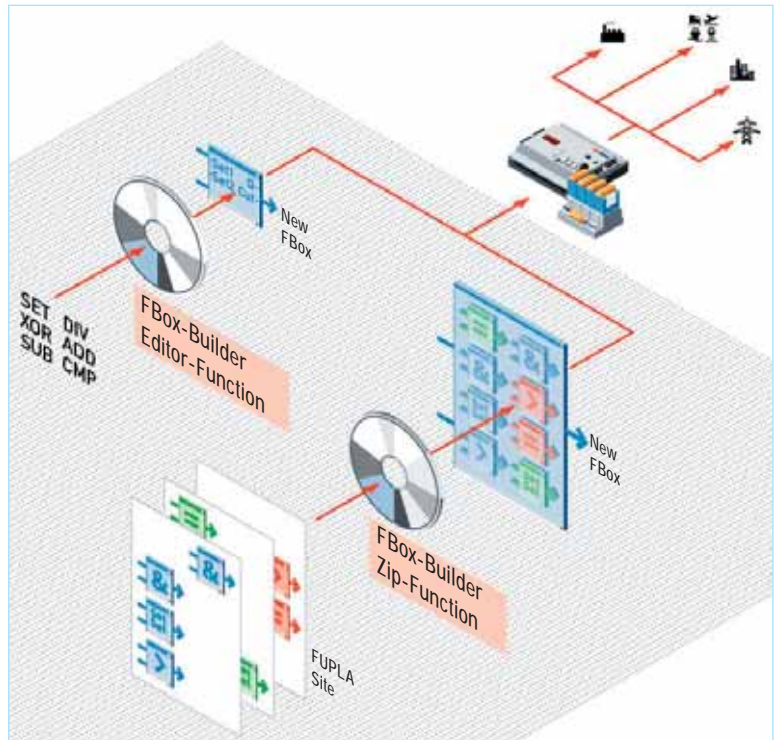
In the last five years, there has been a steady increase in the number of our customers who, in addition to our standard graphical FBoxes, develop their own in-house application FBoxes for the Saia®PG5 FUPLA tool. In Scandinavia, Germany and Switzerland – countries where this possibility is most heavily exploited – we have over the same period seen continuous growth of between 5-10% per year. We view this as a clear indication that, in a recessionary period, the combination of in-house and standard FBoxes has brought our customers success – and us too.



FUPLA page zipped into an FBox

## How are FBoxes produced?

In the past, creating and maintaining one's own FBoxes required a course in one of the 3 Saia®PCD system houses in Switzerland, Germany or Scandinavia. Since early 2005, Saia-Burgess has of-



Editor and Zip functions of the Saia®FBox-Builder

fered a powerful software tool enabling any Saia®PG5 user to create and maintain their own FUPLA FBoxes. With the FBox Zip function, entire FUPLA pages can be zipped into FUPLA FBoxes. The result is an own product with an individual appearance, multilingual documentation and on-line help. The FBox

Editor function can be used to create a new FBox, starting from IL code. Unlike FBox Zip, this function is very sophisticated in application and does not form part of the general Saia®PG5 licence. ■

## Why Saia®FUPLA FBoxes and FBox-Builder?

- The work of programmers can be reused many times as a product, rather than reinvented every time. Output is made comprehensible and measurable.
- Projects can be realized without programmers. Fewer capacity bottlenecks. Less risk when staff change.
- Company automation standards can be set and maintained. Safe, easy use of programs across boundaries between departments, companies and countries.
- The most difficult, complex functions in the fields of communication, motion control, networks, data processing, etc. can safely be exploited, without previous knowledge.
- Complexity reduced by encapsulation in highly functional graphical blocks.
- Manipulation and know-how protection: Text version of original program cannot be read or modified by service personnel or final customers.
- Avoidance of contingency costs and lost time during commissioning. Once FBoxes have been developed, tested and documented, they can be systematically eliminated as an error source.
- Avoidance of high maintenance and service expenditure: Even semi-qualified staff quickly find their way around the graphical environment and can make failsafe use of the convenient commissioning functions of Saia®FBoxes.



# INFRASTRUCTURE AUTOMATION

## Saia®Visi.Plus: Software package with web capability for visualizing and solving management system tasks

Visi.Plus has an integral web server that allows all process data to be displayed with a web browser via intranet or Internet connections.

### Web server

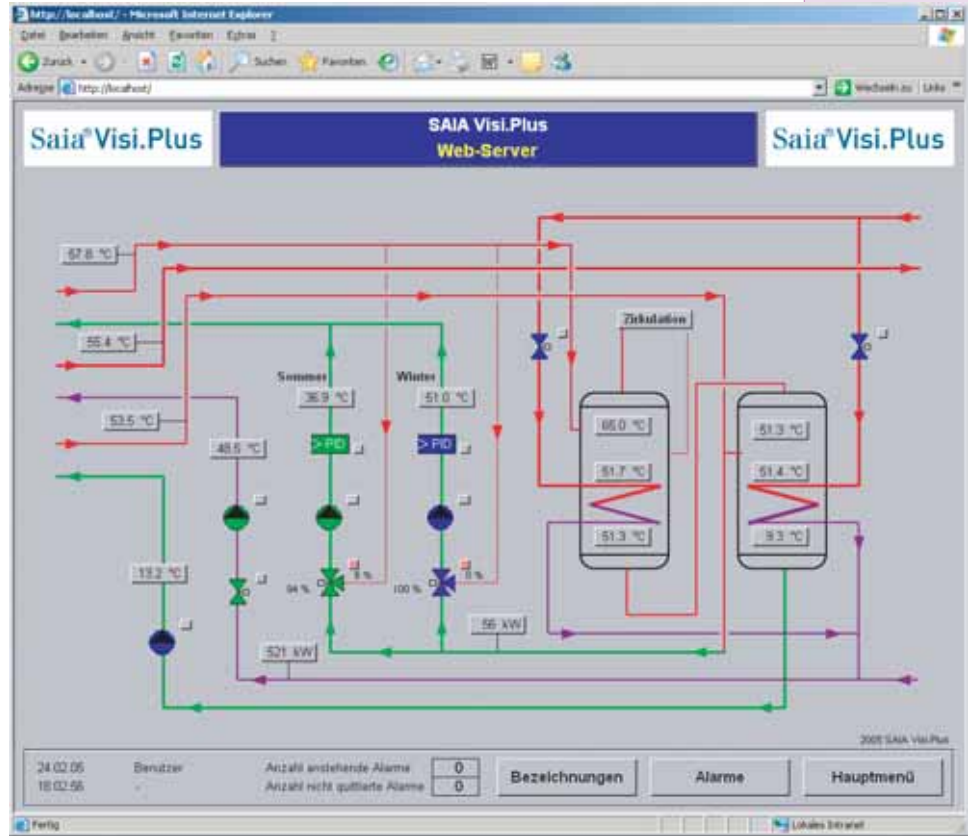
The Saia®Visi.Plus web server is available in versions expanded for 2 or 20 simultaneous connections. This means that 2 browsers can access the server simultaneously.

The web server allows process information to be transferred via intranet or Internet, at no extra expense for implementation or project planning.

When application images are saved, a picture file is automatically created in the web directory. This file can be interpreted directly by the web server and displayed in the browser.

### Facts about the Saia®Visi.Plus web server

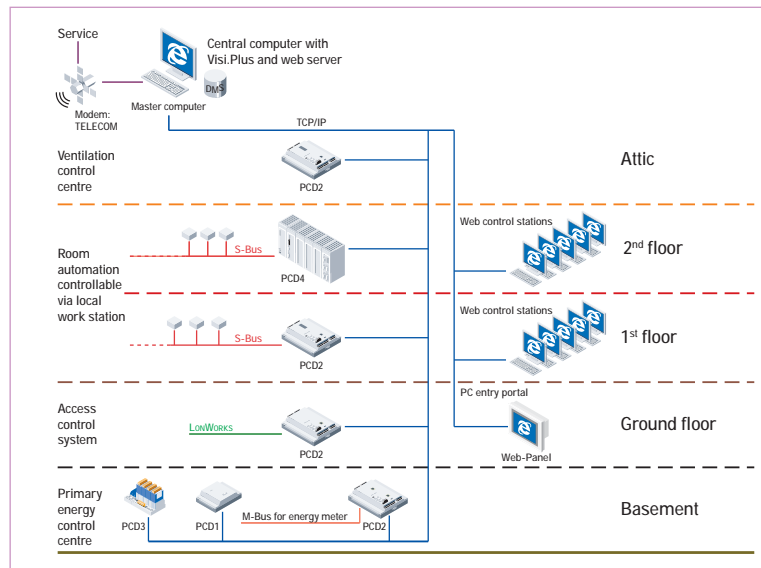
- No expenditure required on project planning, as process images are automatically ported from the Graphical Editor to the web directory and can subsequently be displayed 1:1 in the web browser.
- Convenient operation in the intranet field and maximum security on Internet due to Saia®Visi.Plus user administration
- Extremely simple configuration and fast image construction
- Process images can be displayed with Java-compatible web servers
- Optimum price/performance ratio



Example of web server image

### Examples of Saia®Visi.Plus in use with web server

Example of a building automation structure with automation stations for the primary power and ventilation centre, including a room automation solution. With the Saia®Visi.Plus web server, all users can adjust workplace temperature and lighting to their personal needs via the standard browser on their local PC. ■



## Manual control modules for the Saia®PCD automation system

Manual control modules make it easier for system integrators to commission and test a system, and allow the final customer to intervene manually if a system fault arises.



