



Beginners' manual
Hardware configuration Series xx7

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0.1 Document History

0

Version	Date	Changed	Remarks
EN01	2005-04-21	-	Published version
EN02	2013-12-13	-	New logo and new company name

0.2 Brands and trademarks

Saia PCD® and Saia PG5® are registered trademarks of Saia-Burgess Controls AG.

Step7®, SIMATIC®, S7-300®, S7-400®, and Siemens® are registered trademarks of Siemens AG

Technical modifications are based on the current state-of-the-art technology.

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1 Introduction

1.1 User community and user benefits

1

Manufacturers who see control technology as an opportunity to differentiate themselves and sharpen their profile, and who also wish to take advantage of the wide user acceptance the resource pool available for Step[®]7, are best served by the Saia PCD[®] Series xx7 control system, as they can gain the most benefit from the high level of service and performance of the Saia PCD[®] and the flexibility and SPS expertise that we can offer.

On the other hand, system integrators with no experience of Saia PCD[®]s, who wish to use the high level of service and performance of the Saia PCD[®]s in one-off production plant projects to replace a high-performance Siemens control system (S7-400) for cost reasons, will gain little real benefit from our Saia PCD[®] Series xx7. This is especially true where many other intelligent Siemens devices are installed, with interfaces that are not based on open standards alone.

We put great effort into systematic testing to ensure compatibility with the Step[®]7/Higraph/SCL tools and the like. However, we cannot and do not wish to copy and test the characteristics and behavior of a high-performance Siemens SPS deployed as a control for Siemens "Total Integrated Automation".

1.2 Differences from other Step[®]7-programmable controls

Saia Burgess Controls has implemented all the CPU operating system functionality as firmware components. We do not use any "miracle chips". We are therefore dependent on nobody, but our customers gain the advantage of rapid change/enhancement to the operating system.

1.2.1 Portability and compatibility

The Saia PCD[®] Series xx7 operating system interprets the Step[®]7 AWL code. This means that the Step[®]7 program can be executed in any AWL-based language such as KOP, FUP, Higraph, SCL or S7-Graph. Calls to Siemens-specific system functions (e.g. for special modules such as communication processors), or access to additional peripherals, may require modifications to the program.

For more details on this and on the system functions themselves, refer to the Technical Information document TI 26/353 (xx7 operating system).

There is not complete compatibility. However, the Saia PCD[®] Series xx7 controls are Step[®]7 programmable. The main restrictions arise where specific local Simatic modules, communication processors or functional modules are an absolute requirement. Because of differences in hardware structure, these cannot be integrated into the xx7 system. SBC offers cost-effective alternative solutions that involve little engineering effort to implement. The instruction sets and component addresses for the xx7 controls roughly correspond to those of the Siemens CPU412/414. It is important to check that any Siemens system functions used are also available in the Series xx7 operating system. For more information, refer to the Technical Information document TI 26/353 (xx7 operating system). More detailed information on programming system functions can be found in manual "26/797 xx7 System functions".

For applications that go beyond this, please contact us at:

mailto: support@saia-pcd.com

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1.2.2 CPU comparison

The instruction set and component addressing for the PCD1.M137 are comparable with the Siemens CPU 412. With the PCD2.M127/M157/M177/M487 controls, the instruction set is roughly equivalent to the Siemens CPU 414. There is generous provision of user memory.

PCD1.M137 = 64 (default) / max. 128 kB (configurable)
PCD2.M127 = 128 kB
PCD1.M157 = 256 (default) / max. 512 kB (configurable)
PCD1.M177 = 512 (default) / max. 1 MB (configurable)
PCD2.M487 = 1 MB
PCD3.M5547= 512 kB
PCD3.M5447= 512 kB

Further information on memory settings can be found in manual “26/797 xx7 System functions”, in the section on “System configuration”.

Because of the differing command execution times, operating speeds can only be approximately compared. The PCD1.M137 and PCD2.M127 are about 3 times slower than the PCD2.M157 and PCD2.M177, which themselves achieve roughly the same cycle time as the Siemens CPU 315. The PCD2.M487 attains the operating speed of the Siemens CPU 318.

1.2.3 How is the Saia PCD[®] Series xx7 configured?

Configuration of the CPU (MPI address, impulse byte, interrupt OBs, etc.) is handled by Simatic Manager. Updated CPU settings take effect on the next STOP->RUN transition.

Configuration of networks (Profibus, Ethernet) is also handled by Simatic Manager. Further information can be found in manual “26/798 xx7 communication facilities”.

The addressing and configuration of local I/O modules, and SBC-specific CPU and interface settings, are handled by data blocks generated with a free-of-charge software tool, the I/O Builder. You can download the I/O Builder from the Internet, from <http://www.sbc-support.com>. Detailed information on the I/O Builder can be found in this manual, from section 2 onwards.

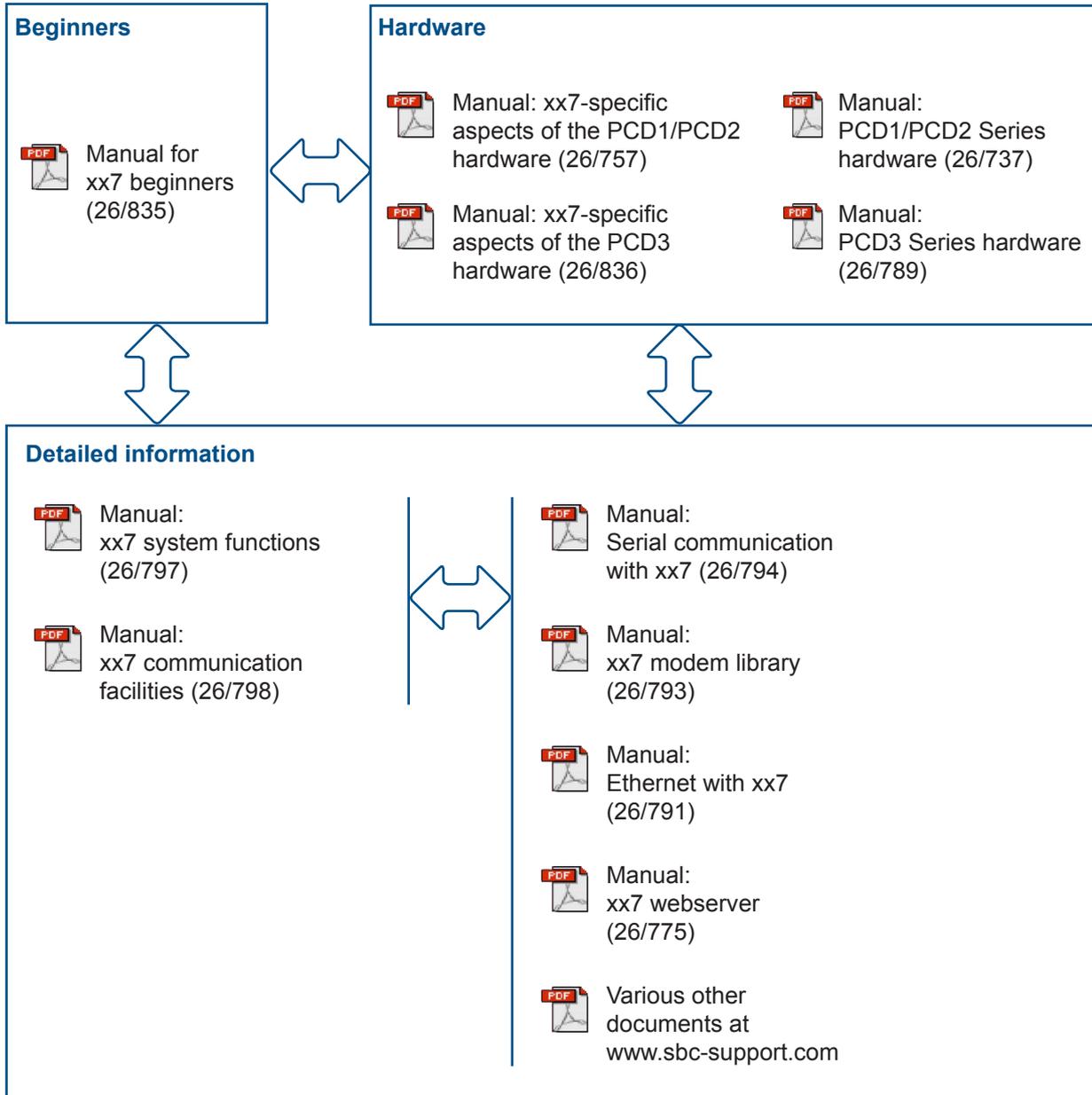
1.3 Documentation

1.3.1 Where can I find information on the Saia PCD[®] Series xx7?

You will find Technical Information documents (TIs) and various manuals on the Saia PCD[®] Series xx7 on our support site. You can download these documents from <http://www.sbc-support.com>.

