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Library Description • 11/2014

SITOP PSU8600: Faceplates and Communication Blocks

SITOP PSU8600, S7-300/400, WinCC flexible, WinCC V7, STEP 7 V5

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1 Library Overview

What will I get here?

This document describes block library “PSU8600 Library”. The block library provides tested code with clearly defined interfaces. You can use it as the basis for the task you wish to realize.

The main focus of this document is to describe

- all blocks pertaining to the block library
- the functionality implemented through these blocks.

The present documentation furthermore illustrates possible applications, and the included step-by-step instructions help you integrate the library into your STEP 7 project.

Scope of validity of the library

- STEP 7 Professional V5.5
- WinCC V7.3
- WinCC flexible 2008 SP3

1.1 User scenario

Introduction

SITOP PSU8600 gives you the opportunity to integrate the power supply into your automation network.

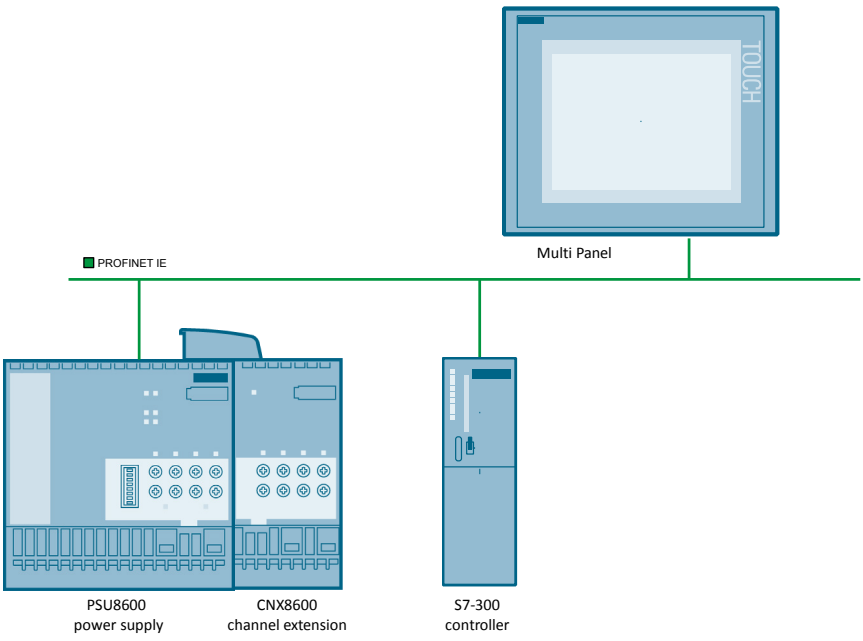
In the PROFINET network, SITOP PSU8600 behaves as the I/O device. A controller as well as HMI systems can communicate with SITOP and exchange data.

Possible field(s) of application for the library

- State and diagnostics of SITOP at the HMI system
- Interaction of the automation process with the power supply, for example, setting the voltage (11 – 28.8V, for a DC drive) or switching a channel (in shift pauses).

Example with S7-300 and Multi Panel

Figure 1-1



1.2 Hardware and software requirements

Requirements for this library

To make use of the full functionality of the library described here, the hardware and software requirements listed below must be met:

Hardware

Table 1-1

No.	Component	Article number	No.	Alternative
1.	SIMATIC S7-300 CPU 317-2 PN/DP	6ES7317-2EK14-0AB0	1	Other S7-300 or S7-400
2.	MP 277 8“ Touch	6AV6643-0CB01-1AX5	1	Other Multi Panels also possible
3.	SITOP PSU8600	6EP3437-8MB00-2CY0	1	
4.	SITOP CNX8600	6EP4437-8XB00-0CY0	3	Optional
5.	SITOP BUF8600 (100ms)	6EP4297-8HB00-0XY0	2	Optional Alternatively, you can also use SITOP BUF8600 (300ms). (6EP4297-8HB10-0XY0)

Software

Table 1-2

No.	Component	Article number	Number
1.	SIMATIC WinCC V7.3	6AV63.1-….7-3…	Depending on the required target system
2.	SIMATIC WinCC flexible 2008 SP3	6AV661.-…..-3…	
3.	STEP 7 Professional V5.5	6ES7810-4C.10-..	

2 Blocks of the Library

Scope of this library

The library is basically divided into a STEP 7 part and a WinCC part which each then contain the individual library elements for the respective control and HMI system.

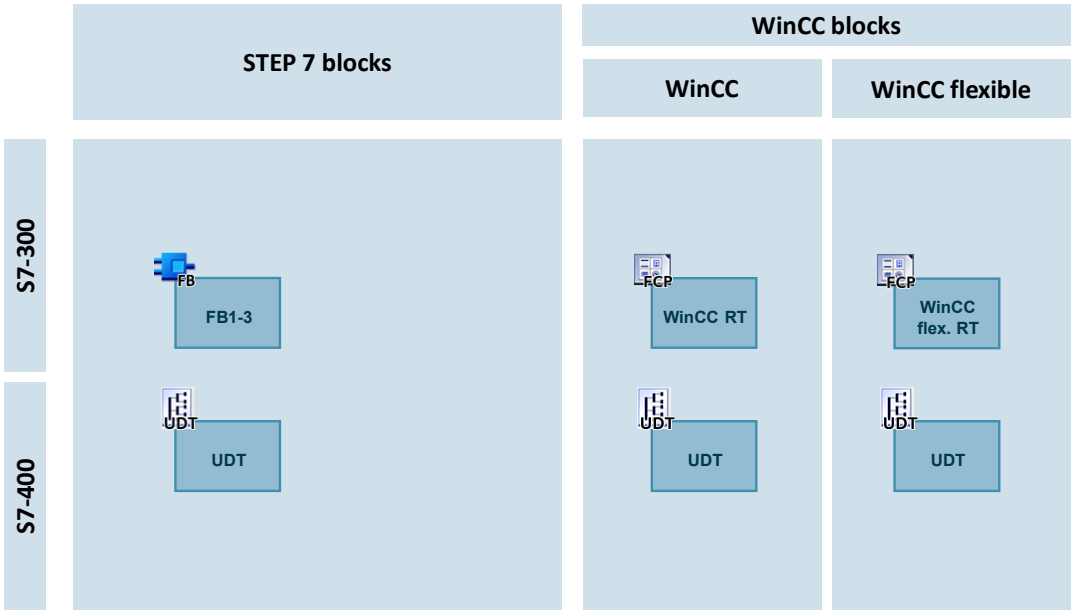
Variants

The library contains two basic variants of the faceplates. Faceplates for:

- WinCC
- WinCC flexible

In addition to the faceplates, UDTs for the data connection of STEP 7 blocks are also contained.

Figure2-1



Legend

FB: function block

FCP: faceplate

UDT: user-defined data type (HMI/STEP 7)

2.1 Explanation of the STEP 7 blocks

This chapter discusses any STEP 7 blocks which are part of the library.

Occupancy of the individual blocks

Table 2-1

Block	Symbol	Block number	Size of main memory
FB	SITOP_PSU8600	FB 288	approx. 11100B
FB	SITOP_CH	FB 289	approx. 2206B
FB	SITOP_MainUnit	FB 290	approx. 324B
UDT	UDT_Buf_Data	UDT 4000	
UDT	UDT_PSU_Device_Info	UDT 4001	
UDT	UDT_PSU_General_In	UDT 4002	
UDT	UDT_PSU_General_Out	UDT 4003	
UDT	UDT_CNX_Output_In	UDT 4004	
UDT	UDT_CNX_Output_Out	UDT 4005	
UDT	UDT_PSU_Output_In	UDT 4006	
UDT	UDT_PSU_Output_Out	UDT 4007	
UDT	UDT_PSU_Data	UDT 4008	approx. 814B as DB
UDT	UDT_PSU_State_Info	UDT 4009	

2.1.1 FB SITOP_PSU8600

Display

Figure 2-2

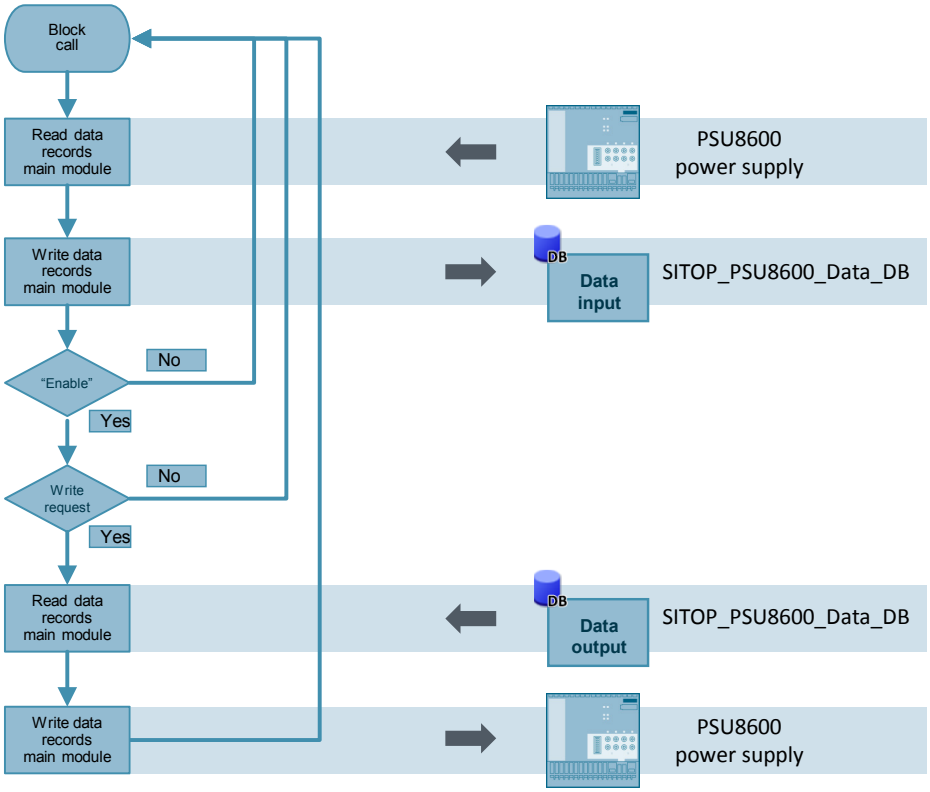
Function principle

The block reads data of the PSU8600 main device and all CNX8600 expansion models, and writes it to the global transfer data block.

- On request, the block writes new setpoint values or mode changes into the PSU main device.
- On request, the block writes new setpoint values or mode changes into the CNX8600 expansion modules.

Function characteristics

Figure 2-3



Input parameters

Table 2-2

Parameter	Data type	Description
Enable	Bool	Enables write access to the PSU8600 main module. (0= "read only"; 1= "write enabled"; see also block SITOP_PSU8600_Mainunit or SITOP_PSU8600_Output)
LAddrPSU	Int	Diagnostic address of the entire PSU main module
LAddrPSUCh1	Int	Diagnostic address of the entire PSU main module output channel 1
LAddrPSUCh2	Int	Diagnostic address of the entire PSU main module output channel 2
LAddrPSUCh3	Int	Diagnostic address of the entire PSU main module output channel 3
LAddrPSUCh4	Int	Diagnostic address of the entire PSU main module output channel 4
LAddrCNX1	Int	Diagnostic address of the entire CNX1 expansion module
LAddrCNX1Ch1	Int	Diagnostic address of the entire CNX1 expansion module output channel 1
LAddrCNX1Ch2	Int	Diagnostic address of the entire CNX1 expansion module output channel 2
LAddrCNX1Ch3	Int	Diagnostic address of the entire CNX1 expansion module output channel 3

Parameter	Data type	Description
LAddrCNX1Ch4	Int	Diagnostic address of the entire CNX1 expansion module output channel 4
LAddrCNX2	Int	Diagnostic address of the entire CNX2 expansion module
LAddrCNX2Ch1	Int	Diagnostic address of the entire CNX2 expansion module output channel 1
LAddrCNX2Ch2	Int	Diagnostic address of the entire CNX2 expansion module output channel 2
LAddrCNX2Ch3	Int	Diagnostic address of the entire CNX2 expansion module output channel 3
LAddrCNX2Ch4	Int	Diagnostic address of the entire CNX2 expansion module output channel 4
LAddrCNX3	Int	Diagnostic address of the entire CNX3 expansion module
LAddrCNX3Ch1	Int	Diagnostic address of the entire CNX3 expansion module output channel 1
LAddrCNX3Ch2	Int	Diagnostic address of the entire CNX3 expansion module output channel 2
LAddrCNX3Ch3	Int	Diagnostic address of the entire CNX3 expansion module output channel 3
LAddrCNX3Ch4	Int	Diagnostic address of the entire CNX3 expansion module output channel 4
LAddrBUF1	Int	Diagnostic address of the entire BUF1 buffer module
LAddrBUF2	Int	Diagnostic address of the entire BUF2 buffer module
DevName	String	Device name
Instance	String	Filter property for Alarm control or alarm display.

Input and output parameters

Table 2-3

Parameter	Data type	Description
OPdwCmd	Word	For screen control: Bit0=Tab1 of the window, Bit2=Tab2 of the window, … , Bit7=minimize window
Visibility	DWord	Control tag for switching individual elements visible in the HMI.
Data	UDT_PSU_Data	Power supply data of the interfaces. The connected global data block must follow the UDT structure.

