controls news 5

saia-burgess
Smart solutions for comfort and safety

Best reference

For a long time, we have been looking for a way of explaining simply and intuitively the power and enormous functional spectrum of our new PCD product family. We started with a great many technical terms and in-house definitions for each product type in the PCD3 family, along with new Saia®PCD system functions. But, in the attempt to express powerful numbers in technical terms, we became bogged down in hypothetical data.

In the end, we needed mountains of slide folios to convey a full picture of the PCD3 family to our patient, but interested, audience. This made any initial explanation much too long-winded.

For these reasons, we have created a simple picture for you that speaks volumes. The various Simatic® product families from the market leader Siemens provide a graphical underlay, while the overlay shows what we can cover with just one product family. Speed extends to the S7-318 / S7-412 series, if the Step-programmable Saia®PCD firmware option is used. We have, of course, built in a few system innovations and technical features that you will not find with our big neighbour. These include plug-in technology, a standard web server and http via Profibus.

As you can see, for some things Saia®PCD will always be the **best reference**. Our controller is and will remain an original in our customers' eyes ●

Jürgen Lauber, Divisional Manager

Contents

Sälipark, 2000 **Olten, Switzerland**

Smart HEAVAC technology due to modern bus communications and PLC

It took just eighteen months to build the Sälipark 2000 multifunctional centre, with its 18 shops, doctors surgery and premises for schools and offices. The space created deliberately combines shopping with other experiences to achieve an unusual ambience, setting it apart from surrounding retail centres. Retail, services, education, health describes the blend.

Care was taken when planning the technology of the building to ensure energy efficiency and a minimization of overall costs. Building automation has largely dispensed with the need for staff as operators. This was implemented by Renergy AG, using Saia®PCD2, networked via S-Bus and Ethernet to the building management system.

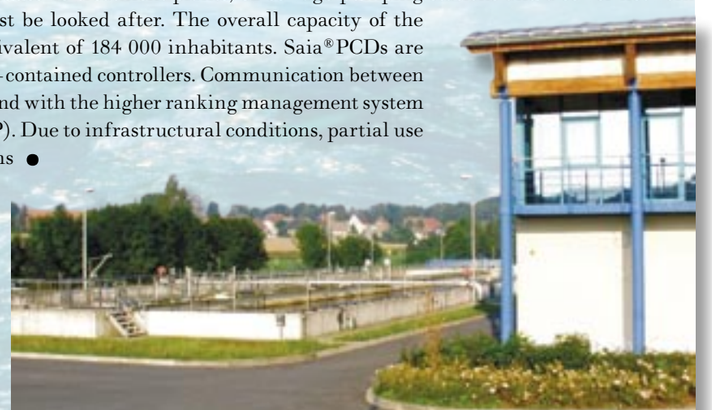
For all Belimo drives, MP bus technology was used with interfaces to the PCD2. Combined with the choice of ribbon-cable installation, this has resulted in massively reduced wiring, switch cabinets and a shorter commissioning time ●

Short News

Water supply - **sewage disposal**

The town of Zittau lies where the borders of Germany, Poland and the Czech Republic meet each other. It is home to the company SOWAG mbH, which has responsibility for supplying water to and disposing of sewage from around 100 000 residents of the Oberlausitz region. This makes SOWAG one of the most important water supply and disposal companies in the whole of eastern Saxony.

The sewage area includes 18 treatment plants, 82 sewage pumping stations and a sewer network of 631 km that must be looked after. The overall capacity of the installations is the equivalent of 184 000 inhabitants. Saia®PCDs are used in the works as self-contained controllers. Communication between the individual stations and with the higher ranking management system is via Ethernet (TCP/IP). Due to infrastructural conditions, partial use is made of GSM modems ●



Hospital «Clinique des cèdres à Brive», **France**

Responding to very strong market demand, the company ATYS Concept has developed a standard solution for the HEAVAC field (heating, ventilation, air conditioning). Under the name of «ATYS BAT», it controls and regulates small to medium-sized HEAVAC installations. The solution integrates products from different manufacturers. Communication is possible between them. Implementation is quick and easy.