1.3.2 Overview and structure of the documentation

The summary of Saia PCD® Series xx7 documentation given below should help you to find the information you need outside this manual.



2. Fundamentals of hardware configuration

This manual provides an overview of hardware configuration with the xx7 I/O Builder and the Siemens STEP®7 software.

2.1 Introduction to hardware configuration

2

Configuring

By “configuring”, we mean the allocation of Saia PCD® CPUs (incl. expansion devices, I/O modules and interface modules) in a station window. CPUs and expansion devices are represented by a configuration table that supports a fixed number of pluggable modules, just like the “real” CPU.

In the configuration table, the xx7 I/O Builder automatically assigns an address to each I/O module. You can change the addresses of I/O modules.

A hardware data block is then generated, which can be loaded into the Saia PCD®s with the aid of STEP®7. You can import the configuration into STEP®7 as often as you like, modify it if necessary, and load it into one or more existing systems.

At a Stop→Run transition in the CPU, the loaded configuration will be analyzed and applied.

Parameterizing

By “parameterizing”, we mean:

- Setting properties for parameterizable modules for the central assembly and for a network. Example: a Saia PCD® is a parameterizable module; the cycle monitoring time is a parameter that you can set.
- Setting Bus parameters and DP Master and Slave parameters for a Master system (PROFIBUS-DP).

You can use the xx7 I/O-Builder to parameterize SBC-specific functions of CPUs and communication modules (e.g. compiler functions, webserver serial interfaces etc.). A Configuration Data Block (CDB) is then generated, which can be loaded into the Saia PCD®s with the aid of STEP®7.

General CPU functions (cycle time monitoring, MPI addresses etc.) and communication settings (Profibus, TCP/IP communication etc.) are handled by the hardware configurator or by NetPro under STEP®7.

Most parameters are read in and analyzed after a Power On of the CPU.

2.2 Basic procedure for hardware configuration

Configuration window

To configure a Series xx7 Saia PCD®, you use two windows in the xx7 I/O Builder:

- The Station window, where you place the modules for the station structure.
- The “Hardware Catalog” window, from which you select the required hardware components, e.g. Saia PCD®, I/O modules and interface modules.

Displaying the hardware catalog

If the “Hardware Catalog” window does not display, select **Window > Hardware Catalog**. This menu option allows you to display or close down the hardware catalog.

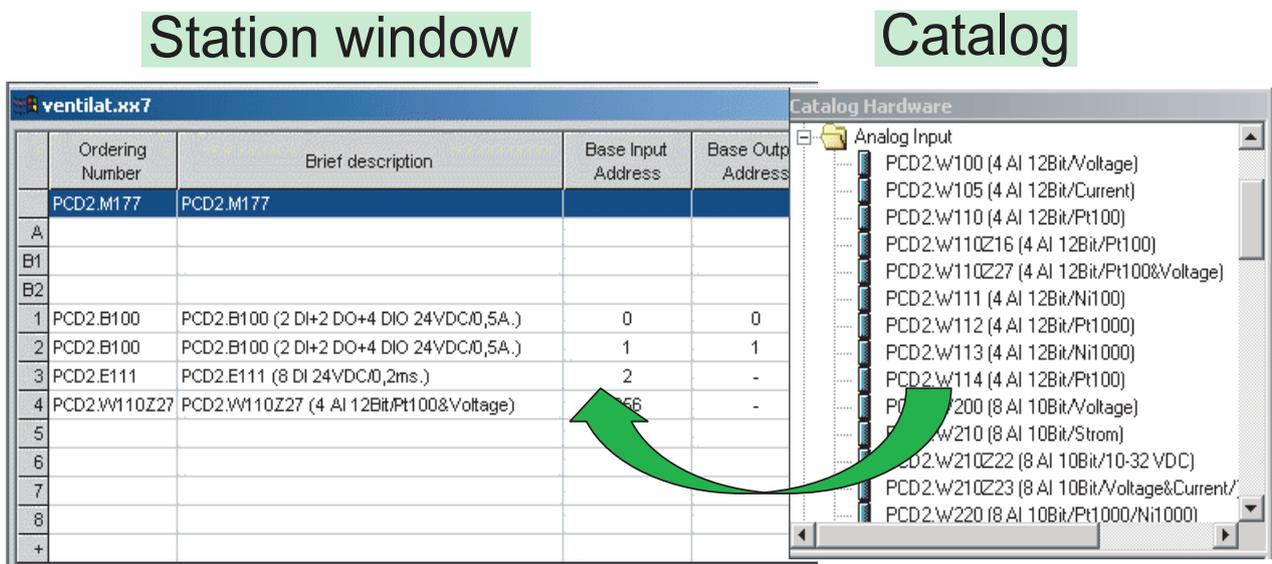
2.2.1 Basic steps to configure a station

Regardless of the underlying technology for a station (PCD2 or PCD3), you always follow the same steps to configure it:

1. Select a hardware component from the “Hardware Catalog” window.
2. Drag and drop the selected component into the Station window.

Alternatively, you can double-click on the component in the “hardware catalog”.

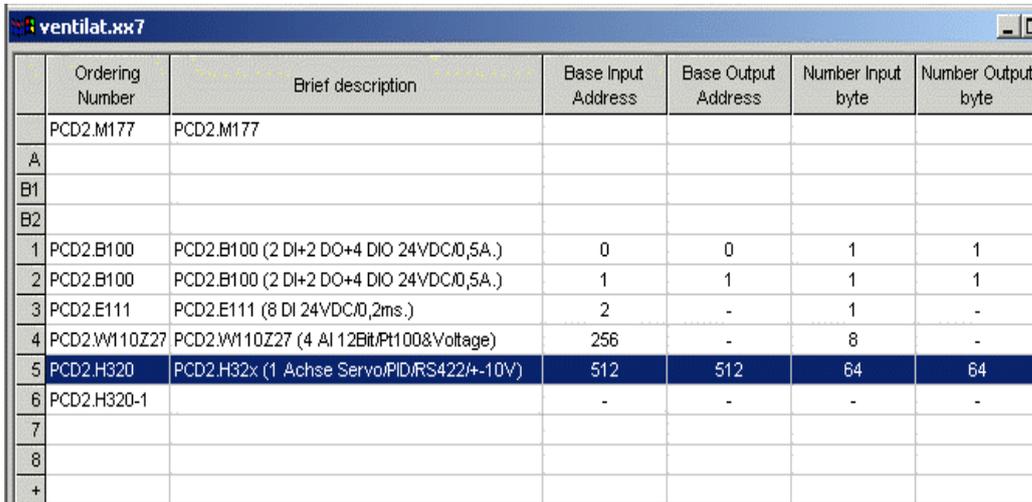
The screenshot below shows the basic operation:



2.2.2 Structure of the Station window

The Station window provides a detailed view of the installed Saia PCD®. It displays order numbers, a short description of the components and the addresses of the I/O modules in tabular form.

