

# 1.1 Saia PG5® Controls Suite: Engineering & programming

## 1.1.1 Saia PG5® Core – everything you need at all times

The Saia PG5® Core is central key element of Saia PG5® Controls Suite. It is used to create Saia PCD® projects. The Saia PG5® Core is included in every software package and it is identical throughout.

### 1.1.1.1 Saia PG5® Core | Basic properties

#### Wide range for large and complex projects



Saia PG5® Project Manager enables users to manage projects with a single set of controls or very large networks.

OEM manufacturers can use it with just one Saia PCD® per machine, just as it can be used for large properties such as tunnels with over a thousand installed Saia PCD® controllers.

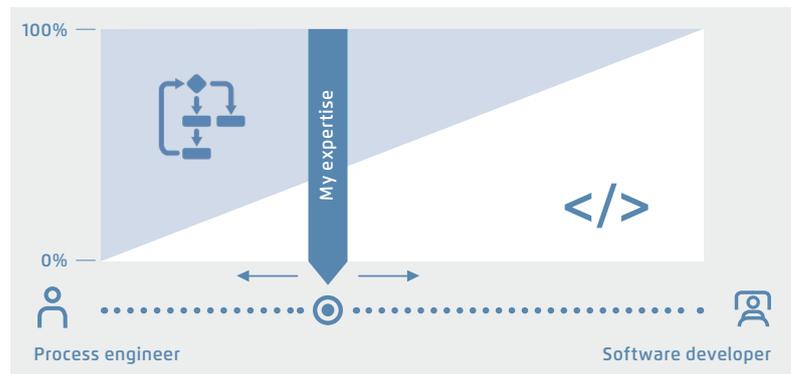
◀ The Saia PG5® Project Manager for individual devices and large control networks.

#### Software tool with broad user profile – all users can quickly master it

Saia PG5® Core provides to all groups of persons involved in MSR and automation technology suitable functions for performing tasks reliably and well.

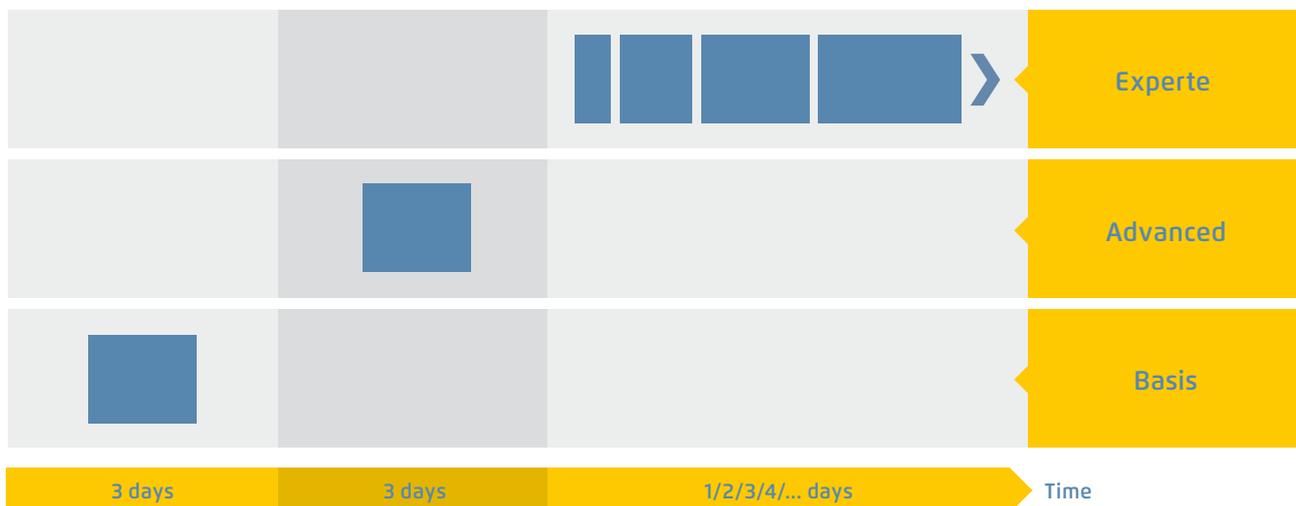
As an application engineering tool, users can also implement the most demanding automation projects using graphic application modules in the Fupla Editor without requiring programming in IL, Graftec or Kopla, etc.

As a development tool, dedicated control and logic functions, communication drivers and IT functions can be programmed in the Instructions List.



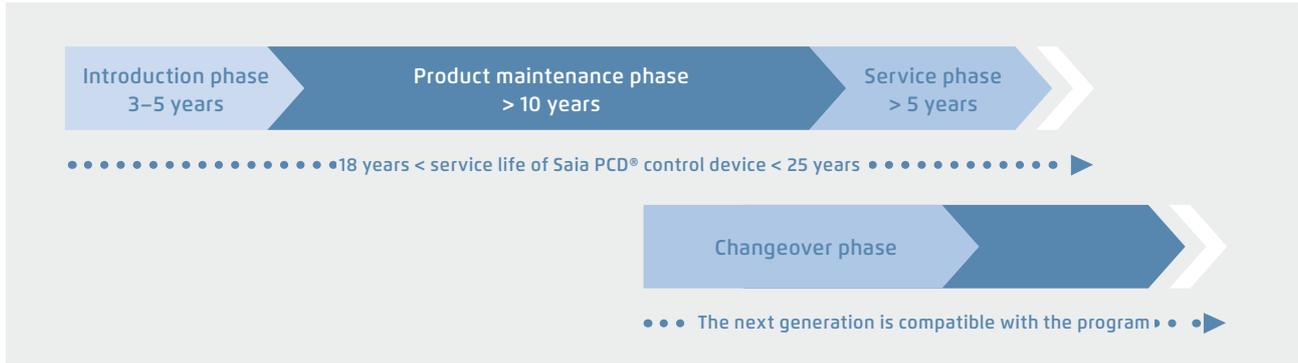
▲ Saia PG5® offers a wide range of solutions, the right product for everyone

The training program by Saia-Burgess Controls AG



▲ The time required to achieve solution competence

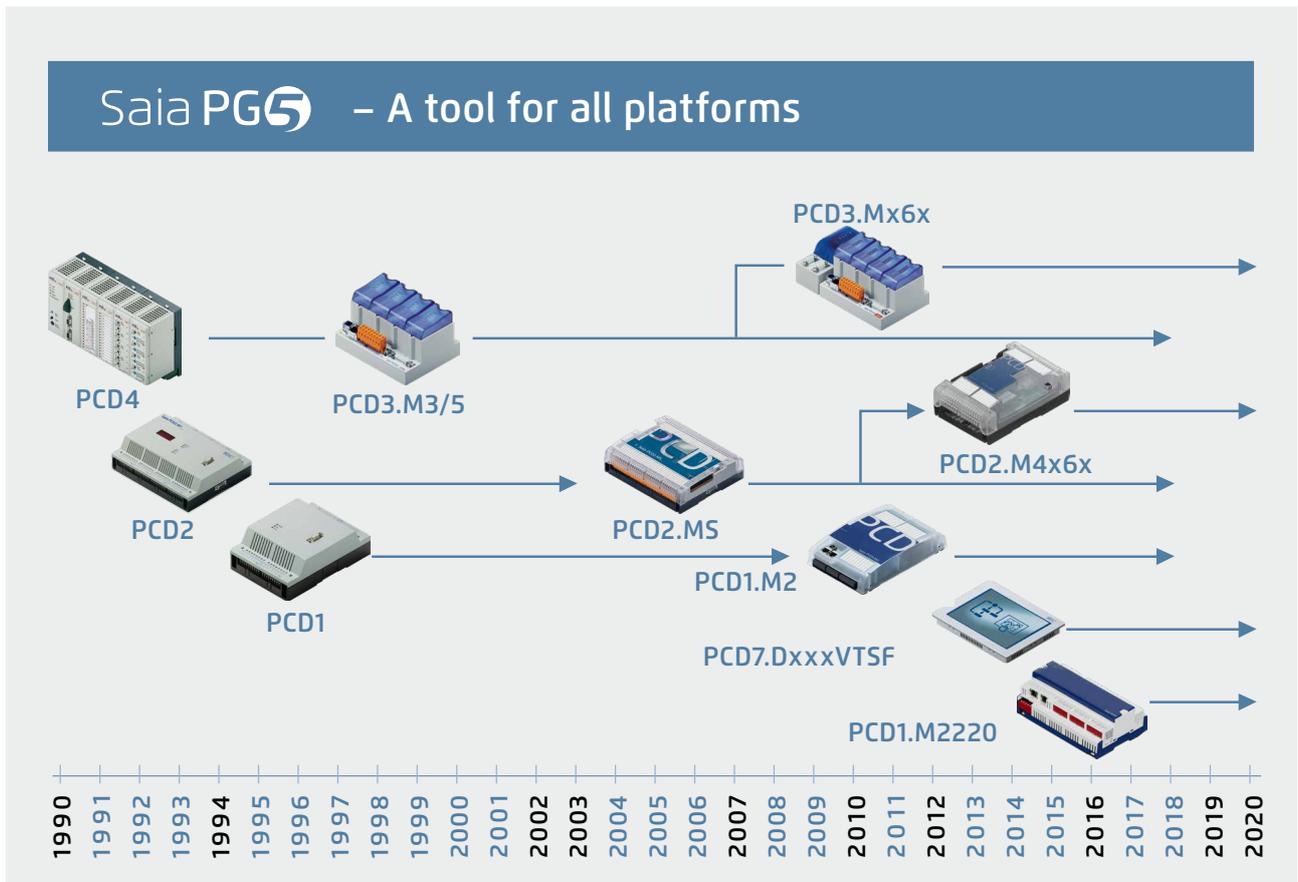
A standardised software – for all device types – now and in the future



▲ Service life planning of Saia PCD® control devices. Enables maximum profitability of your investment in expertise and systems. Long service life without expensive reinvestment and no high service costs.

