

## Infrastructure, or what?!

In 2002 we were able to report high rates of sales growth in some markets. This allowed us to offset a general decline in volume with our traditional machine customers to such an extent that we achieved our earnings targets, despite difficult conditions.

Any analysis soon shows that the crucial customers for this success are hard to describe properly using the classic categories of factory or building automation. The applications that brought this success go beyond the bounds of classical control engineering for production machines, just as much as they exceed the familiar framework of DDC technology for heating/ventilation/air conditioning in building.

When looking for an appropriate description, the concept of a facility is the term that best presents itself. A facility in this sense can be mobile, like a ship, or as large and extensive as a country. Every facility has a specific purpose demanding technical infrastructure, within which regulation, control and a large degree of automation take place. Wherever people live there must be heating, ventilation, light, etc. Wherever process machines operate there must be energy, logistics, supply, disposal, cooling, etc. If one views the world in terms of a facility, the utilities supplying water, electricity, gas, heat and waste disposal are part of its technical infrastructure for the core process of living.

According to this definition, the customers that brought our success in 2002 were series manufacturers (OEMs) producing devices/equipment for infrastructure, and engineering companies realizing automation projects for infrastructure.

In 2002, over 100 new customers brought us new sales in the field of infrastructure automation amounting to more than 1.3 million euros. They showed us that, as far as our competency and product range for technical infrastructure are concerned, we are very interesting ●

This encourages us, and spurs us on to continue working more intensively in this direction.

Jürgen Lauber,  
Divisional Manager



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Saia® PCS1

## in KWT heat pumps

KWT has a long tradition of its own heat pump controls. Since they have always been at the forefront in their scope of performance, KWT has for a long time worked on the basis of their own hardware for standard heat pumps and Saia®PCD for large installations.



At the beginning of 2002 a new development emerged in the field of standard heat pumps. After lengthy evaluation, KWT decided in mid 2002 to develop its new generation Matic4000 on the basis of Saia®PCS1. Decisive factors for KWT included the massive reduction of their own development costs for hardware, standardization of the development environment for small and large projects, remote access and remote maintenance for their installations and, last but not least, the economy of the solution and the good support.

Initial experiences with PCS1 have come up to all expectations. KWT has benefited from a compact, stable controller that can incorporate a control panel and controller some distance away from each other, thereby allowing integration with minimal redesign of heat pump housings.

For KWT the step away from a very successful development of their own to a production controller was at first unthinkable. However, since Saia's production controllers have the right amount of flexibility and user friendliness, the KWT Matic4000 has become a more than worthy successor ●

### Short News



## Multi-protocol communication:

### Saia®PCD2.M170 in high tech centre



In Singapore, Saia-Burgess Controls is supplying management of air conditioning for the data centre of Biopolis - a major new biomedical science centre. Located in close proximity to the National University of Singapore, the National University Hospital and the Singapore Science Parks, Biopolis is envisioned to be a world-class biomedical sciences research and development (R&D) hub in Asia.

The environmental requirements of computers in the data centre are met by 34 packaged air-conditioning units. These controllers are linked to 5 PCD2.M170 using their own proprietary protocol. A frequency inverter linked to the PCD2.M170 using the Modbus protocol

controls the fan motors of the air conditioning units.

In addition, each PCD2.M170 is linked to the estate management system via LONWorks. For local management of the system, five PCD7.D771 touch screen terminals are connected to the PCDs.

This project is executed by C&I Technologies (S) Pte Ltd. The Saia®PCD2.M170 was chosen for its capability to handle multiple protocols ●

## Successful communication

### with PCD2.M250 BACnet

By the end of 1991 it had been decided that Berlin should become the capital city for the whole of Germany and seat of its parliament. In the course of 1998 to 2000, parliament and the government moved to Berlin. To provide the best possible conditions of work for elected representatives and the different factions of the Bundestag, numerous new buildings were required. As a result, the new Federal Chancellery was built along with the Paul Löbe building, the Jakob Kaiser building, and other parliament buildings.

