saia-burgess

Smart solutions for comfort and safety

Product overview

Control products

Saia®PCD | Saia®PCS from Saia-Burgess

Controls Division

The Saia®PCD/Saia®PCS product range reflects the values, characteristics and standards of Programmable Logic Controller (PLC). However, in their form, openness and functionality these products far exceed the traditional PLC for machine controllers. As a result, the PLC based Saia®PCD/Saia®PCS products are equally attractive in market segments and applications that have never traditionally used PLC technology.

A high level of internal added value makes Saia-Burgess a strongly competitive, flexible and proficient partner for the control equipment of series machines, devices and apparatus.

As an automation supplier, the range of products and tools we offer is fully focussed on applications in technical infrastructure, as used in production, commerce, transportation, telecommunications and for utilities (energy, water, gas).

Saia®PCD/Saia®PCS products are per design concept especially attractive for cost sensitive volume applications with industrial requirements regarding quality and life time. It is on purpose that Saia®PCD/Saia®PCS is neither covering the high end heavy duty designs nor the low end area of cheap home automation.

This overview brochure describes the Saia-Burgess Controls product range briefly and succinctly, according to three different aspects:
Added value stages | Functions | Device series

Saia®PCD | Saia®PCS added value stages

The focus is on your success

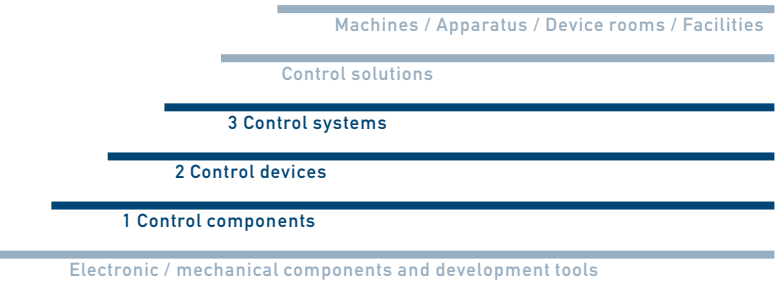
Three added value stages

Added value stages

As a controls specialist and genuine PLC company, Saia-Burgess themselves develops and produce the hardware, firmware and software components for the Saia®PCD product range. The control solution, with cabinet and programming, is the core competency of our customers and we do everything to ensure its success and profitability for them. To this end, and to better focus our own company resources, Saia-Burgess fundamentally refrain from offering complete automation solutions themselves. The situation of competing against our own customers will therefore never arise.

Commitment to PLC culture

From the beginning, the 25-year company history as a manufacturer of controllers has been inseparably associated with the PLC concept (PLC = programmable logic controller). This concept determines the technology, philosophy and activities of Saia-Burgess Controls. The term PLC signifies: stability, reliability, long lifetime, investment security, calculability, expandability and guaranteed serviceability for decades.

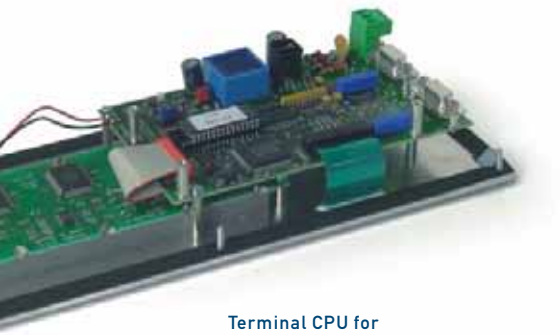


The 15-year old PCD6.Mxxx CPU series: upgradeable with Ethernet-TCP/IP and still programmable with the latest Saia® software tools

Components

CPUs

As a manufacturer deeply involved in the development and production of control technology, Saia-Burgess is also of interest to other controls producers as a component supplier. This business mostly concerns the supply of CPUs as kernels for our customers' control systems, or terminals without firmware. For OEMs making their own products to expand the Saia®PCD system portfolio, Saia-Burgess also supplies Saia®PCD housings and individual firmware components.

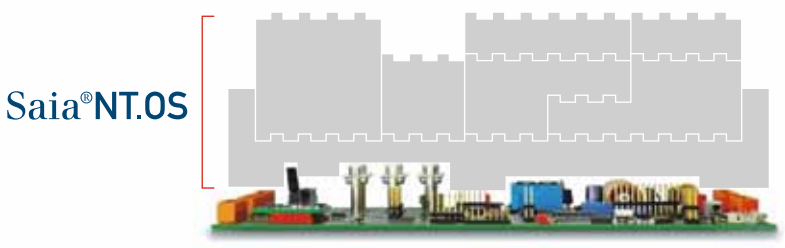


Terminal CPU for high-volume OEM with in-house control system

Operating systems

A thorough mastery of the entire controller operating system is the essential cornerstone that enables Saia® to meet customers' expectations of Saia® as a PLC company. Saia® deliberately ignores the 'cheap' route of combining standard firmware modules from different suppliers and just put them together into one operating system.

