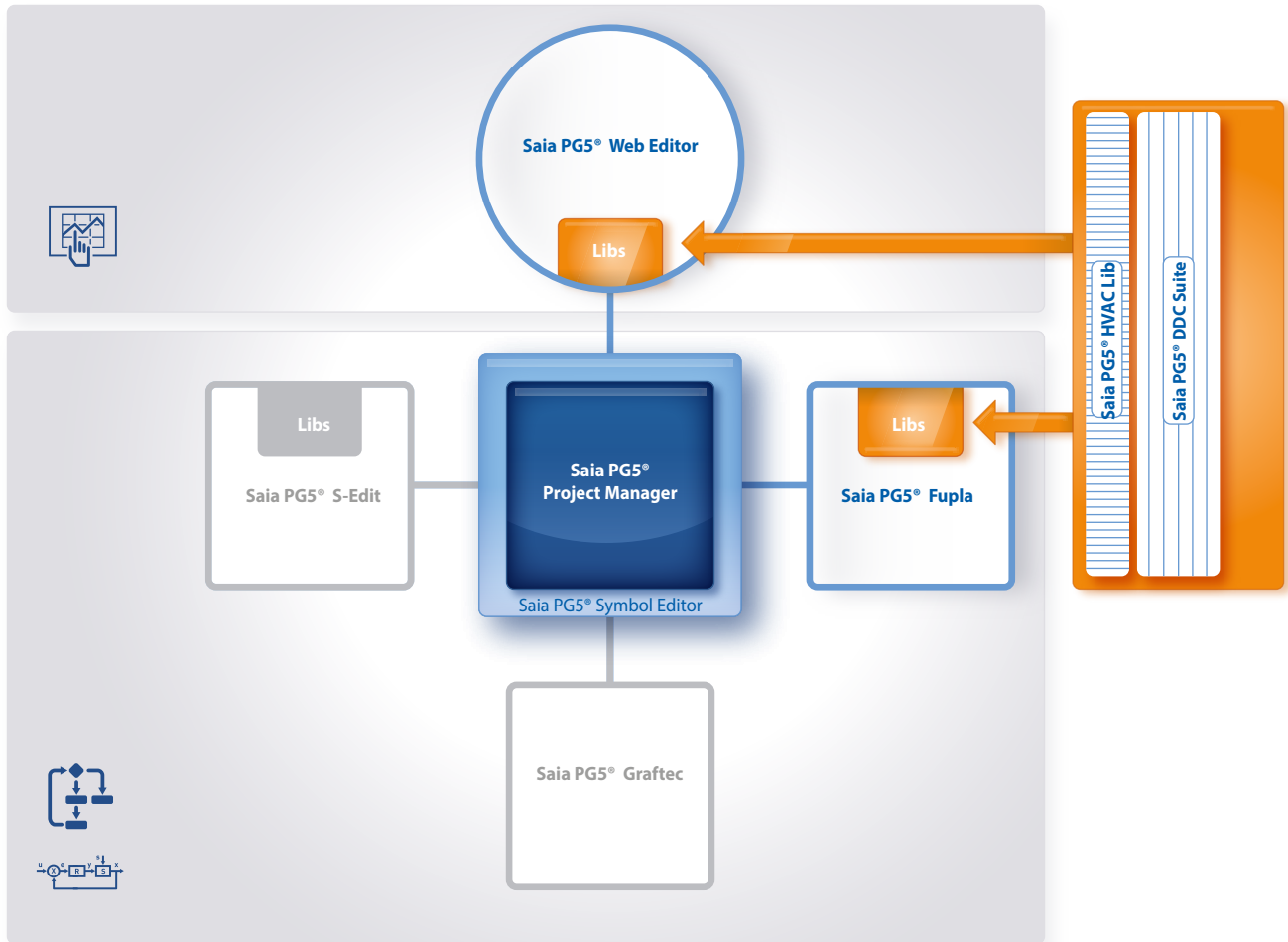


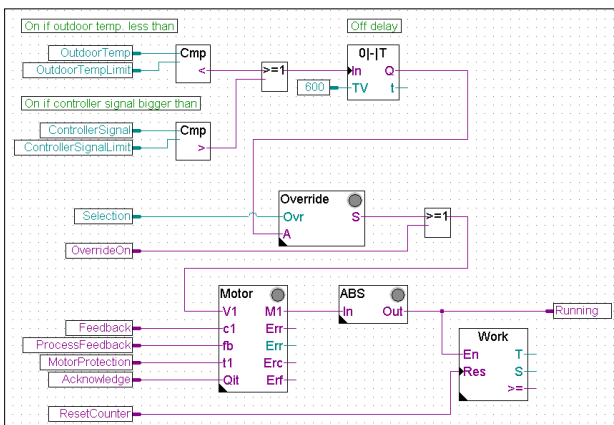
1.1.3 Increasing engineering efficiency through installation templates

1.1.3.1 DDC Suite

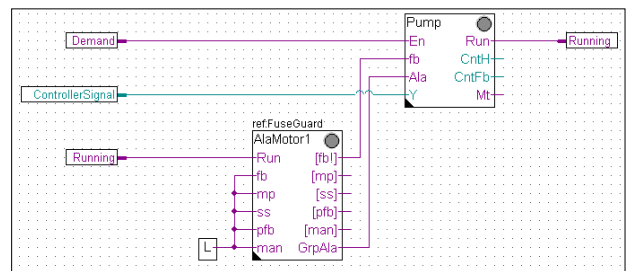


Saia PG5® Core + DDC Suite library

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

1 SBC Software

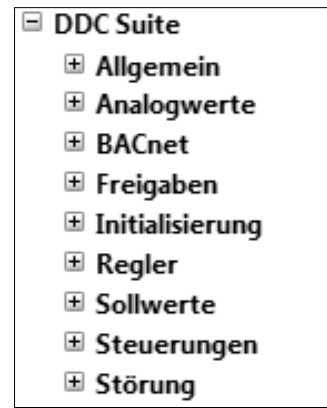
2 Communication & Interaction

3 SBC S-Web technology

4 Room automation

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

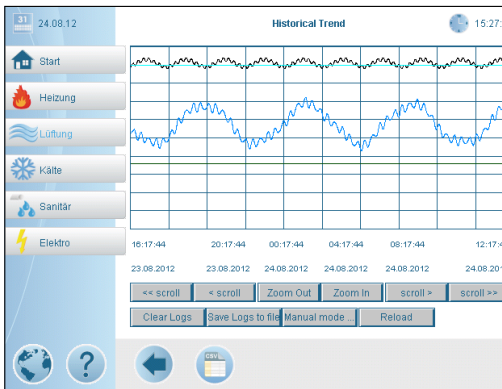
- **DDC general:** general FBoxes such as manual information, media access
- **DDC analog values:** FBoxes for capturing measurement values
- **DDC BACnet:** Scheduler, Trendlog, Loop, Notification Class
- **DDC Releases:** clocks, systems and aggregate switches
- **DDC Initialisation:** modules which 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