The control electronics should have the same service life as the systems technology. It must be possible to adapt and expand at any point in this cycle. The compatibility and free portability of systems/machine software is guaranteed for 18–25 years across the entire

product generation. This can only be achieved if we develop all the engineering software ourselves and systematically use "interpreted program code". This requires more hardware resources, but enables the portability of user software across multiple generations of controllers.



▲ Old application programs can be used with new Saia PCD® controllers and further edited with Saia PG5® Core

1 SBC software

2 Communication & Interaction

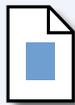
3 SBC S-Web technology

4 Room automation

## Licence policy for maximum security, flexibility and independence



USER · KEY  
KEY-Datei  
1KB



Licence as a "user key"

- ▶ In principle, any company can acquire the licence for Saia PG5®. There are no market-related exclusions as is the case with other providers. The only requirement is the ability to implement the products professionally.
- ▶ With the acquisition of a Saia PG5® licence, a company can register any number of its employees as users. There are no costs per place or per user. However, a company must at least have verifiably one qualified Saia PG5® programmer. The qualification can be obtained via training by SBC.
- ▶ There is a special end user licence for operators of Saia PCD® automation systems. This includes all SBC software tools and SBC application libraries which an external service provider or OEM has used in a system/property to create an automation system. The end user licence only applies to the Saia PCD® devices installed by the operator and cannot be used to develop automation solutions for third parties.

◀ This certification as Saia PCD® system integrator demonstrates that a company can verifiably implement automation solutions in a reliable and professional manner with Saia PCD®. We recommend that operators, investors and planners consider certification when selecting service providers.

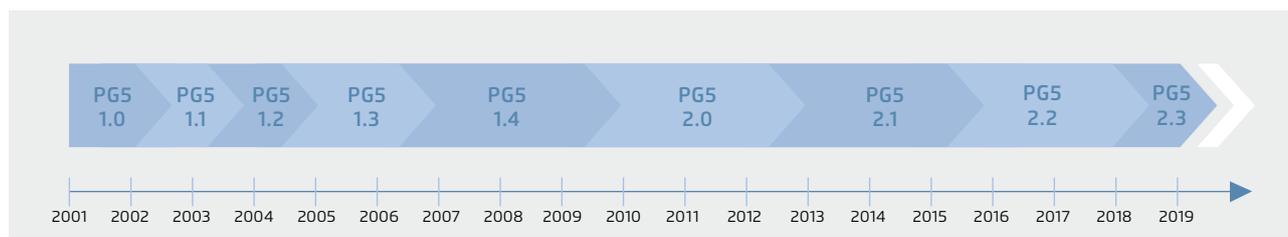
### Licensing procedure

The Saia PG5® licence mechanism offers more flexibility and simplicity when installing licence expansions. The licence is distributed as a "user key" file which defines the user's permission for the software applications. A licence expansion can be quickly assigned by sending the customer an e-mail with a "user key" file or a *password*.

SBC can create customer-specific user keys using the licence manager. The keys can be tailored to any requests. It is possible to define editors or libraries which the customer is authorised to use. The scope, number and size of the projects are irrelevant here.

## Software maintenance

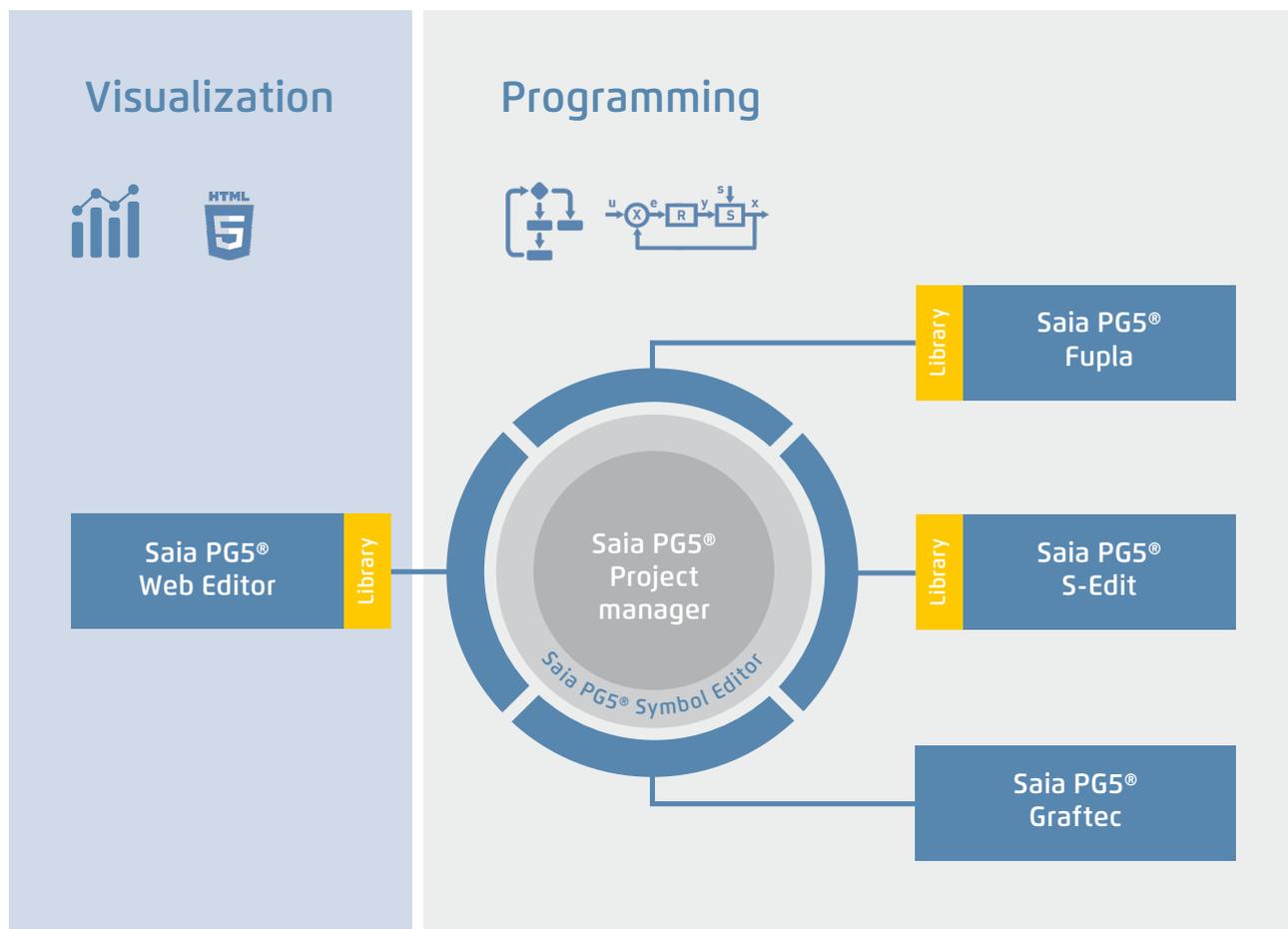
We are continually advancing our software in logical and easy-to-manage innovation steps. The following diagram shows the major version changes over the past 15 years. Patches are used to manage identified errors. Version changes are not required. New functions are first tested in beta versions before the sum of all the new functions is made official in a major new version. A moderate fee is charged for major version steps with substantial additional functions. This happens every 2 to 3 years.



▲ Milestones in software development and maintenance

## 1.1.1.2 Saia PG5® Core | Components

The following pages illustrate Saia PG5® Core and explain the components individually in detail.



Saia PG5® Core in a nutshell

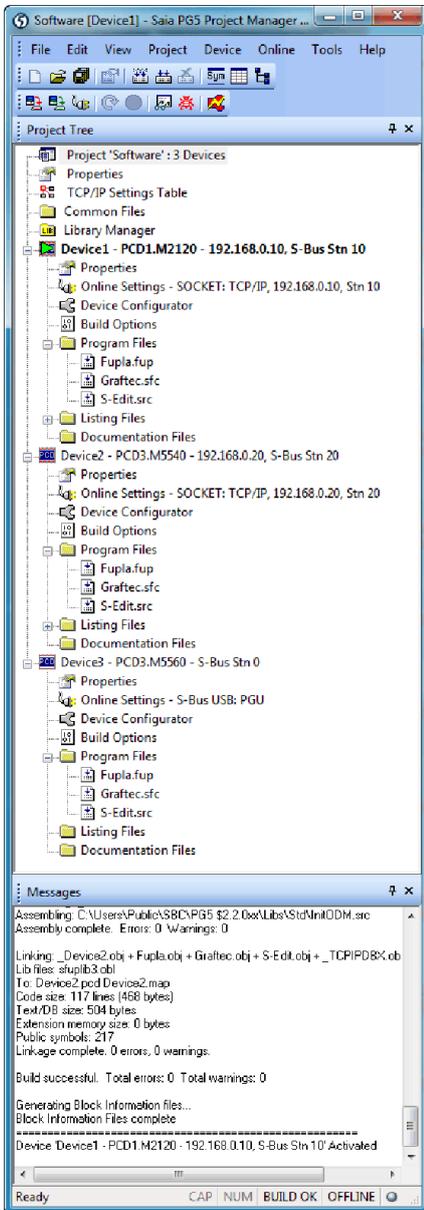
### Saia PG5® Core contains the following components

- ▶ Project Manager (manages complex installations of networked Saia PCD® controllers including documentation)
- ▶ Network Configurator (integrated network editors for the configuration of devices and communications networks)
- ▶ Device Configurator (configuration of hardware parameters on the controller)
- ▶ Symbol Editor (manages all local, global and network symbols and symbol groups. Thanks to the automatic allocation, no fixed addressing is needed)
- ▶ Programming methods (integrated programming environments: Fupla [function block diagram], S-Edit [instruction list IL] and Graftec [flowchart])
- ▶ Libs (standard libraries which quickly and easily enable all the core functions of the MSR/automation technology)
- ▶ Web Editor (for WebSCADA functions in each controller)

## Saia PG5® Project Manager

The configurations and applications are created, changed and managed in Saia PG5® Project Manager. Saia PG5® Project Manager is pivotal for all tasks with Saia PCD® controllers.