Instead, Saia-Burgess focus the resources and cooperates with technologically leading companies and universities. The new Saia®NT.OS has been built on the results and findings of a common European research projekts on the subject of component-based operating system design. Nokia and Phillips are further participants on this project.



Devices

Integrating components to form closed physical units

Components like I/O modules, CPUs, housing parts, operating systems can be seen as parts of a body. A body is the sum of all its parts and, as such, has its own identity. In exactly the same way, by combining Saia®PCD core components, Saia-Burgess creates a large number of devices. By adding application programs, the customer can make the body into an individual that does exactly what he wants. Saia® software tools will help customers to implement their requirements, based on Saia®devices.

PCS1 controller
for building automation

PCD4 controller with
Profibus and Ethernet
options and motion
controller

Systems

Integrating devices to form logical, functional units

Some tasks and situations can be tackled more successfully within a community (family, company, association) than by one individual alone. If technical devices/functions are to work together in a community, rules will be required in the form of standards, attributes and aims that apply to all (family) members.

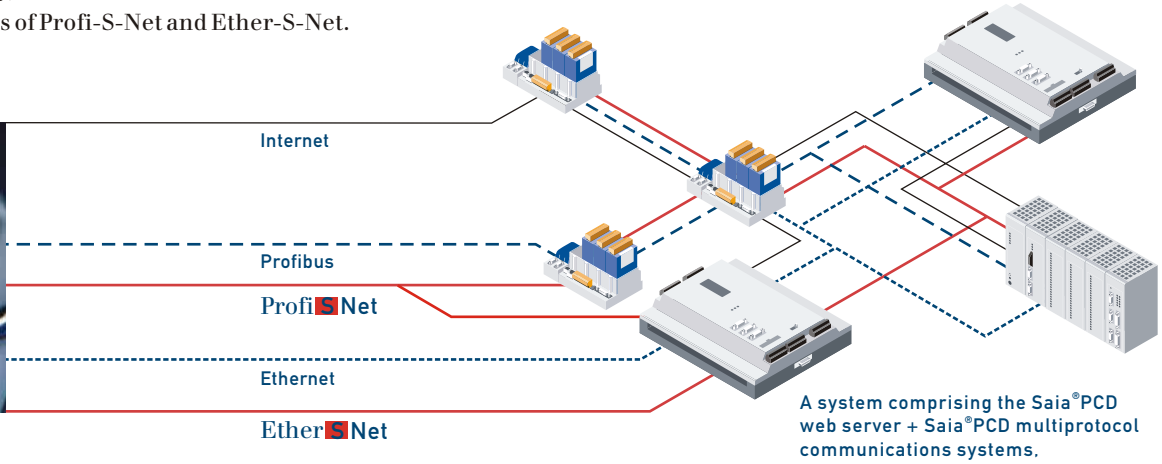
Saia®PCD not only stands for a range of control devices, but also for their ability to form functional networks with each other and their application environment.

In the quest for closer, simpler and more powerful cooperation between its products, Saia-Burgess has always defined and implemented its own system standards and rules. In communications technology, Profibus and Ethernet technologies are the basis of Profi-S-Net and Ether-S-Net.

Web and Internet technologies are not viewed just as individual functions, but integrated across the entire range as an integral system standard.

For operator control and visualization, a PLC-based control system consisting of terminal, controller and software is provided. For specific market segments such as combined heat and power, generation (Saia®Vario+) and HeaVAC (Saia®DDC+) there are other dedicated Saia®PCD systems.

PLC-based operation /
visualization system



A system comprising the Saia®PCD
web server + Saia®PCD multiprotocol
communications systems,
based on Ethernet and Profibus.

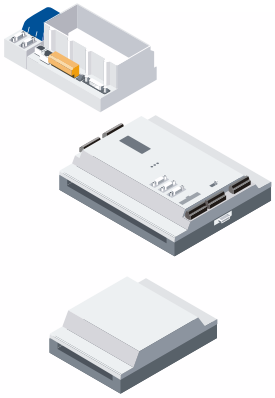
Saia®PCD | Saia®PCS functions

Everything for advanced Control

CPUs – Central Processing Units

The brain of every control system

Controller CPUs are the core of the product range. Depending on the operating system and resources implemented, they have been designed to work either as user-programmable controllers, or as dedicated controllers with a fixed program.

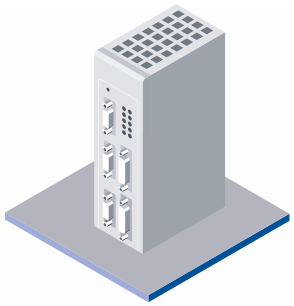


Programmable CPUs for PLC and DDC applications

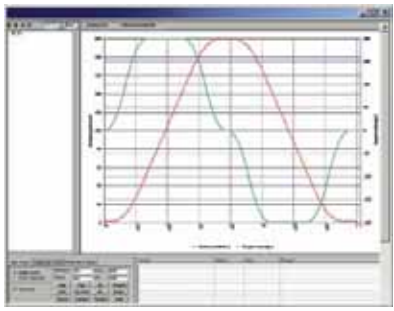
Saia®PCD user-programmable controllers utilize programming languages that meet IEC standard 1131 (KOPLA, IL, Graftec), or higher-grade graphical programming/engineering methods. For use as a standard PLC, typical PLC device functions are provided, such as back-up memory, start-stop switch, battery, etc.