Building automation increasingly requires the necessary manual control and coupling level in automation stations. Saia-Burgess Controls meets this requirement again with the new PCD3 automation generation. Manual control modules with analogue and digital outputs can be used to override directly process outputs. Users have at their disposal analogue modules with four 0–10 VDC outputs (3 of which can be controlled). With the relay modules, two-stage functions can also be realized by combining both the changeover and 'make' contacts. ■

## Light and shade module for the Saia®PCD automation system

With Saia-Burgess Controls, the integration of facilities does not just take place on paper; it has been rigorously implemented in the new PCD3 product generation for building automation and the installation field. The light and shade module meets the requirement for closer integration of both facilities. A pleasant room climate will only be created if all room parameters can be influenced in an appropriate form. This includes such internal settings as temperature, atmospheric humidity and CO<sub>2</sub> levels, but also external parameters like insolation, heavy cloud and wind. To optimize the influence of building parameters for the room, the PCD3 light and shade module can be used to influence outside parameters. For optimum comfort, the module can be switched between transparent or standalone operating modes, and for light or shade applications. This is necessary to allow, for example, convenient slat adjustment in shade mode. The module, with a special relay for turn-on/off currents of 80A (up to 20 ms) is suitable for a permanent load of 12A!

Wiring the control cabinet is much easier with the prefabricated cable also available. These cables come in 2.5 m lengths comprising separately labelled wires and a terminal connection block for the appropriate module. ■

### Features

- Manual control button on front of module
- Connection of two probe inputs
- Integral power relay for digital outputs
- Compatible with all base units in the PCD3 series (including remote units)
- Prefabricated cable connections



## Room automation with Saia® DDC-PLUS RAIL/SAFE

Single room control includes not only temperature adjustment, but also the lighting and shade areas. The demands on controllers from strip lights and shade systems are very high, particularly regarding response behaviour and connectable power. The control cabinet version (RAIL) of our PCD7.L120 module and the external mounting version (SAFE) of our PCD7.L121 module have been specially developed for these areas.

Both modules can operate in stand-alone mode. In this mode, L120 and L121 modules react directly to a change of input state. This means that the relay is switched directly, without being diverted to any S-Bus network master station, although higher ranking interventions from the master station remain possible at all times. Light or shade applications can be adjusted by setting the corresponding parameters.

Both modules can, of course, also be used as normal, combined input/output modules, with 4 digital inputs and 2 relay outputs. At 230 VAC, the relays are suitable for turn-on currents of 80 A and a permanent load of 16 A!

All modules in the DDC.Plus RAIL range have been upgraded to meet high demands of interference immunity and

operating power. All modules (including the PCD7.L121 from the SAFE range) have the following features in their present versions:

- Connection/reverse battery protection
- Increased protection from EMC effects via the bus connection
- Automatic baud rate recognition
- Telegrams that are too long are ignored

The range also includes the new PCD7.L500 power pack in a RAIL housing, which takes over the supply of subsequent RAIL modules (500mA capacity). The advantage is simple wiring with a plug-in bridge for mains and supply. ■



Input/output module with application function (light + shade). Type: PCD7.L121



Input/output module with application function (light + shade). Type: PCD7.L120



Input module with 10 digital inputs. Type: PCD7.L130



Supply module 230 VAC/24 VDC. Type: PCD7.L500

## BACnet communication with Saia® PCD3 automation system

The BACnet building automation standard is very widespread now and should not be ignored in building management technology. Therefore Saia-Burgess Controls, a longstanding member of the «BACnet Interest Group Europe» (BIG-EU), also offers the new Saia®PCD3 product range as a «BACnet Building Controller» (B-BC). Seamless integration into almost limitless multi-vendor projects is achieved in a user-friendly and efficient way, via the familiar PG5 engineering environment from Saia-Burgess. This makes the Saia®PCD3 even more attractive as a networked communications platform! ■





## News Ticker

### STEP®7 via USB

Saia®PCD2.M487 and PCD3.M5xx7 devices have a USB port on board that can be used from STEP®7. Experience a new dimension in speed !

### Flash modules

The megabytes provided by PCD3.M flash modules are not just for programs. You can also use them for storing data with a file system. Speed and access mechanisms have been designed accordingly.



### S-Bus + MPI

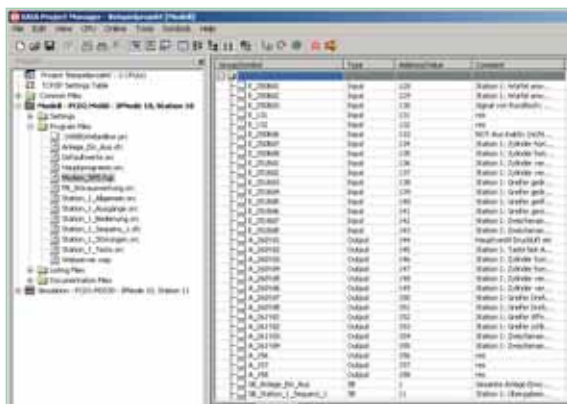
So that STEP®7 users can also exploit the extensive PC software and powerful system functions of Saia®PCD, we have implemented Saia®S-Bus in parallel with Siemens MPI-Bus in our CPUs and supplied them to initial pilot customers. It is planned to transfer this new feature into Saia®PCD3.Mxxx7 and PCD2.M487 base units with the next FW update.

## Machine control with Saia®PG5 Controls Suite

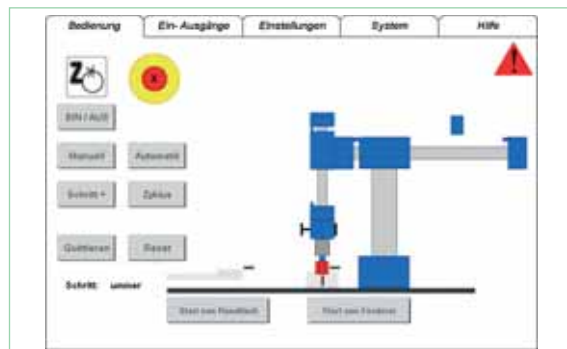
In the areas of field communication, integration in an IT environment and HMI technology, the demands placed on machine controllers are rising. Programs must become faster and development times shorter and more calculable.

How machine programmers use Saia®PG5.Controls Suite to overcome these challenges is shown by an extensively documented PG5 project from a real-life assembly application for a three-axis handling robot.

The time-sensitive parts of this PG5 project are produced in IL, its sequential parts in Saia®PG5 GRAFTEC, its communications tasks run via graphical Saia®PG5 FUPLA FBoxes, and its man-machine interface is the Saia®S-Web editor.



PG5 example from practice for downloading



Machine simulator software

You can download the entire PG5 project (d/e) for guidance and private study from [www.sbc-support.ch](http://www.sbc-support.ch), under the heading Getting Started/PG5 program examples. Naturally, we also offer workshops on this real-life example.

As a special feature there is also machine simulator software to show you what you have programmed, without having the actual machine in front of you. ■

## Saia®PCD3 and CAN

Over the past 10 years, volume machine engineering has seen Profibus become dominant for machines in small volumes, whose control systems are not function or cost-critical. However, for machines in large volumes, which have sophisticated, cost-critical controller technology, it is quite clear that CAN sets the pace.



This exactly describes one of the target profiles for the Saia®PCD 3 range. In 2004, having completed the direct implementation of Profibus within the Saia®PCD3 operating system, we were able to take the next step and develop an integral CAN interface. In October, the first prototypes were ready. From December, two machines were already running in customers' development centres, having simply replaced the existing controller while CAN peripherals (actuators, sensors, remote I/Os) remained unmodified.