Output parameters

Table 2-4

Parameter	Data type	Description
QdwState	DWord	Status WinCC
QErrExt	Bool	1=External error
QError	Bool	Error or alarms pending
QBusy	Bool	Operating mode (block operation active/inactive)
QDone	Bool	Block operation terminated without error.
QPSUErr	DWord	Error or alarms of the PSU pending
QPSUStatus	Bool	Error code or alarm of the PSU pending

Parameter	Data type	Description
QCNX1Err	DWord	Error or alarms of the CNX1 pending
QCNX1Status	Bool	Error code or alarm of the CNX1 pending
QCNX2Err	DWord	Error or alarms of the CNX2 pending
QCNX2Status	Bool	Error code or alarm of the CNX2 pending
QCNX3Err	DWord	Error or alarms of the CNX3 pending
QCNX3Status	Bool	Error code or alarm of the CNX3 pending
QBUF1Err	DWord	Error or alarms of the CNX4 pending
QBUF1Status	Bool	Error code or alarm of the CNX4 pending
QBUF2Err	DWord	Error or alarms of the BUF1 pending
QBUF2Status	Bool	Error code or alarm of the BUF2 pending
QDevInVolt	Real	Input voltage of the device
QDevOuCur	Real	Output current of the device
QDevOpSt	Byte	Operating mode
QPSUCh1OuVlt	Real	Output voltage at PSU output channel 1
QPSUCh1OuCur	Real	Output current at PSU output channel 1
QPSUCh1OuOpSt	Byte	Operating mode at PSU output channel 1
QPSUCh2OuVlt	Real	Output voltage at PSU output channel 2
QPSUCh2OuCur	Real	Output current at PSU output channel 2
QPSUCh2OuOpSt	Byte	Operating mode at PSU output channel 2
QPSUCh3OuVlt	Real	Output voltage at PSU output channel 3
QPSUCh3OuCur	Real	Output current at PSU output channel 3
QPSUCh3OuOpSt	Byte	Operating mode at PSU output channel 3
QPSUCh4OuVlt	Real	Output voltage at PSU output channel 4
QPSUCh4OuCur	Real	Output current at PSU output channel 4
QPSUCh4OuOpSt	Byte	Operating mode at PSU output channel 4
QCNX1ModOpSt	Byte	Operating mode of expansion module CNX1
QCNX1Ch1OuVlt	Real	Output voltage at CNX1 output channel 1
QCNX1Ch1OuCur	Real	Output current at CNX1 output channel 1
QCNX1Ch1OuOpSt	Byte	Operating mode at CNX1 output channel 1
QCNX1Ch2OuVlt	Real	Output voltage at CNX1 output channel 2
QCNX1Ch2OuCur	Real	Output current at CNX1 output channel 2
QCNX1Ch2OuOpSt	Byte	Operating mode at CNX1 output channel 2
QCNX1Ch3OuVlt	Real	Output voltage at CNX1 output channel 3
QCNX1Ch3OuCur	Real	Output current at CNX1 output channel 3
QCNX1Ch3OuOpSt	Byte	Operating mode at CNX1 output channel 3
QCNX1Ch4OuVlt	Real	Output voltage at CNX1 output channel 4
QCNX1Ch4OuCur	Real	Output current at CNX1 output channel 4
QCNX1Ch4OuOpSt	Byte	Operating mode at CNX1 output channel 4
QCNX2ModOpSt	Byte	Operating mode of expansion module CNX2
QCNX2Ch1OuVlt	Real	Output voltage at CNX2 output channel 1
QCNX2Ch1OuCur	Real	Output current at CNX2 output channel 1
QCNX2Ch1OuOpSt	Byte	Operating mode at CNX2 output channel 1
QCNX2Ch1OuVlt	Real	Output voltage at CNX2 output channel 2

Parameter	Data type	Description
QCNX2Ch1OuCur	Real	Output current at CNX2 output channel 2
QCNX2Ch1OuOpSt	Byte	Operating mode at CNX2 output channel 2
QCNX2Ch1OuVlt	Real	Output voltage at CNX2 output channel 3
QCNX2Ch1OuCur	Real	Output current at CNX2 output channel 3
QCNX2Ch1OuOpSt	Byte	Operating mode at CNX2 output channel 3
QCNX2Ch1OuVlt	Real	Output voltage at CNX2 output channel 4
QCNX2Ch1OuCur	Real	Output current at CNX3 output channel 4
QCNX2Ch1OuOpSt	Byte	Operating mode at CNX2 output channel 4
QCNX3ModOpSt	Byte	Operating mode of expansion module CNX3
QCNX3Ch1OuVlt	Real	Output voltage at CNX3 output channel 1
QCNX3Ch1OuCur	Real	Output current at CNX3 output channel 1
QCNX3Ch1OuOpSt	Byte	Operating mode at CNX3 output channel 1
QCNX3Ch2OuVlt	Real	Output voltage at CNX3 output channel 2
QCNX3Ch2OuCur	Real	Output current at CNX3 output channel 2
QCNX3Ch2OuOpSt	Byte	Operating mode at CNX3 output channel 2
QCNX3Ch3OuVlt	Real	Output voltage at CNX3 output channel 3
QCNX3Ch3OuCur	Real	Output current at CNX3 output channel 3
QCNX3Ch3OuOpSt	Byte	Operating mode at CNX3 output channel 3
QCNX3Ch4OuVlt	Real	Output voltage at CNX3 output channel 4
QCNX3Ch4OuCur	Real	Output current at CNX3 output channel 4
QCNX3Ch4OuOpSt	Byte	Operating mode at CNX3 output channel 4
QBUF1ModOpSt	Byte	Operating mode of buffer module BUF1
QBUF2ModOpSt	Byte	Operating mode of buffer module BUF1
QProdSt	Byte	Product version
QVersSWB1	Byte	Byte 1 of the software version
QVersSWB2	Byte	Byte 2 of the software version
QVersSWB3	Byte	Byte 3 of the software version
QMLFB	String	Article number of the PSU8600
SerialNr	String	Serial number PSU8600

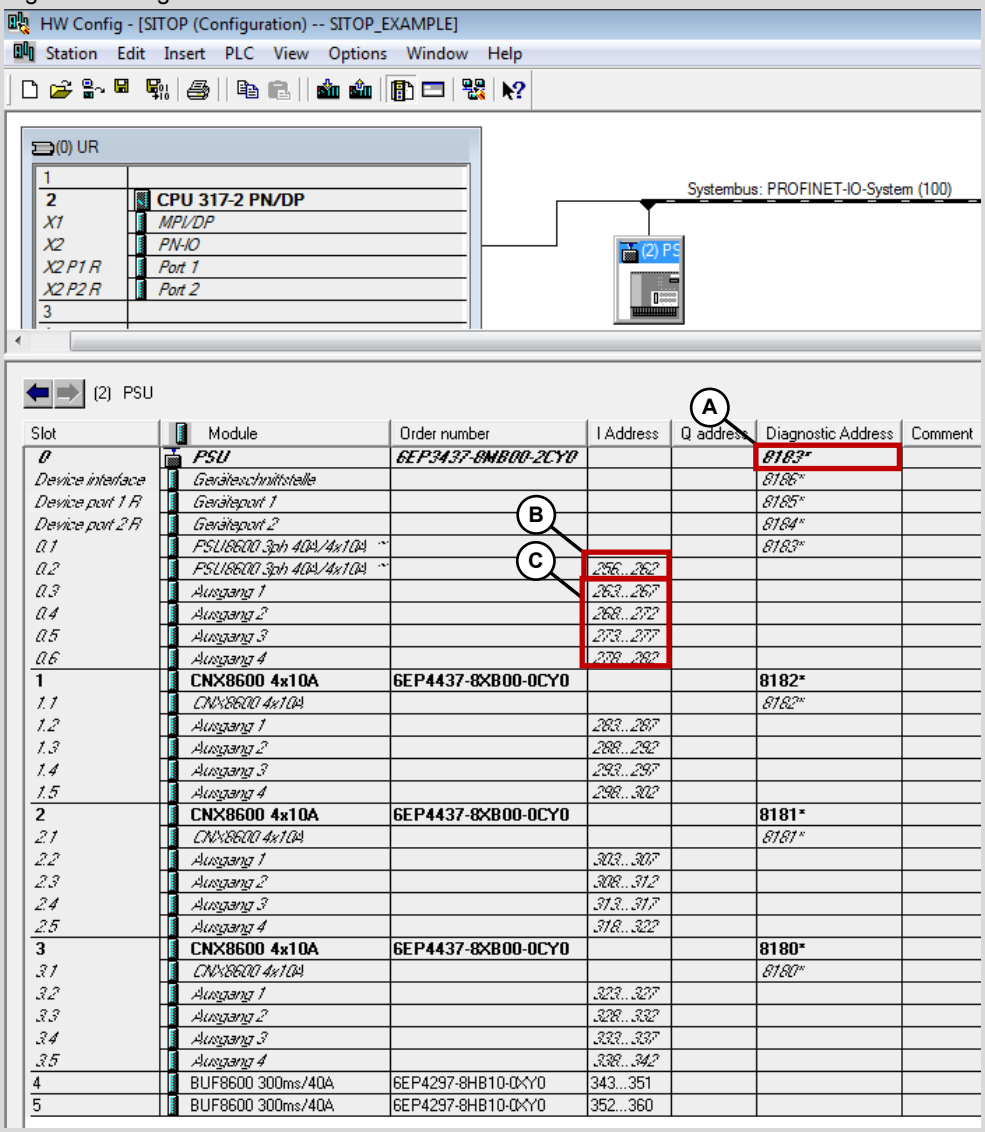
Note

Start / diagnostic address

1. In the hardware configuration you navigate to “Device view > Device overview”
2. Note down the start address of your SITOP main module. (A)
3. Note down the start address of the I/O area of the individual outputs. Skip the PROFINET interface of the main module. (B)

   The following addresses for the individual outputs (C) result in the displayed screen.
   - Main module, start address (A): “8183”
   - Output 1, calculates (PROFINET interface taken into account (B)): “263”
   - Output 2, calculates: “268”
   - Output 3, calculates: “273”
   - Output 4, calculates: “278”

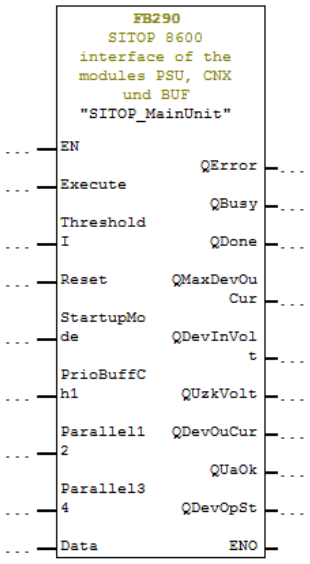
Figure 2-4 Diagnostic address



2.1.2 FB SITOP_PSU8600_MainUnit

Display

Figure 2-5



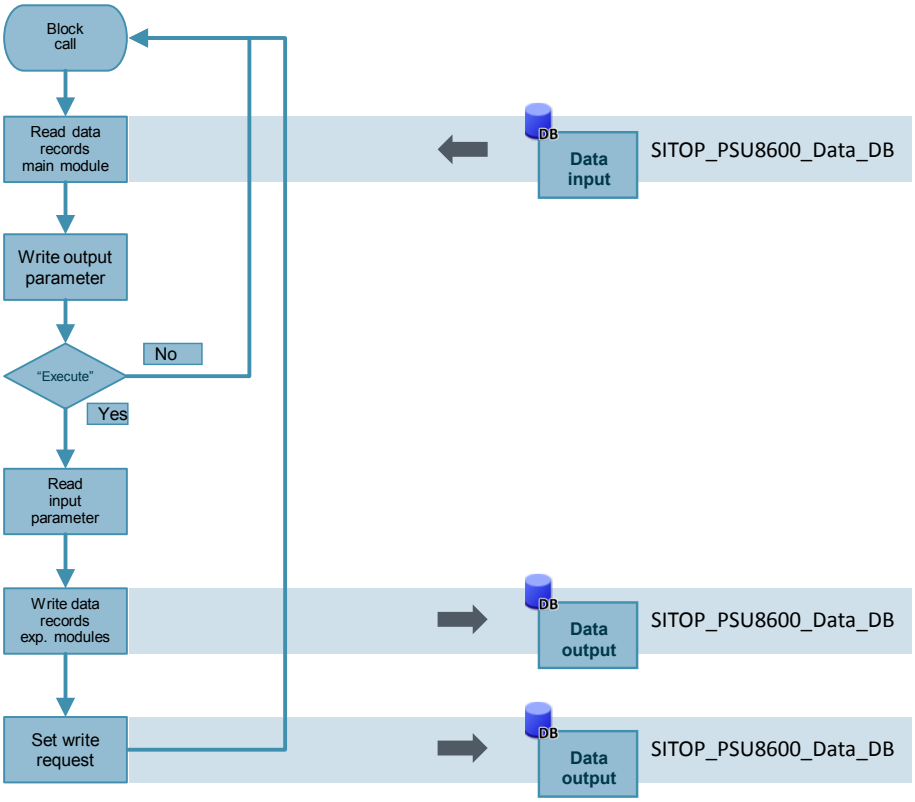
Function principle

The block reads the main-module-specific data from the global DB for data exchange and supplies it at its output parameters.

On request, the block writes main-module-specific data into the global DB for data exchange and sends a write request to the PSU8600.

