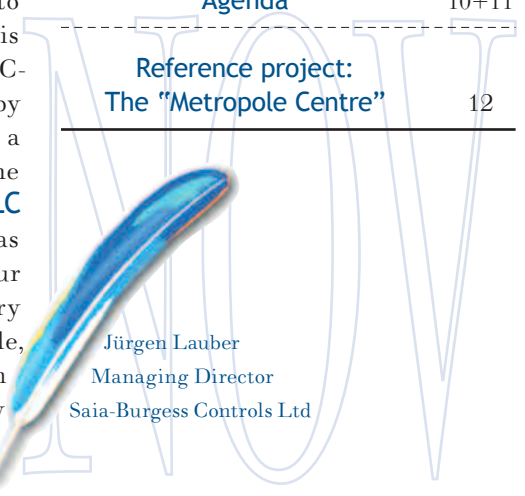# controls news 1

D ear Reader, the presence or absence of a single "L" in this expression makes all the difference. "PC based control" signifies the attempt to extend the use of standard Office/IT technologies and components from the PC world to control systems. "PLC based control" relates to control components and systems that are based on the standards and values of the PLC world. "PLC based" therefore means much more than compatibility with the IEC 1131 standard. It stands for a high level of stability and reliability combined with serviceability, continuity and efficiency; fundamentals for your investment

"P(L)C based control"

security and profitability. To describe our own, specific orientation, we have expanded the term "PLC based" into "Smart Controls.... the ultimate with PLC based control".

On the basis of PLC standards and values, we will constantly extend the economic and technical limits of our products to create new possibilities and opportunities for our customers. This orientation is represented, for example, by the SMART7 PLC-CPU in credit-card format for embedded control applications; by the PCS1 compact controller for dedicated controls, and by a customized SAIA® PCD for energy devices with an annual volume in five figures. This orientation as „... the ultimate with PLC based control" goes well with our 20 years of experience as a PLC technology manufacturer and is also appropriate to our size. With 200 staff in controls, we are big enough to be very strong in our focus area, but still small enough to be accessible, intelligible and flexible for our customers. Our roots within an OEM-oriented group of companies give us the necessary stability and seriousness - qualities which are often painfully absent from „PC based control"

Jürgen Lauber
Managing Director
Saia-Burgess Controls Ltd

Contents

Visible examples of

PCD2 „customised Controller"

Smartcontrols
The Ultimate with PLC based Control

PCS1 „dedicated Controller"

SMART7 „embedded Controller"

support
www.sbc-support.ch

If Swiss customers need technical advice, we can be contacted as follows: e-mail: pcdsupport@saia-burgess.com For new enquiries, just send an e-mail (with the project in a zip file, if appropriate). Enquiries will be shared among available support engineers. This will minimize the reaction time. The support site www.sbc-support.ch has been completely revised and allows you 24-hour rapid

News from the support organization

access to up-to-date technical information, such as manuals, firmware versions, FAQ and useful tools. Information has been arranged by product code in a file structure. Therefore, if you know what the product is, you can find the information. This site is definitely worth a visit. ●

Our meeting with 35 business partners in Murten on 28th June 2001 had as its motto: „know and understand each other better → work together better". In the course of the day, those participating came into direct contact with new products, such as the CPU PDC2.M170 with Ethernet TCP/IP and OPC server, the PG5 programming tool, the PCD2.H320 axis control module, the ViSi-PLUS visual display system and the promising PCS1 compact

VIP Conference, 28th June 2001

controller. Thank you for your lively interest in our company and the technology. This commits us to making an even greater contribution to your business success in future. We look forward to continuing our positive cooperation ●

There are now shiny new offices in Winterthur to serve customers in eastern Switzerland. In February we moved into new premises in the Sulzer area, enabling us to offer you training, sales support and technical support from a central location. The new telephone numbers in Winterthur are as follows:

New office in Winterthur

Telephone: 052 246 08 66 / Fax: 052 246 08 62

In this issue of Controls News, we are delighted to introduce the new Sales Manager of Saia-Burgess Controls Dreieich. Mr Horst Röckel took over this function in March 2001, bringing much commitment and enthusiasm to the job. He joined the Saia team in August 1991 as a sales representative, with southern Germany as his territory. He has supported it actively over the past ten years and helped influence the sales representative culture decisively. His many years of experience and extensive know-how are a definite plus for customers and his staff. The Management of Saia-Burgess wish Horst Röckel every success in his demanding job ●