With dedicated controllers, the requirement for resources is reduced and the ideal combination of integral, on-board interfaces is of significant importance. With the Saia®PCD system, ready-to-use, dedicated controllers can be produced with typical PLC languages. Specific software tools and firmware functions specifically support applications of this type.

For motion control applications, dedicated 'Motion CPU' modules are available for all Saia®PCD device series. When combined with the Saia® function blocks provided, a wide spectrum of applications can be covered, from simple point-to-point motion to electronic cam drives with numerous axes.



CPU designs for dedicated control tasks



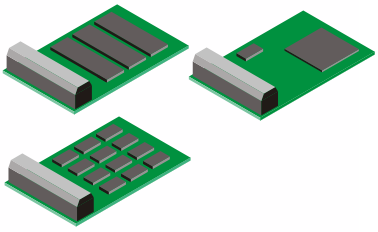
Saia®PCD software tool for motion CPUs

Electrical Interfaces

Electrical signals direct to the CPU

Central electrical input/output interface modules are connected very closely and economically with the controller CPU. The number of different signal interfaces offered is very large. The high volume of I/O points produced (more than 1.5 million) is a testimony of our competence and success in electrical interface technology.

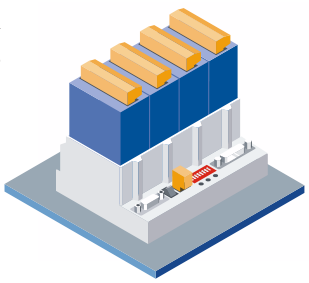
Complex interface modules complete the range of standard signal interfaces and motion control specific modules. Fast closed loop control and high precision, rapid switching logic can be produced with these complex modules, as well as mass-flow measurement via dynamic differential weighing.



Saia®PCD electrical interface technology

Remote pre-processing of electrical signals

Remote I/O stations for the decentralized connection of peripherals have different designs for specific markets, so that they meet the demands of individual installation practices and the relevant cost context. Remote I/Os from Saia-Burgess can also be implemented with local intelligence. PCD3.Txxx series remote I/O stations even allow the master to load stop behaviour, control loops etc. during run, with C plug-ins working autonomously. Workload is decentralized, while system control and management functions remain centralized.

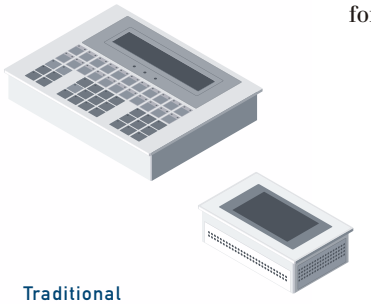


Remote I/O with integral web server for Profibus and Ethernet

Interfaces for operation and visualization

Interacting with humans

Saia-Burgess offers a wide range of terminals to operate and monitor control systems: from the simple two-line text display to the large operator terminal. The high-volume terminals are developed and manufactored by Saia-Burgess. In order to cover the entire band-width of requirements in the intelligent PLC terminal field, products from associated companies are also integrated within the Saia®PCD range. Anyone requiring a visualization system on Windows PCs/ PDAs for OEM applications, programmable with commercially available tools, will be provided with the appropriate communications driver from Saia-Burgess. For project business, there is the Saia®PCD OPC server for Windows operating systems.

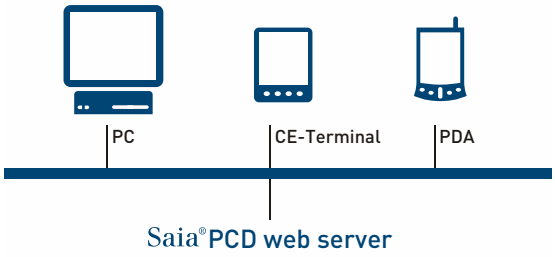


Traditional Userinterfaces

Saia®S HMI

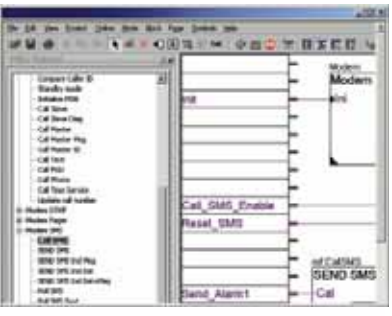
Integral web server – an important plus

A special feature of Saia®PCD systems is the powerful and highly functional use of PDAs, Windows CE terminals and PCs for operation, monitoring and visual display. This special strength is based on the integration as standard of a web server in all the more recent Saia®PCD control devices. The web server can be accessed via all device ports and communications channels, even without an Ethernet-TCP/IP connection. Devices with web browsers therefore become economical control and monitoring tools with a high level of user acceptance.