ATYS chose BELIMO (actuators and valve motors) and Saia-Burgess (Saia®PCD programmable controllers, which have very powerful communications capabilities). The MP bus network enables products from these two companies to communicate with each other.

Application:

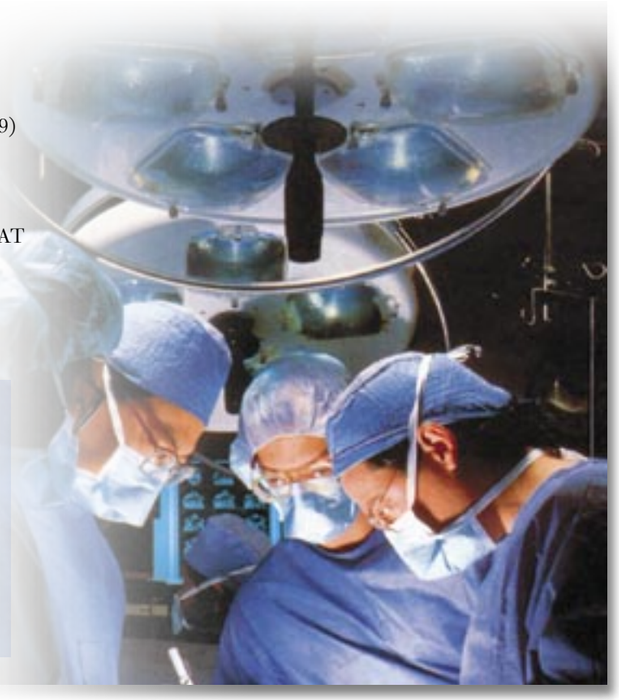
Management and control of air-conditioning in 13 operational blocks. Each block is independent and equipped with an interactive terminal, which displays temperatures, humidity and any faults. Each controller is fitted with four MP bus couplers, allowing 4 x 8 regulating devices. This simplifies implementation and maintenance, because each element is permanently self-regulating.

The controllers themselves are in a network, enabling us to check errors throughout the installation from any of its stations. This the first time that architecture of this type has been used in France ●

Companies involved:

Consultant:
LAUMONT FAURE, Brive (19)
Installer:
HERVE THERMIQUE, Niort (79)
Design:
ATYS CONCEPT, Arcachon (33)

For information about the ATYS BAT solution, please consult website:
www.atys-concept.com



Saia® PCD2.M48x – the wolf in sheep's clothing!

Top performance at low price

Technology

The development costs for this new Coldfire CPU have paid off. We are proud of the result: true customer satisfaction. As numerous field tests under rigorous conditions show, the Step®7-programmable PCD2.M487 not only stands up to the comparison with Siemens® CPU318 and CPU 412, but is actually significantly superior to them in the area of memory. The verdict of all engineers is enthusiastic.

And the uncommonly attractive price is met with enthusiasm by even the thriftiest buyers.

Within a very short time, more than 100 PCD2.M48x controllers have been supplied to pilot customers. A remarkably large proportion of these have, in fact, already been built into machines and exported overseas. This is the best proof of confidence in the reliability of the product and in Saia generally.

Naturally, this kind of CPU power variant will not be on its own for long. At the end of the year an even faster, more powerful CPU with compiler will be available in the same performance class as the Siemens® CPU414/416 ●