New Sales Manager

The new SERVO FEED is the first member of a new generation of KUPA feeders. This new feeder for short rods provides the best conditions for tough, day-to-day production. For the first time, a 3-axis servo drive has been used. This Kupa innovation guarantees uncompromisingly accurate control and new, low-noise rod separation. The best thing about the SERVO FEED is that it can easily be linked into the materials logistics of the production process. The control and regulation technology of this new feeder generation was realized with the PCD2.M127 and the FAS 4008 (frequency converter from Stöber). For KUPA, the crucial criteria in their decision were the large potential of STEP®7 programmes, the link to Sinumerik via MPI and professional support during the pilot phase. In order to reduce downtime, the new SERVO FEED is offered with optional visual display of error and diagnostic data via the intranet or internet (web server) and error message output via SMS ●

KUPA with SAIA® PCD

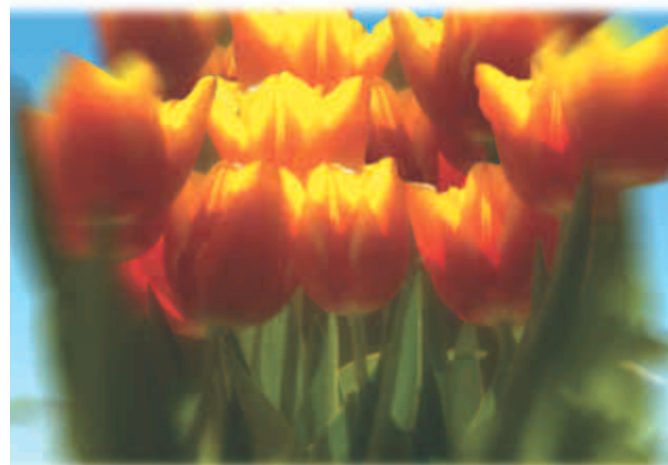# Ethernet TCP/IP: new networking possibilities for SAIA® PCD

To reduce the overall costs of machines and equipment and increase flexibility and productivity, any existing potential for rationalization must be exploited. As a manufacturer of automation equipment, Saia-Burgess Controls is also required to contribute by producing innovative devices and solutions. The connection for SAIA® PCD to Ethernet TCP/IP networks was developed with this precise intention: the introduction of continuous communications solutions down to the field bus level as a means of reducing project costs. The Ethernet connection for PCD controllers was realized in the form of a plug-in coprocessor module: the PCD7.F650. This module offers a standard 10 base-T/100 base-TX (10/100 MBit/s) with RJ45 connector and can be used for the PCD1, PCD2 and PCD4 series and, if requested, for the PCD6. The transport protocols used are UDP/IP and TCP/IP respectively. Use of the S-Bus protocol on UDP/IP supports communication between PCD controllers and access with the PG5 tool for programming and commissioning. To exchange data with foreign systems, TCP or UDP data packages can also be sent transparently. This Ethernet connection , combined with the existing field bus connections (S-Bus, Profibus, Lonworks and EIB) and other serial data ports, provides the PCD controller with a continuous and very interesting networking concept. Suitable SAIA components complete the integration of Ethernet communications within the SAIA® PCD environment. Adjustments to the existing processors (such as PCD1.M130 or PCD2.M150) or the introduction of new CPUs (such as PCD2.M170 or PCD4.M170) fully support the new networking possibilities. With the M170, further improvements (such as an external memory module, externally accessible lithium batteries, improved connection technology and expanded communications possibilities) have brought completely new perspectives to solutions for machines, equipment or buildings. In the software field, the brand new PG5 V1.1 programming tool supports the design of TCP/IP networks. For the simple and efficient connection of PCD controllers to higher ranking systems (SCADA), the SAIA®S-Bus OPC server, which works with the PG5, is now also available. This server corresponds to OPC Data Access Standard 1.01a, 2.04 and supports the S-Bus protocol acro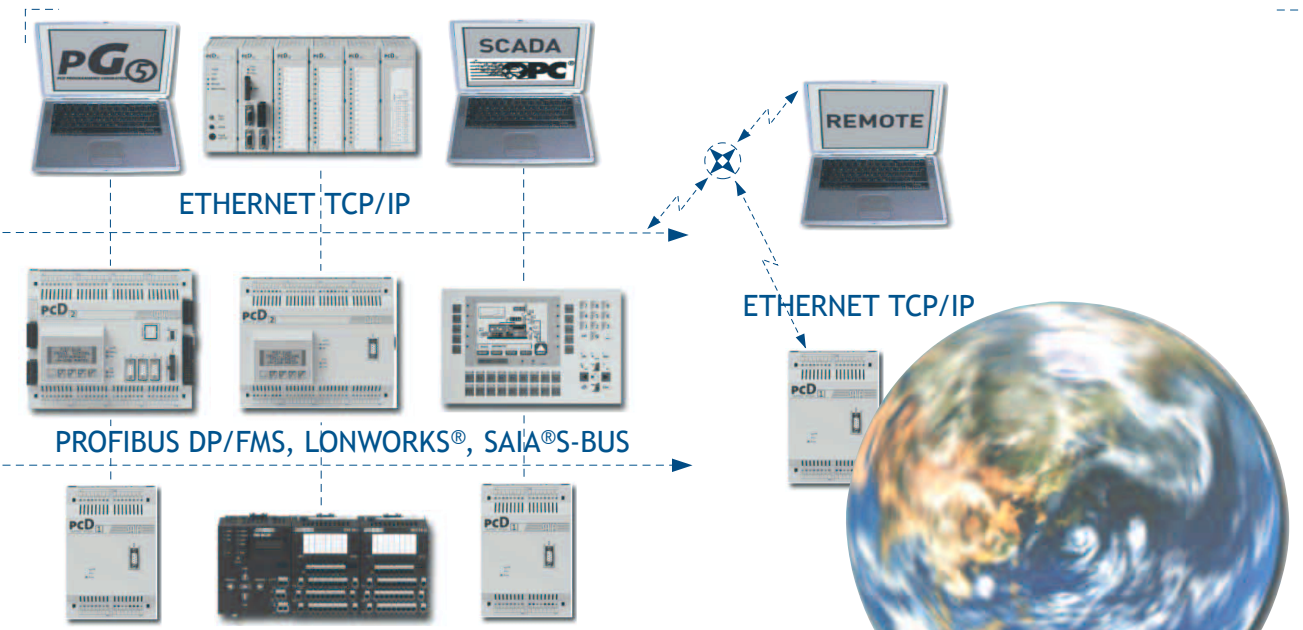ss all the PCD's communications interfaces (RS232, RS485, modem, Ethernet TCP/IP, ...). The direct import of PCD variables from the PG5 programming tool saves valuable project planning time.