DDC Suite library

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

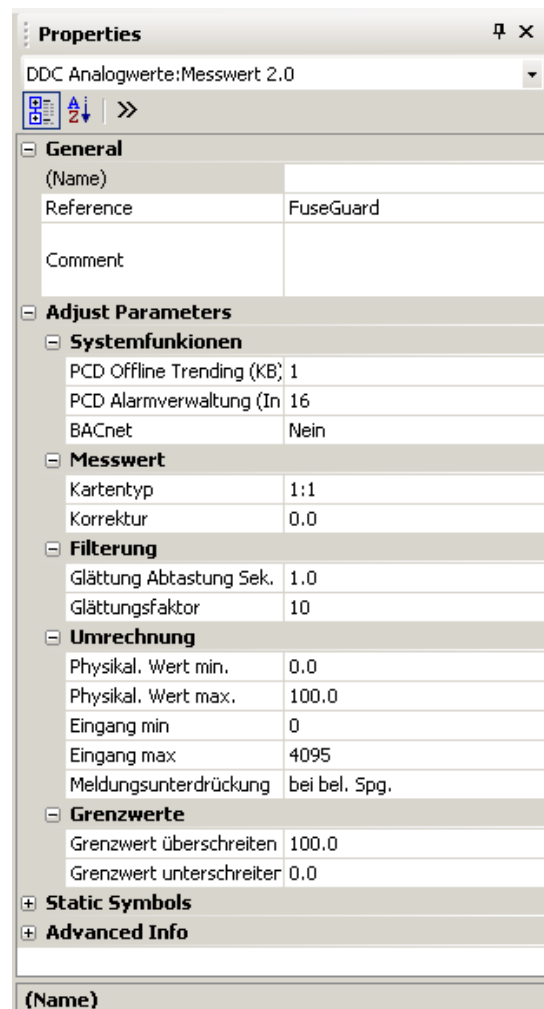
The unique features of the DDC Suite are listed in 5 points:



Trending

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.



Object parameter window

ID	Alarmtext	Time On	Time Off	ACK	Counter
1	Error Battery	01.01.1990 00:27:12	01.01.1990 00:31:15	ACK	2
2	Error M1 Flash	--	--	--	0
3	Error SLO Flash	--	--	--	0
4	Error RS485	--	--	--	0
5	Error RS485	--	--	--	0
6	A.Alarm ThisAlarmList M-	--	--	--	0
7	A.Alarm ThisAlarmList M-	--	--	--	0
8	A.Alarm ThisAlarmList M-	--	--	--	0
9	A.Alarm ThisAlarmList M-	--	--	--	0
10	A.Alarm ThisAlarmList M-	--	--	--	0
11	A.Alarm ThisAlarmList M-	--	--	--	0

Alarming

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. The system identification key can have up to 12 levels. The general section (levels 1-10) is specified conveniently from a central FBox. The FBoxes can be placed multiple times. Within the FBox you can select what the key is to be used for. Thus, for example, various system identification keys can be created for S-Web alarming, the BACnet® Object Names and the BACnet® Description. Simply place another FBox if other levels are to be used on certain Fupla pages, e.g. for different systems. These FBoxes can be used as often as required, and the changes to the identification keys will be valid until the next FBox of this type. Thus a different name key can be used for each system.

ID	Name	Value/Unit
1	Preset Value	%Cafe_Abluht_Ventilator_Steuerung_Ausgang
2	Description	Cafe_Abluht_Motor / Cafe_Abluht_Ventilator_Steuerung_Ausgang
3	Device Type	---
4	Reliability	no fault detected
5	Out Of Service	FALSE
6	Priority	normal
7	Inactive Text	Off
8	Active Text	On
9	Minimum Off Time	0
10	Priority Array 01	%A.BACnet.Cafe_Abluht_Motor_Prio0(Value);%A.BACnet.C...
11	Priority Array 02	---
12	Priority Array 03	---
13	Priority Array 04	---
14	Priority Array 05	---
15	Priority Array 06	---
16	Priority Array 07	---
17	Priority Array 08	%A.BACnet.Cafe_Abluht_Motor_Prio0(Value);%A.BACnet.C...
18	Priority Array 09	---
19	Priority Array 10	---
20	Priority Array 11	---
21	Priority Array 12	---
22	Priority Array 13	---
23	Priority Array 14	---
24	Priority Array 15	%Cafe_Abluht_Ventilator_Steuerung_Ausgang;%A.BACne...
25	Relinquish Default	inactive

BACnet configurator

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.

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.

Reservierter Speicher 3 KB

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 niederenwertigen.

Parameter	Wert
Parametrierte Option	1

Opt.	Datenpunkt	Objektinfo
1	Messwert	AI / Alarm

Binärvorgabe HZG01_Heizperiode_Scheduler

Vorgabe eines Wertes mit 2 Zuständen.