For a CPU equipped with I/O modules, the basic structure of the table is as follows:



	Ordering Number	Brief description	Base Input Address	Base Output Address	Number Input byte	Number Output byte
	PCD2.M177	PCD2.M177				
A						
B1						
B2						
1	PCD2.B100	PCD2.B100 (2 DI+2 DO+4 DIO 24VDC/0,5A.)	0	0	1	1
2	PCD2.B100	PCD2.B100 (2 DI+2 DO+4 DIO 24VDC/0,5A.)	1	1	1	1
3	PCD2.E111	PCD2.E111 (8 DI 24VDC/0,2ms.)	2	-	1	-
4	PCD2.W110Z27	PCD2.W110Z27 (4 AI 12Bit/Pt100&Voltage)	256	-	8	-
5	PCD2.H320	PCD2.H32x (1 Achse Servo/PID/RS422/+10V)	512	512	64	64
6	PCD2.H320-1		-	-	-	-
7						
8						
+						

2.2.3 Configuration table as the map of a Saia PCD®

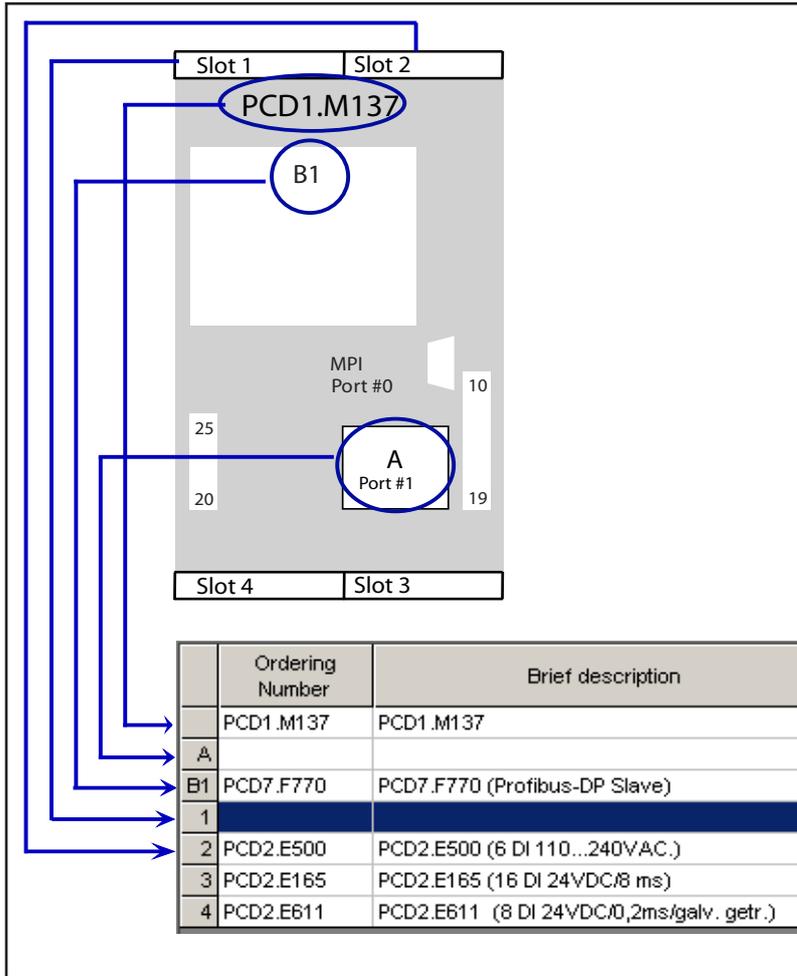
For the central assembly, you allocate the I/O modules clockwise around the CPU and then to the expansion device. The number of I/O modules that can be fitted is dependent on the CPU used.

Just as in your real system, you use the xx7 I/O Builder to place I/O modules on the Saia PCD®. The difference is that the CPU is represented in the xx7 I/O Builder by a configuration table, which has one row for every I/O module that can be plugged into the CPU.

The xx7 I/O Builder helps you to configure a station, in such a way that you generally receive immediate feedback where e.g. a module cannot be plugged into the desired socket. Address ranges are also checked automatically to ensure that the same addresses are not used twice.

You should pay attention to the messages displayed, which provide information on the causes and effects of an operation.

The screenshot below shows an example (PCD1.M137) of the implementation of a real assembly in the configuration table. The configuration table matches the CPU used.



Please refer to the documentation and the latest product information on the modules.

2.2.4 Specifying the properties of components

When you have allocated the modules in the Station window, you can double-click on the module to open a dialog box to change the preset properties (parameters or addresses).

Properties of CPUs

The properties of the CPUs have a particular bearing on the behavior of the system. In the dialog tabs for a CPU, you can set the SBC specific functions such as memory/compiler settings, webserver settings, MPI via modem, properties of serial interfaces etc. These properties are stored in a CDB (Configuration Data Block). After every Power On, the CDB is re-analyzed and the parameterized system behavior is applied.

General CPU properties such as start-up behavior, local data areas and priorities for alerts, memory ranges, remanence behavior, timer impulses etc. are set using the hardware configurator within STEP®7.

2.3 Exporting a configuration

When the whole assembly has been configured with the xx7 I/O Builder, an AWL source has to be generated. This AWL source can be imported into STEP®7 for further processing.

Prerequisite

You must have opened an existing project or created a new project in the xx7 I/O Builder.

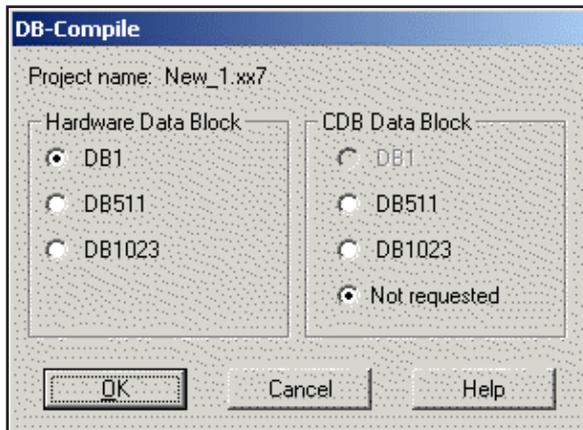
Before you can generate an AWL source, you must save the project.

Procedure

1. Select the menu option **Edit > Generate source...**



2. The “DB compile” window opens.



Select the number of the hardware data block, and if necessary the number of the CDB data block.

3. When you click **OK**, the AWL sources will be generated. If the AWL sources are generated successfully, the following window appears:



When the AWL source has been successfully generated, it is ready to be imported into STEP®7.

The AWL source is copied into the same directory the project was saved to.



It is not allowed to change the numbers of these components later in SIMATIC Manager.

2

2.4 Importing a configuration into STEP®7

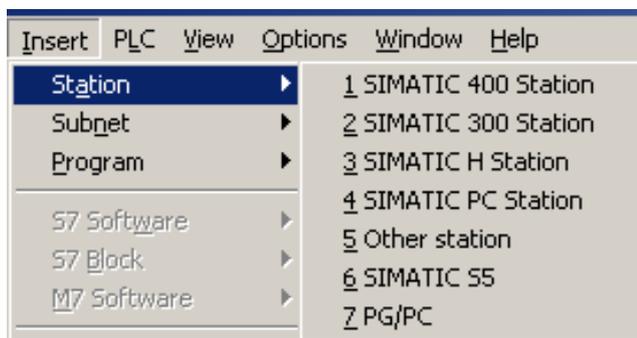
2.4.1 Generating a project in Simatic Manager

Procedure

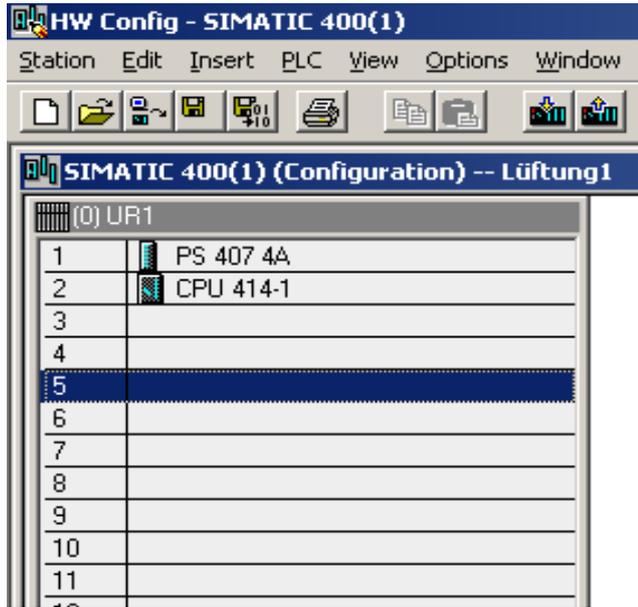
1. Open Simatic®Manager.