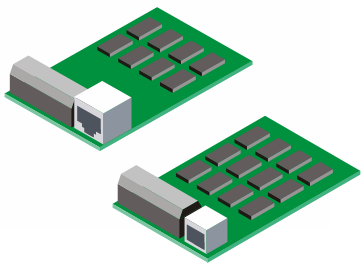
An especially strong point of Saia®PCD are HMIs based on web and Windows technology.

Communication | network technology



The most diverse devices can work as a team

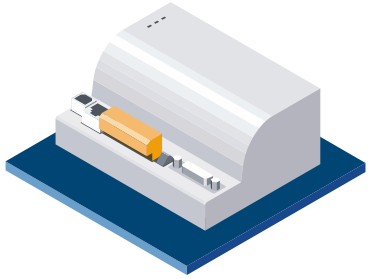
To connect with the telecommunications environment, internal and external modems are available for the entire Saia®PCD/ Saia®PCS device series. These modems are fast, convenient and reliable in operation via many tried and tested application modules in the form of graphical program objects (Saia®PG5, FUPLA). It is not necessary to write a line of IL code to use Saia®PCD modems.



Hardware products and graphical function blocks for telecommunications applications

The different communications network interfaces already built into the basic CPUs is extended with active network/bus modules for LON, Ethernet and Profibus. Own development and production ensures their quality and function, even across the typically long lifetime of a PLC.

The strength of Saia®PCD technology is evident in its widespread use as a network controller, collecting and processing data, or as a gateway/ router between different bus environments. Saia®PCD's powerful instruction sets for communications and IT allow the customers themselves to implement many communications protocols and utilities, such as EIB or Modbus, as application programs.

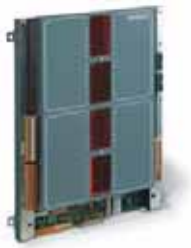


Saia®PCD constructed as net controller

Saia®PCD | Saia®PCS device series

Continuity, originality and individual profile for over 25 years

Flat construction Saia®PCD1 | Saia®PCD2 device series



1980 | Saia® PCA1

1994 | Saia® PCD2.M120

1996 | Saia® PCD1.M130

2003 | Saia® PCD2.M480

2003

Flat construction

Controllers with a flat construction traditionally form a main element of Saia® control technology. This design was selected, developed and introduced deliberately as an alternative to cassette/rack construction. It has brought us decades of success in the marketplace, enjoying continuous growth thanks to constant advances and innovations.

The existing main device series are the Saia®PCD1 and Saia®PCD2. Both can be fitted with front-mounting operation/display modules (PCD7.D16x). The PCD1 has 4 slots for interface modules, enabling it to be expanded to 64 I/Os. The PCD2 CPUs offer 8 slots and can be expanded with extension housings to 1024 central I/Os.

Patented housing technology

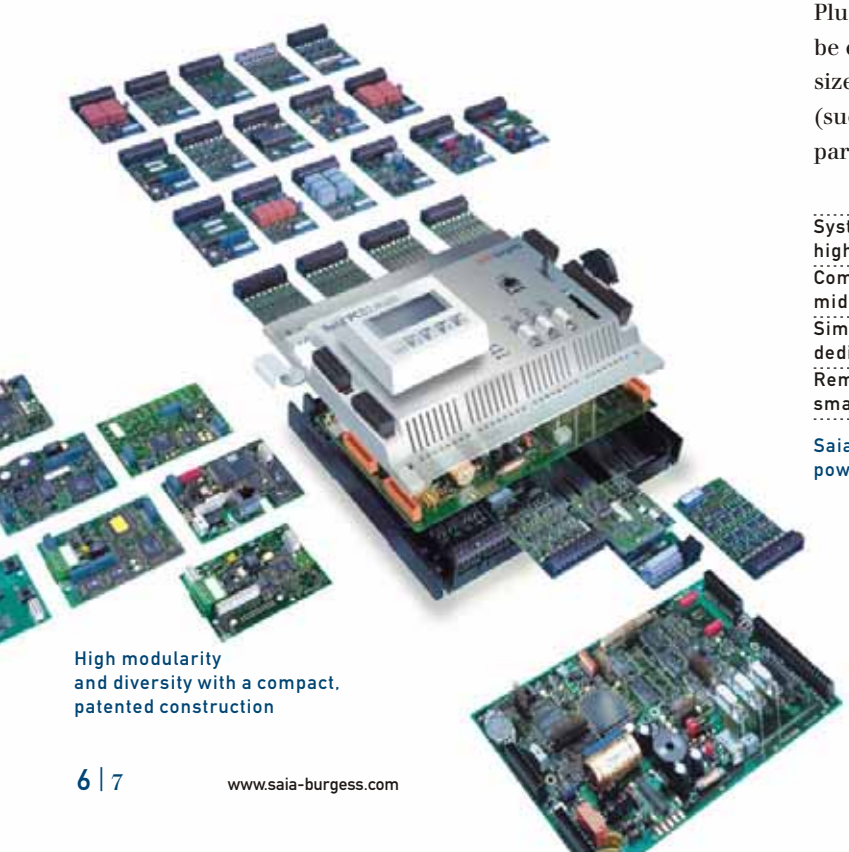
The patented housing technology of the PCD1/PCD2 series is completly screwless. With regard to mechanical, thermal and electrical robustness, the PCD1/PCD2 series beats many of the apparently heavy-duty designs available on the market. EMC standards are met to an extent that far exceeds CE standards. The high demands of ship approvals are also demonstrably met. Even in armoured vehicles and trains, many hundreds of standard version PCD2s are in use.