The following window appears on the left edge of the screen as soon as Saia PG5® Project Manager is opened. With desktop docking, there is still enough space on the right of the screen for additional windows.



Window of Saia PG5® Project Manager

### Project Tree

The layout and structure largely correspond to Windows Explorer. The "Project Tree" window allows direct access to all Saia PCD's used in the project and their relevant settings, program files and documents. Program organisation by files (containing one or more program blocks) simplifies the shared use of program files in multiple Saia PCD's.

The "Program Files" folder can consist of different data types. Therefore, it is possible to save all types of programming in one folder.

### Messages and Error List

Error and status messages are displayed in this window along with the assembly protocol. Errors in the program code are listed here after assembly, and can be located directly by clicking.

### Network Configuration

Network configuration is used for the configuration of devices and communications networks. **There are three different basic configurations:**

#### 1. Ethernet RIO Network Configurator

▶ Smart RIO – PCD3.T665 and PCD3.T666.

#### 2. BACnet Network Configurator

▶ BACnet Configuration Files (\*.bnt)

#### 3. S-Net Network Configurator

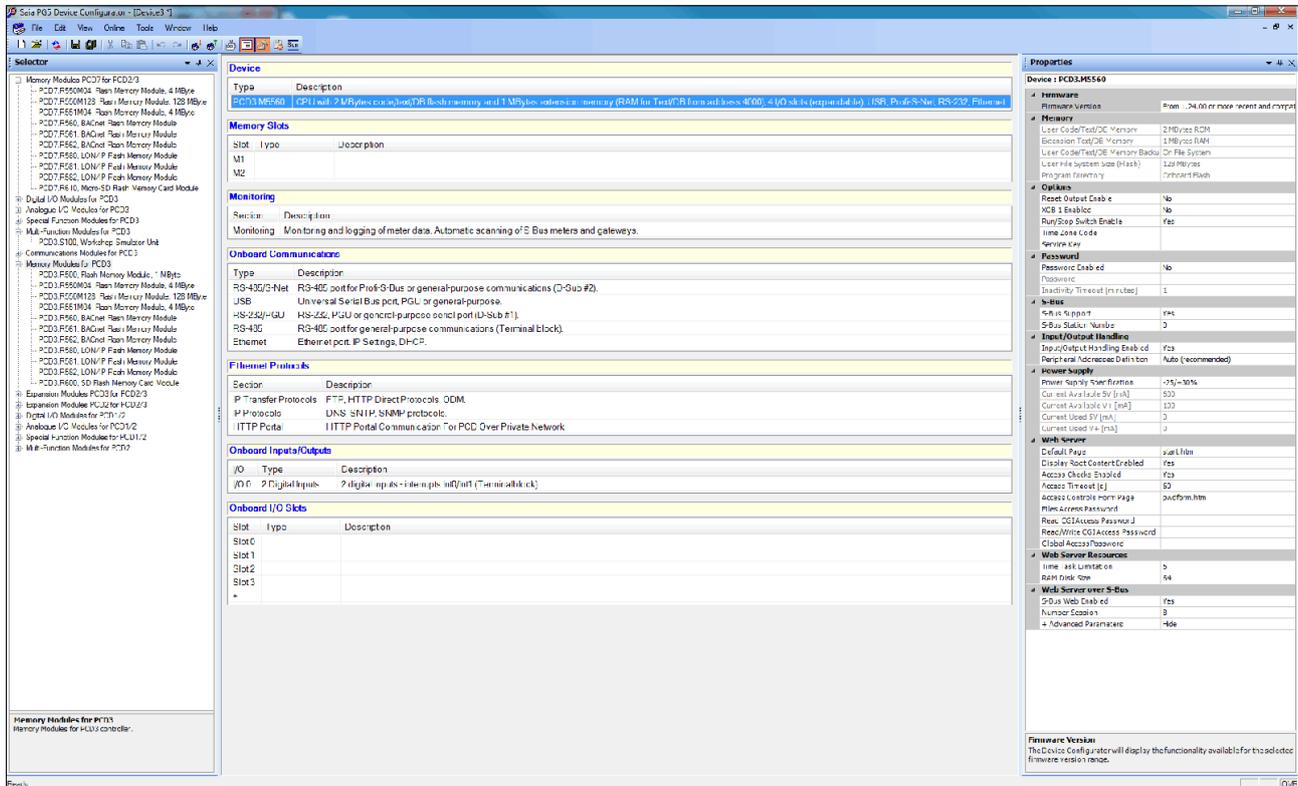
▶ Profibus DP Network File (\*.dp)

▶ Profi S-IO Network File (\*.sio)

▶ LONNetwork File (\*.lon)

## Device Configurator

The hardware and physical functions of the controller are defined in the Device Configurator; e.g. device type, memory modules, communication channels, associated modules and I/Os. The I/O configuration, parameterisation and designation, as well as the configuration of the Ethernet protocols, e.g. DNS, DHCP, etc. takes place here. The Device Configurator also controls the use of input/output modules in the internal power supply of PCDs and prints the labels which are placed on the I/O modules.

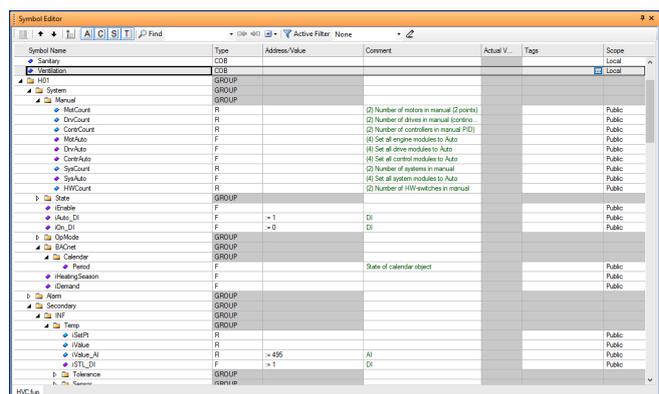


All parameters and modules can be viewed at a glance and printed out as system documentation in the Device Configurator

## Symbol Editor

The Symbol Editor is the heart of Saia PG5® Core. It defines and documents all the symbols used by the program. The various editors are connected with the Symbol Editor. New symbols used in the program code are incorporated directly by the Symbol Editor.

- ▶ The import/export function allows the reuse of pre-defined I/O lists in electrical diagrams and visualisation tools.
- ▶ Symbols can be grouped together. All the symbols required for a function form one group. This makes it easier to use functions and recognise symbols in the program code, and also gives a clearer overview in the Symbol Editor.



Overview of all symbols used in the Symbol Editor

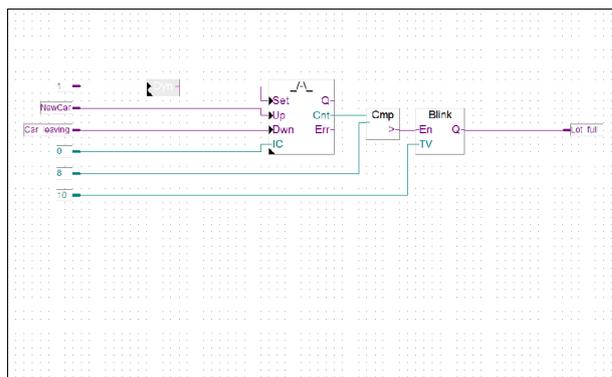
1 SBC software  
2 Communication & Interaction  
3 SBC S-Web technology  
4 Room automation

## Programming methods in the Saia PG5® Core

### Saia PG5® Fupla (function block diagram)

Fupla is the SBC proprietary function block diagram editor. It differs in many respects from other graphic programming interfaces:

- ▶ One Fupla file may contain several program blocks. This means that one file can encompass an entire machine function. In symbolic programming, each program block is given an individual symbol name. This prevents collisions during the build.
- ▶ Fupla blocks are organised into pages. Each page can produce several outputs so that entire functions can be viewed at a glance on one page.
- ▶ Graphic functions (FBoxes) not only have inputs and outputs, but also parameter windows for configuration and online modification.



Saia PG5® Fupla (function block diagram)

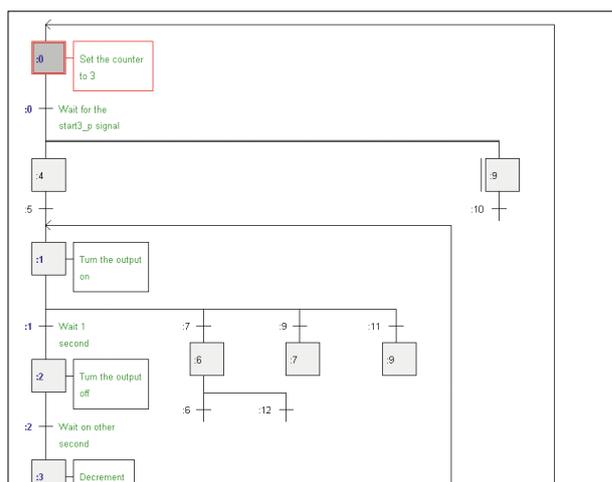
### Comment:

The Kopla Editor (contact plan) is an integral part of Saia PG5® Fupla Editor. Unlike conventional graphic programming environments, FBoxes and contact plan elements can be combined in a single graphic.

### Saia PG5® Graftec (sequential function chart)

Graftec (sequential function chart) is particularly suited to sequential processes. Sequential blocks are a fixed component of the PCD firmware and are processed by it efficiently.

- ▶ Steps and transitions can be programmed in IL and graphically in Fupla.
- ▶ To also ensure a good overview with extensive sequential processes, division into sub-pages is possible.
- ▶ In online mode, the active transition is permanently displayed.
- ▶ Option to process the code step-by-step in step mode.



Saia PG5® Graftec (sequential function chart)

### Saia PG5® S-Edit (instruction list IL)

The editor for the strong instruction set of Saia PCD®, S-Edit combines an editor and online debugger in one interface.