2. Insert a SIMATIC 400 Station



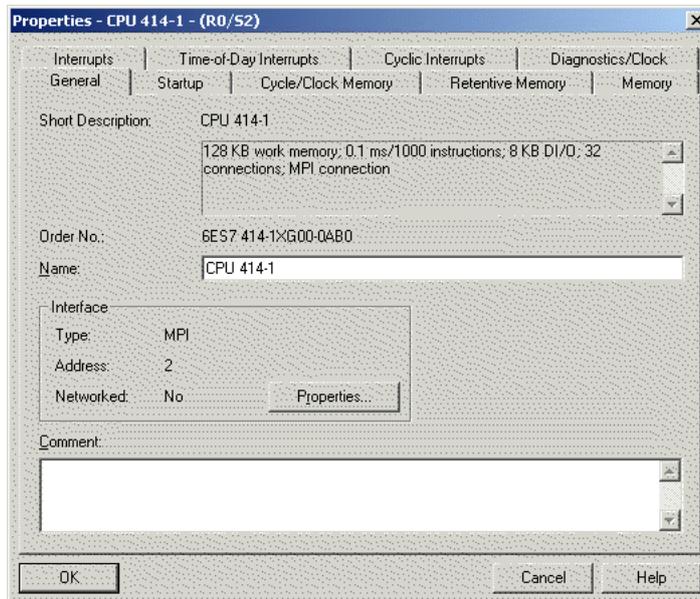
3. Select rack and power supply



To function correctly, the Simatic Manager needs a rack and a power supply. These details are not relevant to the Saia PCD® functionality.

The CPU is for the Saia PCD® Series xx7 (PCD2), which supports the CPU 414-1 instruction set. The PCD1.M137 supports the CPU 412-1 instruction set.

4. Configuring the CPU

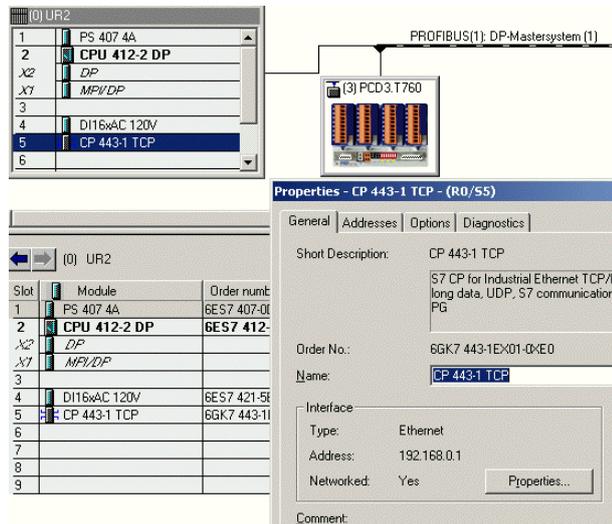


These settings are picked up by the Saia PCD® Series xx7 after downloading and subsequent start-up.

5. Configuration of networks

Configuration of networks (Profibus, Ethernet etc.) is also handled by Simatic Manager. Further information can be found in manual “26/798 xx7 communication facilities”.

2



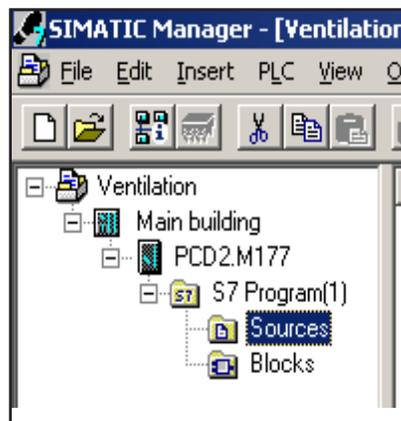
2.4.2 Importing a configuration

Prerequisite

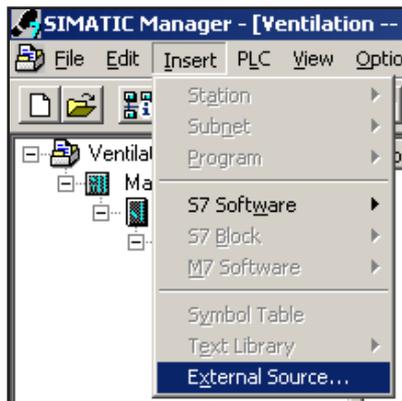
You must have generated an AWL source in the xx7 I/O Builder. The SIMATIC Manager must have been started and a project opened/created.

Procedure

1. Switch to the S7-Program/Sources directory.



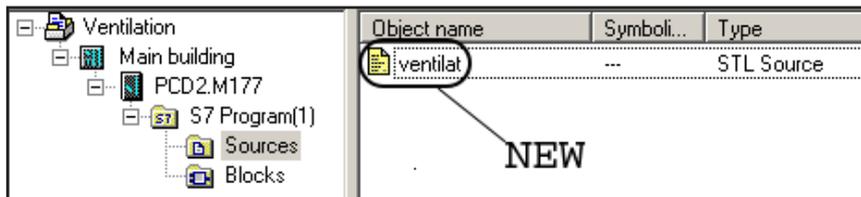
2. Select the menu option **Insert > External Source...**



2

The “Insert External Source” window opens.

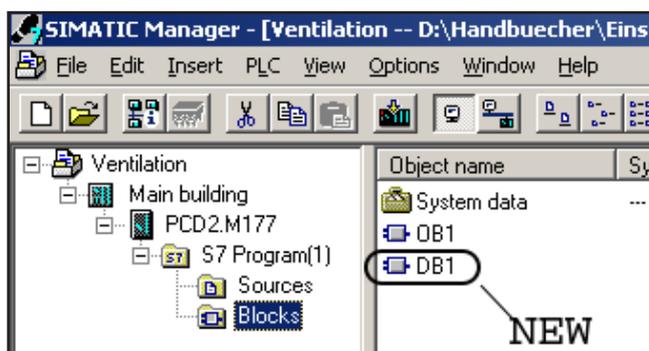
3. Select and open the required AWL source. The new STL source appears in the component container.



4. Select the AWL source and translate it with menu option **Edit > Compile**.

Alternatively, you can press **Ctrl+B**.

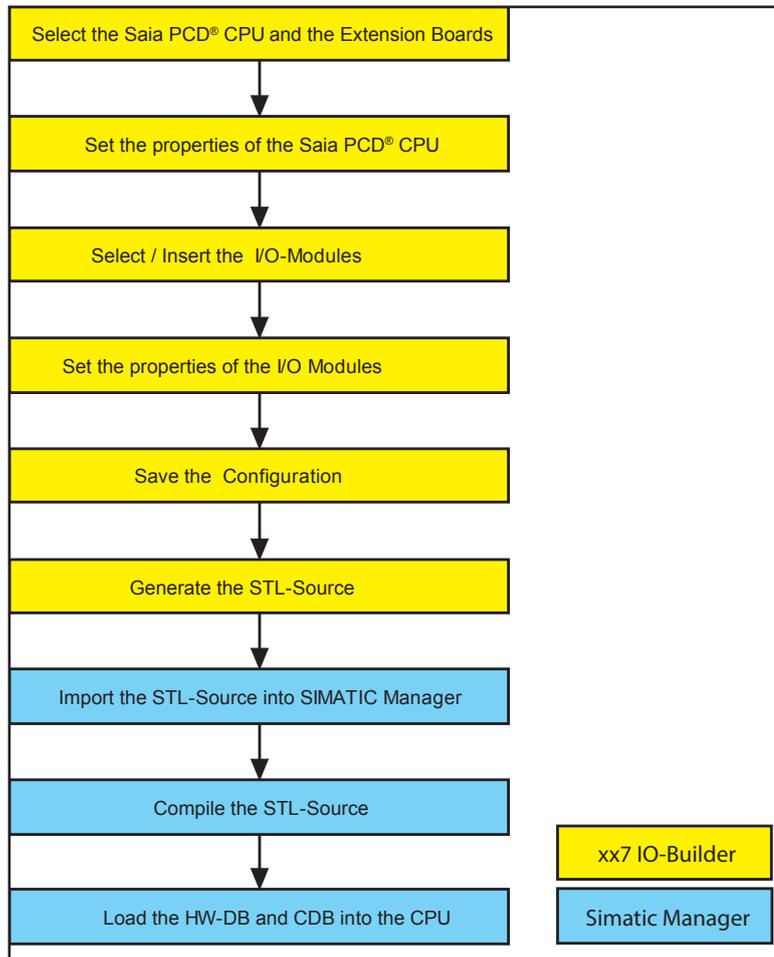
5. If you now switch to the S7-Program/Blocks directory, you will find the hardware data block and the CDB (if this was selected in the xx7 I/O Builder).