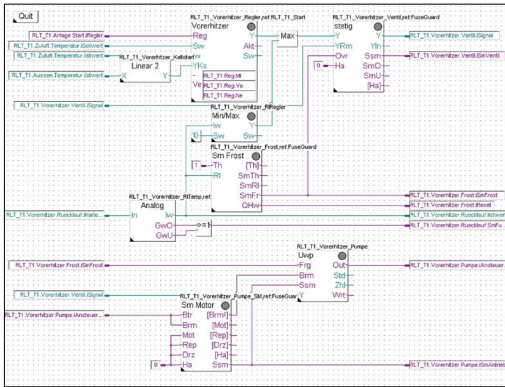
Parameter	Wert
Voreinstellung (0=Aus, 1=Ein) ????	1

HTML document

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

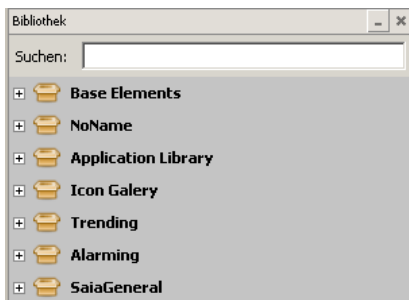
In order to reduce the system programming time, entire applications (heating circuit, water heating, ventilation systems, etc.), including the calendar and control tasks, are fully integrated for free selection. Some suggestions for control settings and for system control can thus be freely added, changed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



Template: Ventilation system

► Web Editor templates

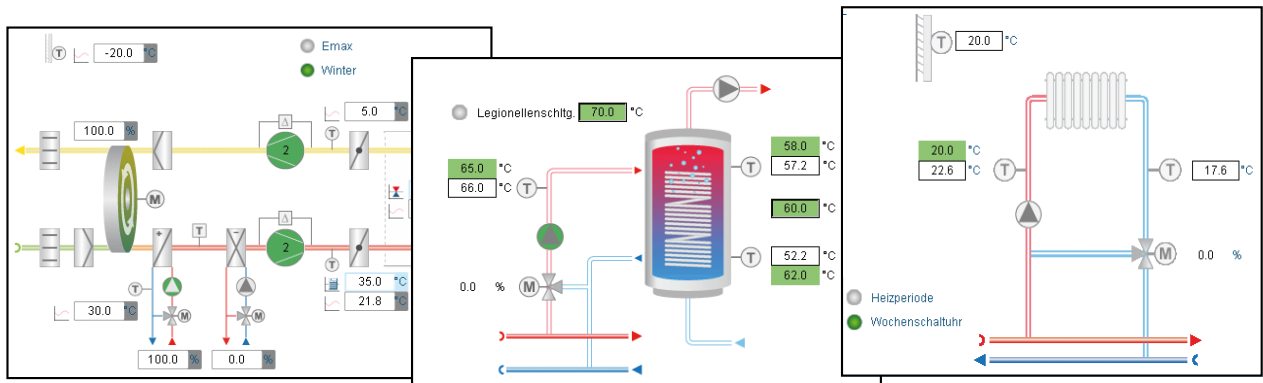
The DDC Suite is also includes template objects for S-Web applications. Graphic and control objects are available for every FBox. There are also S-Web system templates for predefined systems.



All official macros can be found in the "Library" Web Editor window.

► 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

1.1.3.2 Application of the DDC Suite

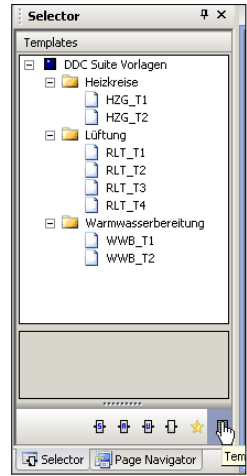
In the previous example it was made clear how quickly and easily a HVAC system can be implemented with the correct engineering tool. The engineering time can, however, be further reduced using the DDC Suite.

Engineering start

After the hardware settings (Device Configurator), a new program file (Fupla file) is created. The implementation of a system can now begin. Various templates are provided to eliminate the need to create a new HVAC system from scratch.