- ▶ The colour syntax function detects valid instructions and applies a colour to them. The program code is thus much easier to read and typographic errors are detected immediately.
- ▶ The "Bookmarks", "Goto Line", "Find and Replace" editor functions make it easier to navigate through extensive programs.
- ▶ The code built can be displayed directly in the original code. The function is also used by the integrated debugger.
- ▶ Complete functions can be copied from a library using drag & drop.

```

-----
: Cold start organisation block
-----
XOB      16                ; Program executed at start up
ACC      H
LD        Number_of_free_slots ; Counts the number of free parking slots
      8                ; with the value 8 (unconditionally)
EXOB
-----
: Cyclical Organisation Block
-----
COB      0                ; Cyclical program
      0                ; No supervision time
STH      Car_incoming    ; Gets high when a car comes into the parking
DYN      Dynamise_incoming_car_signal ; Flag detects the rising edge of the car incoming
DEC      Number_of_free_slots ; Counts the number of free parking slots
-----
STH      Car_outgoing    ; Gets high when a car leaves the parking
DYN      Dynamise_leaving_car_signal ; Flag detects the rising edge of the car leaving
INC      Number_of_free_slots ; Counts the number of free parking slots
-----
STL      Number_of_free_slots ; Counts the number of free parking slots
OUT      Red_light        ; Stops new cars at the entry
ECOB
-----

```

Saia PG5® S-Edit (instruction list IL)

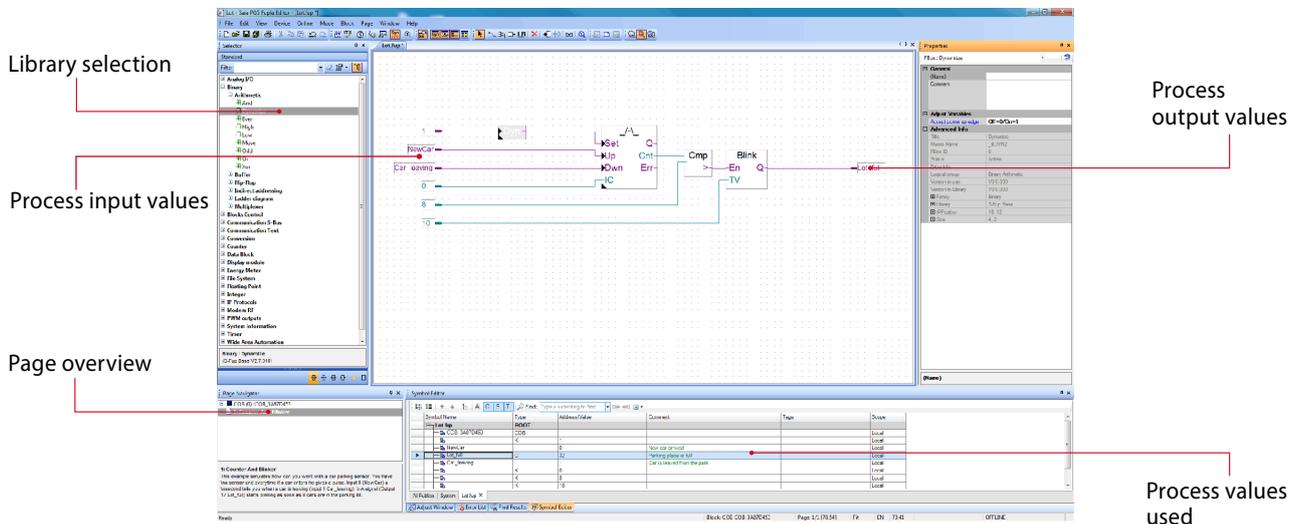
## Saia PG5® Fupla

The Saia PG5® Fupla Editor is the quickest and most reliable method of implementing applications. This editor can also be easily used by those with no software programming experience. It is the right tool for optimising and modifying systems. All complex functions have been implemented by specialists in Saia PG5® S-Edit or Saia PG5® Graftec and packaged into graphic function blocks (FBoxes).

"Ready and simple to use" also by service technicians and process engineers. >95% of all applications can be implemented in the automation infrastructure through engineering using Saia PG5® Fupla alone. No line of code is written here.

### Benefits of using the Fupla Editor

- ▶ Programming is facilitated with pre-programmed function blocks (FBoxes) for all standard functions
- ▶ Creation of complex user programs by simply positioning and linking FBoxes without requiring extensive programming knowledge.
- ▶ Extensive and high-performance FBox families for communication and building automation tasks
- ▶ Detailed context-sensitive FBox information, clear parameter descriptions and graphic presentation in the function block diagram editor (Fupla) make user programs easy to read and understand
- ▶ Online display of process values and parameter adjustment makes commissioning considerably easier and saves maintenance costs



Structure of the Fupla Editor

### Features of the libraries

- ▶ The clearly arranged tree structure simplifies FBox selection.
- ▶ Parameters are conveniently entered via adjust windows in the Fupla editor, without losing the program overview
- ▶ Obvious differentiation between data types by using different colours

Each data type is identified by a colour. This makes programs easier to read.

- Binary data
- Integer data
- Floating point data
- Texts (TX) and data blocks (DB)



## Clear grouping into families

All FBoxes (function boxes) are grouped into families. This provides a better overview and makes it easier to find individual FBoxes. A distinction is also made between standard, application and user FBox:

-  Standard: Shows the FBox libraries of the basic application components
-  Application: Shows the FBox libraries of the engineering application components
-  User: Only shows the FBox libraries which the user himself has created
-  All: Shows all available FBox libraries
-  Favourites: On this page the user can group together the most frequently used FBoxes (from all libraries). This means that it is no longer necessary to search for FBoxes or to switch between library tabs.

## FBoxes in the Saia PG5® Core

The standard and application FBoxes are readily available for users in the Saia PG5® Core.

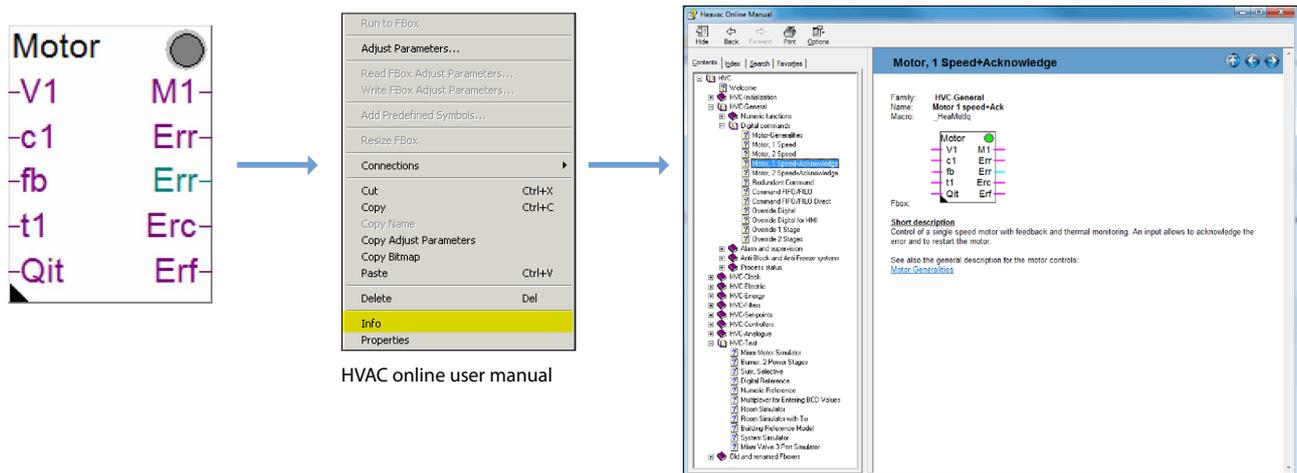
The standard FBox libraries are basic families which offer normal logical and arithmetic operations and numerous useful system functions.

In addition to the standard FBoxes, the Saia PG5® Core contains additional FBoxes. These include application FBox libraries which comprise engineering families.

The search function (Filter) in the Selector enables a specific FBox to be found quickly.

So that Engineering can access the correct FBoxes, their function and parameters must be known. The online user manual integrated into the PG5 Core is the ideal way to get a quick overview of the relevant FBoxes.

Clicking on the FBox makes information such as a brief description of the FBox, an explanation of inputs and outputs, information on the parameter settings and a function description of the FBox accessible to all.



## Web Editor – a powerful software tool

The production of web-based visualisation and control interfaces is an essential element of the engineering effort. Appealing, functionally designed web pages are the public face of the system, supporting operational efficiency and safety. A powerful tool for generating the web pages is therefore crucial.