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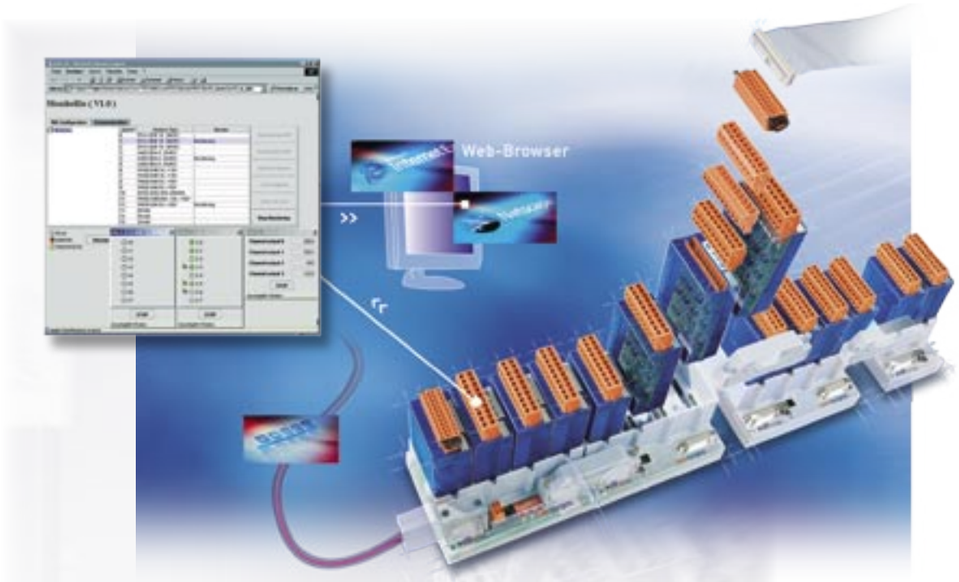


Saia® PCD3.T76x - PROFIBUS-DP RIOs

with integral web server

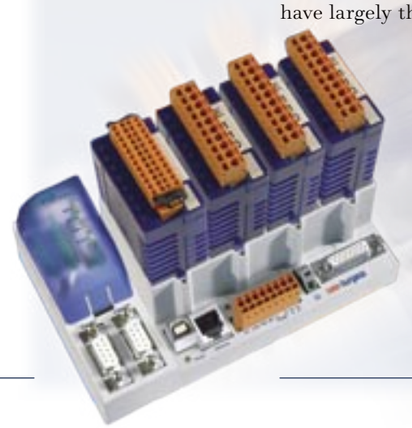
Technology

This decentralized Profibus slave I/O node is the base unit of the new Saia® PCD3 series of devices. Like all Saia® PCDs, it has an integral web server. The web server can be used to carry out on-site station configuration, service and diagnosis.

The appropriate HTML pages are included ex factory. In addition, the user's own HTML pages can be stored in these RIOs. In this way, the familiar Internet Explorer becomes a customized service and commissioning tool ●

New Saia® PCD3.M3xx

– High performance in the smallest space



Like the PCD2.M48x, the PCD3.M3xx controllers are based on proven Coldfire technology. The CF5272 processor confers performance approaching that of the larger PCD2.M48x. They also have largely the same functionalities. Thanks to BGA technology, it has been possible to realize an additional on-board Ethernet TCP/IP interface within the compact PCD3 housing.

Although the PCD3.M3xx leaves almost no user wish unsatisfied, there is still considerable potential for development, especially with intelligent modules having direct interrupt access to the CPU and via SPI bus. Thanks to the consistently modular structure of the mechanics, electronics and of the component-based operating system, the PCD3 family satisfies an extraordinarily broad spectrum of applications. It extends from the intelligent, local I/O node to the fully fledged PLC of the Step®7 CPU318 performance class. Compatible software and communications ports allow continuous cross-linking with all other Saia® PCDs. This guarantees unrestricted investment protection ●

PCD2 / PCD3 **weighing module**

In process automation, the role of weighing systems is gaining increasing importance in the control and optimization of the production cycle. Weighing machines are used wherever quantities of materials must be dosed, such as plastics or fluids, but also for applications where fill level alone has to be determined.

The weighing module offered by Saia allows weighing technology to be integrated directly into PCD systems. It comprises two independent systems.

The Saia® PCD weighing module allows precise determining of weight or dosing with very different types of weighing or loading cells that are equipped with a resistance bridge. The signal from the cell is amplified, digitized and filtered in the weighing module, where it is then available to the user as a gross, tare or net weight ●

The weighing module supports many functions necessary for a weighing or load measuring cycle:

- Configuration: Operational settings for the weighing machine are transmitted to the module, where they are activated and stored.
- Calibration: The weighing machine is calibrated with the test weight.
- Zero setting: The weighing machine is tared, i.e. zeroed with empty containers.
- Operation: Reading weight, differential weight, status of weighing machine and fault diagnosis..