Performance of the flat Saia®PCD

The performance spectrum of the flat Saia®PCD series for communication (at one computing speed) is enormous. PLC speed extends to the same class as a Siemens S7 318/414 CPU. Even the 'small' PCD1 is available with 3 serial ports + Ethernet-TCP/IP. Plug-in communications modules allow the PCD2 to be expanded to 9 serial ports, without changing the size of housing. In the newer CPUs, many ports (such as RS232, RS485, Profibus, USB) already form part of the base CPU.

System control: high power PLC	Saia® PCD2.M480
Complex DDC system: mid-range PLC	Saia® PCD2.M170
Simple DDC system: dedicated controller	Saia® PCD2.M120 Saia® PCD1.M130
Remote terminal unit: small controller	Saia® PCD1.M110

Saia®PCD CPU
power extends to top class



High modularity
and diversity with a compact,
patented construction

Rack cassette construction Saia®PCD3 device series

1978 | Saia® PCA2 — 1986 | Saia® PCD6 — 1989 | Saia® PCD4 — 2003 | Saia® PCD3.Txxx — 2004 | Saia® PCD3M.5xxx

Conventional PLC construction

Since the beginning of Saia® control engineering, more than 25 years ago, Saia® product series have also been available in conventional PLC construction. Based on several product generations with a conventional PLC construction, the new PCD3 product series introduced many new technologies and achieved significant improvements in performance, function, size and cost.

High power PLC

Saia® PCD3.M5

Mid-range PLC
Complex DDC

Saia® PCD3.M3

Dedicated controller
Small controller

Remote intelligence

Saia® PCD3.T765

Remote I/Os

Saia® PCD3.T760

Enormous diversity
of function and power with PCD3

Performance of the PCD3 series

The highly modular hardware and firmware of the PCD3 series enables it to cover a range of functions and performance, for which others need many different series of devices. Achieving this demanded many innovations. For example, in contrast to the usual construction paradigms, the PCD3 series CPU is not plugged in as a module, but built into the back wall. For the plug-in interface modules, two different system buses have been integrated in parallel. One system bus is similar in function to the bus in the flat Saia®PCD1/Saia®PCD2 series. The second system bus allows the PCD3 to run as a motion controller, or as a node in a data network.

PCD3 series

The PCD3 I/O interface line currently includes over 35 different plug-in modules. Over the next few years, priority will be given to expanding this interface line, providing dedicated interface combinations (HeaVAC, motion control, redundancy) and implementing enhancements in the construction/connection technology.

The Saia®PCD3.M5 CPU is an enormously strong communicating/ computing machine with numerous on-board functions, all of which is combined in a very small, compact format. Profibus, Ethernet, RS485, RS232 and USB are integrated as on-board interfaces. The most diverse protocol stacks and services can be implemented as firmware modules or as user programs. In PLC speed, the Saia®PCD3.M reaches the same upper mid-class level as, for example, a Siemens S7 318. As a modular controller, the PCD3.M can be expanded to include 1024 central I/Os.

The Saia®PCD3.T7xx line stands for remote I/O stations on standard Profibus and Ethernet-TCP/IP. The Saia®PCD3.T76x has two serial ports and a web server as standard, integrated in the head station.