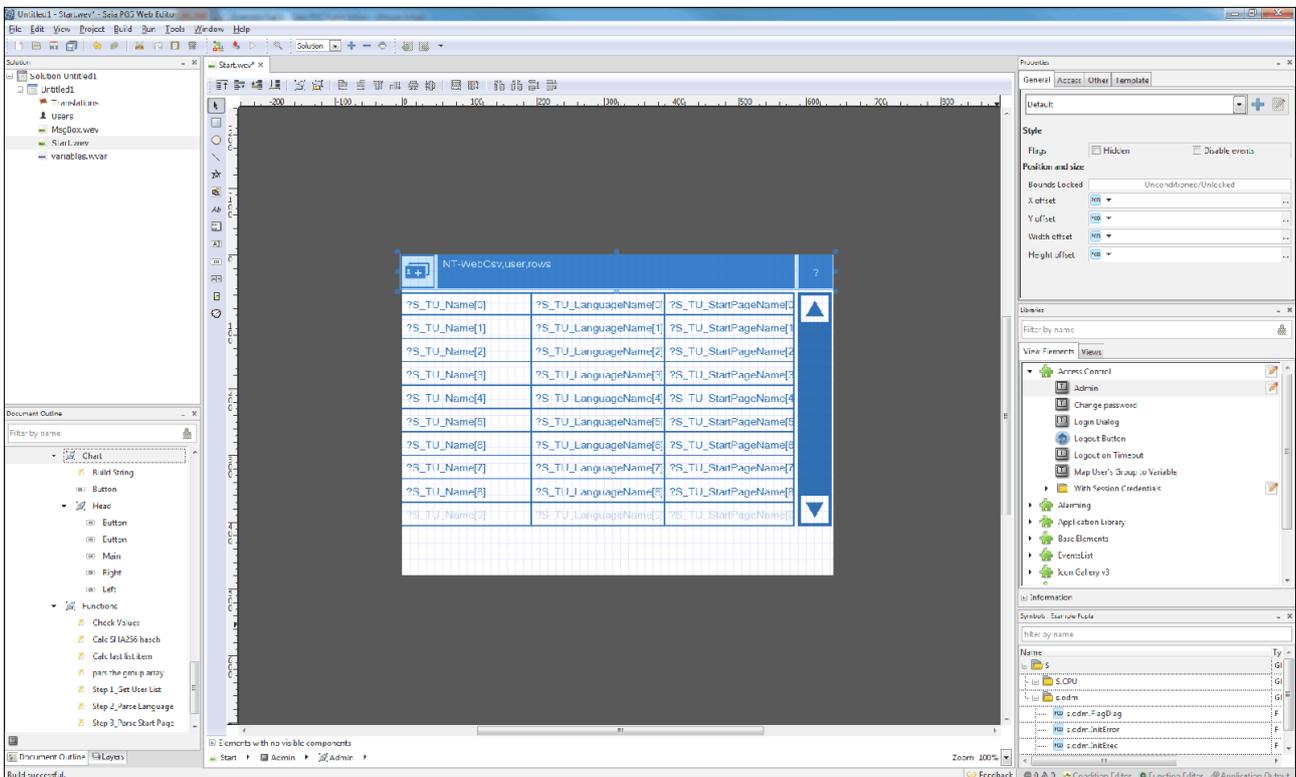


Start screen for Saia PG5® Web Editor 8

### Saia PG5® Web Editor: simple, intuitive and efficient

Designing dynamic web pages with a normal HTML editor is laborious and requires specific expertise (in-depth HTML and Java programming knowledge). With the Saia PG5® Web Editor, SBC provides the user with an easy-to-use software tool for generating web pages to ensure that this innovative technology does not remain the preserve of a small number of specialists. The Web Editor is used to create web pages in HTML5 or in TEQ-format simply and efficiently by placing and parameterising objects. Operation of the editor is intuitive, and requires no HTML or Java programming knowledge. With optimum integration into the Saia PG5® Controls Suite and the associated direct access to all symbols, powerful macro management to generate your own reusable macros and many other useful functions for efficient generation of web pages, the engineering costs are significantly reduced compared to other editors.

The tool is designed for the automation environment. Applications include system visualisations, alarming and trending functions, or just one service page. The full integration into the Saia PG5® Core combined with Saia PCD® controllers guarantees a particularly efficient working method.

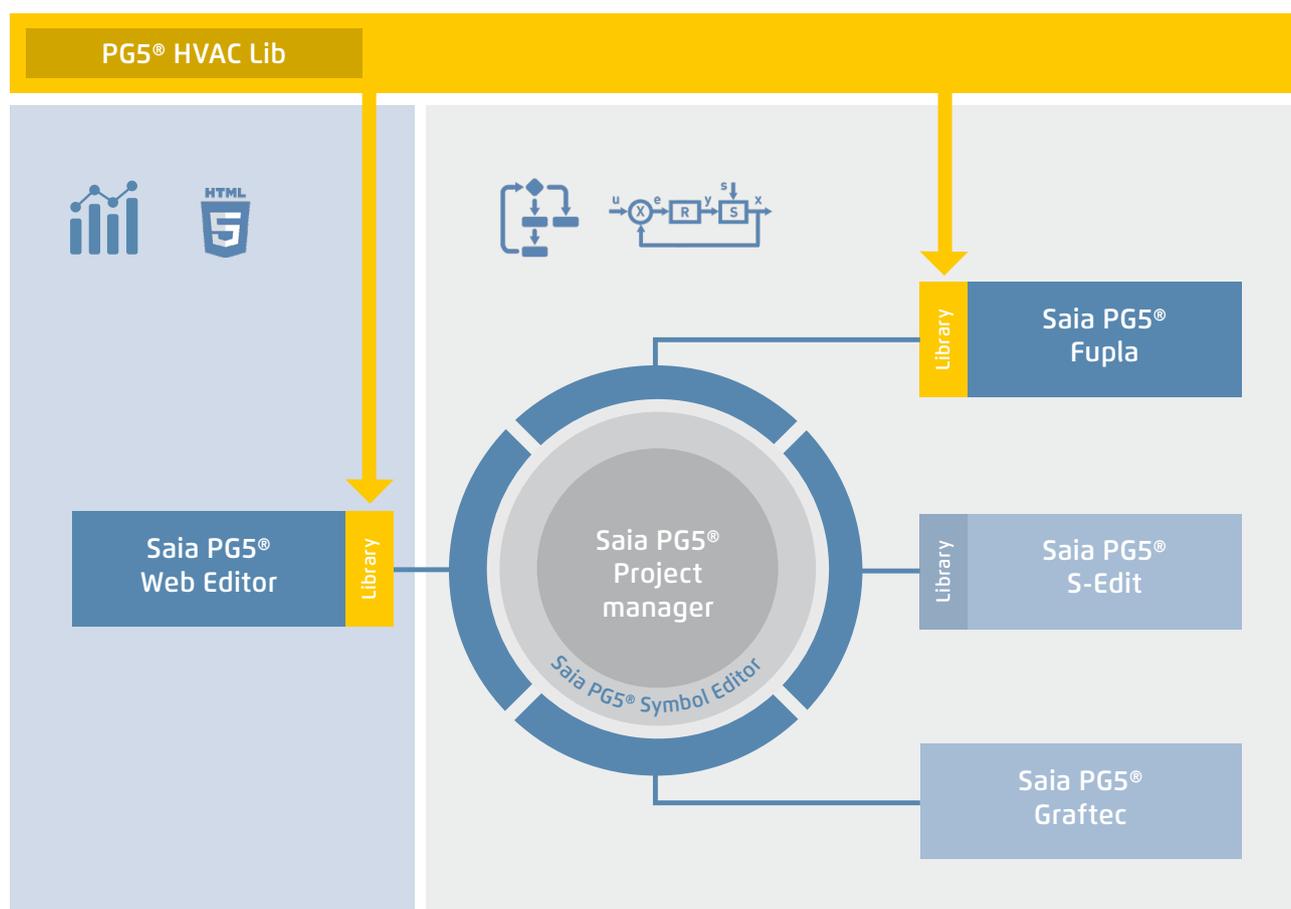


The Saia PG5® Web Editor produces appealing web visualisations with no web designer skills required.

The Web Editor includes a transparent and adjustable workspace for efficient operation. The workspace essentially comprises the menu/command bar, the View Editor (drawing area) and windows. With docking window technology, the user can position and show/hide the windows as required.

## 1.1.2 Saia PG5® HVAC modules

### 1.1.2.1 HVAC library



Saia PG5® Core + HVAC library. The visualisation is created using the Web Editor.

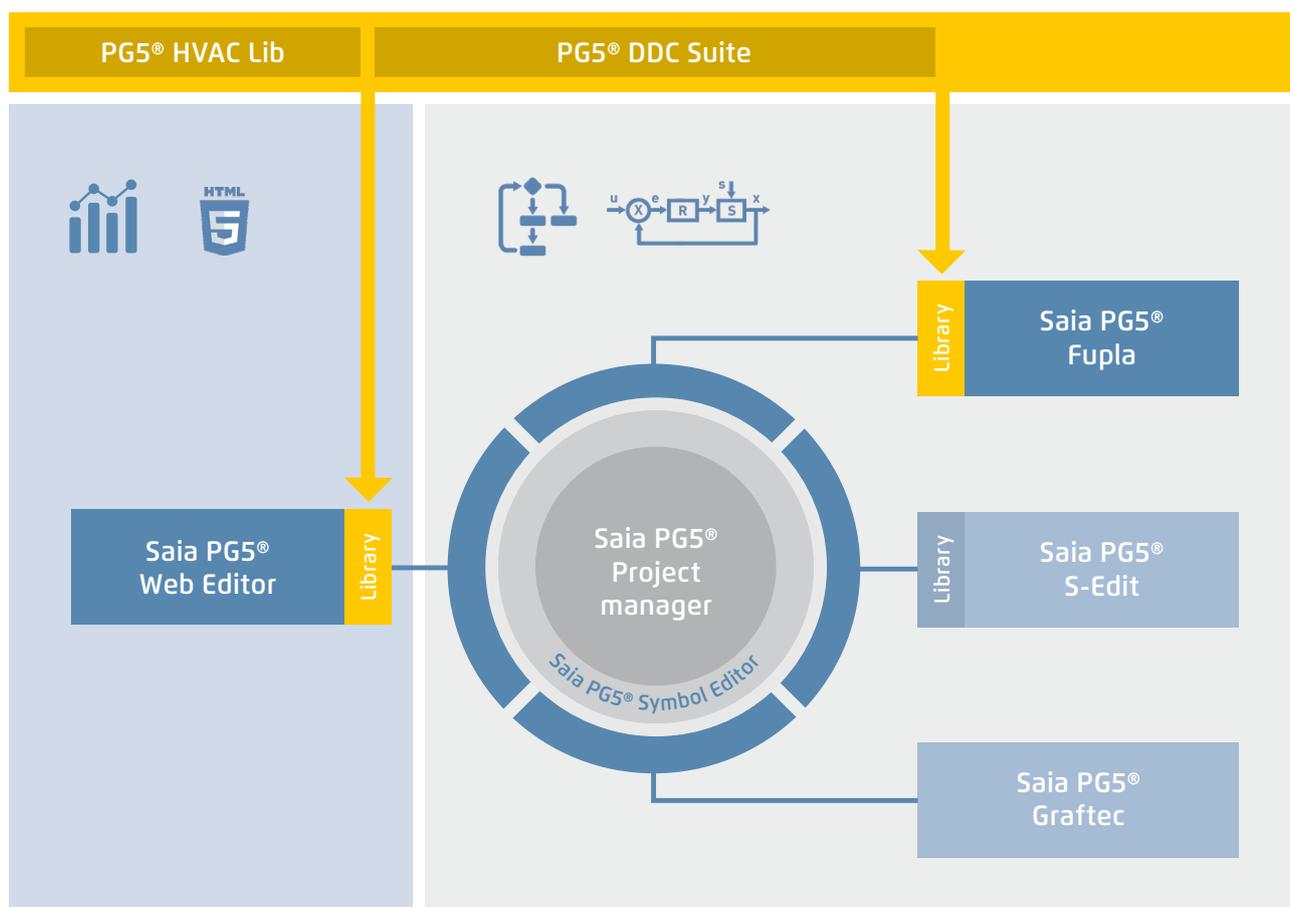
The majority of the program functions can be implemented using the FBoxes included the Saia PG5® Core Package. In addition, additional libraries for specific applications are available. The HVAC library, for example, has an efficient collection of complex control modules (FBoxes) for the heating, ventilation and air conditioning systems area. These functions simplify the engineering of the technical systems of buildings.