Since then, we have gathered much valuable experience and knowledge, especially about how to integrate different CAN stations with a heterogeneous mix of protocols in a Saia®PCD. A certain «artistic licence» in operating and constructing protocols is at once CAN's greatest strength and its greatest weakness. If it fits, the machine engineer relies on CAN Open. However, usually something individual is implemented and fine-tuned to the speciality of a particular application.

This is the reality we shall take into account for STEP®7 and Saia®PG5 applications. We are therefore implementing comprehensive firmware functions and software modules for the Saia®PCD3 that will allow our customers independently to realize any CAN application.

Admittedly, it has taken quite a long time to realize Saia®PCD with CAN. However, for our customers the wait should be worthwhile, because there is no other standard controller on the market that offers better possibilities for exploiting the CAN bus.

In the next edition of Controls News, we will go into more detail and include some case studies. We will then introduce you to a communications prodigy: the Saia®PCD3.M6, with CAN, USB, Ethernet, RS232, RS485 and Profibus on board. There are, in the truest sense «NO LIMITS».

**CAN Open + Ethernet Powerlink**

Implementing CAN Open and Ethernet Powerlink V 2.0 on a Saia®PCD3.M CPU to provide operators with a user interface that is independent of the bus system is the aim of a joint research project between the University of Zurich and Saia-Burgess Controls Ltd. The project amounts to approx. 1 million CHF and is 50 percent financed from federal research funds.

Ethernet Powerlink in its current form was developed in Professor Müller's department at the University of Zurich. With the new project, major improvements have been implemented and Ethernet Powerlink has been linked to the CAN Open environment for motion control.



For Saia-Burgess Controls, the project has resulted in the possibility of adding a CAN/Ethernet-based system to its existing range of RS485 or Profibus-based motion control systems. The initial results of this research will be shown in operation at the SPS/IPC/Drives Fair in Nuremberg. ■

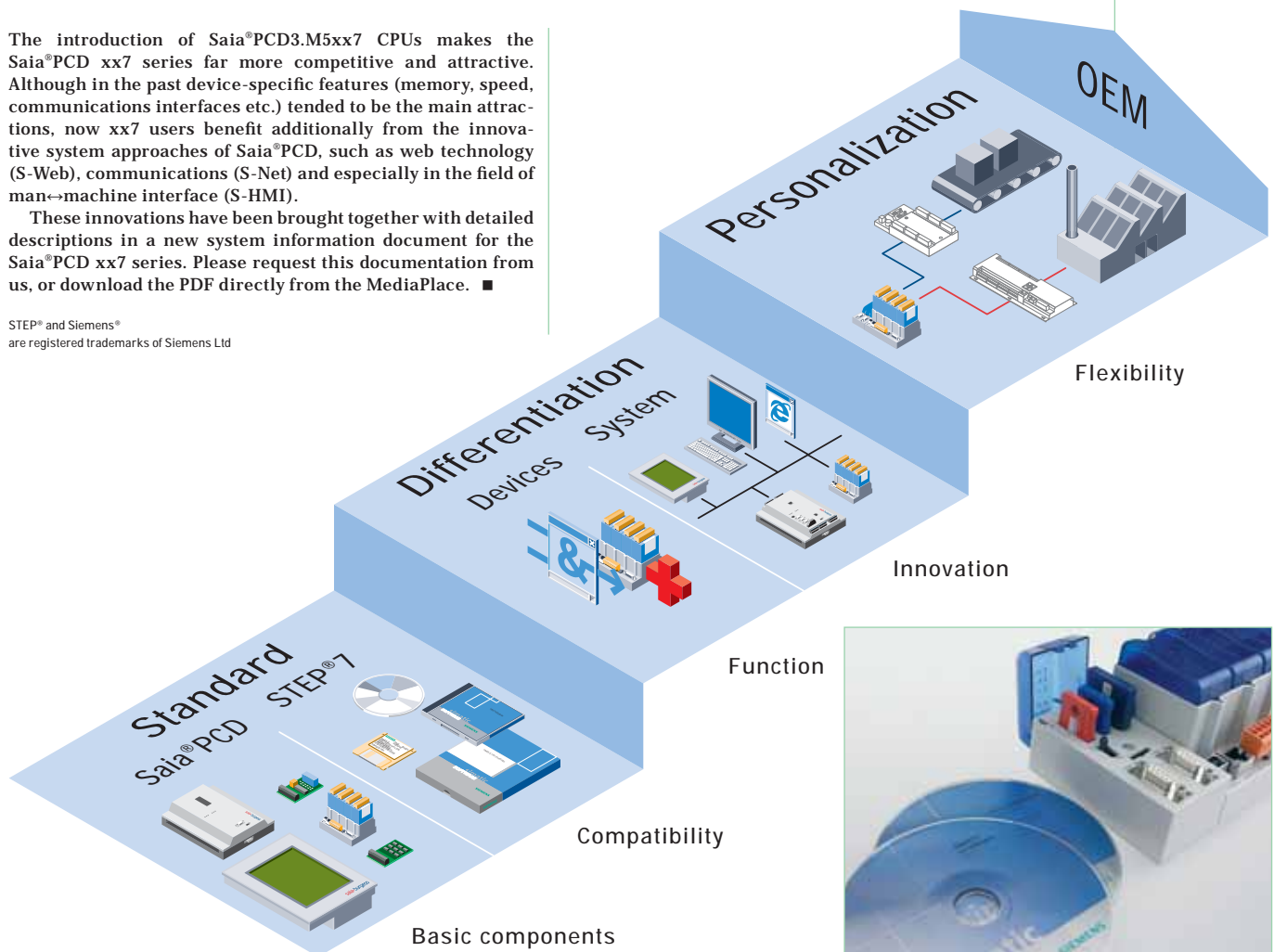
## Saia®PCD xx7 series: more than compatible

The basic idea of the Saia®PCD xx7 series was to offer automation devices whose form, function and performance profiles represent an alternative to the Siemens range, but which can still be programmed with Siemens® STEP®7 software. This approach has made us so attractive in the marketplace that today, approx. 25 percent of all Saia®PCD CPUs run with Siemens®STEP®7 programs.

The introduction of Saia®PCD3.M5xx7 CPUs makes the Saia®PCD xx7 series far more competitive and attractive. Although in the past device-specific features (memory, speed, communications interfaces etc.) tended to be the main attractions, now xx7 users benefit additionally from the innovative system approaches of Saia®PCD, such as web technology (S-Web), communications (S-Net) and especially in the field of man→machine interface (S-HMI).

These innovations have been brought together with detailed descriptions in a new system information document for the Saia®PCD xx7 series. Please request this documentation from us, or download the PDF directly from the MediaPlace. ■

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# FAQ Manager

Since mid 2004, there has been a new service available to you on our support site [www.sbc-support.ch](http://www.sbc-support.ch): the FAQ Manager.



Start page of the FAQ Manager on the sbc support site

It offers you more than just answers to FAQs, because we do not wait until the same questions have been asked several times before making an entry. Instead, we enter everything that might be useful to you or other customers.

The FAQs can be enhanced with pictures, drawings, attachments and links, producing entries that are informative, but still compact.

So that you do not have to spend a long time hunting through the increasing number of FAQs, a full-text search is available and results can be sorted at single mouse-click.

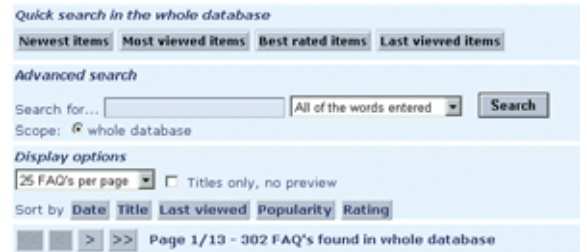
You can, of course, also use the folder structure to the left of the FAQ Manager to find entries about a particular product or topic. When you select a folder, a list of FAQs and all subsidiary folders is displayed. This lets you find your way through hundreds of FAQs to select the desired topic with just a few mouse-clicks, and quickly obtain an overview.

For some countries, information is also available about products that are only sold locally. These country-specific entries are often written in the appropriate language. ■



Example of FAQ about USB

Try the FAQ Manager now.  
You will find it under:  
[www.sbc-support.ch/faq](http://www.sbc-support.ch/faq)



With the increasing number of FAQs, full text search has been provided to save you the trouble of lengthy searching. Results can be sorted with a single mouse-click.