Function characteristics

Figure 2-6



Input parameters

Table 2-5

Parameter	Data type	Description
Execute	Bool	On rising edge (0>1), data at the inputs of the block is written to the transfer DB. (When the "Enable" of FB SITOP_PSU8600 is set, the data is transferred to the PSU.)
ThresholdI	Byte	Pre-alarming threshold (0 … 100%) for alarming.
Reset	Byte	Outputs switched off due to overload are switched back on if they are ready for it. 0= normal state (no actions taken) 1= switched back on (attention, the value must be reset to 0 after switching on.)
StartupMode	Byte	Switch-on behavior • "0" = no switch-on delay • "1" = switch-on delay 25 ms • "2" = switch-on delay 100 ms • "3" = load-optimized switch-on delay • "4" = variable switch-on delay
PrioBuffCh1	Byte	During a network failure, output 1 of the basic device can be supplied with priority. (0= no, 1= yes)

Parameter	Data type	Description
Parallel12	Byte	Outputs 1 and 2 are switched parallel. Output 2 follows output 1. (Values for output 2 are ignored.)
Parallel34	Byte	Outputs 3 and 4 are switched parallel. Output 4 follows output 3. (Values for output 4 are ignored.)

Input and output parameters

Table 2-6

Parameter	Data type	Description
Data	UDT_PSU_Data	Power supply data of the interfaces. The connected global data block must follow the UDT structure.

Output parameters

Table 2-7

Parameter	Data type	Description
QError	Bool	Error at last block operation. See Table 2-9.
QBusy	Bool	Block operation active
QDone	Bool	Block operation completed
QMaxDevOuCur	Int	Maximum output current of the main module in milliampere. (1A resolution)
QDevInVolt	Int	Input current of the main module in millivolt. (1V resolution)
QUzkVolt	Int	Link voltage of the main module. (1V resolution)
QDevOuCur	Int	Output current of the entire main module.
QUaOk	Byte	Output voltage OK
QDevOpSt	Byte	Operating state of the main module. See Table 2-8.

Status and error displays: Device operating state “QDevOpSt”

Table 2-8

Error state	Meaning
0	The Power supply system was automatically switched off due to operation under impermissible operating conditions.
1	The power supply system can be reactivated again after automatic shutdown due to an error by switching the supply voltage off and on.
2	The power supply system is starting up, all outputs are still switched off.
3	The power supply system is in normal operation.
4	A phase failure of the supply voltage was detected. The power supply system can continue normal operation without restriction for a limited time.
5	System overload within the permissible overload profile detected; the power supply system continues to operate in normal mode.
6	System overload outside the permissible overload profile detected; the power supply system can only operate with restrictions.

Error state	Meaning
7	Very high, transient peak load detected. The power supply system is in normal operation.
8	The primary supply voltage has failed. The power supply system is in buffer mode.
9	The Power supply system was automatically switched off due to operation under impermissible operating conditions.

State and error displays “QError”

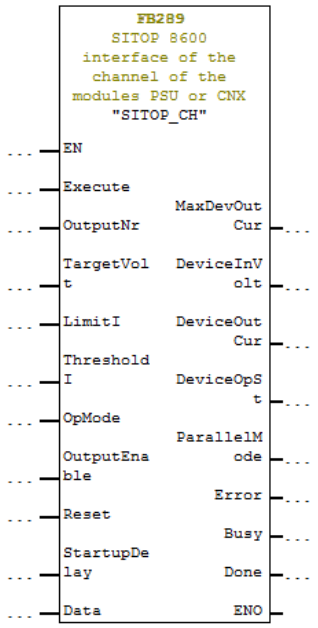
Table 2-9

Error state	Meaning	Remedy / notes
0	No error	
1	Write operation not possible; last write operation still incomplete.	Wait until Done=1 (edge 0>1); only then write.

2.1.3 FB SITOP_CH

Display

Figure 2-7



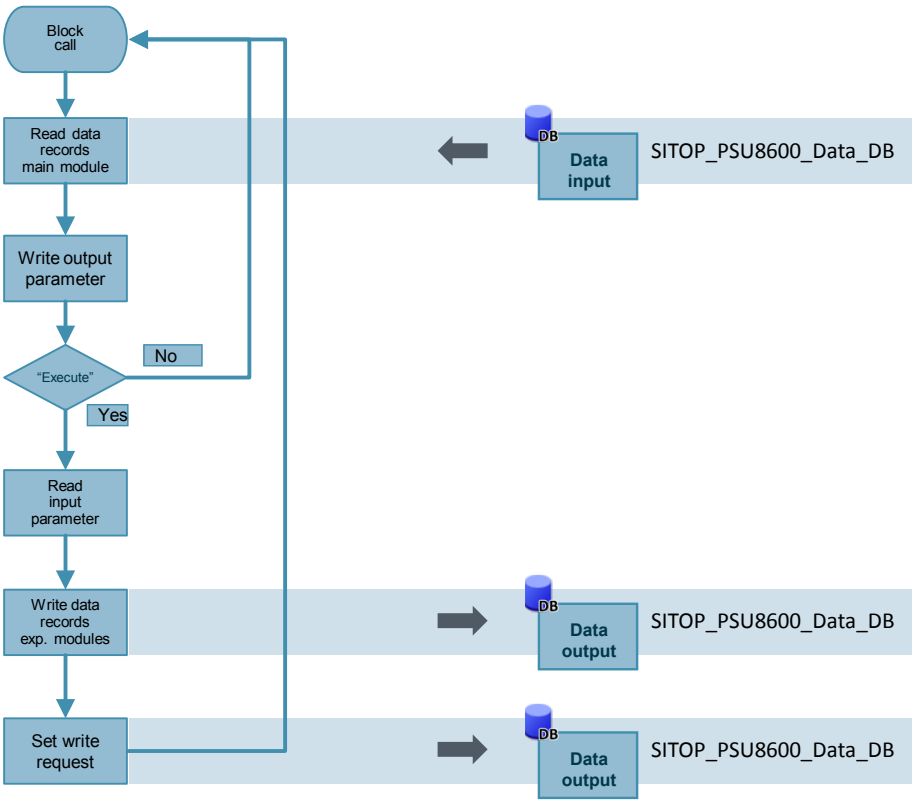
Function principle

The block reads the output-specific data from the global DB for data exchange and supplies it at its output parameters.

On request, the block writes output-specific data into the global DB for data exchange and sends a write request to PSU8600 and CNX8600.

Function characteristics

Figure 2-8



Input parameters

Table 2-10

Parameter	Data type	Description
Execute	Bool	On rising edge (0>1), data at the inputs of the block is written to the transfer DB. (When the "Enable" of FB SITOP_PSU8600 is set, the data is transferred to the PSU.)
OutputNr	Int	Number of the output.
TargetVolt	Int	Target voltage of the output in millivolt. (1V resolution)
LimitI	Int	Current limit of the output in milliampere. (1A resolution)
ThresholdI	Byte	Pre-alarming threshold (0 … 100%) for alarming.
OpMode	Byte	Operating mode of the output (0= "electronic switch-off" and 1= "constant current")

Parameter	Data type	Description
OutputEnable	Byte	Switching the output on/off. (0 = off; 1 = on)
Reset	Byte	Resetting the output (0= no reset; 1=reset)
StartupDelay	Int	Switch-on delay of the output. (0 to 60000 milliseconds)

Input and output parameters

Table 2-11

Parameter	Data type	Description
Data	UDT_PSU_Data	Power supply data of the interfaces. The connected global data block must follow the UDT structure.

Output parameters

Table 2-12

Parameter	Data type	Description
MaxChOutCur	Int	Maximal current of the output in ampere. (1A resolution)
ChOuVolt	Int	Current output voltage in volt.
ChOuCur	Int	Current output current in ampere.
DevOpSt	Byte	Current operating state 4. Output switched off (PROFINET/IE) 5. Output switched off (prioritizing output 1) 6. Output switched off (overload) 7. Output ready for reset (reset) 8. Output switched off (error) 9. Output switched off (startup) 10. Output switched on (normal operation) 11. Output in overload mode 12. Output current-limited (with derating) 13. Output in overload mode (with derating) 14. Output current-limited (with derating)
ParallelMode	Byte	Parallel mode active (0= normal; 1=output switched parallel) → only possible for main module
Error	Bool	Error at last block operation. See section below.
Busy	Bool	Block operation active
Done	Bool	Block operation completed

State and error displays “Error”

Table 2-13

State	Meaning	Remedy / notes
0	No error	
1	Output number not correct.	Only use output numbers between 1 and 16.

2.1.4 UDTs

Task of a UDT

A UDT provides the structure in the global data block for data exchange.

Display

The following figure shows the structure of the UDTs.

Figure 2-9 UDT_Buf_Data

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xStateInfo	STRUCT		Data SITOP BUF8600 StateInformation (OUT)
+0.0	iRes1	INT	0	Reserve
+2.0	iRes2	INT	0	Reserve
+4.0	iRes3	INT	0	Reserve
+6.0	iRes4	INT	0	Reserve
+8.0	byModOpState	BYTE	B#16#0	Module Operation State
+9.0	byPad	BYTE	B#16#0	Padding
+10.0	iRes5	INT	0	Reserve
+12.0	iRes6	INT	0	Reserve
=14.0		END_STRUCT		
=14.0		END_STRUCT		

Figure 2-10 UDT_PSU_Device_Info

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xDeviceInfo	STRUCT		Data SITOP PSU8600 DeviceInfo (OUT)
+0.0	acMLFB	ARRAY[0..19]		
+1.0		CHAR		
+20.0	byProdState	BYTE	B#16#0	Product State
+21.0	byPad	BYTE	B#16#0	Padding
+22.0	xVerSW	STRUCT		
+0.0	byByte1	BYTE	B#16#0	SW Version Byte 1
+1.0	byByte2	BYTE	B#16#0	SW Version Byte 2
+2.0	byByte3	BYTE	B#16#0	SW Version Byte 3
+3.0	byByte4	BYTE	B#16#0	SW Version Byte 4
=4.0		END_STRUCT		
+26.0	acSerialNr	ARRAY[0..15]		
+1.0		CHAR		
=42.0		END_STRUCT		
=42.0		END_STRUCT		

Figure 2-11 UDT_PSU_General_In

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xGeneralIn	STRUCT		Data SITOP PSU8600 Device (IN)
+0.0	byPrioBuffCh1	BYTE	B#16#0	Priority Buffered Channel 1 (0 = OFF, 255 = ON) // AllowedValues = 0..1
+1.0	byStartupMode	BYTE	B#16#0	Startup Mode (0 = Off, 1 = 25ms, 2 = 100ms, 3 = Load optimized, 4=variable)
+2.0	byThresholdI	BYTE	B#16#5A	Ithreshold (0-100%) // AllowedValues = 0..1
+3.0	byParallel12	BYTE	B#16#0	Parallel12 (0 = OFF, 255 = ON) // AllowedValues = 0..1
+4.0	byParallel34	BYTE	B#16#0	Parallel34 (0 = OFF, 255 = ON) // AllowedValues = 0..1
+5.0	byReset	BYTE	B#16#0	Reset (like Reset_In-Input) - (0 = OFF, 255 = ON) // AllowedValues = 0..1
+6.0	iOverAlarmThld	INT	0	Overload alarm threshold (1ms, 0-60000ms, 0ms)
=8.0		END_STRUCT		
=8.0		END_STRUCT		

Figure 2-12 UDT_PSU_General_Out

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	byPrioBuffCh1	BYTE	B#16#0	Priority Bufferd Channel1
+1.0	byStartupMode	BYTE	B#16#0	Startup Mode
+2.0	byThresholdI	BYTE	B#16#0	Threshold I
+3.0	iRes	BYTE	B#16#0	Padding
+4.0	byUzkVolt	INT	0	Uzk Voltage
+6.0	iDeviceInVolt	INT	0	Device - Input Voltage
+8.0	iDeviceOutCur	INT	0	Device - Output Current
+10.0	byDeviceOpSt	BYTE	B#16#0	Device - Operating State
+11.0	byUaOk	BYTE	B#16#0	Ua Okay
+12.0	iMaxDevOutCur	INT	0	Device - Max Output Current
=14.0		END_STRUCT		

Figure 2-13 UDT_CNX_Output_In

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xOutputIn	STRUCT		Data SITOP CNX8600 Output (IN)
+0.0	iTargetURem	INT	2400	Target Voltage [mV] // AllowedValues = 1100..2880
+2.0	iLimitIRem	INT	1000	Current Limiting [mA] // AllowedValues = 0..1000
+4.0	byThresholdIRem	BYTE	B#16#5A	Threshold Value // AllowedValues = 0..100
+5.0	byEnableOutRem	BYTE	B#16#0	Enable Output (0 = OFF, 1 = ON) // AllowedValues = 0..1
+6.0	byResetRem	BYTE	B#16#0	Reset Value (0 = no reset, 1 = reset) // AllowedValues = 0..1
+7.0	byOpModeRem	BYTE	B#16#0	Operating Mode (0 = select, 255 = modular) // AllowedValues = 0..1
+8.0	iStartupDelayRem	INT	0	Startup Delay [ms] // AllowedValues = 0..65534
=10.0		END_STRUCT		
=10.0		END_STRUCT		

Figure 2-14 UDT_CNX_Output_Out

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	iTagrgetUOut	INT	0	Output - Target U
+2.0	iLimitIOut	INT	0	Output - Limit I
+4.0	byThresholdIOut	BYTE	B#16#0	Output - Threshold I
+5.0	byPad	BYTE	B#16#0	Output - Padding
+6.0	iOutVoltOut	INT	0	Output - Output Voltage
+8.0	iOutCurOut	INT	0	Output - Output Current
+10.0	iOutMaxCurOut	INT	0	Output - Max Output Current
+12.0	byOutOpMode	BYTE	B#16#0	Output - Operation Mode
+13.0	byOutOpState	BYTE	B#16#0	Output - Operation State
=14.0		END_STRUCT		