#### The HVAC library contains the following FBox groups

- ▶ General: FBoxes for numeric functions, binary functions, alarms, monitoring, motor, blocking and frost protection, process states, switches and the conversion of data types
- ▶ Analog: Function blocks for individual scaling of each individual analog input or output
- ▶ Electrical: FBoxes for lighting control, window blind control and step switches
- ▶ Energy: Energy meters, pulse counters, monthly statement, enthalpy, switching heating on/off, load cut-out
- ▶ Filters: Filter, limitation, ramp limitation, average of measurement values, dead zone, dead range with delay, zero zone, hysteresis
- ▶ Init: Initialisation of the sub-functions for the HVAC library
- ▶ Controllers: Two-point controller, three-point controller, boiler loading, P, PZ, PI, PID, P-PI, P-PID controllers, incoming air mixers, controller sequences, mixer sequences
- ▶ Setpoint: Heat curve, heating demand, setpoint device, setpoint ramp, setpoint adjustment
- ▶ Test: Simulation of values and states
- ▶ Clocks: Daily program, weekly program, annual program, clock with multiple switching periods in one FBox, national holidays, monthly switch-offs or switching periods one after the other on the same day, as well as FBoxes for reading and writing clock data

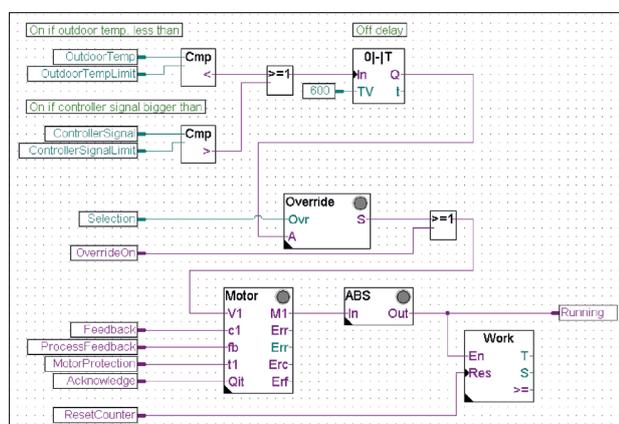
## 1.1.3 Increasing engineering efficiency through installation templates

### 1.1.3.1 DDC Suite

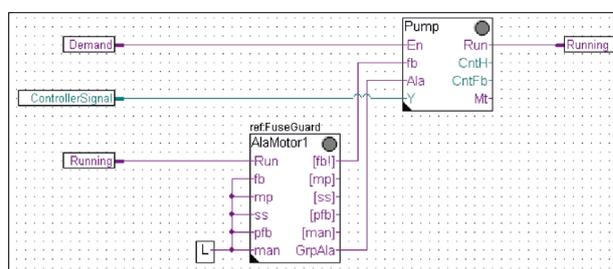


Saia PG5® Core + DDC Suite library

Using the Saia PG5® DDC Suite library and templates makes the creation of HVAC applications even simpler. Complex program structures and application elements such as complete pump controllers, incl. hour meters or entire control tasks for ventilation systems are grouped together as templates in individual function boxes and optimally add to the current HVAC library. This means that projects can be implemented efficiently.



Total pump control with HVAC library



Total pump control with DDC Suite library

**We can already see a number of benefits when comparing the two Fupla pages (HVAC and DDC Suite).**

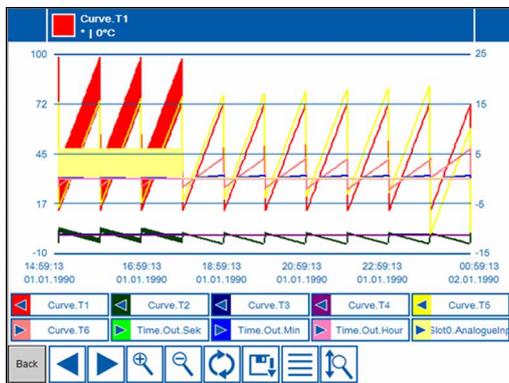
- ▶ It is easier to read and understand the Fupla program – fewer FBoxes and links on one page.
- ▶ Clear and transparent layout – easier to handle, e.g. for new colleagues in the developer or service team
- ▶ Easy to maintain

## The following FBox families are available to the DDC Suite library user:

- ▶ DDC general: general FBoxes such as manual information, media access
- ▶ DDC analog values: FBoxes for capturing measurement values
- ▶ DDC BACnet: Scheduler, Trendlog, Loop, Notification Class
- ▶ DDC Releases: clocks, systems and aggregate switches
- ▶ DDC Initialisation: modules which must be inserted once into a Fupla and which provide basic functions.
- ▶ DDC controllers: control modules for components such as coolers, heat recovery systems and heaters
- ▶ DDC setpoints: conversions, setpoints
- ▶ DDC Controls: Triggering of motors, pumps, covers and drives
- ▶ DDC Fault: Fault modules for motors, fire protection and various components

This FBox library with highly integrated FBoxes uses individual data points and creates groups and symbols automatically.

## The unique features of the DDC Suite are listed in 5 points:



Trending

ID	TID	Alarmtext	Time On	Time Off	ACK
56	17	A.Alarm.ThisAlarmList.MyName_17	01.01.1990 16:55:01	-	NAK
55	8	A.Alarm.ThisAlarmList.MyName_8	01.01.1990 16:55:01	-	NAK
54	16	A.Alarm.ThisAlarmList.MyName_16	01.01.1990 16:54:00	01.01.1990 16:55:00	NAK
53	7	A.Alarm.ThisAlarmList.MyName_7	01.01.1990 16:54:00	01.01.1990 16:55:00	NAK
52	15	A.Alarm.ThisAlarmList.MyName_15	01.01.1990 16:53:00	01.01.1990 16:54:00	NAK
51	6	A.Alarm.ThisAlarmList.MyName_6	01.01.1990 16:53:00	01.01.1990 16:54:00	NAK
50	14	A.Alarm.ThisAlarmList.MyName_14	01.01.1990 16:52:00	01.01.1990 16:53:00	NAK
49	5	A.Alarm.ThisAlarmList.MyName_5	01.01.1990 16:52:00	01.01.1990 16:53:00	NAK
48	13	A.Alarm.ThisAlarmList.MyName_13	01.01.1990 16:51:00	01.01.1990 16:52:00	NAK
47	4	A.Alarm.ThisAlarmList.MyName_4	01.01.1990 16:51:00	01.01.1990 16:52:00	NAK
46	12	A.Alarm.ThisAlarmList.MyName_12	01.01.1990 16:50:00	01.01.1990 16:51:00	NAK
45	3	A.Alarm.ThisAlarmList.MyName_33333	01.01.1990 16:50:00	01.01.1990 16:51:00	NAK
44	11	A.Alarm.ThisAlarmList.MyName_11	01.01.1990 16:49:00	01.01.1990 16:50:00	NAK
43	2	A.Alarm.ThisAlarmList.MyName_2_Mol	01.01.1990 16:49:00	01.01.1990 16:50:00	NAK
42	10	A.Alarm.ThisAlarmList.MyName_10	01.01.1990 16:48:00	01.01.1990 16:49:00	NAK
41	1	A.Alarm.ThisAlarmList.MyName_1_Te	01.01.1990 16:48:00	01.01.1990 16:49:00	NAK

Page 15  
Total Alarms 250

Alarming

BACnet configurator

### 1. Integrated trending (offline history)

If data has to be recorded along with the actual control and regulation of a system, this is easily implemented with Saia PG5® DDC Suite. Data acquisition for trending can be initiated by defining the memory size in the object parameter window. When the automation system is in operation, data will be constantly saved in the Saia PCD® and available for evaluation. In addition, documentation (.txt) will be created in the Saia PG5® Project Manager of all the measured historical data. A list of the trend settings can be seen in this file. There is one entry for each trend with all the details.

### 2. The principle of the trend function also applies to alarm functions.

By defining the alarm number in the object parameter window, the alarms are listed in a CSV file with numbers and text.

With Version 2.5 of the DDC Suite, the system identification key can be created completely freely directly from Fupla. The aim is to create the system identification key for the S-Web alarm texts and BACnet® completely freely according to the specifications from the Fupla program.

### 3. Automatic generation of BACnet® configurations

For BACnet® projects, the BACnet® object list is created automatically, which saves a great deal of error-prone manual work. The automatic generation of the BACnet® objects is the main reason why so many customers use the DDC Suite. In building automation, it is normal for all systems to map relevant hardware and software data points to BACnet® objects. This may mean that multiple data points are used in a BACnet® object. Thus, for example, a binary output could receive exactly the same return message and be monitored via intrinsic alarming. The control templates for the DDC Suite already contain all BACnet® definitions which can be activated by clicking. Thus BACnet® originates at the click of a button.