## Getting Started at [www.sbc-support.ch](http://www.sbc-support.ch)



To make it easier for new customers to enter the Saia®PCD environment, a Getting Started section has been added to the support site. This offers an introduction to the main topics and basic procedure when creating an application. The collection of examples will be of particular interest, because you can save time by building onto these PG5 project examples, which are available for downloading complete with descriptions. ■



## News about manuals

### PCD1 | PCD2 hardware manual



Reference/Version:  
26/737 D12, E12, F12, I12

In recent years, the PCD1/PCD2 ranges have been extended and the manual has become less clear. To make it easier for you to use, it has been completely revised in the last few months.

### PCD3 hardware manual



Reference/Version:  
26/789 D5, E5, F5, I5

Information about the new CPUs has been added. This manual is available on the support site.

### xx7 Starter manual



Reference/Version:  
26/835 D2, E2

New manual, especially for new xx7 customers. This manual helps customers who are familiar with Siemens® STEP®7, so that they can quickly start programming Saia®CPUs

### Web servers in PCD1

New CPU types PCD1.M125 and PCD1.M135 are scheduled for launch at the end of Q3/05. As a result, the PCD1 range will also have access to popular Saia web server functions.

### Web servers in PCD2.M150

By the end of 2005, the PCD2.M150 will have a new firmware version supporting web server functionality. This will allow all our customers to benefit from integral web pages in all projects across the entire price range, from PCD1 to PCD4.

### Saia®web editor

This indispensable tool for Saia®web servers is now available. The web editor lets users create dynamic web pages without writing any program code, bringing real-time data within everyone's reach, any time, anywhere.

### Saia®PCD xx7

A new system information document (ref. 26/438) is now available, describing in detail the outstanding performance characteristics of the Saia®PCD xx7 range.

### Saia-Burgess presents full HMI range

The new system brochure 26/432 clearly sets out the impressive extent of our HMIs. A large range meets the finest requirement levels and offers optimum solutions for practically all control and monitoring tasks.

### Replacement for PCD2.W1xx modules

The PCD2.W745 temperature module, launched some months ago, provides an economical replacement for much of the PCD2.W1xx range. This module is, of course, already available for Saia®PCD3.

### Saia®PCD2.M150 recommended

In view of plans to extend the functionality of the PCD2.M150, we advise users to choose it in preference to the PCD2.M120. With the PCD2.M150, the customer has more power, greater flexibility, the same reliability and – in the very near future – full web functionality.

## News about TIs, SIs and CDs

### Technical documentation CD



Version/Order reference: 26/804 M2

Last year, the documentation CD was produced for the first time in the form of a support site snap shot. This method allows you to navigate a familiar setting and, for us, means significantly less expense when editing a new version. The updated version can be ordered immediately.

### TI Visi-Plus



Order reference/Version:  
26/331 D2, E2

This TI has been completely revised with the addition of application examples and descriptions.

### TI OPC server



Order reference/Version:  
26/357 D3, E3, F3, I3

Technical data has been updated and the layout adjusted.

### TI Single room controller DDC.Plus ROOM



Order reference/Version:  
26/372 D2, E2, F2

Updated and with additions.

### TI PCD3 I/O modules



Order reference/Version:  
26/388 D8, E8, F5, I5, CZ5

Manual control modules have been added.

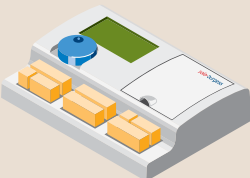
### TI Saia®PCD3.Mxxx0



Order reference/Version:  
26/397 D5, E5, F5, I5, NL5

Updated and with additions.

PCS1 with PG5



With the PCS1, real-time clock buffering is switched on by positioning the appropriate FBox. Up to and including PG5 1.3.120, this FBox contains an error which means that buffering is not switched on in all cases. After any interruption to the supply, problems may arise in schedulers and other time-dependent functions.

Remedy: install new version of standard FBox library, recompile program and download.

TI PCD7.D7xx Touch-screen panels



Version/Order reference: 26/421 D2, E2, F2, I2

New touch-screen terminals have been added.

SI S-Web



Version/Order reference: 26/428 D1, E1, F1, I1

New system information.

TI PCD1 | PCD2



Version/Order reference: 26/423 D2, E2, F2, I2

New TI, superseding 26/350 and 26/351. New PCD1.M1x5 integrated.

TI Terminals and HMI editor



Version/Order reference: 26/430 D1, E1, F1, I1

New technical information, superseding 26/355 and 26/382.

Flyer Saia®PCD web panel



Version/Order reference: 26/424 D1, E1, F1, I1

New flyer.

SO HMI-Overview



Version/Order reference: 26/432 E1, I1

New S-HMI system overview. Shows the full range of Saia®PCD panels and terminals.

Laptops without a serial interface



Increasingly, laptops do not now have serial ports on board, so diversion is necessary onto a USB/serial converter. Unfortunately, not all converters are suitable for S-Bus and PGU communications, nor for downloading PCD7.D7xx terminal projects. This is because the handshake lines on some products are not properly controlled. In the FAQ Manager, you will find references for two tested products (search with keyword USB).

News about PC software



Package	Version	What's new?
Controls Suite (including PG5)	1.3.120	Compared with version 1.3.110 bugfix only. Customers with versions <1.3.110 are advised to update.
OPC Server	2.02.10.20	Bugfix version, compatible with PG5 1.3

PCA repairs service withdrawn



PCA controllers were placed on notice years ago. However, until the end of 2004 repairs were still carried out.

We have been forced to withdraw this service, due to the lack of available components. At the moment, spares are still available for a few PCA modules. Please therefore contact us if a repair becomes necessary, so that we can clarify where the module you need has a replacement available.

News about firmware

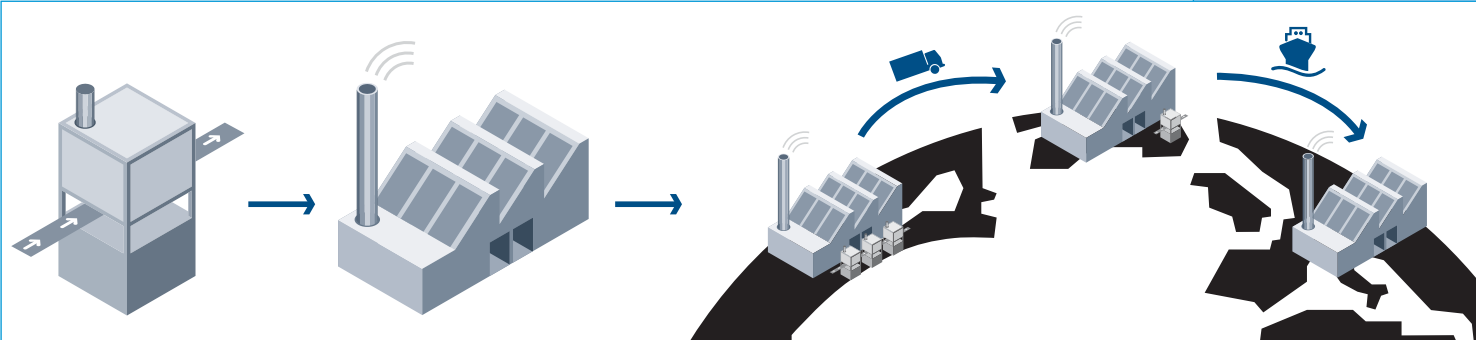
Product	Version	What's new?
PCD3.T760	V1.014	Supports new I/O modules
PCD2.M480	V020	First official version with support for USB, Profi-S-Bus, Profi-S-I0, multiple S-Bus PGU
PCD2.M487	V1.300	USB support
PCD3.Mxxxx	V010	First official version
PCD1.M1x0, PCD2.M1x0, V083, V096, V0C4, V017		Changes concerning TCP/IP, with M170 also concerning web server
PCD2/PCD4.M170		Support for W3x5 and W6x5 modules, WinCC V6.0.
PCD1.M137, PCD2.Mxx7	V3.100	

# TECHNOLOGY AND TRENDS

## Factory automation technology suppliers – what the 21<sup>st</sup> century expects from you

This was a key topic at the 3<sup>rd</sup> EFAC Conference (European Factory Automation Committee) at January in Davos/CH. The objective of the conference was to inform decision makers in the automation industry about the latest challenges and trends in the industry (see [www.efac.org](http://www.efac.org)).

Saia-Burgess was invited to present to the conference what challenges and trends it sees for automation technology suppliers in the 21<sup>st</sup> Century. Saia-Burgess is particularly well qualified to deal with this topic because of its dual function as both an important customer for automation technology and a successful supplier of control systems.