This hardware data block must now be transferred to the Saia PCD® together with the remaining components. At a Stop→Run transition in the CPU, the hardware configuration will be analyzed and applied.

2.5 Summary: procedure for configuring a Saia PCD® Series xx7

The diagram below shows the basic procedure for configuring an assembly.



The yellow boxes show the steps executed with the xx7 I/O Builder, while the blue boxes represent steps executed with STEP®7.

A new hardware configuration is analyzed and applied after a STOP → RUN transition in the Saia PCD®.

3 Configuring the hardware

3.1 Rules for the allocation of modules

- Slot 0: Saia PCD® CPUs only (e.g. PCD2.M177)
- Slot A: Communication modules only (e.g. PCD7.F120), or not used
- Slot B1: Function modules only (e.g. PCD7.F520), or not used
- Slot B2: Function modules only (e.g. PCD7.F520), or not used
- Slots 1-64: I/O modules, intelligent I/O modules, or not used
- Slot +: Expansion devices, or not used

Depending on the Saia PCD® CPU used, not all slots will be available and visible. For the print option, Slots A/B1/B2 are used for information only; these fields can also be left blank.

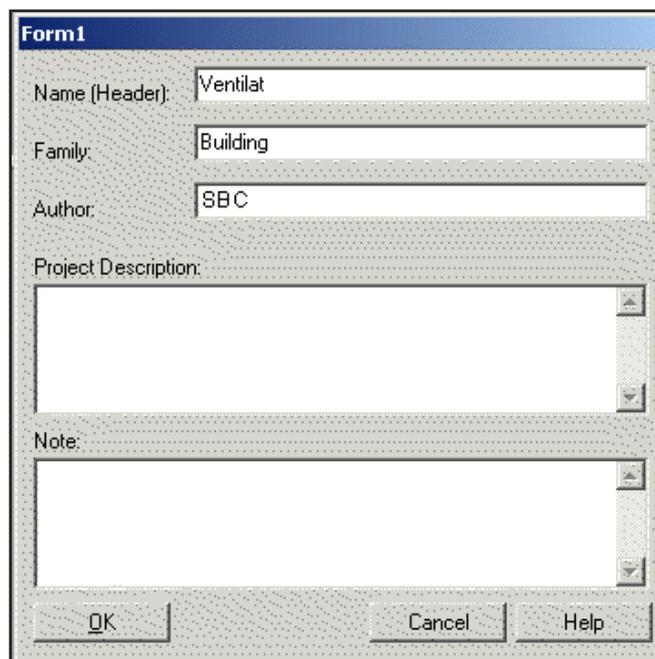
3.2 Generating a configuration

Prerequisite

You must have opened the xx7 I/O Builder.

Procedure

1. Select the menu option **File > New**, or the “New” icon.
2. The “Project Information” window opens.



The screenshot shows a dialog box titled "Form1" with a dotted background. It contains several input fields: "Name (Header):" with the value "Ventilat", "Family:" with "Building", and "Author:" with "SBC". Below these are two large text areas for "Project Description:" and "Note:", both currently empty. At the bottom, there are three buttons: "OK", "Cancel", and "Help".

Complete the relevant fields as applicable. Confirm your input by clicking OK.

You can open this window and change your input at any time via the menu option **Window > Project information**.

The details in the Name, Family and Author fields are picked up by the hardware data block / CDB under STEP®7. Within STEP®7, these details are displayed under object properties.

3.2.1 Allocation of modules

Prerequisite

You must have created a new project with the xx7 I/O Builder.

3

Procedure

1. Select a component (e.g. a Saia PCD® CPU) from the “Hardware Catalog” window.
2. Drag and drop the component into the relevant row in the hardware configuration table. The xx7 I/O Builder checks whether any slot rules are being violated.



Symbol for a violation of slot rules.

3. Repeat steps 1 and 2 until the hardware configuration is equipped with the desired modules.

As an alternative to step 2, you can double-click on the component in the “Hardware Catalog”.

3.2.2 Specifying the properties of modules/interfaces

For most modules, properties can be set (e.g. the base address).

Prerequisite

You must have set up at least one module with configurable properties in the Station window.

Procedure

Double-clicking on the module in the Station window opens the dialog box to change the module properties. The properties of the modules are covered in later sections.

3.3 Configuring the CPU

All CPU settings are stored in the Configuration Data Block (CDB). The possible settings are dependent on the type of CPU. This manual gives a general overview of the possible settings.

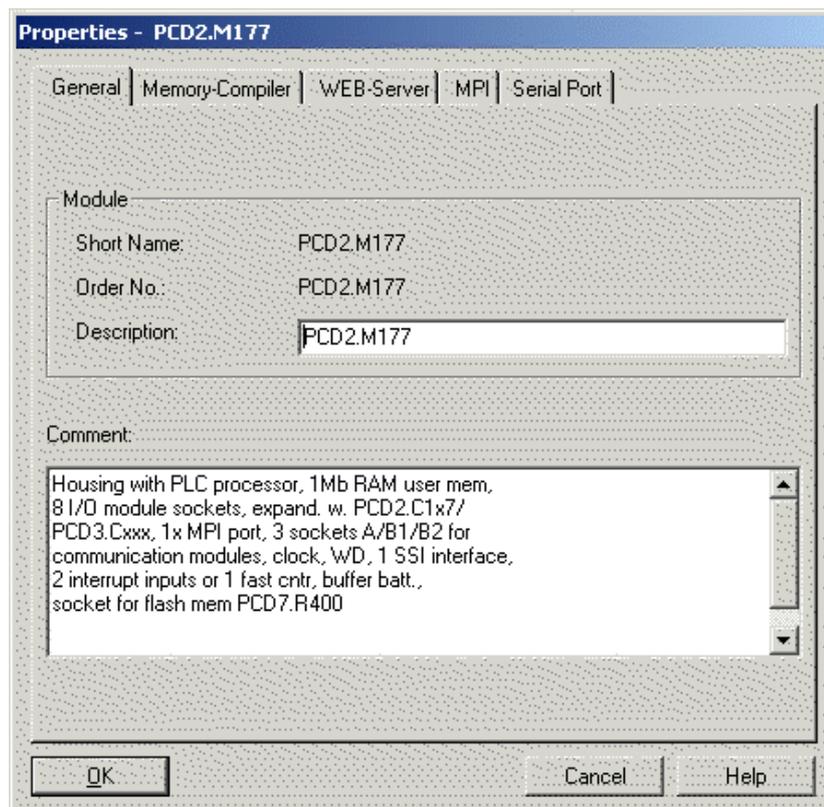


A detailed description of the individual functions can be found in manual “26/797 Integrated system functions Series xx7”.

3

Double-clicking on the Saia PCD® CPU opens the Properties window.

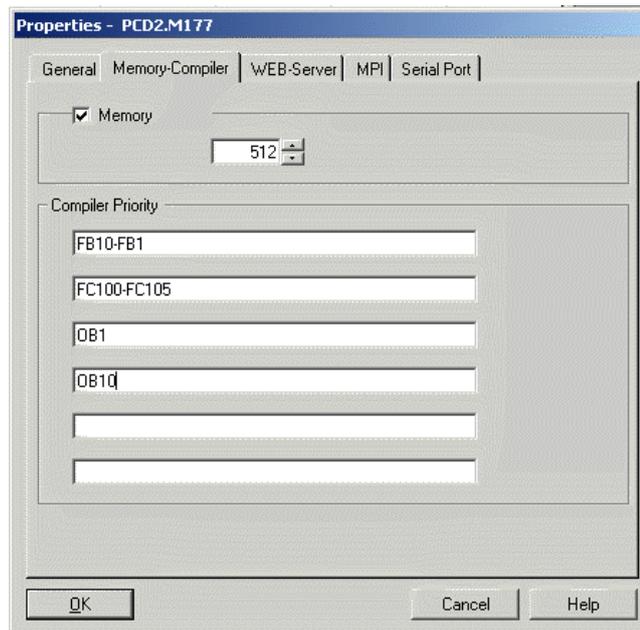
Example: properties of the PCD2.M177



General tab

The General tab displays the name, the order number and the properties of the selected CPU. No settings can be entered in this tab.