Ethernet TCP/IP advantages for your project: time saved in project planning, programming, commissioning and maintenance via Ethernet TCP/IP

■ central access with the PG5 programming tool to all SAIA® PCDs in the Ethernet and S-Bus subnetworks connected via gateways

■ fast program download via Ethernet

■ simple programming with proven S-Bus instructions and FBoxes in one of the PG5's convenient editors

Engineering cost economies, due to:

■ economical Ethernet TCP/IP connection

■ powerful software tools and communications technologies for optimizing service and maintenance costs, resulting in increased machine and equipment availability

■ optimization of installation costs with intelligent networking concepts and field buses

■ continuous connectivity to higher-ranking systems (e.g. SCADA) with the OPC server

■ short system reaction times with event controlled data transfer in real time and multimaster communications via S-Bus

ETHERNET TCP/IP

PROFIBUS DP/FMS, LONWORKS®, SAIA®S-BUS

ETHERNET TCP/IP

Already proven in numerous projects: Ethernet - combined with the new processors, PG5 programming tool and OPC server - has already demonstrated its worth successfully in many installations.

Flower market, Naaldwijk, Holland:
■ Building automation (Ethernet TCP/IP with PCD2.M170)

Copenhagen airport, Denmark:
■ Monitoring of the 10 kV high voltage supply (Ethernet TCP/IP with PCD1.M130, PCD2.M150 and visual display system)

Telecom network, Portugal:
■ Monitoring of mobile GSM aerials (Ethernet TCP/IP with PCD1.M130)

Motorway tunnel, Mont Blanc, France:
■ Monitoring of exhaust gases (Ethernet TCP/IP with PCD1.M130 and OPC server)

N5 motorway tunnel, Solothurn-Grenchen, Switzerland:
■ Control and monitoring of pumps, safety equipment and ancillary plant (Ethernet TCP/IP with PCD2.M170, Profibus DP and ViSPlus management system)

Amsterdam Medical Center, Holland:
■ Building automation (Ethernet TCP/IP with PCD2.M170)