From assembly cell automation to factory automation... all the way to company automation

This article is an overview of topic areas that generated the most interest.

### Financial aspects of automation

Acceptable time spans for return on investment grow ever shorter because product lives are shorter and because, under intensified competition in the global economy, unfortunately customer ties also become more uncertain. At the same time, it is getting harder and harder to source loans for investment, because capital markets have dried up and the banks practise a very strict lending policy.

Even when the money is available, it may be not wise to spend it. As a practical example, take the annual production of 3.5 million pieces of microswitches.

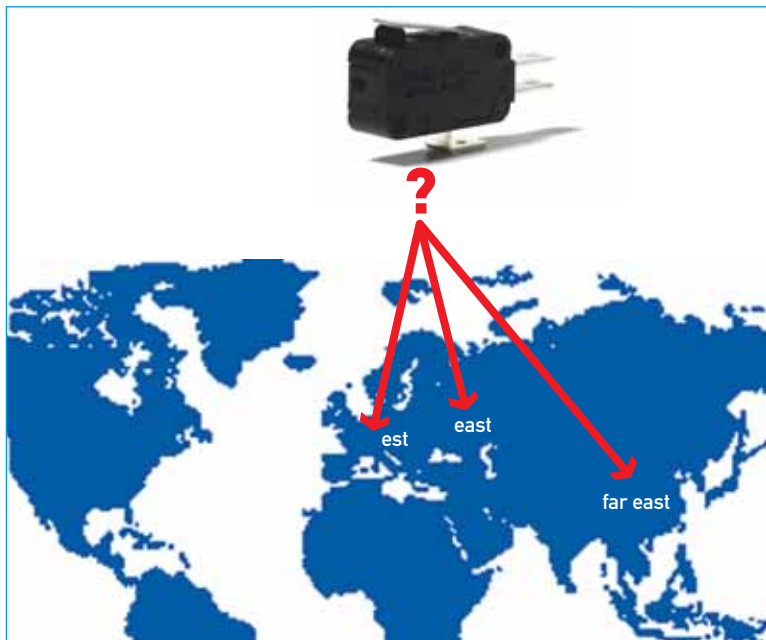
Where should they be produced and what means should be used to minimize expense and maximize profit?

For these microswitches, Saia-Burgess has a choice between fully automated assembly in the original factory in Germany or technically supported manual assembly in one of the subsidiary plants in Hungary or China.

The calculation for 3.5 million switches results in annual costs (labour + depreciation) of 235 kEuro in Germany compared with around 173 kEuro in Hungary and just 71 kEuro in China.

Astonishingly, the depreciation costs alone of the automated assembly machine in Germany are higher than the entire production cost in China. Technically supported assembly in low labour cost countries in the Far East needs just 20 percent of the investment compared with a fully automated assembly line. However, investment and production costs are just one part of the big challenge that "eastward migration" represents for automation suppliers. If customer demand drops to only 1.75 million instead of 3.5 million, depreciation costs will suddenly become twice as high as the total production cost in China. On the other hand, if demand significantly exceeds the 3.5 million pieces per annum, capacity would have to be increased with a new assembly line, involving supply bottlenecks and delays of up to 15 months before the new assembly line is delivered, installed and commissioned. In China this would happen significantly faster, because it would only be necessary to expand the relatively simple technical aids to assembly and lay on more staff. However, the worst case with fully automated assembly would be to lose the business to a competitor. If that happened, we would have to write off the original investment at a stroke – that would certainly not be good for the profit and loss account, nor for shareholders.

This example demonstrates quite clearly how "eastward migration" rep-





resents a challenge for the automation industry that can no longer be countered with good ideas, harder work and faster assembly lines. If more work is to be left Europe, the automation industry has to analyse and redefine its role in the added value chain of manufacturing companies. The ideal for fast growing public companies like Saia-Burgess would be automation that does not tie up much capital. This might comprise lower cost automation equipment, designed for a shorter life expectancy (possibly combined with low Far-East production costs) or rented (not leased or bought) automation equipment.

Renting requires significantly less starting capital and, with a rent model, suppliers could divide their profit over a certain period of time, rather than all at once, when the equipment is delivered. It would also result in lower depreciation, as automation suppliers could reuse equipment after expiry of the rent contract. The risk of losses would also be smaller, and the scalability of automation expenditure would be better able to smooth out fluctuations in customer demand.

The rent model minimizes the initial financial burden and risk for producers. At the same time, it opens up interesting added income for automation suppliers, as payment for applying a completely new type of business model. If business goes well, higher profits would be achievable in the long run with the rent model than by selling the same equipment in the face of competitive pressure and a buyer's limited financial possibilities.

The rent model is certainly only an alternative for financially strong automation suppliers with sufficient business volume. However, for these companies the rent model is probably more profitable than going into contract production themselves.

**Company automation**

In 1970, a cheap drilling machine cost around CHF 80 (CHF 226 at today's values). Today a comparable drilling machine, but with more power and much more functionality, will only bring a manufacturer CHF 39.

Over the same period, the production costs per piece have fallen from CHF 13.40 to less than CHF 2.50 CHF and materials costs have halved.

The lower production costs are either due to fully automated assembly, or Far-East production. The fall in materials costs is due to rationalization by higher segmentation in the value added chain, with processing steps distributed worldwide.

What conclusion should be drawn? In automation, the big potential for optimisation and savings is no longer in assembly. From CHF 13.40 there are only CHF 2.5 left. The big savings potential is now in the overheads for the factory and the whole company. These costs have hardly fallen over the past 35 years. Here there is potential present that is about five times as big the remaining assembly costs. In order to exploit this potential, it is necessary to view a factory as a single large production installation with an input and an output. This installation has

to be fully automated and controlled, like any normal machine.

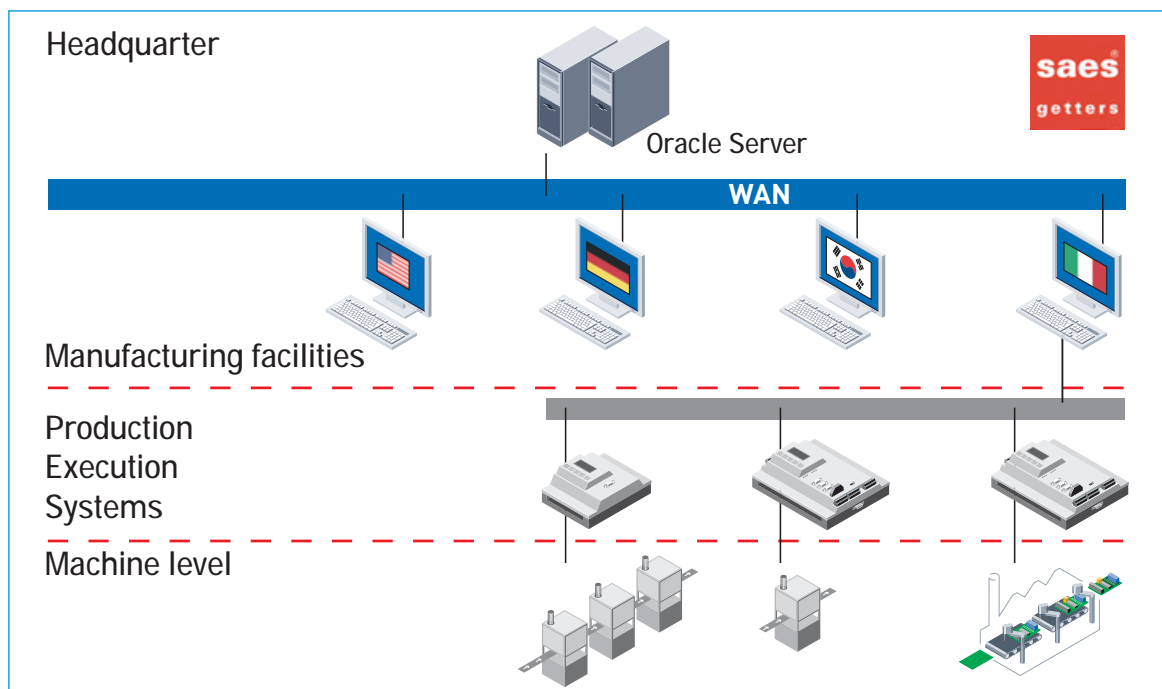
All the production installations involved are joined together, with the help of transport/logistics companies (for example DHL, TNT) to form a global production line, which itself needs maximum just-in-time control and automation to eliminate any need for interim stocks.