Memory/compiler tab



3

On the Memory/compiler tab, you can set the size of the STEP[®]7 user memory. You also have the option of setting the priorities of the components to be compiled.

Memory

In most Series xx7 controllers, the STEP[®]7 user memory is scalable. On this tab, the memory can be configured in 64kB steps.

The maximum memory size for the various controllers is shown in the table below:

PCD type	S7 code memory size
PCD1.M137	Default: 64 kB. Configurable to 64 kB or 128 kB.
PCD2.M127	Fixed 132 kB
PCD2.Mx57	Default: 256 kB. Configurable from 64 kB to 512 kB.
PCD2.M177	Default: 512 kB. Configurable from 64 kB to 1024 kB.
PCD2.M487	Default: 1024 kB. Configurable from 64 kB to 1024 kB.
PCD3.M5547	Default: 512 kB. Configurable from 64 kB to 512 kB.
PCD3.M5447	Default: 512 kB. Configurable from 64 kB to 512 kB.

On the PCD2.Mx57 and PCD2.M177 controllers, the whole user memory is split into S7 code memory and compiler memory. When allocating S7 code memory, it is important to note how much memory is left for the compiler code. The smaller the S7 code memory, the larger the compiler memory.

Where DB-Flash memory functionality is also used, the following should be noted: the larger the configured S7 code memory, the smaller the available DB flash memory.



Further information on memory settings can be found in manual “26/797 Integrated system functions Series xx7”, section 5 “Memory” and section 8.2 “Memory scaling”.

Compiler priority

With Saia PCD®s with an integrated compiler, an attempt is made at every Stop-Run transition to translate the whole STEP®7 program. As pre-set, components will be translated in the following sequence:

- FCs in descending order,
- FBs in descending order,
- OBs in descending order,
- SFCs in descending order (PCD3.M5x47 OEM only),
- SFBs in descending order (PCD3.M5x47 OEM only).

Where not all components can be compiled, the Compiler Priority field can be used to define a different sequence. If there is still space in the compiler memory after prioritized compilation, further components will be translated in the pre-set sequence.

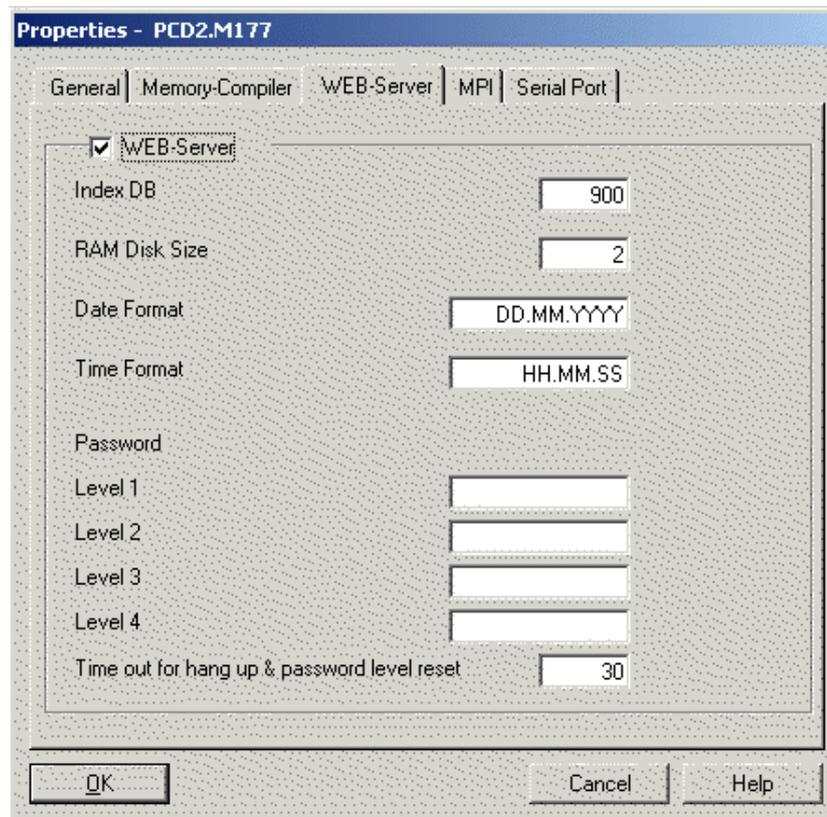
Parameter: Component type.
‘*’ All components of the given type will be prioritized for compilation in ascending order. (Reverse of pre-set order)
‘-’ Component range: If the higher component number is given first, the range will be compiled in descending order.



Further information on compiler priorities can be found in manual “26/797 Integrated system functions Series xx7”, section 8.3 “Priorities for compiling”.

WEBserver tab

The PCD2.M157, PCD2.M177, PCD2.M487 and PCD3.M5x47 controls can be initialized to use the webserver by the configuration entered on this tab.



Index DB: This data block contains the list of all files loaded as data blocks into the xx7 controller.

RAM disk size: The default setting is 2 kB. This can be increased if required. On the PCD2.M157 and PCD2.M177, the additional RAM disk requirement is taken from Step[®]7 memory. On the PCD2.M487 and the PCD3.M5547, the additional memory requirement for the RAM disk is taken from the system memory.

Date format: By default, the webserver displays the date from the STEP[®]7 DATE_AND_TIME (DT) variable as follows: DD.MM.YYYY (e.g. 23.11.2001). This format can be changed on the WEBserver tab.

Time format: By default, the web server displays the time from the STEP[®]7 DATE_AND_TIME (DT) variable as follows: HH:MM:SS (e.g. 11:55:00). This format can be changed on the WEBserver tab.

Password: Specification of up to 4 passwords (4Level) separated by “,”. (, , = place-holder). With the passwords, there is no distinction between upper and lower-case, e.g. “SBC” and “sbc” are the same password. Each password may be up to 16 characters long. Spaces and commas may not be used. It is not necessary to define a password.

Time-out for hang-up & password level reset: If no data is read or written by the WEBserver during this time-out time (entered in minutes), the passwords will be re-set. If there is a modem connection to the WEBserver, the Saia PCD® will also terminate this modem connection.

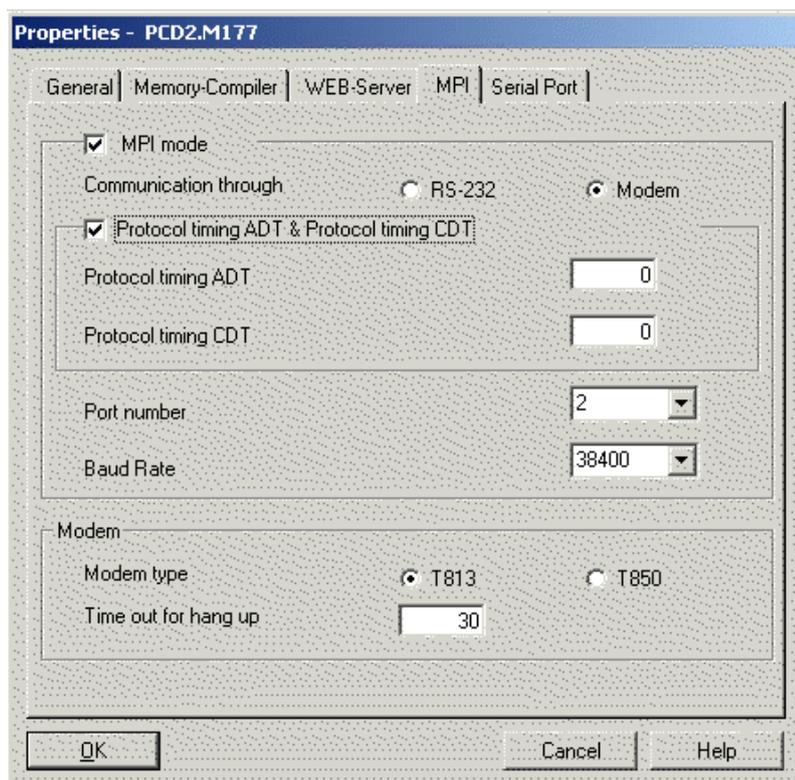


Further information on the subject of the WEBserver can be found in manuals “26/775 Webserver” and “26/797 Integrated system functions Series xx7”, section 8.5 “Webserver”.