The screenshot shows a web browser window with the following content:

Reservierter Speicher	
Aufgezeichneter Wert	Messwert
Trenddatentyp	Istwert

Alarmverwaltung

Die ermittelten Alarmdatenpunkte können in einer internen Alarmliste aufgezeichnet werden. Die Anzahl und die definierten Alarmnummern sind nachstehend aufgelistet.

Alarmbezeichnung	Nummer
Oberer Grenzwert überschritten	1
Unterer Grenzwert unterschritten	2

BACnet Objekte

Teile der Datenpunkte können für BACnet bereitgestellt werden. Höherwertige Optionen beinhalten auch die niedrigerwertigen.

Parameter	Wert
Parametrierte Option	1

Opt.	Datenpunkt	Objektinfo
1	Messwert	AI / Alarm

Binärvorgabe HZG01\_Heizperiode\_Scheduler

Vorgabe eines Wertes mit 2 Zuständen.

Parameter	Wert
Voreinstellung (0=Aus, 1=Ein) ????	1

HTML document

#### 4. The engineering documentation can be created quickly at the click of a button.

The documentation on all DDC Suite FBoxes is created as an HTML file. This file contains a general description with all parameters and settings. The documentation can be saved in the PCD and, for example, be used for viewing via the web. It is, however, also possible to post-edit the documentation using a text processing tool and to add images from the SCADA/web application.

#### 5. Templates for Fupla, Web Editor and Visi.Plus

The Saia PG5® DDC Suite largely comprises a highly integrated FBox library which is supplemented by a growing number of ready-made, tested and ready-to-use Fupla pages which fully map the typical parts of the system in terms of function. The Saia PG5® DDC Suite also provides the control and visualisation function for each FBox. Operation and visualisation using the web browser or Visi.Plus is already integrated and ready for use.

##### Fupla templates

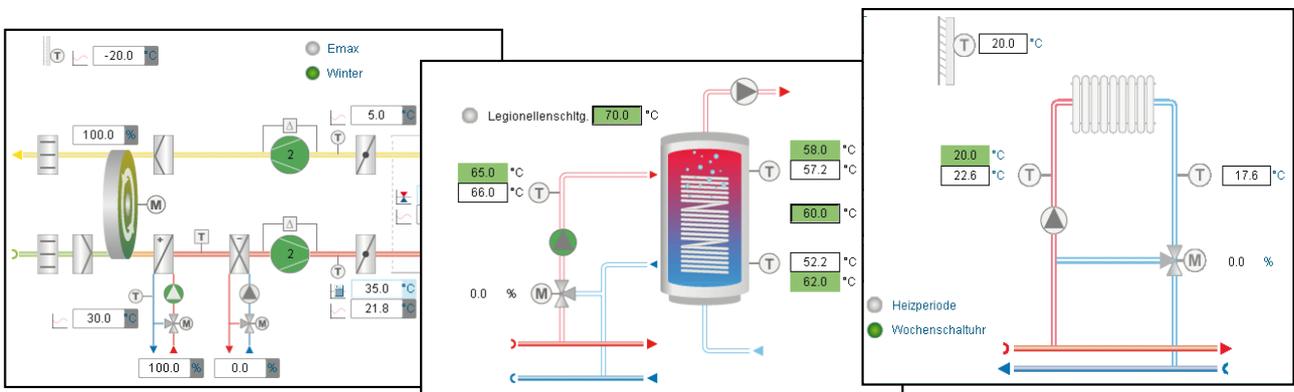
In order to reduce the system programming time, entire applications (heating circuit, water heating, ventilation systems, etc.), including the calendar and control tasks, are fully integrated for free selection. Some suggestions for control settings and for system control can thus be freely added, changed or integrated.

##### Web Editor templates

The DDC Suite is also includes template objects for Web Editor. Graphic and control objects are available for every FBox. There are also templates for predefined systems.

##### Visi.Plus templates

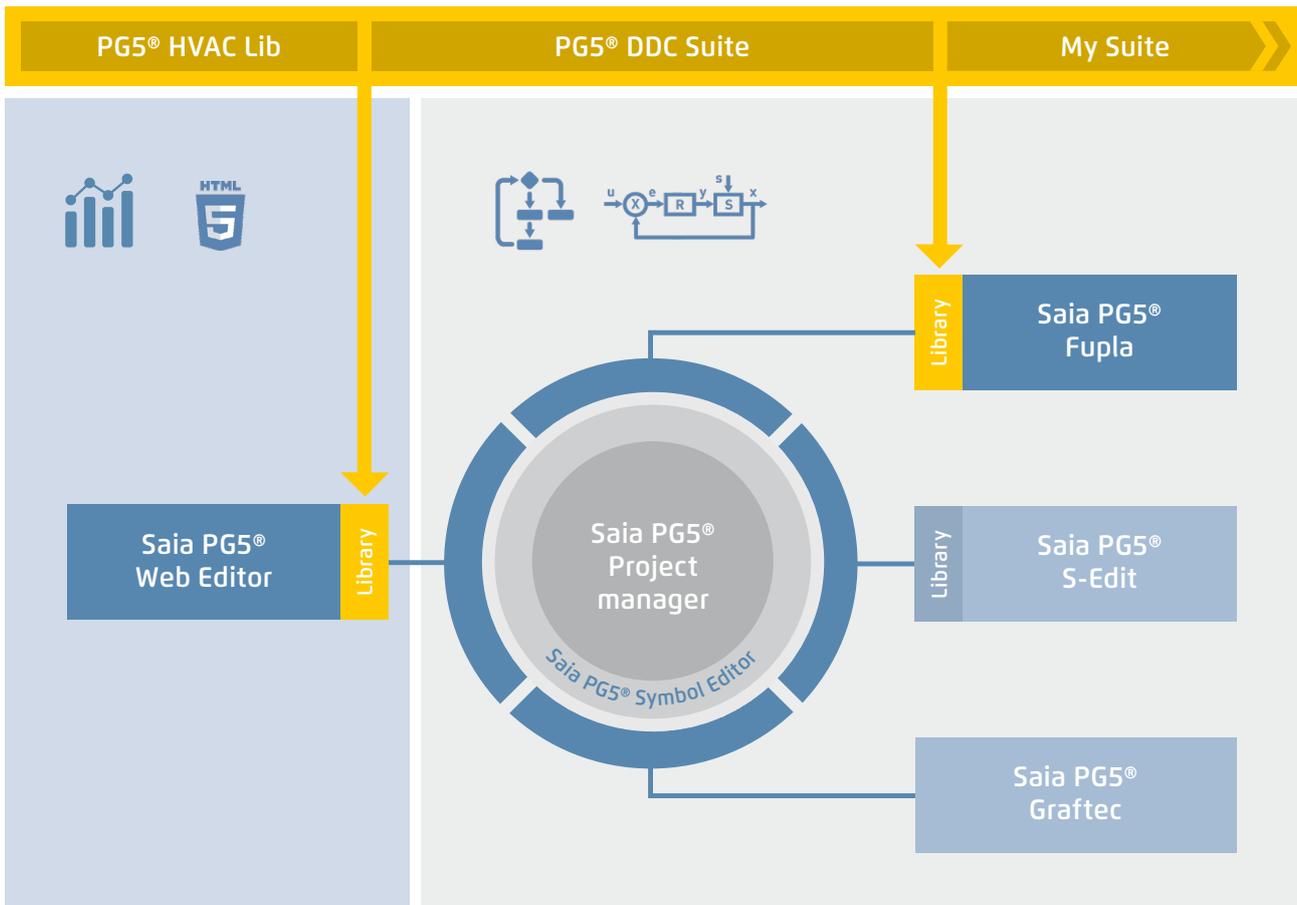
When importing data from Fupla to Visi.Plus, FBoxes are identified and then handled by the Visi.Plus database as FBoxes. Not only are the data points imported, but the alarms and historical trends are automatically created upon import. In addition, the Visi.Plus user is provided with the same template objects as in Web Editor.



System display

## 1.1.4 Saia PG5® Controls Suite

### 1.1.4.1 My Controls Suite



The use of predefined FBoxes and/or templates is not mandatory. Saia PG5® Core enables users to create individual templates and even define the templates with purely graphic engineering, with no IL programming required.

#### Create templates

Using templates significantly simplifies processes and reduces engineering time. To implement projects more efficiently, users can not only implement existing templates, but also incorporate user-specific engineering projects as templates. Users who have built their standard Fupla pages can export and save them as .fxp files (a .fxp file includes any number of Fupla pages). To reuse the pages, the .fxp files must be located and then imported.

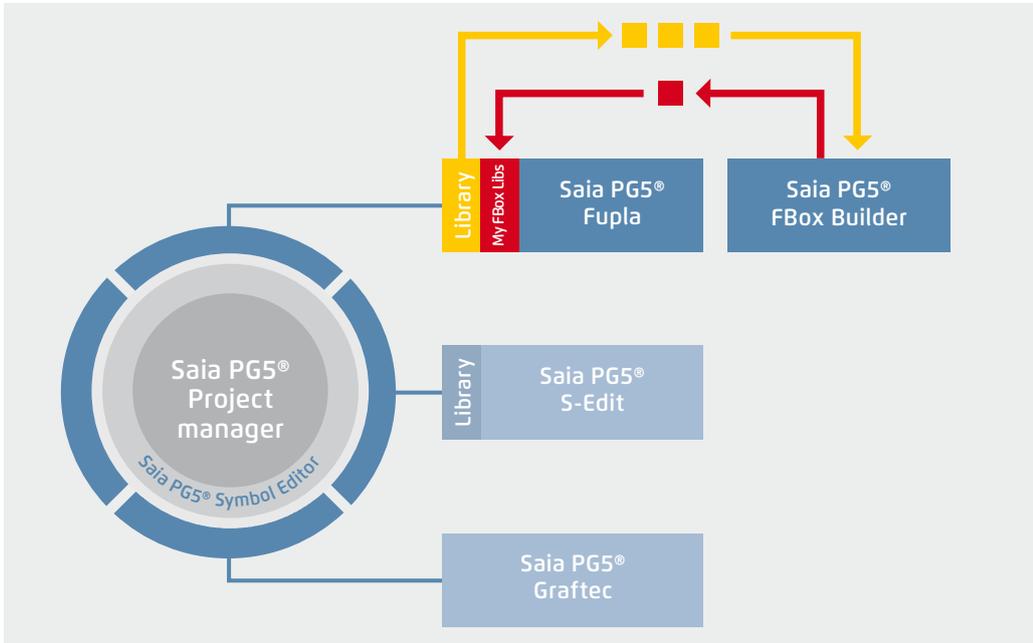
In addition to the templates which can be easily created and reused, you can also create your own FBoxes and/or FBox library (My FBox Lib). The FBox Builder, contained in the Saia PG5® Core, is used for this.