Figure 2-15 UDT_PSU_Output_In

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xOutputIn	STRUCT		Data SITOP PSU8600 Output (IN)
+0.0	iTargetURem	INT	2400	Target Voltage [mV] // AllowedValues = 1100..2880
+2.0	iLimitIRem	INT	1000	Current Limiting [mA] // AllowedValues = 0..1000
+4.0	byThresholdIRem	BYTE	B#16#5A	Threshold Value // AllowedValues = 0..100
+5.0	byEnableOutRem	BYTE	B#16#0	Enable Output (0 = OFF, 1 = ON) // AllowedValues = 0..1
+6.0	byResetRem	BYTE	B#16#0	Reset Value (0 = no reset, 1 = reset) // AllowedValues = 0..1
+7.0	byOpModeRem	BYTE	B#16#0	Operating Mode (0 = select, 255 = modular) // AllowedValues = 0..1
+8.0	iStartupDelayRem	INT	0	Startup Delay [ms] // AllowedValues = 0..65534
=10.0		END_STRUCT		
=10.0		END_STRUCT		

Figure 2-16 UDT_PSU_Output_Out

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	iTargetUOut	INT	0	Output - target U
+2.0	iLimitIOut	INT	0	Output - limit I
+4.0	byThresholdIOut	BYTE	B#16#0	Output - Ithreshold
+5.0	byPad1	BYTE	B#16#0	Output - Padding 1
+6.0	iOutVoltOut	INT	0	Output - Output Voltage
+8.0	iOutCurOut	INT	0	Output - Output Current
+10.0	iOutMaxCur	INT	0	Output - Max Output Current
+12.0	byOpModeOut	BYTE	B#16#0	Output - Operation Mode
+13.0	byParallelModeOut	BYTE	B#16#0	Output - Parallel Mode
+14.0	byOpStateOut	BYTE	B#16#0	Output - Operation State
+15.0	byPad2	BYTE	B#16#0	Output - Padding 2
=16.0		END_STRUCT		

Figure 2-17 UDT_PSU_Data

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xPSU	STRUCT		Data SITOP PSU8600
+0.0	xDeviceInfo	"UDT_PSU_Device_Info"		Data SITOP PSU8600 DeviceInfo (OUT)
+42.0	xStateInfo	"UDT_PSU_State_Info"		
+124.0	xGeneral	STRUCT		Data SITOP PSU8600 Device
+0.0	xDataIn	"UDT_PSU_General_In"		Data SITOP PSU8600 Device (IN)
+8.0	xDataOut	"UDT_PSU_General_Out"		Data SITOP PSU8600 Device (OUT)
+22.0	bExecute	BOOL	FALSE	
=24.0		END_STRUCT		
+148.0	axOutput	ARRAY[1..4]		
*0.0		STRUCT		
+0.0	xDataIn	"UDT_PSU_Output_In"		Data SITOP PSU8600 Output (IN)
+10.0	xDataOut	"UDT_PSU_Output_Out"		Data SITOP PSU8600 Output (OUT)
+26.0	bExecute	BOOL	FALSE	
=28.0		END_STRUCT		
=260.0		END_STRUCT		
+260.0	xCNX	STRUCT		Data SITOP CNX8600 Data SITOP CN X8600 Output (IN/OUT)
+0.0	axOutput	ARRAY[5..16]		
*0.0		STRUCT		
+0.0	xDataIn	"UDT_CNX_Output_In"		Data SITOP CNX8600 Output (IN)
+10.0	xDataOut	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+24.0	bExecute	BOOL	FALSE	
=26.0		END_STRUCT		
+312.0	xModule1	STRUCT		Data SITOP CNX8600 Module No. 1
+0.0	iRes1	INT	0	Reserve
+2.0	byModOpState	BYTE	B#16#0	Module Operation State
+3.0	byPad	BYTE	B#16#0	Padding
+4.0	xChannel05	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+18.0	xChannel06	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+32.0	xChannel07	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+46.0	xChannel08	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+60.0	iRes2	INT	0	Reserve
+62.0	iRes3	INT	0	Reserve
=64.0		END_STRUCT		
+440.0	xModule3	STRUCT		Data SITOP CNX8600 Module No. 3
+0.0	iRes1	INT	0	Reserve
+2.0	byModOpState	BYTE	B#16#0	Module Operation State
+3.0	byPad	BYTE	B#16#0	Padding
+4.0	xChannel13	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+18.0	xChannel14	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+32.0	xChannel15	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+46.0	xChannel16	"UDT_CNX_Output_Out"		Data SITOP CNX8600 Output (OUT)
+60.0	iRes2	INT	0	Reserve
+62.0	iRes3	INT	0	Reserve
=64.0		END_STRUCT		
=504.0		END_STRUCT		
+764.0	xBUF	"UDT_Buf_Data"		Data SITOP BUF8600
=778.0		END_STRUCT		

Figure 2-18 UDT_PSU_State_Info

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	xStateInfo	STRUCT		Data SITOP PSU8600 StateInformation (OUT)
+0.0	xGeneral	"UDT_PSU_General_Out"		Data SITOP PSU8600 Device (OUT)
+14.0	xChannel01	"UDT_PSU_Output_Out"		Data SITOP PSU8600 Output (OUT)
+30.0	xChannel02	"UDT_PSU_Output_Out"		Data SITOP PSU8600 Output (OUT)
+46.0	xChannel03	"UDT_PSU_Output_Out"		Data SITOP PSU8600 Output (OUT)
+62.0	xChannel04	"UDT_PSU_Output_Out"		Data SITOP PSU8600 Output (OUT)
+78.0	iRes1	INT	0	Reserve
+80.0	iRes2	INT	0	Reserve
=82.0		END_STRUCT		
=82.0		END_STRUCT		

2.2 Explanation of the WinCC flexible faceplates

The following section describes the individual views of the faceplates and the navigation between the individual views.

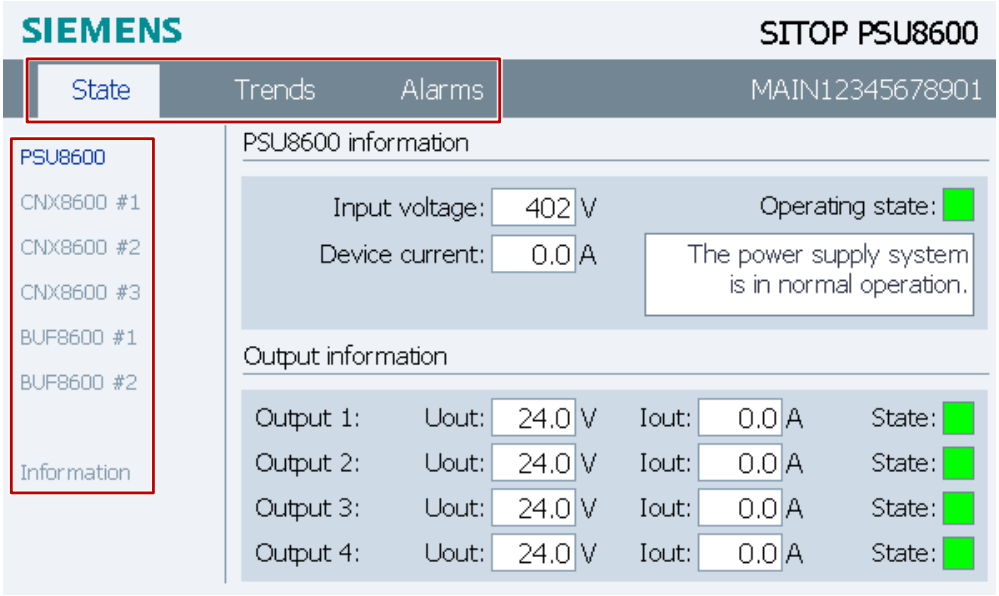
Navigation

The faceplate offers various views. The views can be switched via two-layer navigation.

The primary navigation to the individual information types is located at the top of the screen.

The secondary navigation for the individual SITOP PSU8600 modules is located on the left.

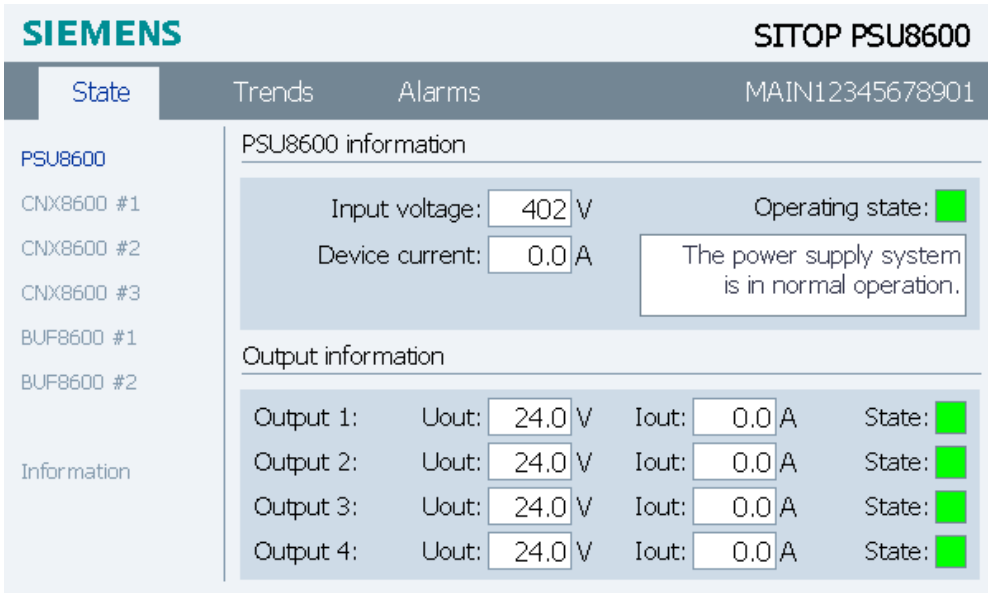
Figure 2-19



2.2.1 View: State, main device

Screen: State of main device

Figure 2-20



Elements

Table 2-14

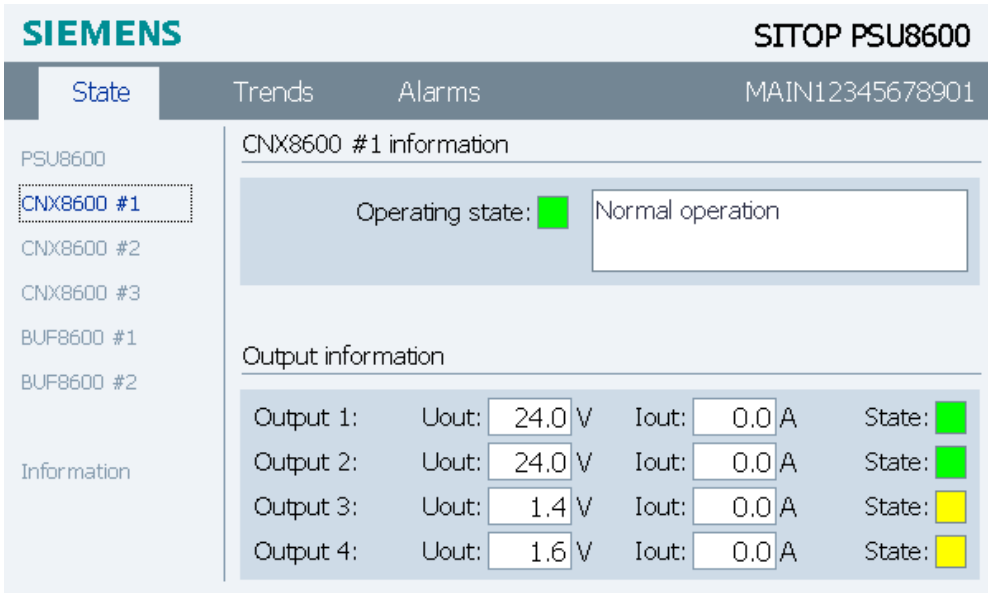
Screen area	Parameter	Description		
PSU8600 information	Operating state and <Text field>	The State display takes on different colors depending on the state. The <text field> displays the operating state as plain text.		
		Text	**No.**	**Color**
			0	White
		The Power supply system was automatically switched off due to operation under impermissible operating conditions.	1	Red
		The power supply system can be reactivated again after automatic shutdown due to an error by switching the supply voltage off and on.	2	Red, flashing
		The power supply system is starting up, all outputs are still switched off.	3	White
		The power supply system is in normal operation.	4	Green
		A phase failure of the supply voltage was detected. The power supply system can continue normal operation without restriction for a limited time.	5	Green, flashing
		System overload within the permissible overload profile detected; the power supply system continues to operate in normal mode.	6	Green, flashing
		System overload outside the permissible overload profile detected; the power supply system can only operate with restrictions.	7	Yellow, flashing
		Very high, transient peak load detected. The power supply system is in normal operation.	8	Green, flashing
		The primary supply voltage has failed. The power supply system is in buffer mode.	9	Yellow
	Input voltage [V]	Displays the network side input voltage in volt.		
	System load current [A]	Displays power obtained from the power grid in Ampere.		
Output information	U_{out} [V]; (output *n*)	Displays die output voltage of output *n* in volt.		
	I_{out} [V]; (output *n*)	Displays die load current of output *n* in ampere.		
	State; (output *n*)	Shows the state of output n. The following states are displayed:		
		Description	**Color**	
		Switched off manually	Yellow	
		Ready to start; the power supply can be switched back on. (e.g. switched off remotely or after overload with idle time.)	Red, flashing	
		The output was switched off due to an error.	Red	
		Normal operation of the output	Green	