However, new buildings were not the only way of providing parliamentarians with the necessary office and meeting space. This was also achieved by converting many old government and ministerial buildings inherited from the former German Democratic Republic. DDC systems from a variety of manufacturers were used in the control and regulation of heating, ventilation and cooling equipment in these premises. Networking them and tying them up to a central building management system required a vendor-independent bus system. Practical considerations led to the choice of BACnet.

Berlin-based company Dieter Hein GmbH & Co. Regelungstechnik-Service KG was given a contract which, among other things, included tying the heating installations at no. 93 Dorotheenstrasse up to a centralized management system in the Reichstag. For this technically demanding task a substation was chosen with PCD2.M250 BACnet/IP, which had 500 possible BACnet data points.

From the operator's point of view, the modular system structure and free programmability of the PCD2.M250 are an advantage, because they leave the way open for further connections. In the meantime, smooth commissioning and fault-free operation have only served to confirm that the choice of a controller from Saia-Burgess was the right one ●



## Saia®PCD controllers

### help Prague Metro to beat floods

Last summer's catastrophic floods, which affected much of central Europe, had serious consequences for the Prague metro. Most of its control system was put out of action and urgently needed to be restored.

Fortunately, in 1992 the Metro Railway company of Prague had decided to update obsolete controllers with the latest technology using a modern decentralized system. These Saia®PCD controllers could be brought back into operation relatively quickly.

The original contract, which Saia-Burgess Controls had secured through its agent in Prague, involved several stages of modernization, some of which are still ongoing. All 51 km of Metro lines are now controlled by more than 100 Saia®PCD devices that communicate via modems and fibre optic cables with a supervisory centre. Two million passengers a day benefit from efficient automation, ensuring:

- fresh air supply, both in stations and tunnels
- ventilation and climate control in various rooms
- automatic control of pumps that draw off infiltration water from tunnels and expel waste water
- monitoring of passenger escalators and lifts.

In the wake of the floods, Industrial Control Services in Prague and Saia-Burgess Controls in Switzerland once again showed smooth professionalism in managing logistics and production, but also demonstrated a real spirit of solidarity. In a very short time it was possible to replace or reinstate damaged devices, and all at a substantially reduced price. Excellent international collaboration and the flexibility of a modern modular control system won the day in a situation where time was of the essence.

Comfort and safety for passengers and Metro staff are on top again ●





## New version 1.2 of PG5 programming tool



Programming, project planning and configuring Saia®PCD systems is now even easier, thanks to the new version of the Saia®PG5. Intensive work on adaptation and further development is now bearing fruit. The new version 1.2 includes the following innovations:

- Backup-and-restore functionality in Project Manager to archive individual CPUs or entire projects for later use
- Automatic creation of project documentation. Source files are formatted as readable; resource lists and settings are edited ready for printing.
- Download-in-run for IL and Graftec programs
- Registers, flags and counters can be initialised during download.
- Reference window for easy navigation around large Fupla files. FBoxes and resources can be located with a mouse click.
- Fupla supports the up and downloading of adjust parameters. Automatically generated symbols allow easy access.
- The Fupla compiler is many times faster
- Syntax checking in S-Edit during entry, or with menu instruction.
- Creation of Graftec programs with up to 6000 steps/transitions and 96 sequential blocks

Technology



## And - simultaneously - a new version HMI editor

Here too the accent is on flexibility and simplicity. Thanks to the following innovations (among others) the integration of HMI has been further simplified to reduce project planning times.

- Access to internal variables via predefined system symbols
- Language Manager (with „Review/Translate tool“) for text in up to 5 languages
- Import of existing HMI file (or parts of one) into current project

See for yourself! Order a demo version directly by [Internet on www.sbc-support.ch](http://www.sbc-support.ch) or ask for an early presentation.

## New terminal with graphical display and turn-control knob for navigator

The turn-control knob of the new PCD7.D230 terminal lets you navigate quickly and confidently through menu structures created with the HMI editor. It allows you to display any information required on the terminal and - if necessary - change settings, simply by turning the navigator knob to the left or right and then pressing it.