Numerous sewage works in Switzerland:
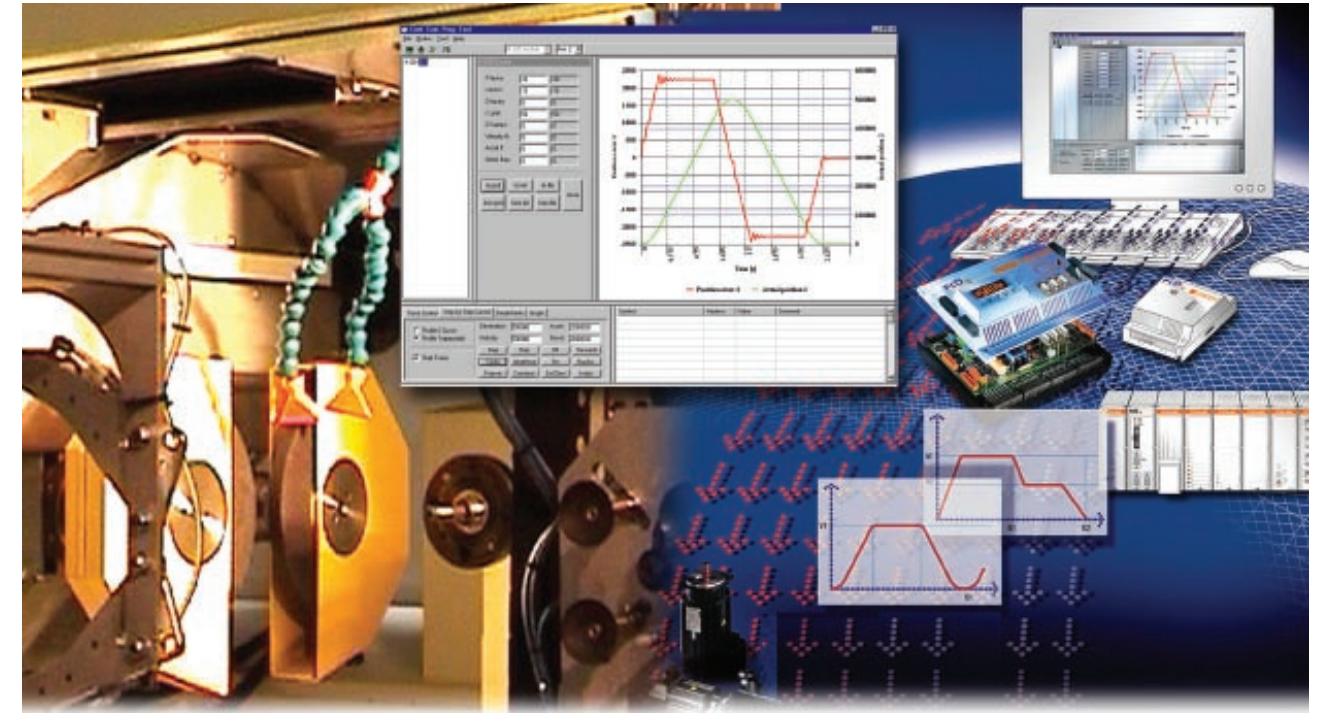■ Ethernet TCP/IP with PCD2.M170, PCD4.M170 and OPC server ●

An integral web server forms part of the basic equipment of SAIA® PCD2.M157 and M177 controllers, even in their standard versions. Web pages in HTML format, pictures or text and Java applications can be stored directly in the PLC. This enables **control and monitoring functions** to be produced easily and conveniently with Microsoft standard tools, such as Word, Excel or Frontpage. Simple, plain text commands allow all PLC data to be represented on HTML pages. These HTML pages are downloaded to the controller using Siemens STEP®7 programming software. Any PC with a standard browser (e.g. Microsoft Internet Explorer) can then be used to read the HTML pages from the PLC. The connection between PLC and PC is through a serial port - either directly or via an integral PCD2.T813 or T850 modem inside the PLC. There is no need for costly internet infrastructure on the PLC or PC side, with additional, cost-intensive modules (internet connection, internet provider, Ethernet networks, TCP/IP modules, etc.). The PLC is programmed with original **STEP® 7 programming software** from Siemens. Every PLC has an integral web page containing a table of variables, through which all PLC data can be displayed and, depending on authorization, also modified. This means that, even without installing Siemens STEP®7 programming software, simple diagnosis can take place on site with any PC or notebook. Unique, simple and convenient:

Web server directly in the PLC - without additional hardware

- Simple editing of control and monitoring interfaces with familiar Microsoft tools, such as Word, Excel, PowerPoint, FrontPage, etc.
- Operation of the control and monitoring interface with standard browsers, such as Microsoft Internet Explorer or Netscape communicator
- No need for costly infrastructure, like Ethernet networks, internet provider, interface modules, etc.
- The integrated modem is ideal for the remote maintenance of machines and processes across large distances
- Simple data management, since the control and monitoring data are stored in a central location (on the PLC) all users accessing that PLC will receive identical data
- The integral tables of variables allow access to all PLC data - without installing STEP®7 programming software from Siemens on the PCD ●

SIMATIC®, STEP® and Siemens® are registered trademarks of Siemens Ltd

The new PCD2.H32x motion control modules can each be used for the autonomous control of 1 to 2 servo axes with trapezoidal or S-shaped velocity profiles. When combined with **digital and analogue plug-in modules** on the basis of SAIA® PCD1 and PCD2 control devices, the result is powerful, economical machine controllers. These new axis modules offer many of the most up-to-date possibilities:

Economical solution for powerful Motion Control

- Extreme flexibility in motion control thanks to breakpoints, which can exercise an event-oriented influence on current motion or on the process
- Electronic gearing with 1 master axis and up to 7 coupled slave axes in the ratio of up to 1:65 535
- Synchronization or linear interpolation of numerous servo-axes for position or speed regulated operation and a possible „flying cut" for axes in relative motion, with the appropriate function blocks
- Modification of all motion parameters „on the fly"
- Inputs for incremental shaft encoders or SSI absolute angle encoders up to 1 MHz
- Analogue standard output ±10V with 12 bit resolution
- Triggering of up to 14 axes with the SAIA® PCD2

Practical software tools are available for convenience in configuration, programming and commissioning, e.g. the PCD8HxE commissioning tool. The H32 modules can be programmed with STEP®7 programming software from Siemens and SAIA® PG5. SAIA® PCD controllers offer numerous communications possibilities for integration within various industrial networks, e.g. MPIBus from Siemens, PROFIBUS DP or FMS, LON-Works®, Ethernet TCP/IP and modems ●
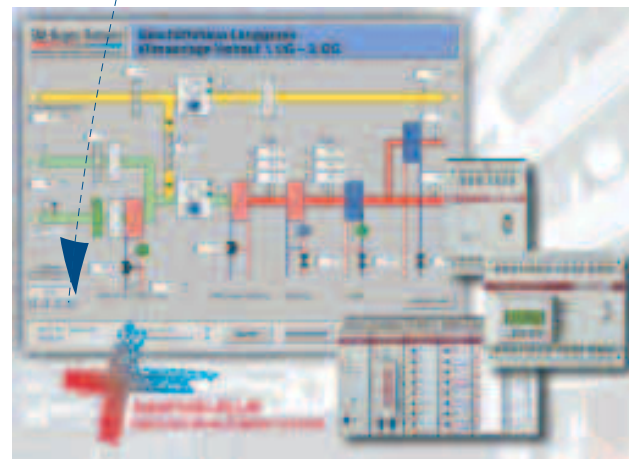
SAIA® ViSi-PLUS is a flexible building management system whose functional scope - and price - can match the needs of any technical building installation. The smallest system package - the „light" package - already handles 250 data package handles 1000 „large" package can than 10 000 data points. the user with powerful

Comfortable Building Controls with SAIA® ViSi-PLUS

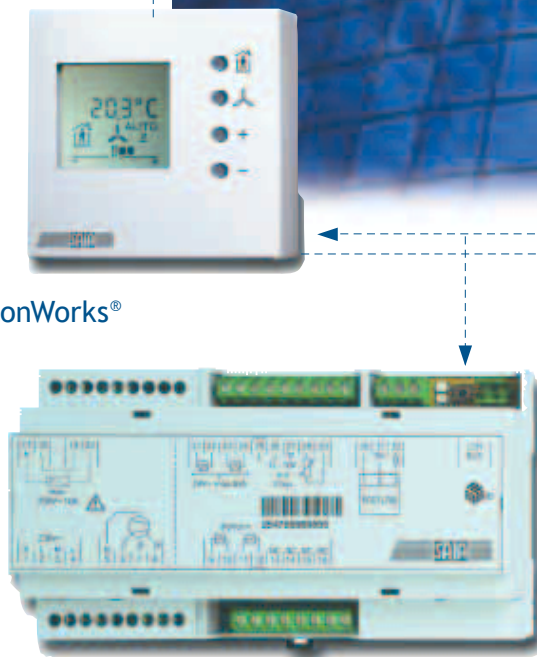points, the „medium" data points, while the comfortably manage more All three packages provide software modules:

■ a graphical editor to represent elements of an installation in a way that suits the user
■ alarm management that displays all alarms clearly in separate windows
■ a module for event logging with a variety of filter possibilities

■ trend display, to keep under control all parts of an installation and its energy consumption
■ a timer program that is graphical and therefore provides a clear overview
■ finally, the possibility of remote alarms and remote diagnosis via pager/SMS, so that unnecessary trips by service personnel become a thing of the past

The building management system of Saia-Burgess Controls runs on the Windows NT or 2000 operating system platform, which allows distributed client/server processing in a scaleable, modular architecture ●

SAIA® S-BUS

Remote I/O modules can also be used as a simple, convenient way of linking data points to SAIA® DDC-PLUS substations. This series of modules exists in a choice of S-BUS or LON versions and can equally be fixed onto top-hat rail or surface mounted. SAIA® S-BUS is the economical master-slave network, for which a connection is already included in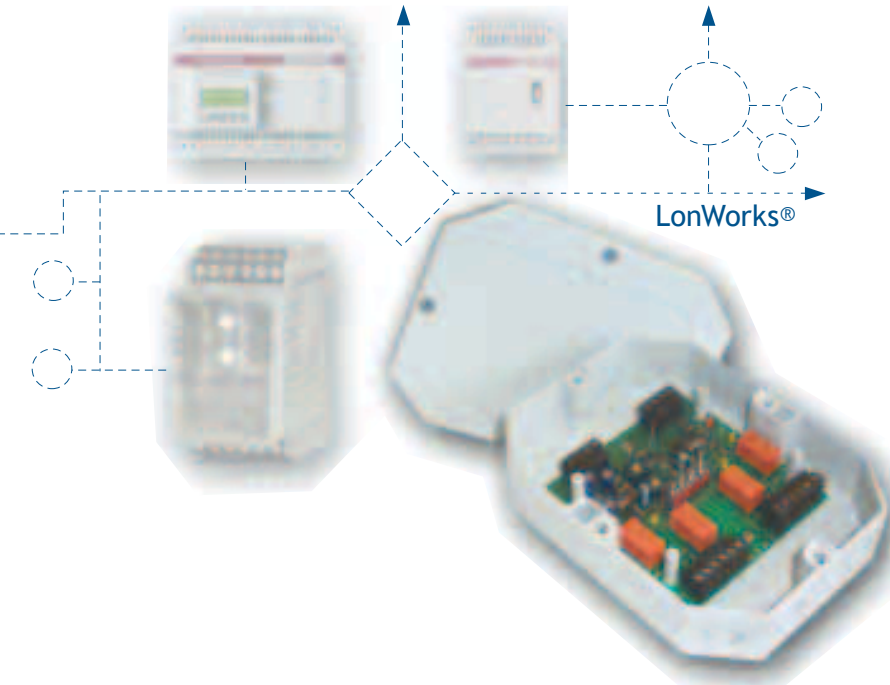 every SAIA® DDC-PLUS substation. With a simple two-core wire, up to 15 remote I/O modules can be connected. In the LONWORKS version, triggering is via the flexible FTT10a transceiver technology. Each module communicates in compliance with LONMARK via **standard network variables**, which allow the transmission of process values such as temperatures or digital I/Os ●

I/O configuration

	Top-hat rail S-BUS	Surface mount IP65 S-BUS	Top-hat rail LON	Surface mount IP65 LON
4 digital inputs, 24 VDC, electrically isolated*	PCD7.L100	PCD7.L101	PCD7.L180	PCD7.L181
4 digital relay outputs, 250 VAC/6A*	PCD7.L200	PCD7.L201	PCD7.L280	PCD7.L281
8 analogue inputs 4xPt1000 4x 0-10VDC	PCD7.L300	PCD7.L301	PCD7.L380	PCD7.L381
8 analogue inputs 4xNi1000 4x 0-10VDC	PCD7.L310	PCD7.L311	PCD7.L385	PCD7.L386
4 analogue outputs 0-10 VDC	PCD7.L400	PCD7.L401	PCD7.L480	PCD7.L481