The PCD3 series PLC CPU: strong communication and performance

Saia®PCD | Saia®PCS device series

Continuity, originality and individual profile the basis for a good future

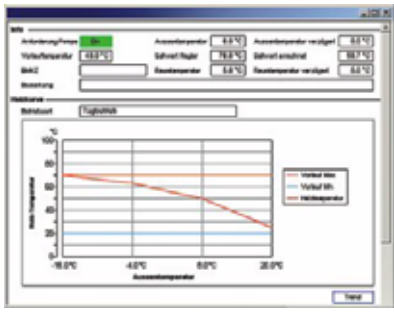
Compact controllers and dedicated controllers

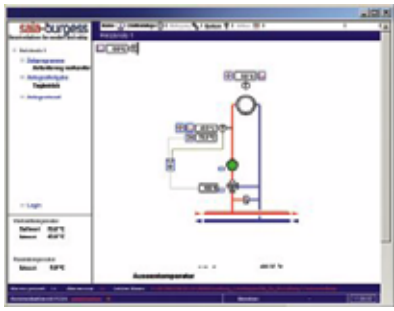
Cast in one piece for a better fit

These have been specifically designed for a certain application area or market with regard to their electrical signal/communications ports, firmware and pre-loaded application software. For example, the Saia®PCS1 Compact was primarily conceived as a product for the infrastructure automation field. The Saia®PCS1 Compact Easy version includes on-board, prefabricated system macros for fully integrated HeaVAC applications. The Saia®PCS1 Compact Easy only requires the installer to configure it.

Compact stations
Saia®PCS1
Saia®PCD.NetController
Saia®PCD.DataLogger.

Since the system macros are edited PLC style, with a normal Saia®PG5 Controls Suite software tool, the controller remains fully user programmable and expandable for qualified programmers. The option of full user programmability opens the door to enormous flexibility and potential savings, through integrating additional facilities, or through the economical implementation of additional, new requirements within an application.





Configuration software
for PCS1 as dedicated controller
for HeaVAC applications

Operation and monitoring

Logic Controller-based terminals

The PCD7.D1xx and PCD7.D2xx lines are fully functionally integrated in a Saia®PG5 project. These terminals are driven with the IL instruction set of a Saia®PCD PLC/DDC CPU. For this reason, they are referred to as 'PLC-based' terminals. To simplify project planning and programming, the Saia®PG5 Controls Suite includes a Saia®HMI editor. This provides an easy, efficient way of creating, simulating and testing control/display functions. Since the new Saia®PCD CPUs have increasingly greater power reserves available for HMI tasks, and since users want ever more easy ('because wysiwyg') and efficiency to implement display and control functions together with the controller in one project, PLC-based terminals are in a period of strong growth.

Terminals for PLC-based
operation and monitoring

Operator Panel

The operator panels (Saia®PCD7.D7xx) are stand-alone automations devices, which in networks can exchange data with many different logic controllers. Beside the pure user interface they can offer also functionality in alarm handling, data storage and communication. For programming and configuration of the operator panels are proprietary, dedicated software tools beeing used so far.

Intelligent terminals
with own program
and/or own configuration

Saia-Burgess expects that the main impetus of growth and progress will come with web panels. These are 'economical Touch Panels' with web browser functionality. We will give priority to expanding the Saia®PCD system in this direction.