MPI tab

As well as the usual MPI interface, the PCD2 Series xx7 controllers can also be programmed via a serial user interface. This allows the serial interface to be connected directly to the PC for programming, without an MPI adapter. For this, the PC adapter must be set to the same baud rate in Simatic Manager as is set here (default: 19200).

By selecting MPI mode, any interface can be set to MPI protocol. If MPI mode is not selected, MPI protocol is always enabled on Port 1 (or Port 0 on the PCD2.M487 and PCD3.M5x47), at 19200 baud.



The following parameters can only be set if MPI mode has been selected.

Communication by: RS-232 or modem. If communication via modem is selected, the Modem field will also be displayed.

The initialization and configuration of the interface as a modem only allow the controller to be called. Outgoing calls are not possible.

Protocol timing: The values for Character Delay Time (CDT) and Answer Delay Time (ADT) can be set for the communication protocol. If protocol timing is not selected, the following default settings are applied:

Serial programming:	CDT = 220ms,	ADT = 2000ms.
Programming via modem:	CDT = 1s,	ADT = 10s.

Interface number: All serial interfaces can be initialized and configured as a programming interface. Only one interface can support the MPI protocol at any given time.

Baud rate: The baud rate must match the setting in the SIMATIC Manager: the default setting is 19200 baud.

Modem type: The T813 (analog modem) or the T850 (ISDN modem) may be selected.

Time-out for hang-up: The default setting is for an existing modem connection to be canceled automatically after 30 minutes if there is no traffic. This value can be changed using parameter type TIMEOUT. The timeout can be disabled with value 0.

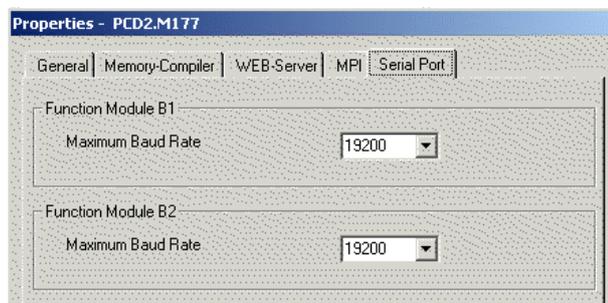


Further information on MPI settings can be found in manual “26/797 Integrated system functions Series xx7”, section 8.4 “Initialization of serial programming interface”.

Serial Interface tab

The serial interfaces on the F5xx modules (Slots B1 and B2) support a maximum baud rate of either 19200 or 38000 baud. This setting applies to both interfaces on the F5xx module.

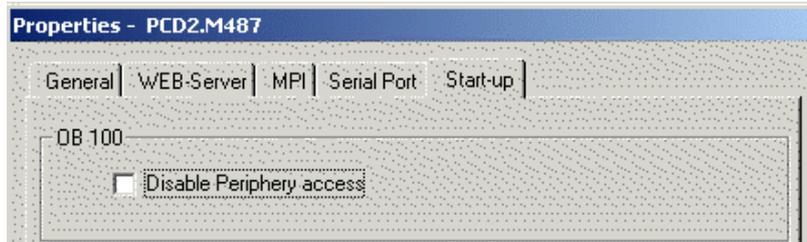
This setting is not supported on the PCD1.M137.



Further information on maximum baud rates can be found in manual “26/797 Integrated system functions Series xx7”, section 8.4.6 “Setting the max. baud rate on Slot B1 (B2)”.

Start-up tab

On the PCD1 and PCD2.M1x7 systems, the I/O Reset signal is set during start-up. This means that OB100 cannot be used to access peripheral modules. On the PCD2.M487 and the PCD3.M5x47, this signal is not set during start-up. With this tab, the user can set the start-up behavior for the M487 and the PCD3 to be the same as the older systems.



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Further information on the start-up behavior of the Saia PCD® can be found in manual “26/797 Integrated system functions Series xx7”, section 8.6 “Peripheral access in OB100”.

3.4 Configuring digital input/output modules

The Properties window for digital input/output modules has two tabs: the General tab and the Addresses tab.



Further information on the various digital input/output modules can be found in manual “26/757 Hardware for Series PCD1 and PCD2”, section 5 “Digital input/output modules”.

General tab

The General tab displays the name, the order number and the properties of the selected module. No settings can be entered in this tab.

Addresses tab

The Addresses tab can be used to enter the module start address. The end address is calculated automatically. If there are any address overlaps, the xx7 I/O Builder will alert you to this and display the next valid address.



If the address range for the digital input modules is between 0 and 255, the input will be read cyclically and copied to the process map.

If the address range for the digital output modules is between 0 and 255, the values in the process map will be transferred cyclically to the module.

3.5 Configuring analog input/output modules

The Properties window for analog input/output modules has three tabs: the General, Addresses and Measurement type tabs.

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Further information on the various analog input/output modules can be found in manual “26/757 Hardware for Series PCD1 and PCD2”, section 6 “Analog input/output modules”.

General tab

The General tab displays the name, the order number and the properties of the selected module. No settings can be entered in this tab.

Addresses tab

The Addresses tab can be used to enter the module start address. The end address is calculated automatically. If there are any address overlaps, the xx7 I/O Builder will alert you to this and display the next valid address.

If the address range for the analog input modules is between 0 and 255, the input will be read cyclically and copied to the process map.

If the address range for the analog output modules is between 0 and 255, the values in the process map will be transferred cyclically to the module.

Measurement type tab

Depending on the analog module selected, this tab will offer the supported analog value formats for selection.

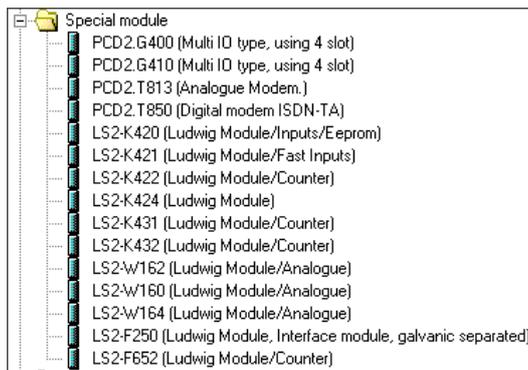


The various analog value formats are covered in more detail in manual “26/757 Hardware for Series PCD1 and PCD2”, section 6 “Analog input/output modules”.

3.6 Configuring special modules

In the “Special Modules” catalog, the following module types can be found:

- Multi I/O modules
- Modems
- Modules from 3. manufacturers



No settings can be entered for the modems. They are only used as place-holders in the hardware configuration. The modem settings are copied to the CPU properties.

More detailed information on Ludwig modules can be found on the Ludwig company website: www.ludwig-systemelektronik.de.

3.7 Configuring counter modules

The “Counter Modules” catalog contains the following module types:

- PCD2/3.H100 (counter module)
- PCD2/3.H110 (counter and meter module)
- PCD2/3.H150 (SSI module)

The Properties window for the PCD2/3.H100 module contains two tabs: the General tab and the Addresses tab.

The Properties window for the PCD2/3.H110 module contains five tabs: General, Addresses, Inputs, Outputs and Measurement.

The Properties window for the PCD2/3.H150 module contains three tabs: General, Addresses and Extras.

General tab

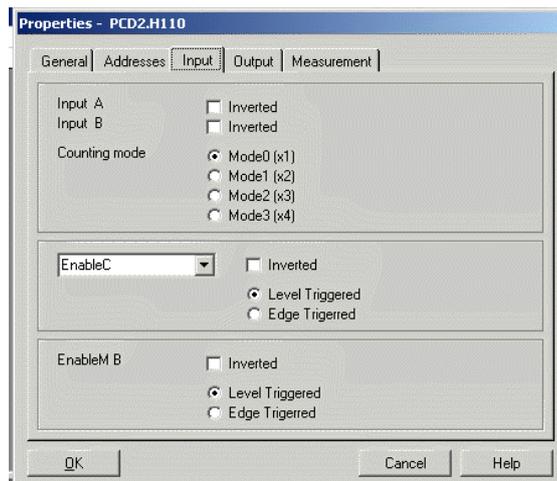
The General tab displays the name, the order number and the properties of the selected module. No settings can be entered in this tab.