**Create FBoxes**

The process of exporting Fupla pages and then reimporting them is simplified by the Saia PG5® FBox Builder. Users can import their .fxp files into the FBox Builder and then archive them as FBoxes.

This function (importing Fupla export pages/files) enables a structured group of FBoxes to be assembled into one large macro FBox. The Saia PG5® FBox Builder can then be used to document, maintain and export the new macro FBox as a new "product".

This capability allows users to build customised libraries for any other application. The FBox Builder enables users to develop their own FBoxes without writing a single line of instruction list code.

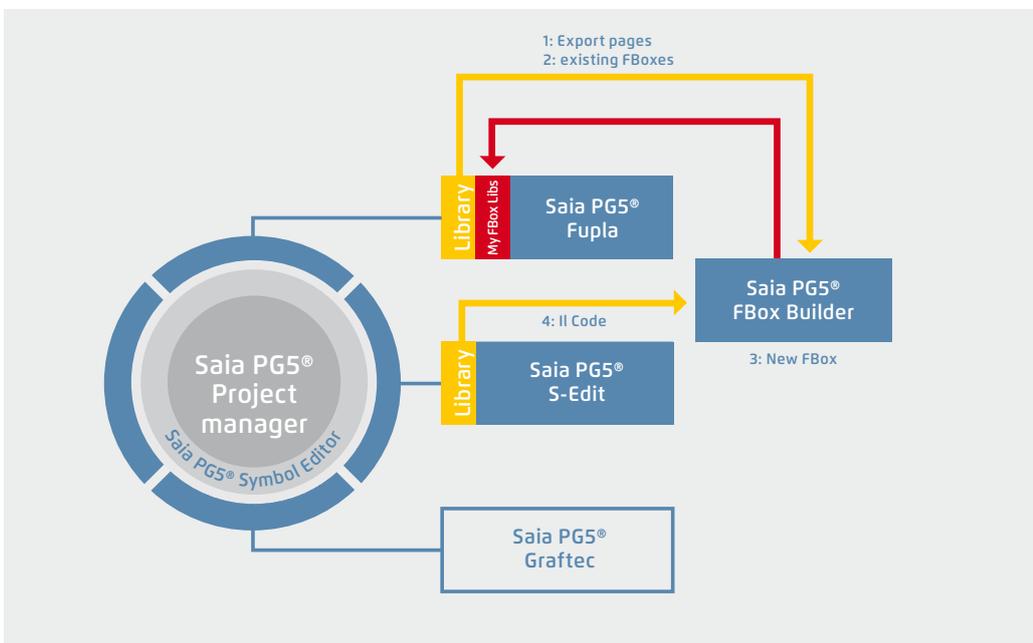


Creating your own FBoxes with the FBox Builder

The Saia PG5® FBox Builder has additional functions that enable programmers to develop totally new FBoxes and to maintain them in their own library. The FBox Builder advanced version is required if the user wishes to integrate existing IL functions, modify existing FBoxes or even create totally new FBoxes. In addition to importing export pages (1), this version enables extensive functions such as:

- ▶ Importing existing FBoxes (2)
- ▶ Creating FBoxes "from scratch" (3)
- ▶ Importing IL code (4)

The advanced FBox Builder is suitable for experienced Saia PG5® IL programmers who have attended a workshop and own a licence for the FBox Builder Advanced add-on tools.



Using the Saia PG5® FBox Builder in projects with the Saia PG5® software technology

## 1.1.4.2 Overview of the tools and licence packages

The combined platform of the SBC software is the Saia PG5<sup>®</sup> Controls Suite DVD. It contains software tools for project management, engineering, programming and service. The DVD also includes application components with which you can increase your productivity when using Saia PCD<sup>®</sup> products. There is also a wide range of system software on the Saia PG5<sup>®</sup> Controls Suite DVD. This software is predominantly driver software to ensure easy and secure integration into a system environment.

Saia PG5<sup>®</sup> Controls Suite contains everything you need for automation

		
<p><b>PC tools</b></p> <p><b>Saia PG5<sup>®</sup> Core Project Manager</b></p> <ul style="list-style-type: none"> <li>▶ Application Programming</li> <li>▶ Application Engineering</li> <li>▶ Network Management</li> <li>▶ Service</li> </ul> <p><b>Saia PG5<sup>®</sup> Web Editor</b> Tool for creating web pages for the Saia PCD<sup>®</sup> Web Server</p> <p><b>Saia Visi.Plus</b> Visualisation and management software for applications in infrastructure automation</p> <p><b>Saia PG5<sup>®</sup> HMI Editor</b> Tool for Saia PCD<sup>®</sup> Text Panels</p> <p><b>Saia PG5<sup>®</sup> FBox Builder</b> Tool for creating and managing Saia PG5<sup>®</sup> Fupla FBoxes</p> <p><b>Saia PG5<sup>®</sup> Online-Tools</b> Downloading PG5 programs without installing the Saia PG5<sup>®</sup> Core</p>	<p><b>Application components</b></p> <p><b>Standard FBoxes</b> Program modules for Saia PG5<sup>®</sup> Fupla, the graphic engineering tool</p> <ul style="list-style-type: none"> <li>▶ Arithmetic and logical FBoxes</li> <li>▶ Analog FBoxes</li> <li>▶ Communication FBoxes</li> </ul> <p><b>Application FBoxes</b> Program modules for Saia PG5<sup>®</sup> Fupla, the graphic engineering tool.</p> <p>FBoxes Alarm, DALI, DDC Suite, EIB, Energy Meter, EnOcean, Historical Data Capture, HVAC, Blinds/Lighting, JCI N2-Bus, e-mail Communication, LON, Modbus, Modem, MP-Bus, Room Controller</p> <p><b>IL libraries</b> Function blocks for counter modules, drive modules and analog modules can be integrated into IL programs</p>	<p><b>Application software</b></p> <p><b>SBC Web Connect</b> The PC program enables access to the PCD WebServer via any communication interface (RS-232, RS-485, Profibus, Ethernet, etc.)</p> <p><b>Saia PG5<sup>®</sup> SD Flash Explorer</b> With SD Flash Explorer, the content of the SBC file system can be extracted to the PC.</p>
<b>List of tools in the Saia PG5<sup>®</sup> Controls Suite</b>		

## Licence packages

We have defined three packages as a global standard from the wide range of possible software combinations with the Saia PG5® Controls Suite. The training programs, online training and documentation are based on these.

### Saia PG5® Core Package

With this package, all types of ICA tasks can be initiated on machines and systems. The graphic application components supplied support the use of the Saia PCD® Automation Server (Web + IT) and simple calculation and logic functions.

### Saia PG5® HVAC Package

In addition to the Saia PG5® Core Package, additional graphic control module assemblies (FBoxes) are included which are oriented to the needs of HVAC primary systems. Template pages can be created from the basic collection of HVAC ICA modules which map any kind of system configuration.

### Saia PG5® Extended Package

In addition to the Saia PG5® HVAC package, highly integrated graphic modules (DDC Suite) are included as well as a collection of templates which map the current system design of the HVAC technology.

→ For details see order information

Saia PG5® options – Add-on libraries: Tool is separated from libs. The FBox libraries can also be ordered.

## Order information | Saia PG5® Controls Suite

### Saia PG5® Programming Tool

PG5 – Demo version with all functions. Runtime limited to 90 days	PCD8.PG5-DEMO
<b>Saia PG5® Core Package</b> Programming software with editors (IL, Fupla, Graftec), network configurators, standard libraries (Analog, Communication, Arithmetic & Logic), application libraries (Alarming, Blinds-Lighting, e-mail, Trending [HDLog], Energy Meter, DALI, Modbus, EIB, EnOcean, JCI N2-Bus), Web Editor and FBox Builder (basic version)	PCD8.PG5-CORE
<b>Saia PG5® HVAC Package</b> Similar to Saia PG5® Core Package and associated libraries (HVAC, Belimo MP-Bus, LonWorks, room controllers and modem), BACnet	PCD8.PG5-HVAC
<b>Saia PG5® Extended Package</b> Same as Saia PG5® HVAC Package and associated DDC Suite library	PCD8.PG5-EXTENDED
<b>Saia PG5® Software Upgrade</b> Upgrade according to customer's key Version 2.2 to 2.3	PCD8.PG5-UPGRADE
<b>Saia PG5® Software Upgrade</b> Upgrade from Core to HVAC package	PCD8.PG5-UPGR-HVAC
<b>Saia PG5® Software Upgrade</b> Upgrade from HVAC to Extended package	PCD8.PG5-UPGR-EXTD
<b>End user licence for Saia PG5®</b> End user licence for PG5. The customer is supported by the requisitioner (in accordance with the customer key)	PCD8.PG5-ENDUSER

### Saia PG5® options – Add-on tools

PG5 – FBox Builder ("advanced version") Software package for Saia PG5® FBox Builder. IL knowledge needed and 1 day's training included	PCD8.PG5-FBOXBLD
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