The terminal has a graphics display with LED back-lighting and 128 × 64 pixel resolution. This allows sophisticated layouts to be displayed in plain text or graphics mode. With the winning combination of an HMI editor and Saia terminal, there are many good reasons to install convenient control in all installations ●

## Saia®BACnet server for elegant DDC solutions

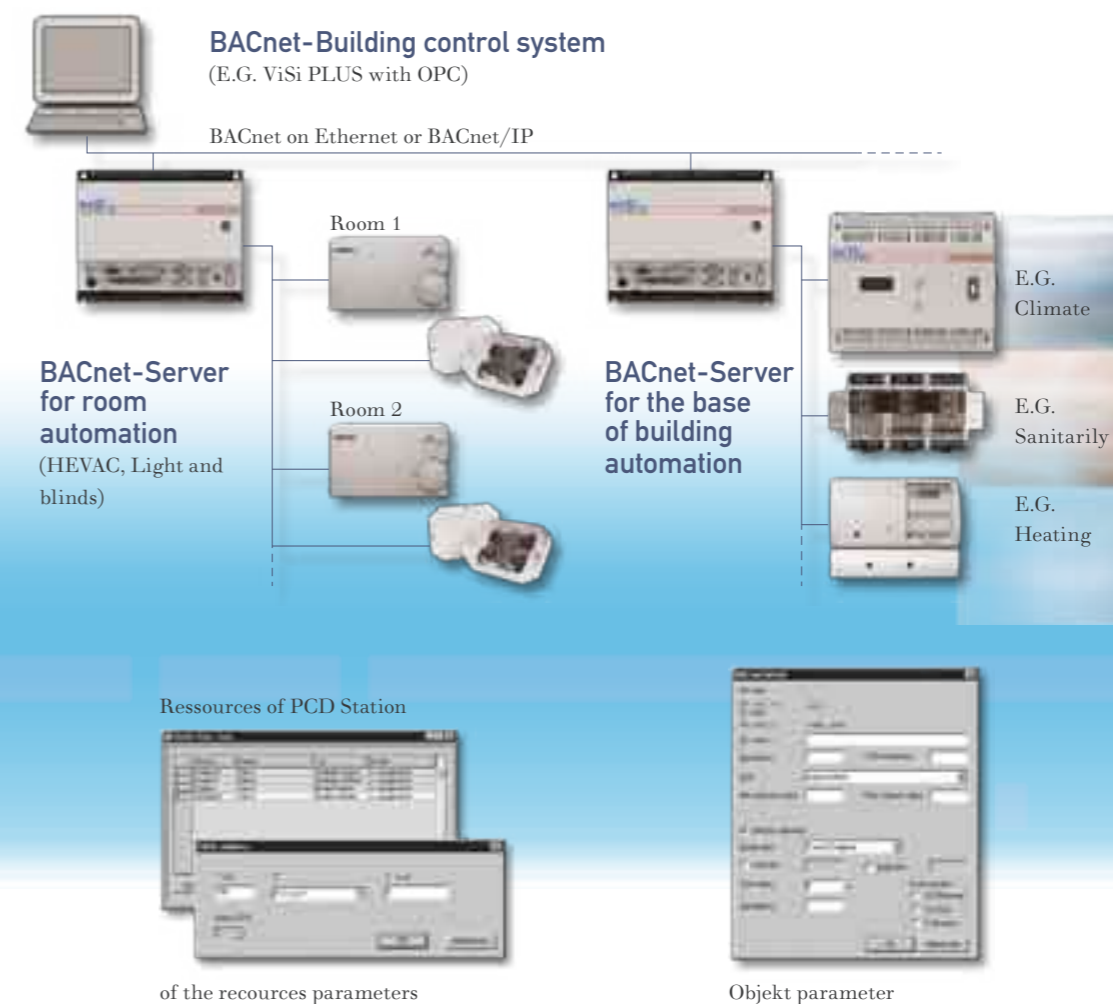
Based on the PCD2.M250, Saia-Burgess Controls offers a robust BACnet server that can manage up to 2000 BACnet objects in one server.

Since the server has been ported onto a PCD2.M250, it can also still be used as a standard automation station. Furthermore, the Saia®S-Bus gateway master channel can easily be used to connect additional automation stations, remote peripherals, or even room control systems.