After clicking on the "Template" symbol in the Fupla Selector, the available templates are listed.

→ Selecting templates: In this example, the template AirCond_T1 is used.

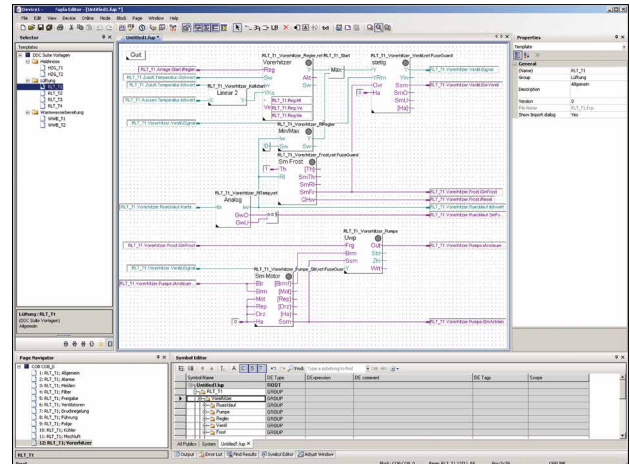


Fupla selector

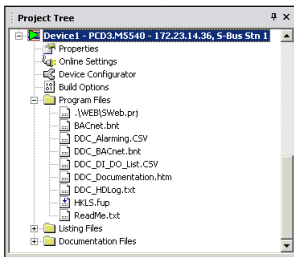
Adjust the template pages

Most functions, settings and parameters can be set online. In the event of a function change therefore, the program does not normally need to be recompiled and loaded into the controller. For example the setpoint adjuster can simply be deactivated if required ("External specification → inactive"), if required by the operator, or the setpoint should be used without summer compensation. This reduces the commissioning time.

The template pages can also be adjusted with further FBoxes if required.



The AirCond_T1 template contains the FBoxes and links shown here.

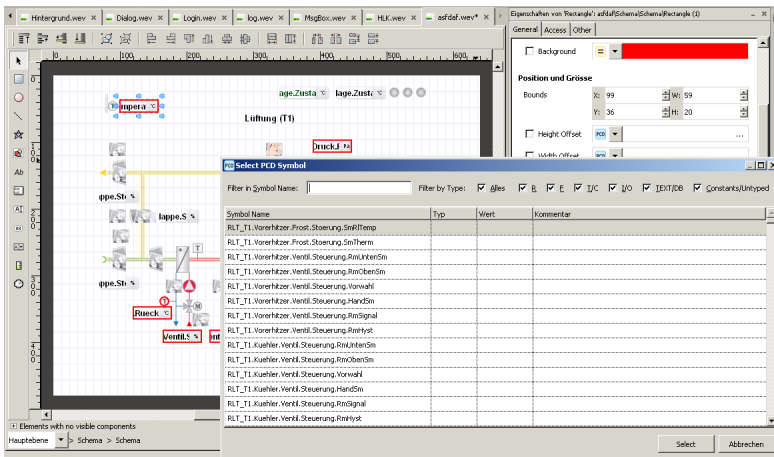


Project Tree with Program Files

Generating a program

Once the program is created, information is automatically generated.

- BACnet configuration has been created (BACnet.bnt)
- Alarms with numbers and text are listed in a CSV file (DDC_Alarming.CSV)
- Documentation as an HTML file with settings is created (DDC_Dokumentation.htm)
- List of all parameterised historical data (DDC_HDLog.txt)



Link symbols

Visualisation

In the Web Editor, the template is linked to the Fupla page with just a few clicks.

Unlike the standard HVAC FBoxes, the parameter assignment symbols in the FBoxes are not defined as arrays: Individual parameters can and/or must be allocated their own symbolic assignment if a connection to a display or a building automation system is required. This assignment is no longer needed for the DDC Suite library, as all parameters already contain symbolic assignments. Thus the assignment to an image in the Web Editor is very quick.