Screen area	Parameter	Description	
		Channel in overload. (The channel can supply a higher current for a limited amount of time or the channel is in current-limiting mode.) The diagnostic LED at device or web server is flashing in varying frequencies and can help determine the type of overload.	Green, flashing

2.2.2 View: State, expansion modules

Screen: State of expansion modules

Figure 2-21



Elements

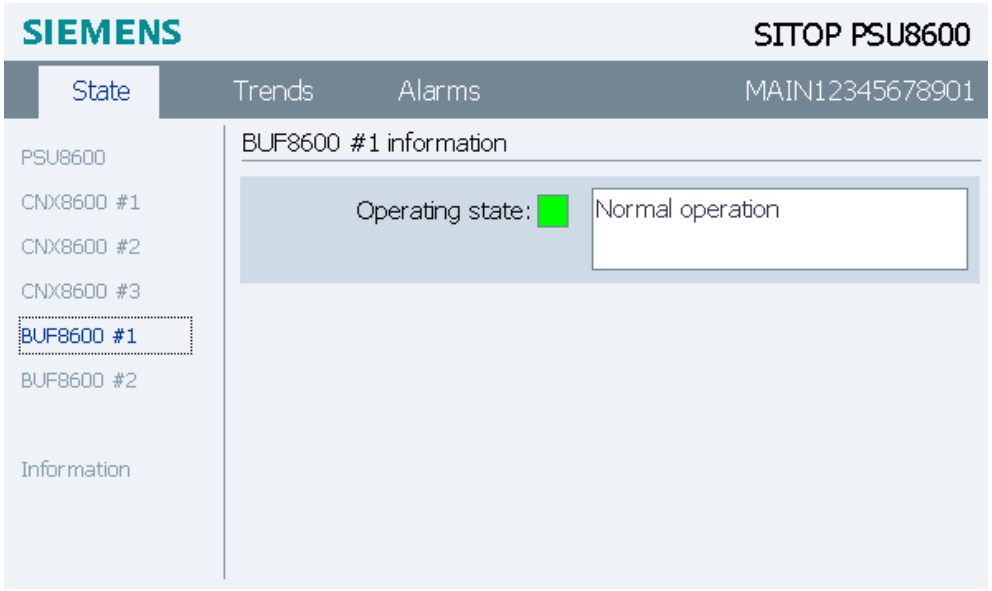
Screen area	Parameter	Description		
PSU8600 information	Operating state and <Text field>	The State display takes on different colors depending on the state. The <text field> displays the operating state as plain text.		
		Text	**No.**	**Color**
			0	White
		Shutdown after error	1	Red
		Shutdown after error	2	Red, flashing
		Startup	3	White
		Normal operation	4	Green
		Buffer mode	5	Yellow

<table>
<tr><th>Screen area</th><th>Parameter</th><th colspan="3">Description</th></tr>
<tr><td rowspan="9">Output information</td><td>U_{out} [V]; (output n)</td><td colspan="3">Displays die output voltage of output n in volt.</td></tr>
<tr><td>I_{out} [V]; (output n)</td><td colspan="3">Displays die load current of output n in ampere.</td></tr>
<tr><td rowspan="8">State; (output n)</td><td colspan="3">Shows the state of output n. The following states are displayed:</td></tr>
<tr><td>Description</td><td>No.</td><td>Color</td></tr>
<tr><td>Switched off manually</td><td>Yellow</td><td>Switched off manually</td></tr>
<tr><td>Ready to start; the power supply can be switched back on.
(e.g. switched off remotely or after overload with idle time.)</td><td>Red, flashing</td><td>Ready to start; the power supply can be switched back on.
(e.g. switched off remotely or after overload with idle time.)</td></tr>
<tr><td>The output was switched off due to an error.</td><td>Red</td><td>The output was switched off due to an error.</td></tr>
<tr><td>Normal operation of the output</td><td>Green</td><td>Normal operation of the output</td></tr>
<tr><td>Channel in overload. (The channel can supply a higher current for a limited amount of time or the channel is in current-limiting mode.)
The diagnostic LED at device or web server is flashing in varying frequencies and can help determine the type of overload.</td><td>Green, flashing</td><td>Channel in overload. (The channel can supply a higher current for a limited amount of time or the channel is in current-limiting mode.)
The diagnostic LED at device or web server is flashing in varying frequencies and can help determine the type of overload.</td></tr>
</table>

2.2.3 View: State, buffer modules

Screen: State of buffer module

Figure 2-22



Elements

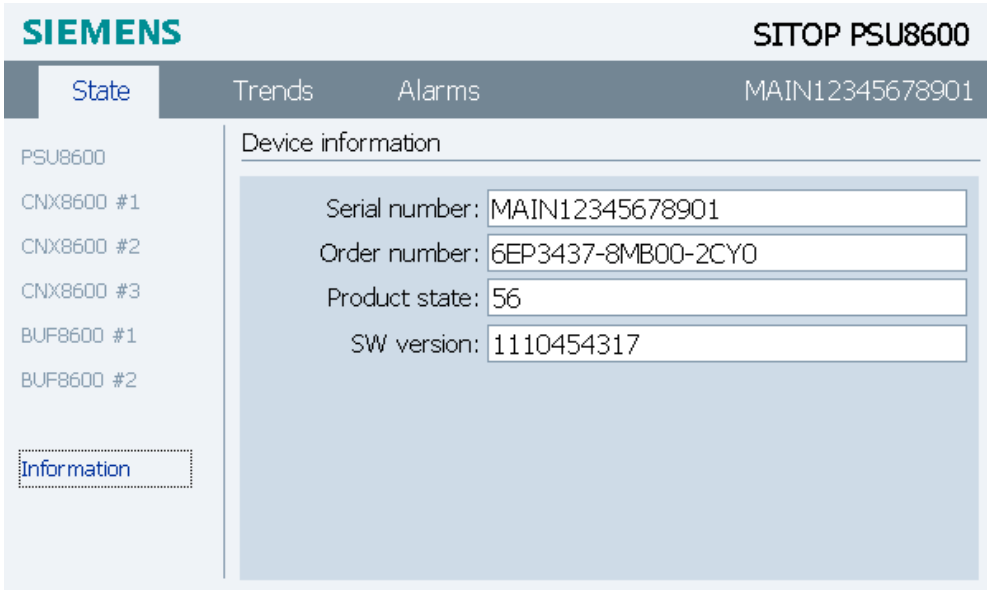
Table 2-15

Screen area	Parameter	Description		
PSU8600 information	Operating state and <Text field>	The State display takes on different colors depending on the state. The <text field> displays the operating state as plain text.		
		Text	**No.**	**Color**
		Startup	1	White
		Normal operation	2	Green
		Buffer mode	3	Yellow
		Shutdown after error	4	Red
		Ready for buffering	5	Green, flashing
		Not ready for buffering	6	Green, flashing

2.2.4 View: State, Information

Screen: State, Information

Figure 2-23



Elements

Table 2-16

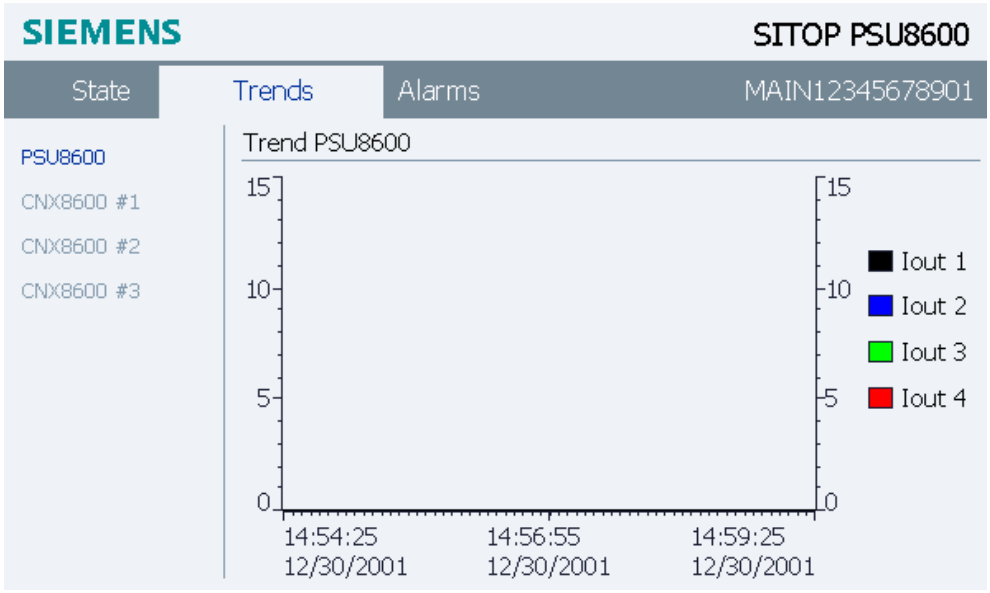
Screen area	Parameter	Description
Device informa-tion	Serial number	Displays the serial number of the PSU8600 main device.
	Article number	Displays the article number of the PSU8600 main device.
	Product version	Displays the product version of the PSU8600 main device.

Screen area	Parameter	Description
	SW Version	Displays the software version (firmware version) of the PSU8600 main device.

2.2.5 View: Trends, main device

Screen: Trends of main device

Figure 2-24



Elements

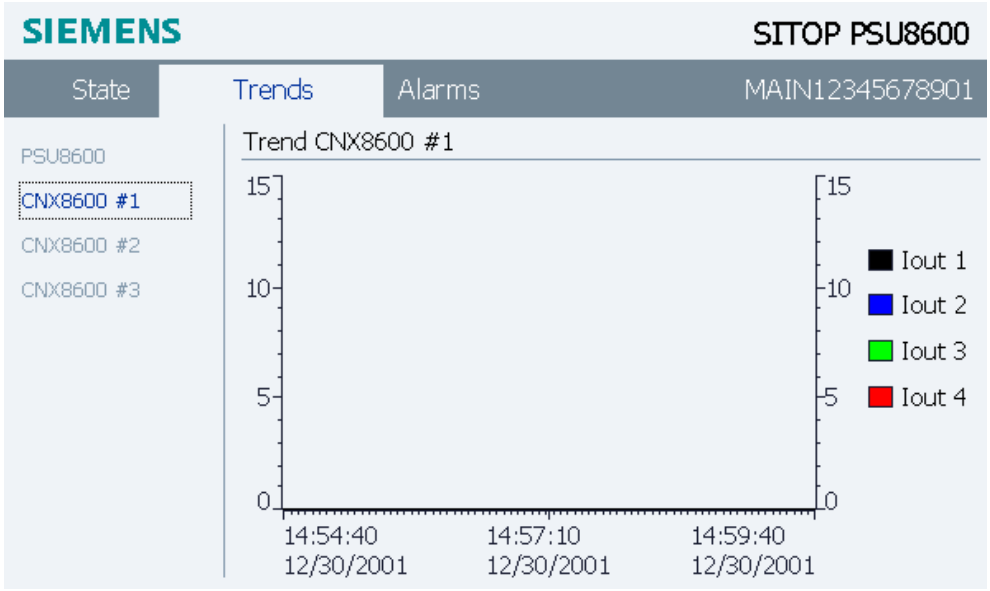
Table 2-17

Screen area	Parameter	Description
Trend PSU8600	I_{out} *n*	Displays the time curve for the current of output *n*. In the configuration, the time axis (x-axis) is set default on 5 minutes. The Trend type is “Cyclical real time” and starts at the start of HMI runtime. A legend for assigning colors to the individual outputs is located on the right side of the screen.

2.2.6 View: Trends, expansion modules

Screen: Trends, expansion modules

Figure 2-25



Elements

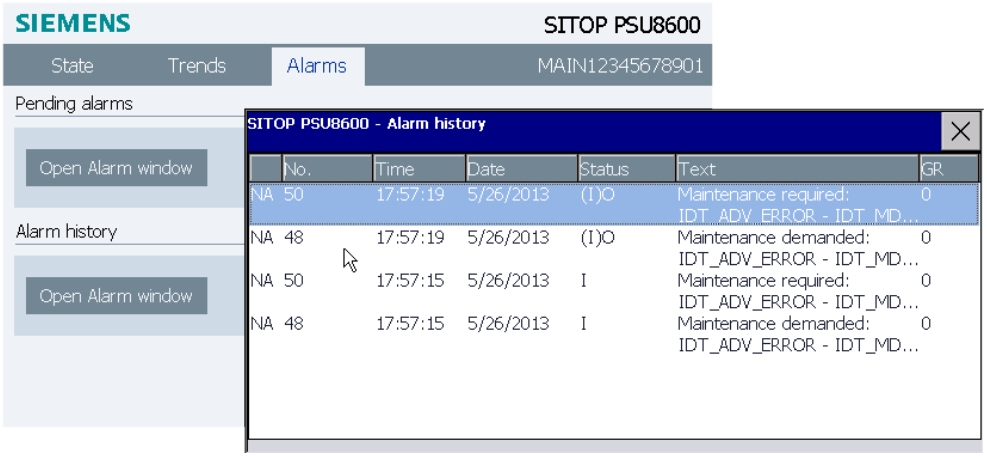
Table 2-18

Screen area	Parameter	Description
Trend PSU8600	I_{out} *n*	Displays the time curve for the current of output *n*. In the configuration, the time axis (x-axis) is set default on 5 minutes. The Trend type is “Cyclical real time” and starts at the start of HMI runtime. A legend for assigning colors to the individual outputs is located on the right side of the screen.