The Saia®BACnet server meets Conformance Class 3 and satisfies Class 4 requirements regarding functional groups, event initiation, COV, calendar and scheduler. All BACnet services are supported both as client and server. The hierarchical structure of Conformance Classes means that Saia's solution will also support all lower classes. Project planning software is used to map PCD resources onto BACnet objects. A PCD resource always corresponds to the present value of a BACnet object. The network connection on the BACnet side is via standard Ethernet according to ISO 8802-3 or BACnet/IP.

The Saia®BACnet server is already being used on numerous jobsites, meeting the most modern requirements of complex building communications solutions in a transparent and elegant way. Perhaps your own might soon be one of them ... ●

Technology



## Drinking water conditioning equipment from the Alldos company: Smart7 in action

The Alldos company in Germany manufactures equipment for the conditioning of drinking water. Their installations are available in various versions and sizes and are used in major building complexes, such as in hotels or industry. Alldos uses PLC controllers in their larger installations, but until now, for cost reasons, they have used a controller they developed themselves in the smaller ones.

As part of a product redesign, Alldos decided to use PLCs even for their smallest installations. How was this possible?

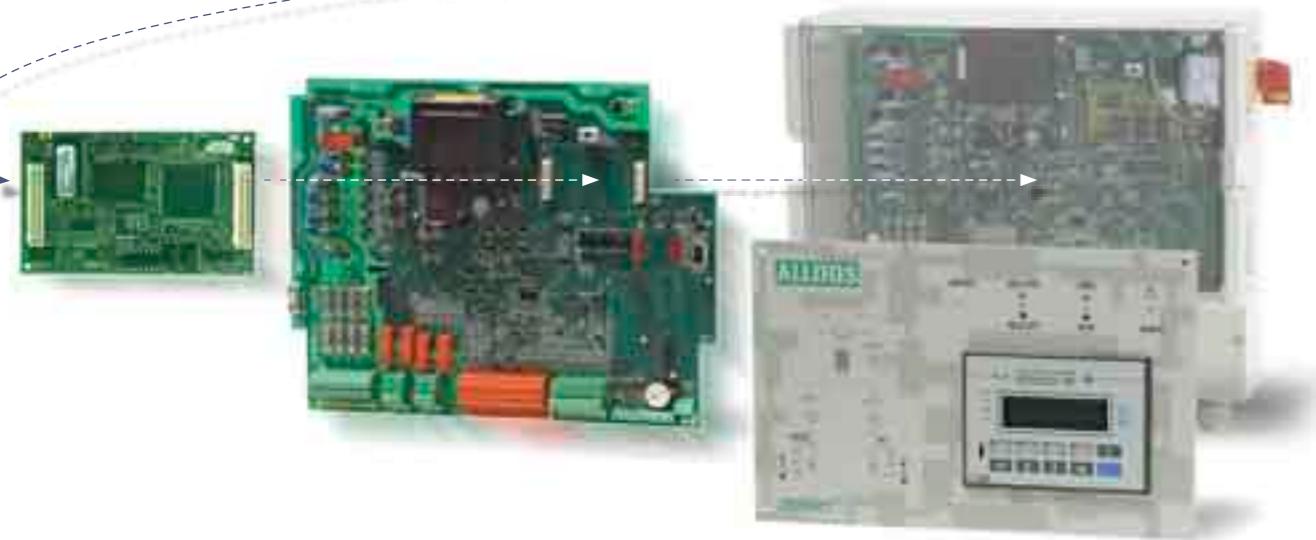
It was possible because Alldos used a Smart7 PLC kernel from Saia-Burgess Controls. As a result, development could be massively speeded up, costs and risks reduced and, of particular importance, investment in their own process and measurement know-how could be maximized.