The highest possible efficiency with lowest per piece cost can be reached when a fully automated assembly/production process is part of a fully automated production installation, which is itself part of an automated global company.

The diagram shows the example of the Italian based global company SAES Getters, which has reached an exemplary level of company automation. To arrive at this level the company had to connect its existing, old manufacturing equipment and installations in the various plants to the local and global IT/ERP System. Due to presence of many different standards and manufacturers in the existing manufacturing facilities, this connection had to be done via a logical and physical intermediate layer. This layer consists of industrial substations for I/O and data collection as well as data pre-processing.

At the EFAC conference, an application video was shown about another company in the automotive business which, like SAES Getters, has also implemented company automation very well. This self explanatory video can be downloaded from [www.sbc-support.ch/woa.html](http://www.sbc-support.ch/woa.html)

Global network of the company SAES Getters with its head office in Italy



Although we do good business supplying such substations as a bridge between the factory itself and the IT/ERP world, the expectations of the 21<sup>st</sup> century are clear to us:

All new devices and equipment must be directly and simply connectable to a company's IT system, to avoid the hardware and software costs of an intermediate level.

Therefore, Ethernet and Web technologies play a key role in the seamless integration of all automation equipment within a company's IT system.

### Technology change as an opportunity for the future

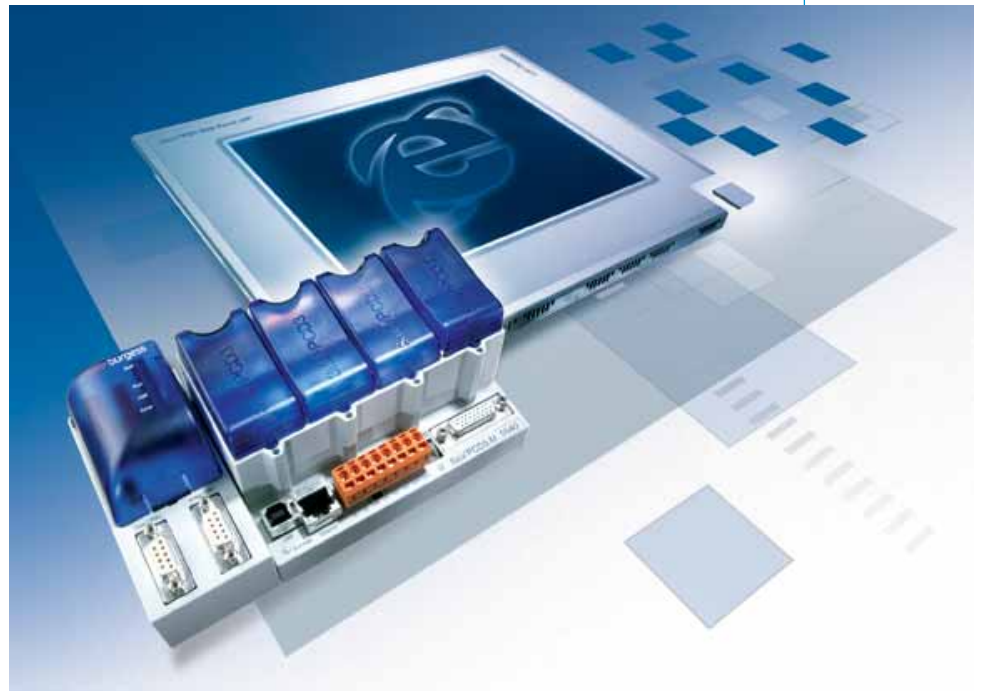
The networking of all kinds of digital automation devices/installations via the global standard Ethernet TCP/IP is more and more common practice. However, so far this trend has been viewed by most suppliers of assembly machines and robots as just an additional risk and technical burden, which will ultimately only increase their own costs.

This is a rather short sighted assessment. It would be much more intelligent to see the new technologies as an opportunity to generate added value and benefit for customers. When pure cycle time or machine output loses relative importance, adopting new control technologies within products offered may supply the crucial competitive edge in terms of competence and functionality. There is no doubt that it is a real advantage if, via Ethernet-TCP/IP, automation equipment can be easily integrated at any time into the automation system of a factory.

Another clear opportunity – and a challenge in the 21<sup>st</sup> Century – is the use of web technology in automation. Web browsers, servers, HTML, XML, HTTP and Java, etc. allow easy interoperability between very different machines/devices. The web browser, known and accept-



The browser as a universal window on the automation world. Increasingly, it makes proprietary tools redundant.



ed everywhere, will become the generic window into the automation world. The diverse, expensive and incompatible software tools of controls suppliers will become less significant in the operation of automation systems. Through the web browser, service staff and operators will have direct access to all functions needed to run an automated plant. Proprietary software tools will ultimately only be relevant for specialists during the development process. The user needs less training, as he will work with user-specific HTML pages that help him to do exactly what he is supposed to do. He does not need a training course lasting several weeks to find out the few things he will finally use. He will be less likely to make mistakes and he can easily be replaced by a colleague. It is also more efficient for a supplier of machines, if he can work with one generic service and operator interface via the web for all his customers, instead of always re-inventing the whole machine control system for the same machine several times over, depending on the locally preferred control supplier.

Modern technology today allows connection via Windows Explorer and USB directly to a PLC. The controller's data and files are seen as being on the local hard drive. Here too, the use of proprietary tools is just no longer necessary. Web technology and direct access to the controller via Windows Explorer are only two examples of how automation suppliers can better face the challenges of the 21<sup>st</sup> Century by using modern technology. Another important innovation is the .Net technology for the Microsoft Windows operating system. With this technology, application software

now only has to be written once. It will then run everywhere, from the big Windows PC down to the small hand-held Windows CE PDA.

This new Windows.Net world will doubtless re-shape the whole HMI and service tool business. It is a great opportunity for companies that apply Windows with all its strong points, but do not fall in the tempting trap of mixing Windows with basic machine control functions. This combination is only suitable for very high volume applications, such as sophisticated motion control for CNC and 6+ axes robots. Normal machine/automation companies with lower volumes and less demanding applications should avoid it. With USB and Ethernet there are now really fast, economical, generic interfaces available that allow core machine control to be cleanly separated from the Bill Gates world. ■

# AGENDA & REFERENCE APPLICATION

## Exhibitions/Trade fairs



6. – 9. 9. 2005  
Ineltec 2005  
Basel, Switzerland

7. – 10. 9. 2005  
Elektrotechnik  
Dortmund, Germany

26. – 30. 9. 2005  
Elektrotechnik  
Jaarbeurs Utrecht, Netherlands

27. – 29. 9. 2005  
Automation  
Paris, France

3. – 7. 10. 2005  
TIB  
Bukarest, Romania

9. – 12. 10. 2005  
Clima 2005  
Lausanne, Switzerland

20. – 21. 10. 2005  
Mocon  
Brüssel, Belgium

22. – 24. 11. 2005  
SPS/IPC/DRIVERS  
Nürnberg, Germany

25. – 26. 10. 2005  
Water Technical  
Pécs, Hungary

31. 1. 2006 – 3. 2. 2006  
Salon INTERCLIMA  
Paris, France



## Workshops

Saia-Burgess Controls AG  
Murten, Switzerland



13. – 15. 9. 2005  
Basisworkshop (german)

20. – 22. 9. 2005  
Basisworkshop  
(french)

27. – 29. 9. 2005  
Basisworkshop  
Gebäudeautomation  
(german)

18. – 20. 10. 2005  
Basisworkshop  
Gebäudeautomation  
(french)

25. – 27. 10. 2005  
Workshop ViSi-PLUS  
(german)

1. – 3. 11. 2005  
Workshop ViSi-PLUS  
(french)

8. – 9. 11. 2005  
Workshop S-Net (german)

10. 11. 2005  
Webtechnologie (german)

15. – 16. 11. 2005  
Workshop S-Net  
(french)

17. 11. 2005  
Webtechnologie  
(french)

21. – 23. 11. 2005  
AWL programmieren  
(german)

24. – 25. 11. 2005  
AWL programmieren  
(french)

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5. 9. 2005  
Basisworkshop

6. – 7. 9. 2005  
PG5 Workshop

12. – 13. 9. 2005  
HLK Workshop

14. 9. 2005  
S-Net Workshop

26. 9. 2005  
HMI Editor/Textterminals  
Aufbauworkshop

27. 9. 2005  
Intelligente Terminals  
Aufbauworkshop

29. 9. 2005  
Profibus Workshop

3. – 5. 10. 2005  
ViSi-PLUS Workshop

19. – 20. 10. 2005  
Web-Server  
Aufbauworkshop



Workshops

Saia-Burgess Benelux B. V.  
Netherland/Belgium



Belgium (Vilvoorde)