Addresses tab

The Addresses tab can be used to enter the module start address. The end address is calculated automatically. If there are any address overlaps, the xx7 I/O Builder will alert you to this and display the next valid address. If the address range is entered into the process map, the system does not read/write cyclically to/from the module. These modules can only be accessed via peripheral access commands.

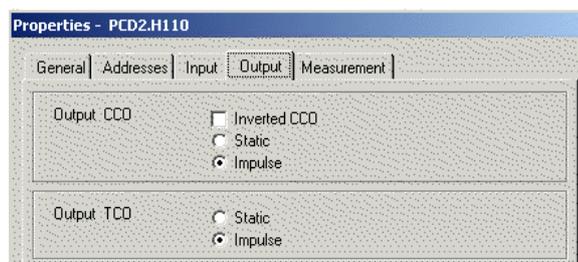
Input tab (PCD2/3.H110 only)

The behavior of the inputs to the H110 module can be set via the Inputs tab.



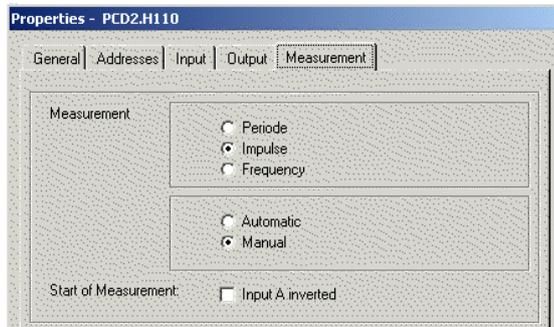
Output tab (PCD2/3.H110 only)

The behavior of the outputs from the H110 module can be set via the Outputs tab.



Measurement tab (PCD2/3.H110 only)

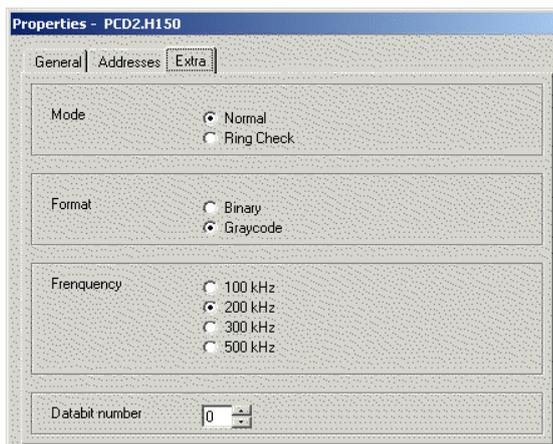
The various measurement modes for the H110 module can be configured via the Measurement tab.



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Extras tab (PCD2/3.H150 only)

The various SSI parameters for the H150 module can be configured via the Extras tab.



Further information on the PCD2/3.H100 module can be found in the manual for the “PCD2.H100 (xx7/Step7)”.



Further information on the PCD2/3.H110 module can be found in the manual for the “PCD2.H110 (xx7/Step7)”.



Further information on the PCD2/3.H150 module can be found in the manual for the “PCD2.H150 (xx7/Step7)”.

3.8 Configuring positioning modules

In the “Special Modules” catalog, the following module types can be found:

- PCD2/3.H210 (1 axis stepper motor module)
- PCD2/3.H31x (1 axis servo motor module)
- PCD2.H32x (2 axis servo motor module)

The Properties window for the PCD2/3.H210 module contains two tabs: the General tab and the Addresses tab.

The Properties window for the PCD2/3.H31x module contains two tabs: the General tab and the Addresses tab.

The Properties window for the PCD2.H32x module contains four tabs: General, Addresses, X Axis and Y Axis.

General tab

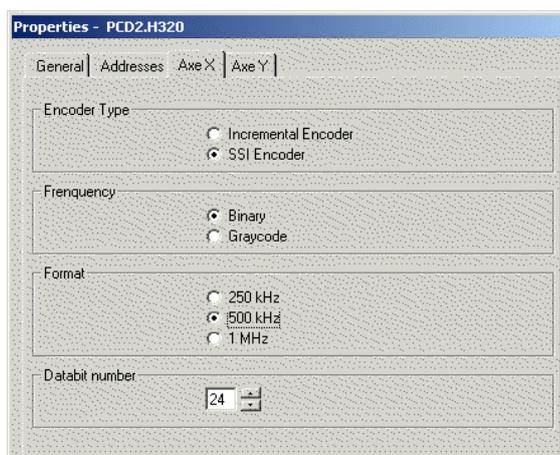
The General tab displays the name, the order number and the properties of the selected module. No settings can be entered in this tab.

Addresses tab

The Addresses tab can be used to enter the module start address. The end address is calculated automatically. If there are any address overlaps, the xx7 I/O Builder will alert you to this and display the next valid address. If the address range is entered into the process map, the system does not read/write cyclically to/from the module. These modules can only be accessed via peripheral access commands.

X Axis/Y Axis tab (PCD2.H32x only)

These two axes can be operated with various encoders. The axis-specific settings can be entered under X/Y Axis.



Further information on the PCD2/3.H210 module can be found in the manual for the “PCD2.H210 (xx7/Step7)”.



Further information on the PCD2/3.H31x module can be found in the “26/762 PCDx.H31x manual”.

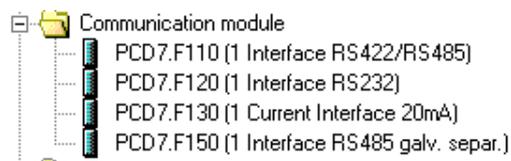


Further information on the PCD2.H32x module can be found in the “26/778 PCD2.H32x.xx7 manual”.

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3.9 Configuring communication modules

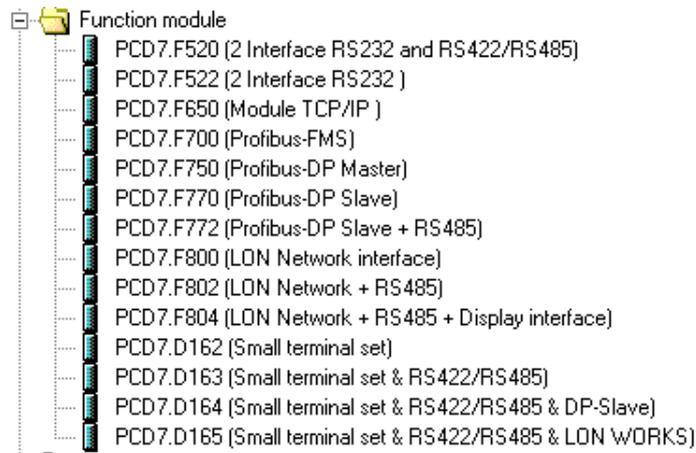
The “Communication Modules” catalog contains the interface modules for the serial interface on Slot A:



No properties can be set for the communication modules. They are only used as place-holders.

3.10 Configuring function modules

The “Function Modules” catalog contains interfaces and field bus modules for Slots B1 and B2.



No properties for the function modules can be entered in the I/O Builder. They are only used as place-holders. Module-specific settings are entered directly in STEP®7.



Further information can be found in manual “26/798 xx7 communication facilities”.

A Annex

A.1 Icons

	In manuals, this symbol refers the reader to further information in this manual or other manuals or technical information documents. As a rule there is no direct link to such documents.
	This symbol warns the reader of the risk to components from electrostatic discharges caused by touch. Recommendation: Before coming into contact with electrical components, you should at least touch the Minus of the system (cabinet of PGU connector). It is better to use a grounding wrist strap with its cable permanently attached to the Minus of the system.
	This sign accompanies instructions that must always be followed.
	Explanations beside this sign are valid only for the Saia PCD® Classic series.
	Explanations beside this sign are valid only for the Saia PCD® xx7 series.

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