### Saia®Smart7 really paid off for Alldos:

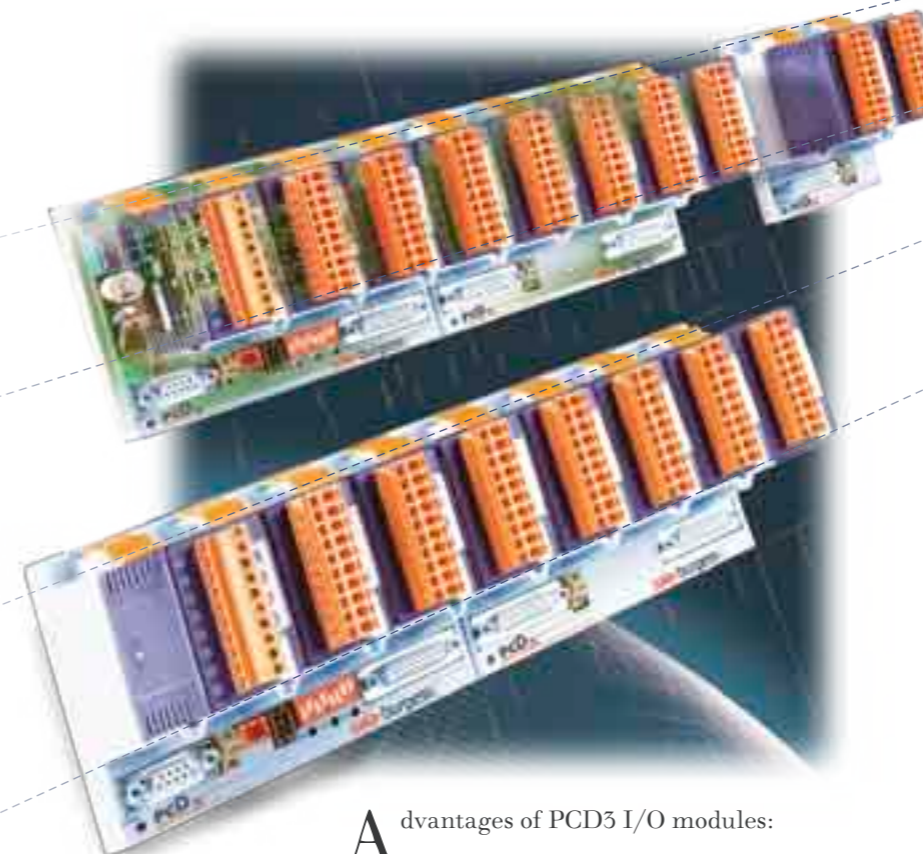
- no cost intensive investment in a CPU board with communications, firmware and maintenance
- uniform, flexible software tools and solutions for small and large installations
- shorter development time, quicker to market
- permanent control over deadlines, costs, risks and quality
- concentration of resources on own measuring and process know how, i.e. on the competitiveness of the solution ●



That is what we mean by



## More I/Os, more comfort: the PCD3 LIOs are here!



As announced in our last issue, the brand new PCD3 I/O modules from Saia-Burgess Controls are being launched on the market now. Also known as local I/Os (LIOs), the PCD3 I/O modules extend the familiar PCD2 technology and offer advantageous I/O expansion possibilities for PCD2 CPUs.

### Industry



Advantages of PCD3 I/O modules:

#### New housing technology

- Higher I/O packing density: up to 4x more I/Os for the same area in the switch cabinet as a PCD2 CPU
- Tool-free mounting/removal and protection against accidental contact for electronic components
- Easy mounting on DIN rail

#### New I/O connection technology

- Direct connection to PCD3 I/O module for cross-sections up to 2.5 mm<sup>2</sup>
- Connections selectable as screw terminals, spring terminals or external adapters

#### Built on basis of the proven PCD2 I/O range

- Wide choice of I/O functions, as usual with PCD2
- Same pin configuration as PCD2
- Same programming/configuring as PCD2

#### New system capabilities

- More I/Os for PCD2 CPUs: up to 256 I/Os for M120/127/150/157, up to 512 I/Os for M170/177 and up to 1024 I/Os for M480/487
- Future assured: the PCD3 I/O modules have been fully integrated within our future controller solutions

Evolution, not revolution: PCD3 LIOs open the way to many interesting system expansions. Make sure you see them demonstrated soon ●



## Web server at no extra charge in compact DDC station

Saia®PCS1 DDC compact stations provide web technology on all base units at no extra charge. Their unique technology provides integration for web-based control and monitoring, with clear benefits for site planners and site operators.

- No extra hardware; no service provider costs
- No expensive licensing costs for building management systems
- Access to HTML pages possible via any controller port
- From a central point in the network, it is possible to address all web pages in all controllers - even interconnecting through several network levels.
- Modem access (analogue, ISDN, GSM) is also supported.
- Free choice of web tool (e.g. Winword, Frontpage) for users to create web pages in HTML format with additional pictures or JAVA applications.
- All controller data can be displayed and modified in HTML pages.