Industry

New interface **for precision measurement of temperature**

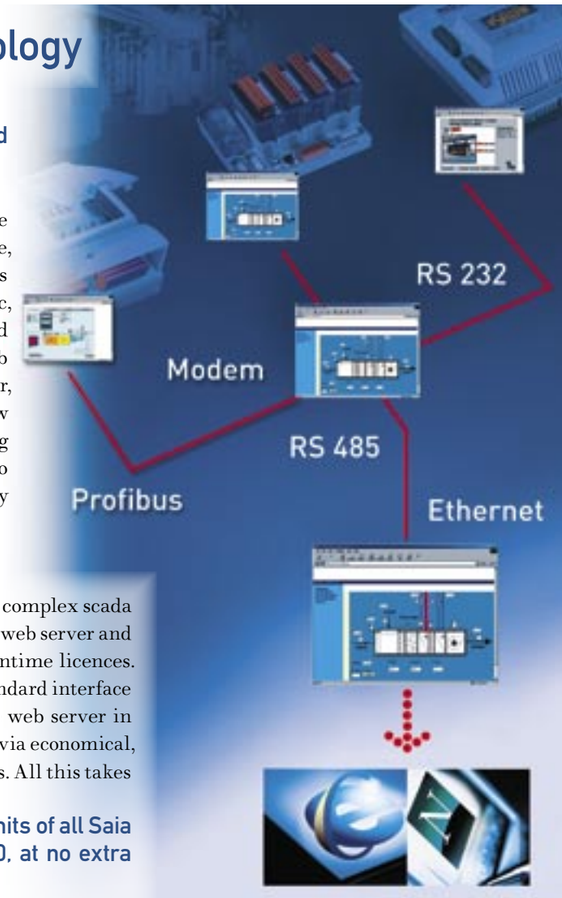
Temperature is one of the most frequently measured physical values

Saia-Burgess Controls presents a new, universal measuring module that allows temperature measurement by means of thermoelements and resistance temperature sensors, such as Pt100. Two versions are available: PCD2.W745 for use in PCD1 and PCD2 controllers, and PCD3.W745 for PCD3 series control units.

The four input channels of the temperature measurement module are electrically isolated from the PCD. To guarantee maximum flexibility in the application, each channel is fully configurable individually from software. For thermoelements types J and K, one can choose between internal or external compensation (CJC). For resistance temperature sensors (RTDs), a choice of sensor types is offered: Pt100 / Pt1000 / Ni100 / Ni1000 in optionally 2, 3 or 4-wire measurement technology.

Internally, the module operates with 16-bit measurement values, allowing resolution to 0.1°C. The module also has comprehensive diagnostic functions. These will report range overflows or underflows, cable breaks and short circuits (RTD) to the CPU and indicate them with LEDs on the module. For ease of wiring, there are four spring terminals provided per channel. Saia's new temperature measurement module is ideally suited both to the needs of infrastructure automation and the demands of process control ●

Paradigm shift with **web technology**



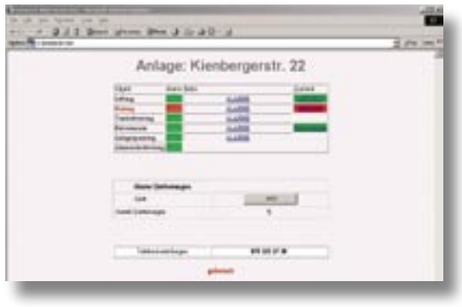
Continuous integration of web server in all controllers and devices

Continuous integration and use of web technology is changing the automation environment in the areas of commissioning, service, control and monitoring. At present, most systems, installations and equipment are still commissioned and serviced with specific, proprietary software tools. However, these can now be replaced with standard tools like Internet Explorer, thanks to the use of web technologies. No specialist know-how is required to operate a browser, and user acceptance of it is high. Predefined HTML pages allow optimized device and system management during commissioning and service. Specific HTML pages for different user groups will also significantly increase convenience and safety, while simultaneously reducing costs.