Saia® PC software

Excellence and efficiency in automation solutions

Tools | Application Components | PC-System Software

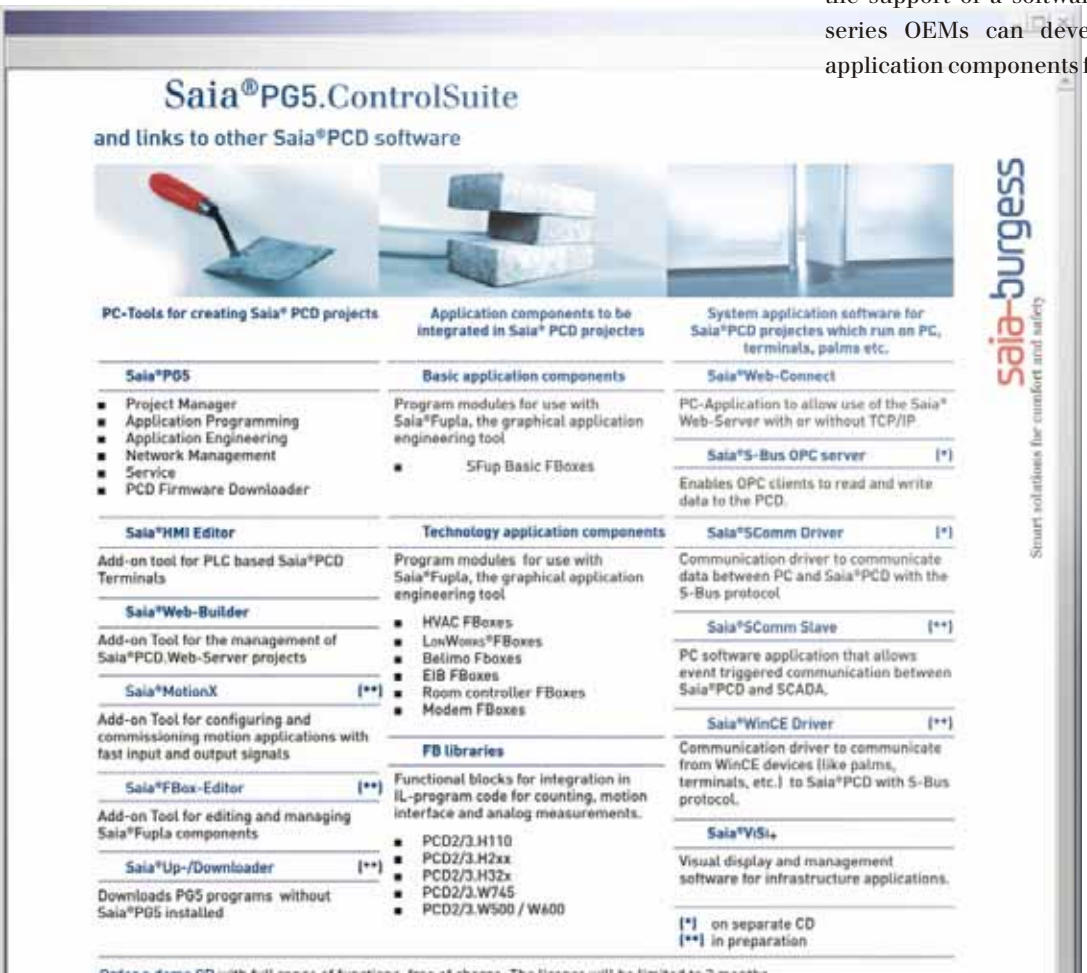
PC software as core competency

The first Saia® controllers were programmed without software. The only tool required was a small keypad. The first step forward was the development of a simple line editor for the PCM operating system. Over the decades, requirements have expanded so much that software has caught up with the actual device hardware in importance and investment volume.

With the current, most recent Saia® software generation, controllers developed 15 years ago can still be programmed. For the user, this safeguards the serviceability and modifiability of their installations, even after so many years.

With twenty years experience and success in software, our customers can be sure that Saia-Burgess operates professionally and sustainably in this business. Since we have the entire development competency base within Saia-Burgess itself, Saia-Burgess can guarantee the continuity and full system command of PC tools.

Start screen of CD:
Saia®PG5.ControlsSuite



Engineering tool: fully graphical project planning of applications, instead of programming them in IL code
Development/service tool for web applications and operator terminals based on PLC technology
Development/service tool for dedicated PLC-based controllers and terminals
Basic functions IEC 1131 tool

Saia®PG5

Saia®PG5 Controls Suite

Saia®PG5 is a central, core element of the Saia®PG5 Controls Suite, and more than just a good service and programming tool for PLC programmers. It far exceeds IEC 1131 functionality. As a development tool, dedicated controllers, communications drivers and IT functions can be programmed in Saia® IL. As an application engineering tool, its graphical application modules help users to implement even the most sophisticated automation projects, without themselves programming in KOPLA, IL or Graftec.

This is the form in which by far the majority of Saia®PCD and Saia®PG5 applications are implemented. Existing libraries from Saia-Burgess and the Saia®PCD system houses already provide a powerful, comprehensive base, in particular for project business in infrastructure automation. With the support of a software tool (Saia®FBox-Editor), series OEMs can develop their own graphical application components for their specific needs.

Saia®PCD extensions

A crucial plus in functionality, flexibility and fit

Saia®PCD for STEP®7 | Higraph

The serious, innovative addition to the S7 series

Since 1997, Saia-Burgess has also offered Saia®PCD controllers with a firmware option as STEP®7/ Higraph/SCL programmable controllers. The corresponding CPUs have a number 7 at the end of the device reference (= xx7 series). STEP®7 programmability is a straight add-on module to the Saia®NT.OS operating system. In its communications technology, electrical interfaces and CPUs, the hardware of this product xx7 series is identical to all other Saia®PCD controllers. This has had an interesting effect on production volumes, allowing development costs to be shared across larger unit quantities.

Extension of the STEP®7 environment with Saia-Burgess Controls

Special extra feature for OEMs

With the Saia®OS Builder, customers can create STEP®7-compatible private operating system versions, which are fully safeguarded against copying and manipulation.

With embedded Smart CPUs, customers can also build their own STEP®7-compatible controllers.

Saia-Burgess has not, of course, used the STEP®7/ Higraph programmable version of its PCD controllers to position itself as a replacement for Siemens®, with the general requirement of making better STEP®7 programmable controllers than Siemens®. But the Saia®PCDxx7 series is a valuable extension and rounding off the Siemens®S7 environment. This arises from the specific identity of the Saia®PCD control technology and from a culture of flexibility and calculability that is typical of a medium-sized company.

Ideal for high volume devices and machines

STEP®7 and Siemens® are registered trade marks of SIEMENS® Ltd.

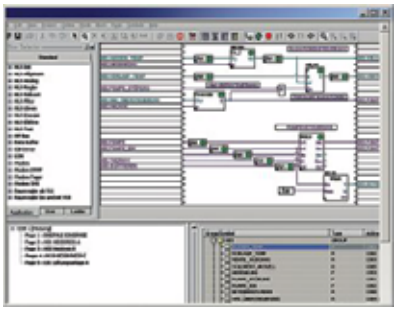
HeaVAC Products

Devices and functions focussed on heating, air-conditioning and ventilation

To meet infrastructure automation requirements for the single-source supply of project business, our own control technology has been rounded off by adding to it simple actuators, sensors and control devices for HeaVAC applications in particular. The preferred route for this rounding off is via close market cooperation with specialized, regional suppliers.