- |   |                                       |
|---|---------------------------------------|
| 6. – 7. 9. 2005<br>PG5 (Flemish)        | 12. 10. 2005<br>FBox Builder (French) |
| 27. – 28. 9. 2005<br>PG5 (French)       | 8. 11. 2005<br>S-Net (Flemish)        |
| 5. 10. 2005<br>Web technology (Flemish) | 9. 11. 2005<br>S-Net (French)         |
| 6. 10. 2005<br>Web technology (French)  |                                       |
| 11. 10. 2005<br>FBox Builder (Flemish)  |                                       |

Netherlands (Gouda)

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|-----------------------------------|---------------------------------|
| 13. – 14. 9. 2005<br>PG5 Workshop | 1. 11. 2005<br>ViSi-Plus        |
| 20. – 22. 9. 2005<br>DDC-Suite    | 15. – 17. 11. 2005<br>DDC-Suite |
| 4. 10. 2005<br>Web technology     | 22. 11. 2005<br>Web technology  |
| 8. – 9. 10. 2005<br>PG5 Workshop  | 24. 11. 2005<br>S-Net           |
| 18. 10. 2005<br>FBox Builder      | 29. 11. 2005<br>ViSi-Plus       |
| 19. 10. 2005<br>S-Net             |                                 |

Saia-Burgess Dreieich GmbH  
Dreieich, Germany



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|---------------------------------|-------------------------------------|
| 23. – 24. 8. 2005<br>DDC-BACnet | 26. – 27. 9. 2005<br>PCD-Kurs       |
| 30. 8. 2005<br>F-Box Builder    | 28. – 29. 9. 2005<br>F-Box-Workshop |
| 12. – 15. 9. 2005<br>DDC-DKZ    | 11. – 14. 10. 2005<br>DDC-Kurs      |
| 20. 9. 2005<br>S-Bus            | 25. – 26. 10. 2005<br>DDC-BACNet    |
| 21. 9. 2005<br>Ether S-Net      | 9. – 10. 11. 2005<br>S-Web          |
| 21. – 23. 9. 2005<br>ViSi-Plus  | 23. – 25. 11. 2005<br>ViSi-Plus     |
| 22. 9. 2005<br>Profi S-Net      | 29. – 30. 11. 2005<br>DDC-Kurs      |
| 23. 9. 2005<br>DDC-LON          | 1. – 2. 12. 2005<br>DDC-Kurs        |

Saia-Burgess Paris Sarl  
Gennevilliers, France



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|---|--|
| September 2005<br>Modules Communication<br>Saia®PCD | November 2005<br>Modules Communication<br>Saia®PCD           |
| 19. – 23. 9. 2005<br>Programmation Saia®PCD         | November 2005<br>Modules Chauffage<br>Climatisation Saia®PCD |
| 17. – 21. 10. 2005<br>Programmation Saia®PCD        | 28. 11. – 2. 12. 2005<br>Programmation Saia®PCD              |

Saia-Burgess Milano Srl.  
Corsico/Milano, Italy

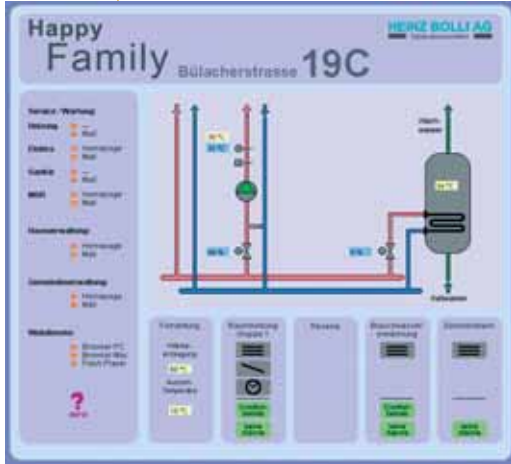


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|--|---|
| 26. – 27. 10. 2005<br>Corso di programmazione<br>FUPLA                           | 23. – 24. 11. 2005<br>Corso base di programmazione<br>in Lista Istruzioni (IL),<br>con pacchetto di<br>programmazione PG5 |
| 26. – 27. 10. 2005<br>Corso di comunicazione<br>in Lista Istruzioni (IL) e FUPLA |   |



# Saia®PCD and Saia®PCS ensure heating comfort in the Happy Family Park, Embrach

The Happy Family housing development in Embrach near Zurich comprises 20 terraced houses, 6 residential blocks and 1 detached house.



Its common heating system is controlled by a Saia®PCD3.M5540 gateway station. This has 6 interfaces in multi-pro-

col operation to ensure continuous communication from the front-end PC – with Happy Family Internet connection – via Ethernet TCP/IP to the field bus level with Saia®PCS1 compact controllers in all 27 houses. All systems, including room heater, boiler and remote line controllers, are networked with each other.

The PCD3.M5540 and all 27 PCS1s have an integral web server as standard equipment (at no extra charge). This gives residents, via the Internet site of Happy Family, practically free, transparent access to their heating data, which they can conveniently adjust according to need.

The caretaker has web access to all the important data for all houses. He uses it for the efficient remote control of the system, fault location and removal. He receives alarms instantly via SMS from the PCD3.M5540.

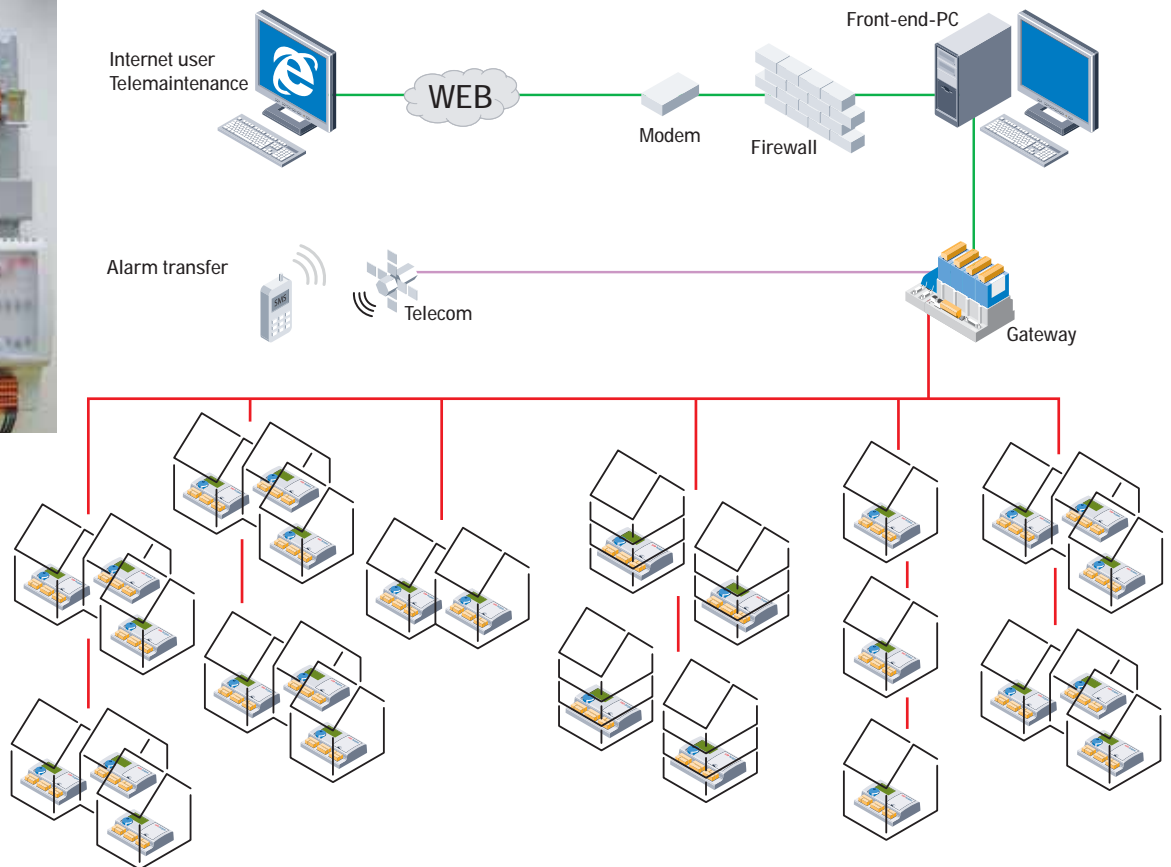
Thanks to the new Saia®S-Net technology and the latest S-Web editor, system integrators can now realize com-

plex applications like this even faster and more economically.