Even for simple control and monitoring functions, costly and often complex scada systems have been used. These tasks are ideally suited to the use of a web server and browser, avoiding the costs of expensive development tools and runtime licences. Another advantage of web technology is the vendor-independent, standard interface between the control system and management level. Access to the web server in Saia® PCD devices is possible not only via Ethernet TCP/IP, but also via economical, standard serial ports (RS232, RS485, modem ...) or Profibus networks. All this takes place continuously across the different network levels.

A web server has been integrated in the base units of all Saia controllers (such as PCS1, PCD2 and PCD3.RIO) since 2000, at no extra cost.

Monitoring a GSM radio installation with PCD2.M170 and web server



A Swiss telecommunications supplier uses the PCD2.M170 to monitor and control the HEAVAC and emergency power equipment (battery) of its GSM radio installation. The PCD2.M170's integral web server and Internet Explorer provide the operator with a tool for visualizing and servicing this installation. Web pages, specifically created for this system, can be used to display the status of HEAVAC and emergency power equipment, adjust system parameters and acknowledge alarm messages. Faults are sent to service personnel directly by the PCD via modem and SMS text messaging. The web server is accessed either via modem or locally, across the PGU port.

This project has been implemented by the company MOSER GEBATECH ●

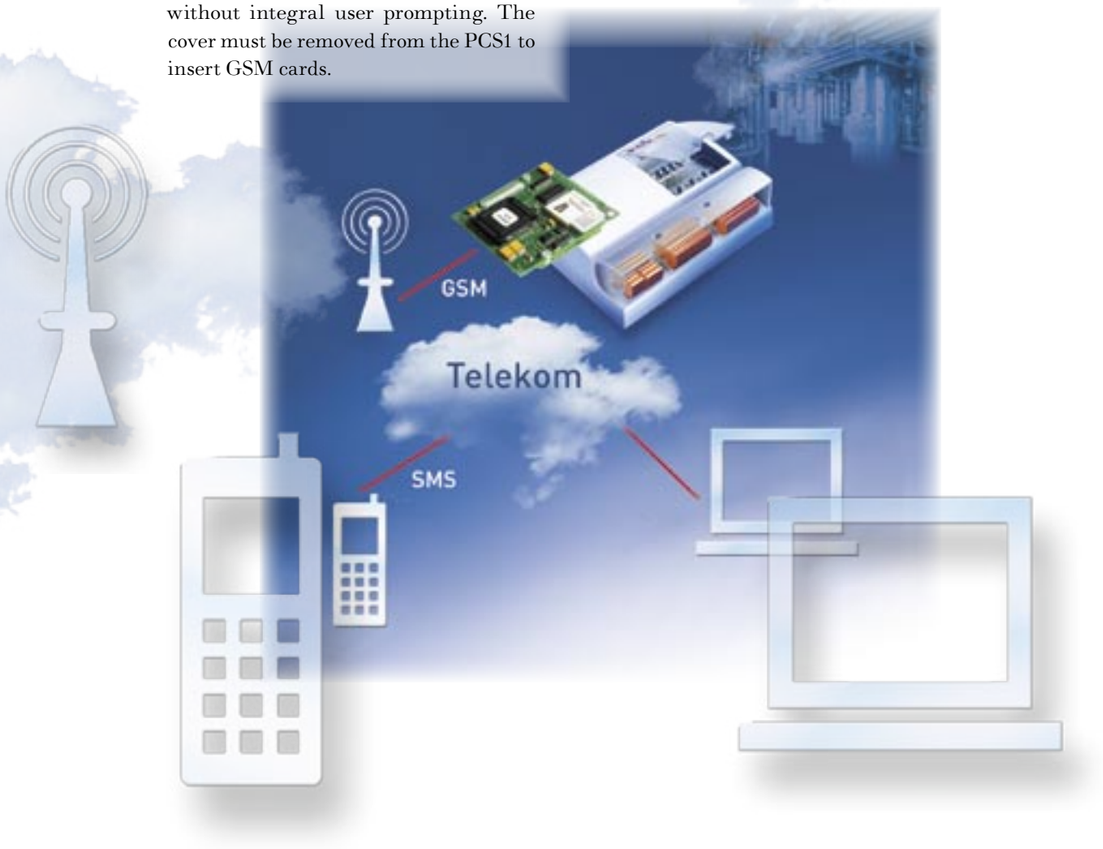
Telecommunication **in its simplest form**