Hardware products especially for HeaVAC applications

Saia® PC software provides libraries of graphical objects so that field devices from the Saia®DDC Plus system can be integrated easily and reliably within a project.



Efficient, reliable application engineering and commissioning through HeaVAC-specific, graphical, Saia®PG5 FBoxes

Saia®DDC+

The HeaVAC-specific range of products and services with the typical PLC bonus of openness and expandability. Ideal for fully integrated automation of building systems.

Smart Controls

The ultimate with PLC based control

'Smart Controls' is the term that describes our aim of constantly expanding the boundaries, capabilities and forms of PLC-based technology. Whether through high levels of flexibility and customer orientation, not otherwise found among traditional PLC companies, or through the range of products and functions offered, not included in the conventional PLC range.

Smart Controls products are based on the same core components and technologies as the standard Saia®PCD product range.

Smart Controls products are PLC CPUs in a credit-card format. Saia-Burgess delivers PLC CPUs with an integral SQL data server, and the customer's possibility of extending the PLC operating system into their own private OS. The Saia®PG5 software tool can conveniently be expanded with add-ons and graphical application modules (Saia®FBoxes) to generate easily an own automation suite by the customer himself.

The essential key for the success of Smart Controls is the fact that Saia-Burgess develops all the core components and technologies of the Saia®PCD system themelves in just one location, where also the electronic boards are manufactured.

The full mastering of all technologies and processes makes Saia-Burgess attractive as a supplier for many well-reputated companies who put their brandname on Saia® products.

Saia®PCD system houses

Closer to customers, more flexible, more choice

Products from system houses extend the scope, function and performance of the Saia®PCD product range. On the basis of a contractually agreed cooperation (the Controls Value Plus contract) many small and medium-sized companies develop complementary products.

This is systematically promoted by Saia-Burgess and actively supported through close technical cooperation.

controls value plus

Companies certified by Saia-Burgess as Controls Value Plus partners have proved that they are competent, reliable companies. Their products meet guaranteed technical standards as parts of a Saia®PCD system.

Saia-Burgess **Controls Division**

Strong enough, but not too large

Saia-Burgess Controls develops, produces and markets control technology for OEMs in production machine construction/device engineering and for system integrators handling infrastructure automation projects (buildings, transportation, production, and the water, energy and gas industries). Every year, Saia-Burgess manufactures more than 30.000 controller CPUs with over 1.5 million inputs/outputs for these customers and fields of application.

Own electronic board production

As part of the Saia-Burgess Group of industrial companies (> 300 million euro), Controls Division has a good organizational and financial base, with cost advantages from economies of scale in production and procurement.

For more than 25 years, Saia-Burgess has maintained a very good hold in a market which is dominated by large global automation conglomerate by profiling itself as a flexible, innovative controls specialist that allows its customers a large measure of personalization, differentiation and added value.

saia-burgess

Smart solutions for comfort and safety

Guide to product codes:

PCD	Process Control Device | PLC-typical modular construction and expandable
PCS	Process Control Station | Compact, dedicated controller
PCD1 | PCD2	Flat device construction | Interface modules type PCD2 are also suitable for PCD1
PCD3	CPUs in back plane | Interfaces as vertical cassettes, slotting into front.
PCD4	CPUs and interface modules in cassette form (book case format)
PCD7.D100 – 299	PLC-based displays / terminals
PCD7.D7xx	Panel / display that also works independently of the controller
PCD7.Lxxx	Interface technology, specially for building automation
PCD8	PC software

Details of product codes | Extension possibilities

		PCS1	PCD1|2	PCD3	PCD4
PCDx.Mxxxx	Programmable CPU, expandable with I/Os		●	●	●
PCDx.Rxxx	Extension memory modules		●	●	●
PCDx.Txxx	Dedicated CPUs, not PLC programmable		●	●	●
PCDx.Cxxx	I/O extension housing		●	●	●
PCDx.Exxx	Digital input modules		●	●	●
PCDx. Axxx	Digital output modules		●	●	●
PCDx.W100 – 399	Analogue input modules		●	●	●
PCDx.W400 – 699	Analogue output modules		●	●	●
PCDx.W7xx	Complex analogue modules		●	●	
PCDx.Hxxx	Motion control modules		●	●	●
PCDx.Bxxx	Interface combination modules		●	●	●
PCD7.Fxxx	Communications / network modules	●	●	●	●
PCD7.Txxx	Telecommunications modules	●	●	●	●
PCDx.Kxxx	Accessories, such as cables, connectors, etc.	●	●	●	●

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