*inc. manual switch with acknowledge

Remote input/output modules under S-Bus and LON

The PCD7.L750 DDC-PLUS ECO single room controller, combined with the PCD7.L760 room control unit, allows the individual control of temperature, air quality and humidity in single rooms. This results not only in optimized room comfort

Individual room comfort with SAIA® DDC-PLUS

with reduced energy consumption, but also leads to more efficient plant installation. The single room controller is certified according to the LONMARK „fan coil unit object 8020" standard and can therefore be readily integrated in the same network as other LONWORKS devices, SAIA®DDC-PLUS substations and a higher ranking building management system. In its standard version, the room control unit has a multifunctional LCD display and 4 keys. Simple push-buttons enable control of temperature and the triggering of a 3-stage or constant fan. Messages returned by the window contact, dewpoint monitor or (if the room is not in use) frost prevention mode can also be viewed, together with the temperature and fan stage. The room control unit is also available in versions without ventilation control or occupancy button. Operating modes and the basic settings can be adjusted

LonWorks®

LonWorks®

with the plug-in configurator provided, which runs under LONMAKER for Windows. Since the user can choose from 24 predefined control variants, „programming" is reduced to the entry of a few parameters ●

Agenda 2001:

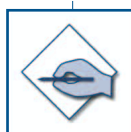27.11.2001-29.11.2001, 09:00-18:00

SPS/IPC/DRIVES 2001
Nuremberg, Germany
Electrical automation - systems and components
Stand no. 1.325

28.11.2001-29.11.2001, 09:00-19:00

MOCON 2001
Brabanthallen, Netherlands
Motion control in factory automation, handling and automation
Stand no. 3109

Forward dates 2002:

20.-22.02.02

MCS Motion Control & Factory Automation
Bologna, Italy

14.04.2002 - 18.04.2002, 09.00 - 18.00 Uhr

Light + Building
Frankfurt, Germany
International trade exhibition for architecture and technology
Light, electrical engineering, environmental engineering and building automation

15.-20.04.2002, 09.00 – 18.00 Uhr

Hanover Fair - The Power of Industry
Hanover, Germany

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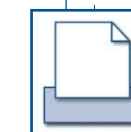### Please send us the latest documentation on your products.

[ ] New SAIA® PCD documentation CD-ROM   [ ] Workshop program 2002

[ ] SAIA® PCD Classic   [ ] SAIA® PCD Serie xx7

[ ] PG5 programming software   [ ] Motion control modules

[ ] Modem   [ ] Ethernet TCP/IP

[ ] OPC Server   [ ] Terminals

[ ] SAIA® DDC-PLUS   [ ] Reference projects

Thank you.

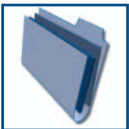# Energy optimization "Metropole Centre"

In La Chaux-de-Fonds, Switzerland, Migros operates the „Metropole" shopping centre. This building was conceived on a grand scale with a massive central hall, 4 floors underground, 6 above, and a total useful area of over 40 000 m2 with almost 200 000 m3 of enclosed space. The building automation controller that had been put in when the centre opened in 1993 was no longer equal to the demands placed upon it. In 1998 the company Commande SA was therefore instructed to renew the entire building automation and, at the same time, reduce energy requirements with appropriate control measures. For this purpose 45 PCD2s were used from the SAIA® DDC-PLUS integrated facility control system. One of the decisive factors in favour of this system was its inclusion of universal analogue modules, which enable the continued use of previously installed sensors and actuators. The use of SAIA® DDC-PLUS has required fewer components in the control cabinets, leaving ample room for future expansion. However, the most important point is the significantly greater accuracy in regulating the heating and cooling temperatures required. This results in a considerable energy saving. The redevelopment was successfully concluded by the end of 1999 and, due to the high reliability of SAIA® PCD controllers, there have been no more technical controller problems of any kind since the new installation ●

Referenzen

Throughout the 10 storeys each of the 45 SAIA® PCD2s controls a HEAVAC zone. They are linked to each other by the SAIA® S-Bus and also connected to the COVISION 2.1 management system via the master/gateway station. The changeover to SAIA® DDC-PLUS has resulted in large reserves of space for future expansion in the existing switch cabinets.

The imposing front entrance of the Migros „Metropole" shopping centre in is a key architectural element in the town of La Chaux-de-Fonds