These are clear benefits for system users. By integrating web technology right here at controller level, Saia-Burgess Controls has set new benchmarks for the building automation market ●

Building



## COMPACT-PLUS: with a PLUS for the system user

Saia-Burgess Controls offers an all-in-one solution in the shape of a PCS1 based controller programmed with all the standard site programs for heating, ventilation and sanitary engineering. A configuration, commissioning and service tool (supplied free-of-charge) lets system integrators decide which functions or combination of functions to activate.

The advantage is obvious: instead of having to integrate and commission two controllers for heating and ventilation technologies, the system user only needs one controller with freely assigned site programs. This fact also simplifies stock and spares logistics, because there only has to be one controller for all applications.

With these stand-alone features, Saia-Burgess Controls wants Compact-Plus controllers to set clear signals, because the future belongs to systems that are not only flexible, but also easy to handle ●

### Advantages of Saia®PCS1

- Compact construction for comprehensive data point level
- Well developed communications capabilities
- Simple user prompting via graphical display
- Integral modem, e.g. for reporting faults or remote monitoring
- History data recording
- Expandability

### Added advantages of Compact-Plus controllers

- Free combination of standard site programs
- Commissioning and service tool free-of-charge
- Online parameter adjustment and trend representation
- Evaluation and display of history data
- Remote monitoring via modem

The presentation of the German version will be a highlight on our stand at Frankfurt's ISH.

Building

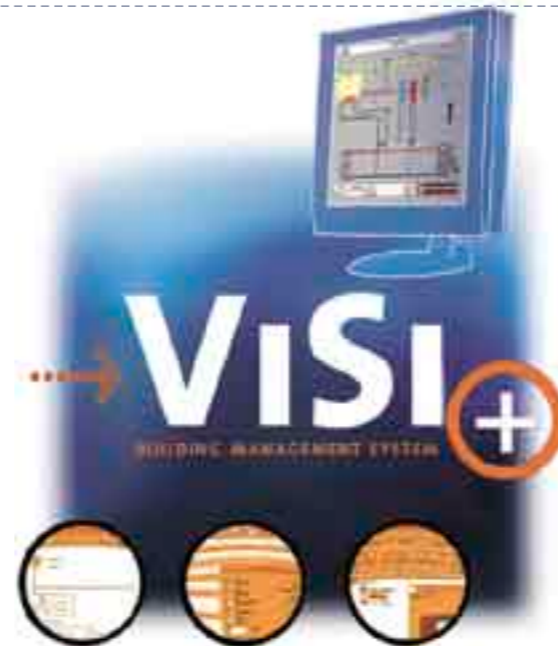


## ViSi-PLUS: the building management system with expanded functions

Users of Saia products operate in complex fields of application and this has led to a steadily growing requirement profile for ViSi-PLUS. As a consequence of these requirements, various adjustments have been made in line with the market. As a result, Frankfurt's ISH saw the presentation of a new version 1.3 of the ViSi-PLUS building management system with many new functions.

- Filter function for the DMS tree structure
- Implementation of model objects in PET
- Manual or automatic symbol import from PG5
- Support of history data from USE DBLog blocks
- Many new graphical editor functions, such as rotating symbols, etc.
- New Login and User Level functions
- Full support of Saia®PG5 driver

This version has now been successfully tested to run under WINDOWS® XP. In addition, interaction with PG5 version 1.2 has also been significantly improved, so that program elements from PG5 can now be called directly for further processing. By expanding its functionality and improving the integration of PG5, Saia-Burgess Controls aims to increase the market presence of ViSi-PLUS beyond the field of building automation ●