2.2.7 View: Alarms

Screen: Alarms

Figure 2-26



Elements

- Pending alarms
  Only displays the currently pending alarms.
- Alarm history
  Displays the history of the alarm.

2.3 Explanation of the WinCC V7.2 faceplates

The navigation in the faceplate is described below.

The contents of the views correspond to those of the WinCC flexible views.

Navigation

The faceplate offers various views. The views can be switched via two-layer navigation.

The primary navigation to the individual information types is located at the top of the screen.

The secondary navigation for the individual SITOP PSU8600 modules is located on the left.

2.3.1 Main device – State elements

Table 2-19

Screen area	Parameter	Description		
PSU8600 information	Operating state and <Text field>	The State display takes on different colors depending on the state. The <text field> displays the operating state as plain text.		
		Text	**No.**	**Color**
			0	White
		The Power supply system was automatically switched off due to operation under impermissible operating conditions.	1	Red
		The power supply system can be reactivated again after automatic shutdown due to an error by switching the supply voltage off and on.	2	Red, flashing
		The power supply system is starting up, all outputs are still switched off.	3	White
		The power supply system is in normal operation.	4	Green
		A phase failure of the supply voltage was detected. The power supply system can continue normal operation without restriction for a limited time.	5	Green, flashing
		System overload within the permissible overload profile detected; the power supply system continues to operate in normal mode.	6	Green, flashing
		System overload outside the permissible overload profile detected; the power supply system can only operate with restrictions.	7	Yellow, flashing
		Very high, transient peak load detected. The power supply system is in normal operation.	8	Green, flashing
		The primary supply voltage has failed. The power supply system is in buffer mode.	9	Yellow

Screen area	Parameter	Description	
	Input voltage [V]	Displays the network side input voltage in volt.	
	System load current [A]	Displays power obtained from the power grid in Ampere.	
Output information	U_{out} [V]; (output *n*)	Displays die output voltage of output *n* in volt.	
	I_{out} [V]; (output *n*)	Displays die load current of output *n* in ampere.	
	State; (output *n*)	Shows the state of output n. The following states are displayed:	
		Description	**Color**
		Switched off manually	Yellow
		Ready to start; the power supply can be switched back on. (e.g. switched off remotely or after overload with idle time.)	Red, flashing
		The output was switched off due to an error.	Red
		Normal operation of the output	Green
		Channel in overload. (The channel can supply a higher current for a limited amount of time or the channel is in current-limiting mode.) The diagnostic LED at device or web server is flashing in varying frequencies and can help determine the type of overload.	Green, flashing

2.3.2 Expansion modules – State elements

Table 2-20

Screen area	Parameter	Description		
PSU8600 information	Operating state and <Text field>	The State display takes on different colors depending on the state. The <text field> displays the operating state as plain text.		
		Text	**No.**	**Color**
			0	White
		Shutdown after error	1	Red
		Shutdown after error	2	Red, flashing
		Startup	3	White
		Normal operation	4	Green
		Buffer mode	5	Yellow
Output information	U_{out} [V]; (output *n*)	Displays die output voltage of output *n* in volt.		
	I_{out} [V]; (output *n*)	Displays die load current of output *n* in ampere.		
	State; (output *n*)	Shows the state of output n. The following states are displayed:		
		Description	**No.**	**Color**
		Switched off manually	Yellow	Switched off manually
		Ready to start; the power supply can be switched back on. (e.g. switched off remotely or after overload with idle time.)	Red, flashing	Ready to start; the power supply can be switched back on.

Screen area	Parameter	Description		
				(e.g. switched off remotely or after overload with idle time.)
		The output was switched off due to an error.	Red	The output was switched off due to an error.
		Normal operation of the output	Green	Normal operation of the output
		Channel in overload. (The channel can supply a higher current for a limited amount of time or the channel is in current-limiting mode.) The diagnostic LED at device or web server is flashing in varying frequencies and can help determine the type of overload.	Green, flashing	Channel in overload. (The channel can supply a higher current for a limited amount of time or the channel is in current-limiting mode.) The diagnostic LED at device or web server is flashing in varying frequencies and can help determine the type of overload.

2.3.3 Buffer modules – State elements

Table 2-21

Screen area	Parameter	Description		
PSU8600 information	Operating state and <Text field>	The State display takes on different colors depending on the state. The <text field> displays the operating state as plain text.		
		Text	**No.**	**Color**
		Startup	1	White
		Normal operation	2	Green
		Buffer mode	3	Yellow
		Shutdown after error	4	Red
		Ready for buffering	5	Green, flashing
		Not ready for buffering	6	Green, flashing

2.3.4 Information - Information elements

Table 2-22

Screen area	Parameter	Description
Device information	Serial number	Displays the serial number of the PSU8600 main device.
	Article number	Displays the article number of the PSU8600 main device.
	Product version	Displays the product version of the PSU8600 main device.
	SW Version	Displays the software version (firmware version) of the PSU8600 main device.

2.3.5 Main device – Trend elements

Table 2-23

Screen area	Parameter	Description
Trend PSU8600	I_{out} *n*	Displays the time curve for the current of output *n*. In the configuration, the time axis (x-axis) is set default on 5 minutes. The Trend type is “Cyclical real time” and starts at the start of HMI runtime. A legend for assigning colors to the individual outputs is located on the right side of the screen.

2.3.6 Expansion modules – Trend elements

Table 2-24

Screen area	Parameter	Description
Trend PSU8600	I_{out} *n*	Displays the time curve for the current of output *n*. In the configuration, the time axis (x-axis) is set default on 5 minutes. The Trend type is “Cyclical real time” and starts at the start of HMI runtime. A legend for assigning colors to the individual outputs is located on the right side of the screen.

2.3.7 Alarms - Alarm elements

- Pending alarms
  Only displays the currently pending alarms.
- Alarm history
  Displays the history of the alarm.

3 Integrating the Library Contents

This chapter includes directions on how to integrate the library into your STEP 7 project as well as using the library blocks.

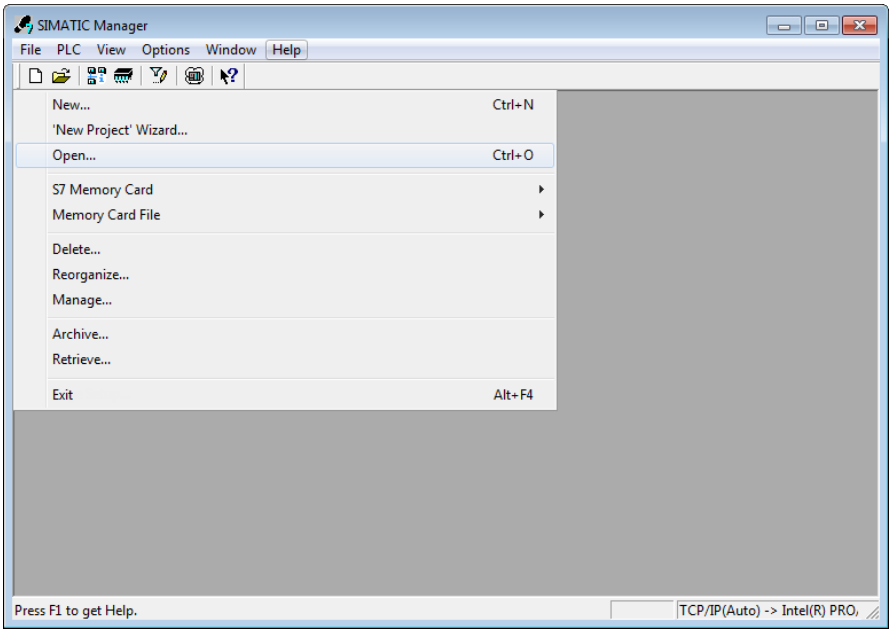
The chapter is divided into a STEP 7, WinCC V7.2 and WinCC part.

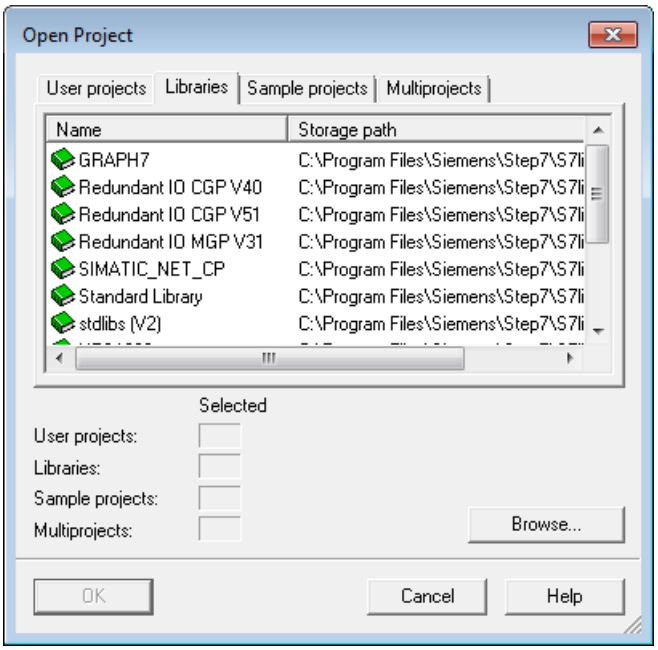
3.1 Working with the Library in STEP 7

3.1.1 Opening the library in STEP 7

The following steps describe how to open a library in a STEP 7 V5.5 project.

Table 3-1

No.	Instruction
1.	Start the SIMATIC Manager.
2.	In the menu bar of the SIMATIC Manager, you click on “File > Open”.  The “Open Project” dialog box opens.

No.	Instruction
3.	Click on the “Libraries” tab. 
4.	Click on the “Browse” button. The “Browse” dialog box then opens.
5.	Select the storage location of the library from the drop-down list and then click on the “OK” button. The library opens and can be used.

3.1.2 Integrating the library blocks into STEP 7

Hardware used in this description:

- S7-300 CPU 317-2 PN/DP
- SITOP PSU8600
- MP 277 8“ Touch

The procedure for other SIMATIC S7-300/S7-400 controllers is the same.

System requirements

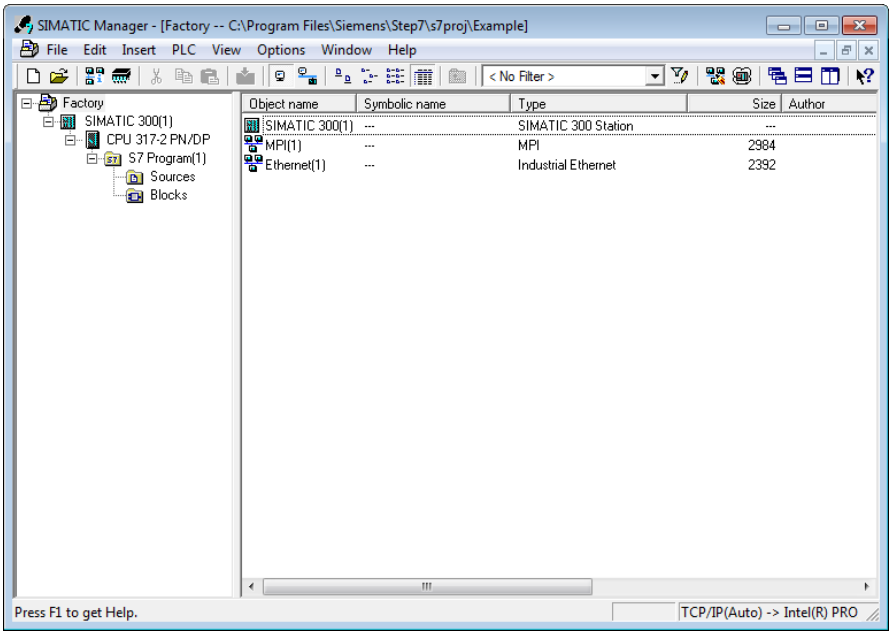
You have created your STEP 7 project and the hardware configuration as well as completed the network configuration.

- Hardware configuration
  - SITOP power supply (incl. the expansion modules)
  - Controller
- Network configuration
  - PROFINET connection between controller and SITOP power supply

Inserting blocks from the library into the program

The following table describes all steps for integrating the function blocks and the UDTs into a STEP 7 V5.5 project.

Table 3-2

No.	Instruction
1.	Open the project into which you want to insert the function block. 
2.	Open global library “PSU8600 STEP7 V5.5”. **Note** The procedure for opening a global library is described in Chapter 3.1.
3.	Open the folder “PSU8600 STEP7 V5.5 > PSU8600 library > Blocks” in the library.
4.	Select all blocks in the “Blocks” folder.
5.	Drag and drop all blocks into the “Blocks” folder in your target project folder.
6.	Select the folder “PSU8600 STEP7 V5.5 > PSU8600 library > Blocks” in the library.
7.	Open the “Symbols_UPS8600” symbol table.
8.	Open the symbol table of your target project. Copy all entries of symbol table “Symbols _UPS8600” into the symbol table of your target project.