One year after its launch, the PCS1, developed by Saia-Burgess Controls, is very well established on the compact controller market. Now it is to receive a further option. A GSM option has been added to its existing telecommunications options, which already include analogue and ISDN modem.

This built-in modem solution means that, by just plugging in a SIM card and connecting a GSM aerial to the PCS1, the user can integrate this compact controller into the telecommunications world. The user will then have access to all the important telecommunications services, such as telemaintenance, remote diagnosis, transmission and reception of fault messages via SMS and remote programming.

To make the most convenient use of these comprehensive telecommunications services, Saia-Burgess Controls now provides users with a modem library that is located in the PG5 programming environment and includes all the main functions. This new telecommunications capability brings with it further interesting potential areas of use for the PCS1 compact controller. All telecommunications services are now also possible without a costly fixed telephone connection ●

Important note: The GSM option is for the moment only available for PCS1 systems without integral user prompting. The cover must be removed from the PCS1 to insert GSM cards.



Intellihome® building automation system, based on PLCs from Saia-Burgess

The new CPU PCD2.M487

Intellihome® recently constructed another show home in Graz, Austria to demonstrate comprehensive building automation. Throughout its 900 m², and spread over three levels, every conceivable function has been realized using a PLC from Saia-Burgess.

Application areas include lighting control. Dimmer lights, mood lighting, window blind and shade control are adjustable to a percent of accuracy. Heating control offers every conceivable comfort that a modern electrical installation can provide, with single-room temperature adjustment and swimming pool control. An alarm system functionality is also built into Intellihome®. The basic version of the system already includes 4 alarm ranges and up to 100 detector groups. All attempted break-ins are recorded and stored very precisely with the date and time. Only people who can prove their identity with a special card will have access to the property. If problems should still arise, the home controller automatically contacts the persons in charge by SMS.

Integral audio and video is also possible with Intellihome®. There is no need to sacrifice excellence in listening pleasure. By remote control, or at the push of a button, it is easy to adjust the volume or assign at will from up to 16 audio sources to a total of 4 different listening zones in the home. If the house is empty (during vacations, for example) pictures from the entrance camera can be sent to the server and called up later at any time. With this system, all functions can be called and operated remotely via Internet or GSM.

Building

The 182 switched outputs and 352 digital inputs required for this show property were installed using standard switching material. Cabling costs were reduced by fanning in Intellihome® multisensors locally and locking them onto a PCD2.M487 from Saia-Burgess. Multisensors include a high precision temperature sensor, a brightness sensor and an infrared input for remote control. These allow individual and group switching functions to be realized either by key buttons or via remote control. If any structural modification of the building or its technical equipment is required, residents themselves can make all the adjustments to the switch logic via a graphical control terminal. The central PCD2.M487 used with this system has a maximum of 1024 local inputs/outputs that can be adapted individually to requirements. In addition, 8 interfaces are available for connection to a very wide variety of bus systems ●

Exhibitions

18. - 21.11.03

Scanautomatic
Götheburg, Sweden

25. - 27.11.03

SPS/IPC/Drives
Nürnberg, Germany

26. - 27.11.03

Mocon
Den Bosch, Netherlands

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Agenda

Forward planner 2004

20. - 23.01.04

hilsa
Basel, Switzerland

23. - 26.03.04

Automaticon
Warszawa, Poland

18. - 22.04.2004

Light & Building
Frankfurt, Germany

11. - 15.05.04

SIAMS
Moutier, Switzerland

7. - 11.06.04

Elektro
Moscow, Russia

Step®7 for manufacturers' own controllers

Until recently, those who wanted to build their own controllers had to do without the industrial standard of PLC programming: Siemens Step®7.