## Agenda 2003

25.03. – 29.03.03 <b>ISH Messe 2003</b> Frankfurt, Germany	01.04. – 04.04.03 <b>AUTOMATICON 2003</b> Warsaw, Poland	27.05. – 30.05.03 <b>Industria 2003</b> Budapest, Hungary
26.03. – 28.03.03 <b>Electronics Automation</b> Jaarbeur Utrecht, Belgium	07.04. – 12.04.03 <b>HMI 2003</b> Hannover, Germany	27.05. – 31.05.03 <b>ENDIEL</b> Lisbon, Portugal
01.04. – 04.04.03 <b>Amper 2003</b> Prague, Czech	20.05. – 23.05.03 <b>Balt Technika</b> Vilnius, Lithuania	09. -13.06.03 <b>Elektro 2003</b> Moscow, Russia

## Forward planner 2003 second half year

02.09 -05.09.03 <b>Ineltec 2003</b> Basel, Switzerland	25.11. – 27.11..03 <b>SPS/IPC/Drives</b> Nürnberg, Germany
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## Interfacemodule PCD2.F522

The module provides either two serial interfaces RS232 with RTS/CTS control signals or one serial interface RS232 with RTS/CTS, DTR/DSR, DCD suitable for modem connection. The module is designed to be used with PCD2 systems. It can also be used with PCD4.M170. Exceptionally it can also be used with PCD1 with the restrictions mentioned in the following description.

- Selectable with jumper between:
  - 2 serial interfaces RS232 with reduced control signals RTS/CTS
  - 1 serial interface RS232 full with RTS/CTS, DTR/DSR, DCD suitable for modem connection
- The module is equipped on space B
- Can be used with PCD Classic and PCD series xx7 (PCD2.M1xx, PCD4.M170)
- Exceptionally also usable with PCD1 under the following conditions:
  - there are no screw terminals for the signal connection
  - the interface connection is done using a special adapter cable (with sub D connector) which is connected to the DIL socket on the
  - with PCD Classic only port 2 can be used with mode C Module ●

## Imprint

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## Workshops

Netherlands: 

19.03.03  
**Profibus DP/FMS**

09. –10.04.03  
**SAIA®PCD PG5**

16.04.03  
**SAIA®PCD Ethernet TCP/IP**

24.04.03  
**SAIA®PCD2.H320**

14.05.03  
**Telecommunication via modem**

04.-05.06.03  
**SAIA®PCD basic**

18. –19.06.03  
**SAIA®PCD PG5**

Agenda



Workshop



## Extended flexibility with DDC-PLUS RAIL/SAFE

The DDC-PLUS RAIL/SAFE range of RIO modules has been reworked to integrate a few functions that allow even more flexibility when they are used within S-Bus networks. These input/output modules can now be operated in conjunction with the DDC PLUS ROOM room controllers in DATA mode. This has involved incorporating the following functions:

- Reverse polarity protection at connections
- Automatic mode switching, data - parity
- Ignoring long telegrams

A new module, the PCD7.L110 (with 4 digital inputs), is available especially for use with fire damper actuator. It is based on the PCD7.L100 module, but without the hand switch.

An IP65 version of DDC PLUS SAFE is now available as a combined input/output module. The new PCD7.L121 module with 4 digital inputs (24 VDC) and 2 relay outputs (250 VAC / 10 A, max. switch-on load 80 A) is ideally suited to applications in the lighting and window-blind fields ●







Picture: Vaillant GmbH

## References



# Energy self-sufficiency – PCD controls power station in cellar

The fuel cell heater, which almost all manufacturers of heating systems are bringing forward, is an innovation with major market opportunities. The middle of this decade will see the dawn of a future in which both the heating and energy markets will be permanently changed.

The heart of a fuel cell heater is the fuel cell, which generates heat and electric power from hydrogen (derived from natural gas) and oxygen in the air. The heat is used for space heating and hot water. The electric power is used in the building itself or sold into the public electricity grid. In this sense, therefore, every home owner can become his or her own producer of electric power.



Picture: Vaillant GmbH  
Fuel cell heater  
Field test under real condition

PCD controllers from Saia-Burgess Controls have been successfully deployed in these devices. The „customised solutions“ concept based on standard PCD technology has more than proved its worth in ongoing field tests. It has also allowed sensitive cost and quality targets to be met for the expected high unit volumes ●

### The communication facility in the local network plays thereby a crucial role:

- Integration in the local building automation
- Remote control by the electrical energy supplier
- Remote control by the service technician for debugging
- Local operation with graphics display