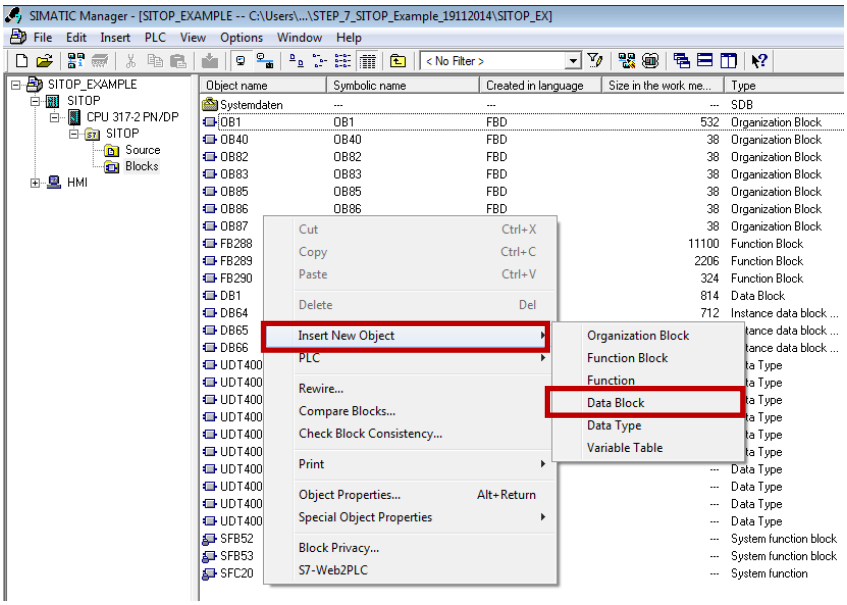
Note You can now use the blocks you need. However, block “SITOP_PSU8600” must always be available and called up.

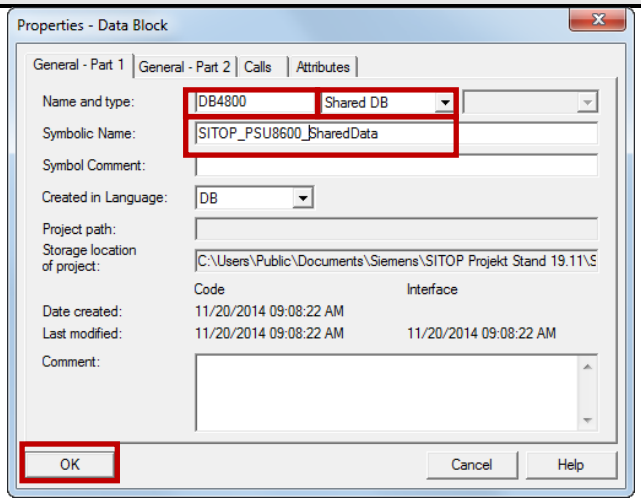
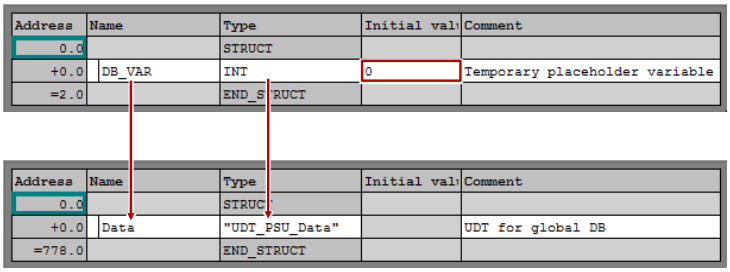
3.1.3 Calling blocks in STEP 7

Create global block with UDT structure

This global data block is interconnected at the respective “Data” input of the three FBs.

Table 3-3

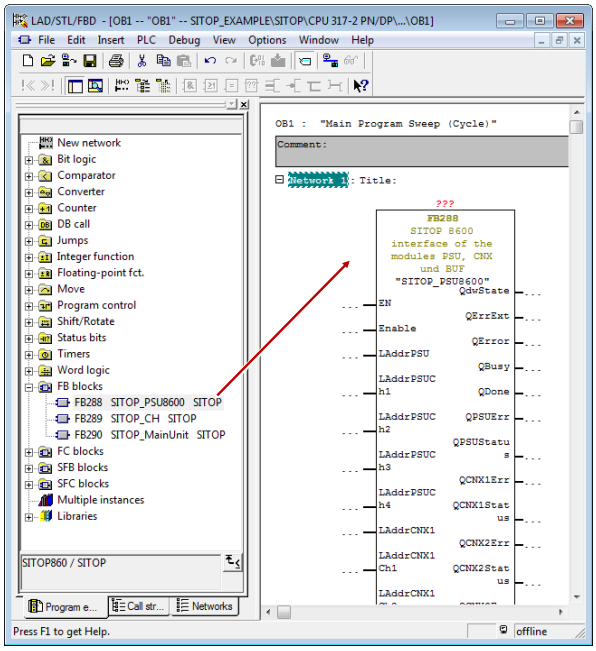
No.	Instruction
1.	Open your project. Navigate to the folder of the program blocks. Right-click and select “Insert New Object” > “Data Block”. 
2.	The dialog box for creating new blocks opens. • Select a name and a number for your data block. In this example, the designation is “DB4008”. • Open drop-down list “Type” and select “Global DB”. • Enter a symbolic name as desired. In this example, the symbolic name is “SITOP_PSU8600_SharedData”. • Confirm with “OK”.

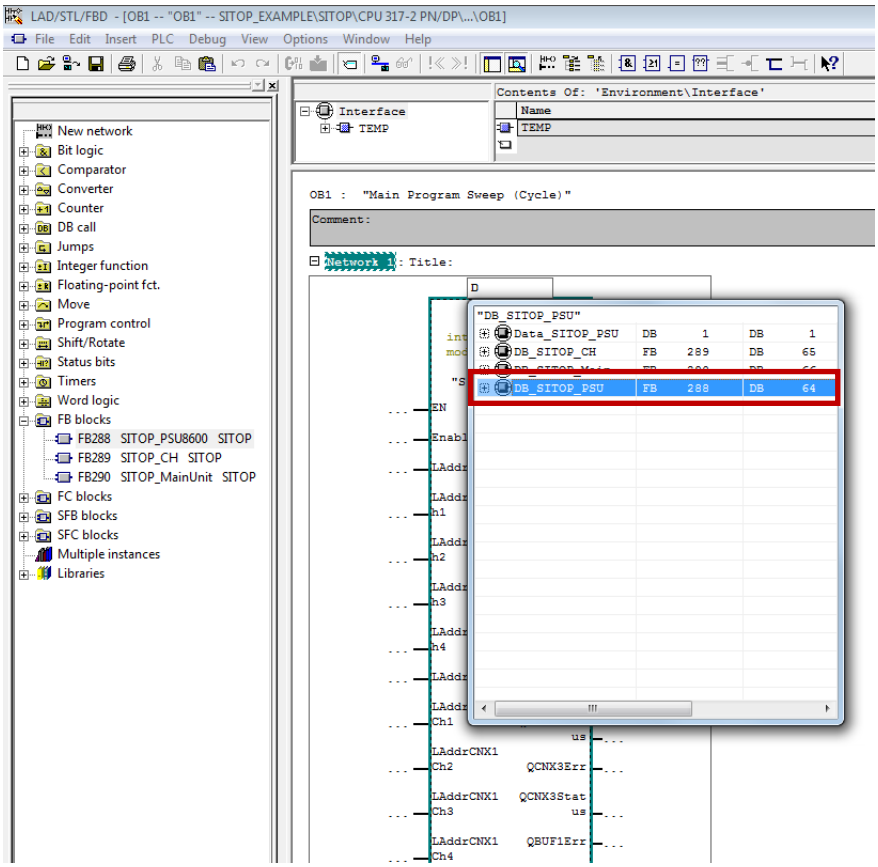
No.	Instruction
	 Subsequently, your data block is created.
3.	• Open the DB. • Replace the Temporary placeholder variable at address “+0.0” with a tag of type “UDT_PSU_Data”. • Name your tag. In this example, the name “Data”. • Delete the initial value. 
4.	Close the window.

Calling up blocks

Table 3-4

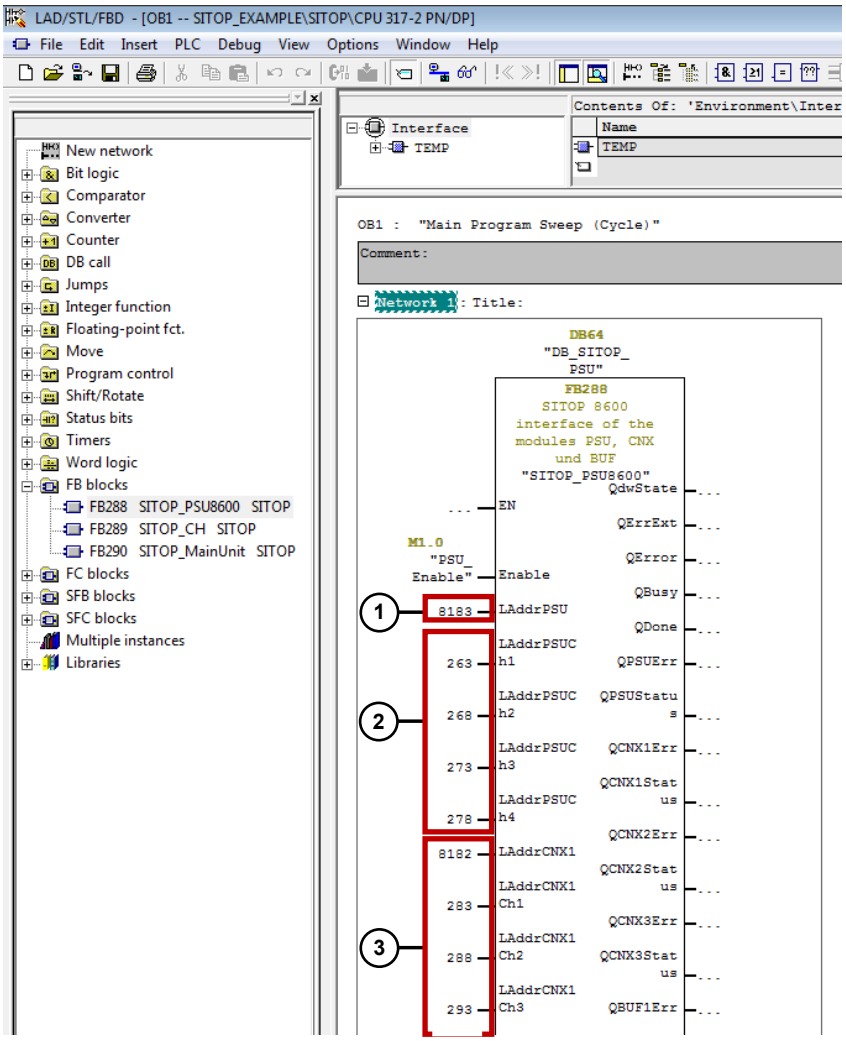
No.	Instruction
1.	Navigate to the block in which you wish to call the library blocks, “OB1” in this example. Open it in the FBD view.
2.	In the “Program elements” tab, you open the “FB blocks” folder.

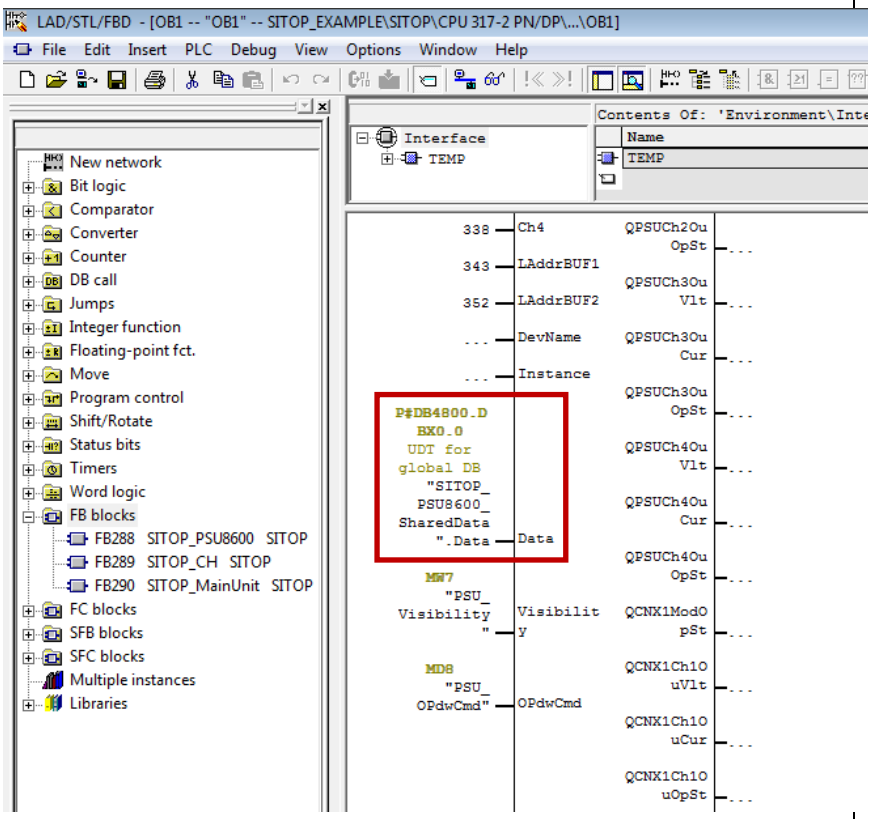
No.	Instruction
3.	Drag and drop the block “FB288 SITOP_PSU8600 SITOP” from the “FB blocks” folder into an empty network of “Main [OB1]”. 