## Integrator

Heinz Bolli Ltd was established in 1982 and its main activity is the integration of building automation systems.

For the eight experienced staff members, quality, user friendliness and continuity are top priorities. Since 2003, Heinz Bolli Ltd has therefore relied on proven control products from Saia-Burgess Controls. ■



Control and monitoring of water levels, Hoogemraadschap Rijnland, Den Haag, Netherland



## Active water management in the Netherlands

Close to The Hague is the district of Midden. Its 100 000 inhabitants look to the Rijnland District Water Control Board to manage water levels across their region. This is achieved with the help of 140 pumping stations controlled by PCD1 or PCD2 devices.

- 100 PCD1s and PCD2s with modem for storage and dispatch of pumping data, soon to be extended to 140 devices
- future plan: web technology for communication

The job of Mr Loek Koek, Team Manager Water Systems, involves active water management to ensure the ground is neither too wet nor too dry. The problems of too much water are obvious, but too little can also result in enormous damage, not only to crops, but also to building foundations and dikes. It causes cracking in peat dikes and, in grass areas, bedding down of the ground. The District Water Control Board seeks to prevent such damage through active water management. This is a complex task, particularly when water levels in this district can range from +2 m above to -5.5 m below NAP (normal Amsterdam level). Also, every polder in turn has a variety of water levels, barely visible to a non-professional, but which need to be taken into consideration. This accounts for the many small dams, and pumping stations of all sizes. Pumping

capacities can vary widely: from 1 m<sup>3</sup>/min to 400 m<sup>3</sup>/min. Throughout the district, pumping stations and dams ensure that the water level stays within pre-defined minimum and maximum limits at all times. With the help of a sensor, float and electrode, these pumping stations switch on or off as soon as the water reaches either the upper or lower limit.

### Control

Loek Koek explains how he knows that all pump stations are working:

„Many of the pumping stations are a long way from the road, in the middle of a field or the open countryside. So in 1997 the Rijnland District Water Control Board started to install PCD1 and PCD2 controllers. At present, 100 pumping stations are equipped with them. Their task is to register every 15 minutes what the water level is, if an alarm has been triggered and when, and if the power is still on. Once every 24 hours the PCDs make contact through a modem connection with the server in Leiderdorp, where all the data is centrally stored.“

### Plans

The Rijnland District Water Control Board is currently planning to develop an Ethernet network so that all data can be viewed through web technology. The



advantage of this development is that all employees have access to data more easily: internet technology is much more widespread and users therefore need less training. An important point, according to the District Water Control Board, is liability. Loek Koek explains:

„The system is crucial for all polders. It must function at all times, and there are few compromises. The first challenge is to extend it with 40 new PCD systems. This will soon be implemented in the Midden district and they will start operating in the pumping stations.“ ■

Many pumping stations are situated far from main roads. They are equipped with a Saia®PCD1 or Saia®PCD2 and distribute their data every 24 hours through a modem connection to the control centre in Leiderdorp



Mixing and Packaging cereals, flour mills De IJsselmolen, Capelle aan den IJssel, Netherland



## Modern operating techniques and food safety are main ingredients at corn mill

In the town of Capelle, the De IJsselmolen flour mills use the latest operating techniques to combine quality with nearly 200 years of tradition.

PROFIBUS ensures that all the different stages of grinding and packaging corn products are efficient and comply with food safety legislation.

### Tasks and goals

Grains processed by De IJsselmolen flour mills include rice, wheat, oats, rye and barley. However, raw materials for bakeries are also part of the range. Special ingredients, made to customer specification, form a major part of the delivery range. For example, the manufacturing of gluten-free products is an important specialty of De IJsselmolen. Some people are allergic to gluten, a normal ingredient of corn, and must avoid it at all times. Therefore a fully divided production system is used for this gluten-free product to exclude any chance of contamination.

At De IJsselmolen processing starts when the grain arrives in trucks and is

weighed. It is first delivered into a receiving tank, from which it is sent to twelve different silos for storage. It is then taken from these silos to be mixed with other products. An important stage between these processes is sifting. Right after arrival, the corn is sifted to remove all substances that are either too big or too small. Sifting is also repeatedly done between the different stages of grinding, milling and grading of the corn seeds. The end product is flour that has been weighed and packed in bags that range from 5 kg to 1 tonne.

### Process operation

The different process steps at De IJsselmolen are mainly controlled by four PCD2 PLCs and one PCD4 PLC from Saia-Burgess. Of these, one PCD2.M170 is connected to the packaging island with four Siemens S7 PLCs. A Wizcon SCADA system is used for operation and visualization. Most operation takes place via S-Bus, while communication between the PCD2.M170 and the S7 devices goes through PROFIBUS. Communication with the Wizcon applications is via Ethernet.

A novelty is the use of 4 weighing modules type PCD2.W720 with 24 load cells. The advantage of this is that the PCD2.W720 needs no transmitters. The internal resolution is 18 bits, which could not have been achieved through a traditional combination of transmitters and an analogue input. This advantage means fewer components and measuring failures. The weighing module has a four-wire connection technique which results in stable, controllable measuring.

Operation of the gluten free production line is handled by a PCD2.M480 with Coldfire processor. This PLC is connected via PROFIBUS to three remote I/O stations type PCD0. It mainly communicates through Ethernet with SCADA. This is the connection that manages raw materials processing, grinding and packaging.

### Tracking and tracing

For the purposes of traceability, data from the production database must be linked with data from the packaging island. The S7 devices therefore exchange data with the master PCD2. ■



Control Engineering Poland  
Readers' Choice Awards  
for Saia®PCD7.D23x  
terminal family



This is the 1<sup>st</sup> time that the Polish edition of Control Engineering magazine organized the Readers' Choice Awards, electing the best products on the market based on their own criteria/opinion. This award is aimed to represent a choice of products that meet customers needs and expectations.

This year, according to the reader's survey, Saia-Burgess PCD7.D23x terminals family was selected as the most popular HMI product for industrial automation.

On receiving the responses and tallying the results, Saia-Burgess terminals emerged as number one HMI product. This award reaffirm Saia-Burgess's commitment to developing innovative technology that is designed to enhance and improve industrial automation. Saia-Burgess is recognized in Poland as a company consistently striving to exceed the needs of customers in terms of product innovation. ■



HEVAC installation, Hotel Accor, Berne, Switzerland



Technical management at Hotel Accor, Berne, Switzerland

In 2004, the French Accor group opened its third hotel in Switzerland. The hotel has 13 floors with 310 rooms, offering 3 levels of service.



Novotel\*\*\*\*  
Ibis\*\*  
Etap\*

The contract to implement HEVAC installation control was awarded to Commande SA, an integrator for Saia-Burgess Controls Ltd. In this project, Commande SA made systematic use of Saia®PCD2 PLCs and Belimo servomotors linked by the MP bus, ranging from hot water distribution in the basement all the way to cooling systems on the roof. Supervision was implemented with Labview, giving Commande SA direct access to all equipment linked by S-Bus. If an intervention is necessary, the maintenance engineer is alerted by radio paging or SMS. Each room has an individual standardized controller within the Hotel Accor, to look after the comfort of occupants. ■

necessary, the maintenance engineer is alerted by radio paging or SMS.

Each room has an individual standardized controller within the Hotel Accor, to look after the comfort of occupants. ■

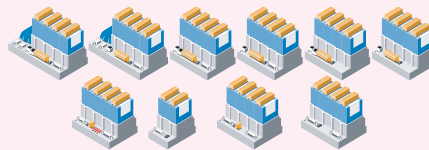


Switch cabinets with Saia®PCD2.M120 substations, including extension housings



Coolers on hotel roof

Saia-Burgess Controls PCD3 technology  
awarded Gold Medal in Poland



During the 11<sup>th</sup> edition of Automaton International Fair for Measurement and Control held this April in Warsaw, Poland, SABUR Ltd., the Polish representation of Saia-Burgess Controls has been awarded GOLD MEDAL for the Saia®PCD3 technology concept.

The title of the candidature was: "The new idea of efficient and cost-effective monitoring, servicing and exploitation of automation solutions based on Saia®S-Web technology, Profi-S-Net protocols and Saia®PCD3 family". The contest board, which gathered outstanding specialists, chooses products which have the most significant meaning for the technology development. This year Saia®PCD3 technology was one of the awarded ones. ■



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