Now Saia-Burgess offers a solution on the basis of its Saia®PCD range of PLC products. Those who do not wish to develop their own hardware will receive the design and the electrical interfaces customized to their own requirements. OS-Builder can be used to extend the controller's firmware with application programs written in Step®7, keeping them safe from copying or reading. If desired, the controller can still remain Step®7 programmable for the user.

If, for reasons of cost or flexibility, a manufacturer of standard production devices only wishes to buy a minimal part of the hardware, the creditcard-size Smart7 CPU is available. Smart7 CPUs are comparable in speed to a Siemens CPU 314 and have up to 1 Mbyte of memory. The firmware includes an MPI driver and drivers for Ethernet TCP/IP and Profibus DP plug-in modules from Saia-Burgess ●

3 worlds on board: Ethernet / Step®7 / Profibus

Those who wish to use three standards together (Ethernet, Profibus and Step®7) in their control tasks will find that Saia-Burgess has the right controller family for them.

Ethernet on board allows them to create extended networks – including management system connections – with all PCD2 controllers. In addition, the new CPU PCD2.M487 supports programming and debugging via Ethernet and has Profibus as Standard on board.

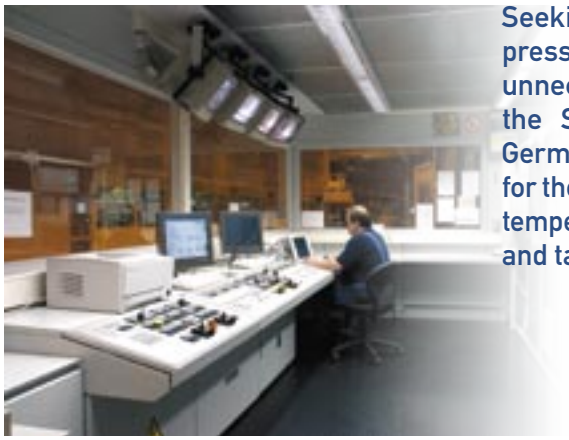
This Step®7 programmable product family from Saia-Burgess Controls has been on the market since 1998 and covers up to 1024 I/O points. Regarding performance, the whole S7-300® family is covered as far as the CPU 414 from Siemens.

All the Step®7 programmable CPUs (PCD2.M157, M177 and M487) are equipped with an integral web server at no extra charge. This can be accessed not only via Ethernet*, but also directly on site across an RS 232 service port ●

Footnote: Step®7, S7-300® and Siemens® are registererd trademarks of Siemens Ltd.

* PCD2.M487 only

Preventive monitoring of presses – press manufacturer: Schuler Pressen



Seeking a significant increase in press operating times, and to prevent unnecessary machine downtime, the Schuler company (Göppingen, Germany) has developed a procedure for the rapid capture and evaluation of temperature rises in big-end bearings and tappet guide-rails.

An initial version made use of the PCD4 with W500 analogue modules, a data logger from Uhlemann Software Engineering and an EXOR terminal with integral IPC.

An envelope technique was programmed that involved not only monitoring the rise values of all 16 individually adjustable sensors, independently of the absolute temperature gradient, but also monitoring the maximum value of each data point (between 45° and 65° C). If the value measured infringes the limit calculated in the envelope curve, the operator will be informed and can remedy the cause of overheating. Damaging mechanical load on the tappet guide-rails is thereby avoided. The entire temperature process is documented in two databases, which allow the program to evaluate the preceding twenty minutes. To date, systems have been delivered to a major company in Brazil and a well-known automotive plant in Germany.

Development work based on the PCD2.M480 is currently underway that will additionally monitor pressure forces and, in the case of mechanical overload (e.g. tool knock-outs, big-end bearings from tappets) will switch off the press within a few ms ●

References

Saia PCD

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