No.	Instruction
4.	Interconnect FB288 with an instance data block. “DB64 DB_SITOP_PSU” in this example. 
5.	Enter “FB289 SITOP_CH SITOP” and “FB290 SITOP_MainUnit SITOP” according to your own requirements. **Note** Further information about the blocks is available in Chapter 2.1.

Interconnecting inputs and outputs of the block

Table 3-5

1.	• At block parameter “LAddrPSU” of FB288 you enter the PROFINET diagnostic address of PSU8600 within your STEP 7 project. (in the example: 8183) (1). • Enter input address 1-4 for the 4 parameters “LAddrPSUCh1-4” (2).  • Follow the same principle to enter the diagnostic addresses and input addresses for existing CNX modules. (3) • Enter “0” at unused inputs. **Note** Further information about the PROFINET diagnostic address is available on page 14 and in the STEP 7 V5.5 Online Help.

2.	Interconnect the global data block (in the example “DB4008 “SITOP_PSU8600_SharedData“.Data”) at input parameter “Data” of “FB288 SITOP_PSU8600”. Syntax as follows: “X”.Y • X = symbolic name of the block • Y = name of the “UDT_PSU_Data”-type tag in the DB 
3.	Repeat step two for the blocks • FB289 SITOP_CH • FB290 SITOP_MainUnit
4.	• For the “Enable” input, you assign your [Bool] tag for write enable to the power supply. • Assign the remaining tags. Use the “default tags” and drag the appropriate tag onto the input of the block. A description of the inputs and the respective reference of the “default tags” are given in Chapter “2.1.1 FB SITOP_PSU8600”.
5.	Interconnect the inputs and outputs of the function blocks with your process tags or constants. A description of the inputs and outputs, as well as the expected formats, types and units are given in Chapter “2.1.2 FB SITOP_PSU8600_MainUnit” or “2.1.3 FB SITOP_”.
6.	Connect the remaining parameters as required. **Note** Further information about the block parameters is available in Chapter 2.1.

7.	Save the changes in Main [OB1]. The integration of the function block is thus completed.

Note

If your communication blocks are called cyclically (e.g. in OB1), a slow behavior of the web server integrated in SITOP PSU8600 may result due to the high communication load.

If there aren't any high demands regarding accurate time behavior, you can also call the communication blocks in a time-controlled block (e.g. OB35).

3.2 Working with the Library in WinCC flexible

3.2.1 System requirements

The following requirements must be met to use the faceplates in WinCC flexible 2008 SP3.

- SITOP power supply (incl. the expansion modules) exists
- The GSD file of SITOP PSU8600 is installed in STEP 7 V5.5 and the PSU is configured as PROFINET node in the HW configuration of the CPU.
- Already configured S7 communication between SITOP PSU8600 and CPU.
- All program blocks from the “PSU8600 STEP 7 V5_5” library are integrated in the STEP 7 user program and executable. (See 3.1 Working with the Library in STEP 7.)
- Library “PSU8600 library WinCC flexible 2008” for WinCC flexible 2008 SP3 is available.

Supported control panels

The use of the faceplates is approved for the following control panels:

- TP270 10“
- OP270 10“
- MP270 10“ Touch
- MP277 8“ Touch / Key
- MP277 10“ Touch / Key
- MP377 Touch / Key
- WinCC flexible Runtime 2008 SP3

Supported languages

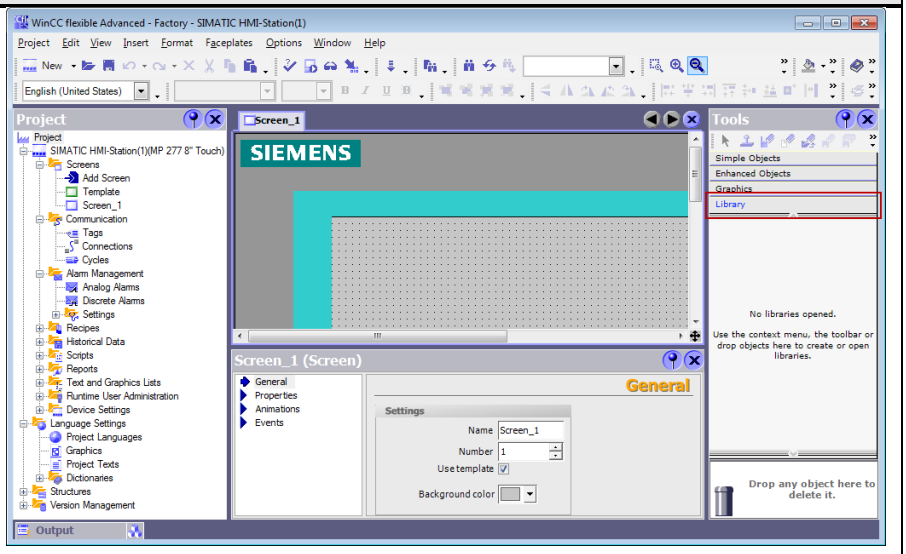
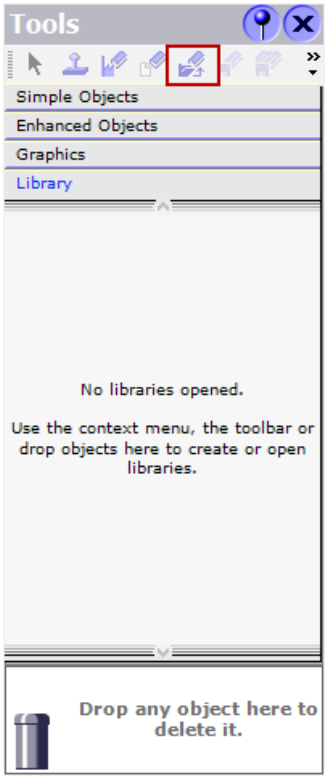
The faceplates support the following languages:

- English (USA)
- German (Germany)
- Chinese (PR China)

3.2.2 Opening the library in WinCC flexible

Table 3-6

No.	Instruction
1.	Open the WinCC flexible project into which you want to insert the faceplates.
2.	Open the “Library” menu in the Tools window.

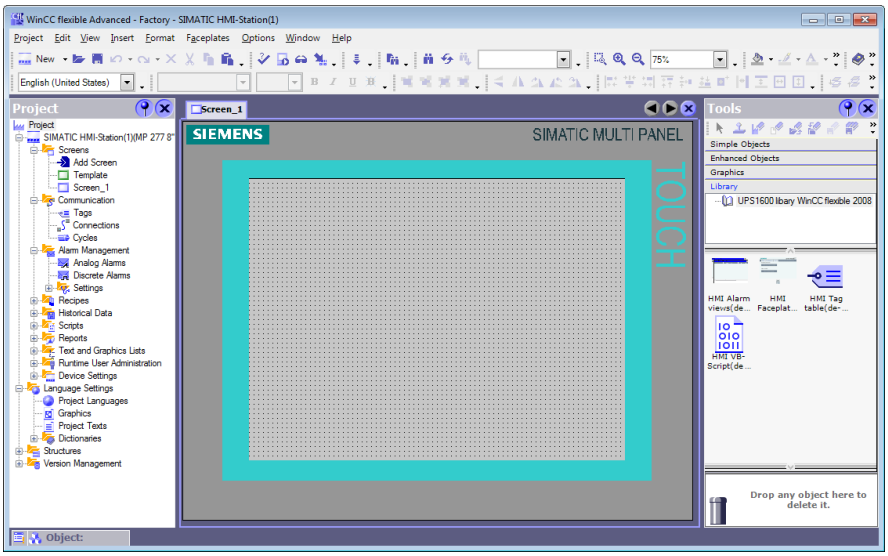
No.	Instruction
	
3.	In the toolbar of the Tools window, you click on the button for opening a library.  The “Open global library” dialog box opens.
4.	Open the drop-down list “Search in:” and navigate to the storage location of the library “PSU8600 library WinCC flexible 2008” on your computer.
5.	Select the “PSU8600 library WinCC flexible 2008.wlf” data and then click on the “Open” button. The library is now opened and can be used.

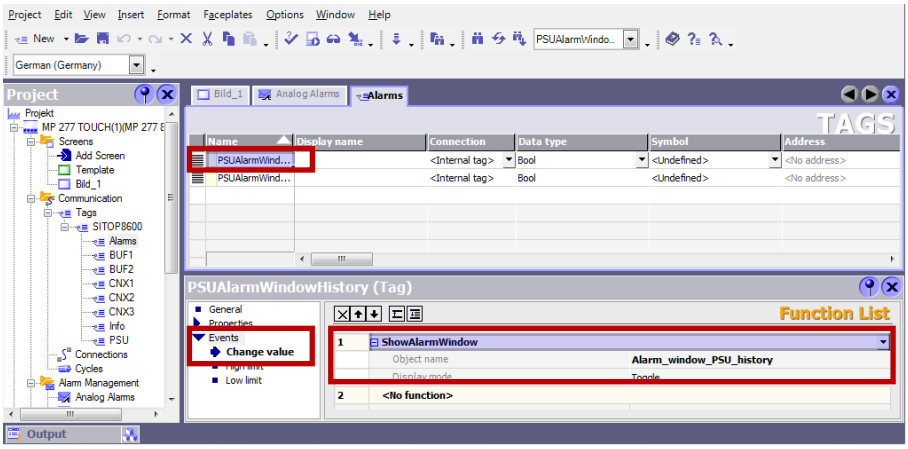
3.2.3 Inserting faceplates into a WinCC flexible project

The following table describes the procedure for integrating the faceplates from Master copies into an existing WinCC flexible project.

Inserting faceplates

Table 3-3

No.	Instruction
1.	In the Project view, you open the project into which you want to insert the faceplate.
2.	Open the library “PSU8600 library WinCC flexible 2008” in your project.
3.	In your project, open the screen into which you want to insert the faceplates. 
4.	Select folder “HMI Faceplates (WinCC flexible 2008)” of the library.
5.	Drag and drop the folder “HMI Faceplates (WinCC flexible 2008)” into the open screen. The faceplates are then inserted into the screen. **Note** Tag folder “HMI Tag table” is automatically integrated in to the project as well
6.	In the Project window, you open the screen template “Screens > Template”.
7.	Select folder “HMI Alarm views” of the library. Two message windows are then inserted into the template.
8.	In the Project window, open the folder “Communication > Tags > Faceplates_UPS1600_Tags”.
9.	Check the connection name entered for the control tags. The connection name must be identical with the name of the connection you created for the configured connection to your controller.
10.	In the project window, navigate to: Project name > HMI device > “Communication” > “Tags” > “SITOP8600” > “Alarms”.
11.	Double-click on “Alarms”. Double-click on “Tags”. WinCC flexible is started.

No.	Instruction
12.	If the Properties window has not yet been opened: right-click on the “PSUAlarmWindowHistory” tag. Select “Properties”.
13.	Open the “Events > Change value” folder in the properties window.
14.	Check whether the “ShowAlarmsWindow” function for the tag has been entered.  •
15.	If the function has not been entered: • Open the drop-down list via the triangle on the right, next to “<No function>”. • Select the “ShowAlarmWindow” entry in “System functions > Alarms”. Open the drop-down list next to “Object name” and select the “Alarm_window_PSU_history” tag.
16.	Select the “PSUAlarmWindowPending” tag.
17.	Open the “Events > Change value” folder in the properties window.
18.	Check whether the “ShowAlarmsWindow” function for the tag has been entered.
19.	If the function has not been entered: • Open the drop-down list via the triangle on the right, next to “<No function>”. • Select the “ShowAlarmWindow” entry in “System functions > Alarms”. Open the drop-down list next to “Object name” and select the “Alarm_window_PSU_pending” tag.
20.	In the Project window, you open the folder “Communication > Connections”.
21.	Delete the created connection “Connection_1” if you are using a different connection. **Note** “Connection_1” is created automatically when inserting the tags into tag folder “Faceplates_UPS1600_Tags”. If you have already created a different connection, “Connection_1” must be deleted.
22.	The integration of the faceplates is thus completed.

Displaying the PROFINET diagnostic alarms

In order to display the PROFINET diagnostic alarms of SITOP UPS1600 within the faceplate, the respective WinCC flexible project must have already been configured for the display of PROFINET diagnostic alarms.

Information on the display and configuration of diagnostic alarms in WinCC flexible is available under the entry ID: 22533916.

Further notes regarding the PROFINET diagnostic alarms of SITOP PSU8600 are available in the PSU8600 user manual.

3.3 Working with the library in WinCC V7.2

3.3.1 System requirements

The following requirements must be met to use the screen windows in WinCC V7.2.

- The GSD file of SITOP PSU8600 is installed in STEP 7 V5.5 and the PSU is configured as PROFINET node in the HW configuration of the CPU.
- Already configured S7 communication between SITOP PSU8600 and CPU.
- All program blocks from the “PSU8600 STEP 7 V5_5” library are integrated in the STEP 7 user program and executable. (See 3.1 Working with the Library in STEP 7.)
- The “PSU8600 library WinCC V7” library for WinCC V7.2 is available.
- Existing WinCC OS (PC station) with already configured and active communication connection.

Supported control panels

The use of the screen windows is approved for the following control panels:

- WinCC V7.2 Runtime

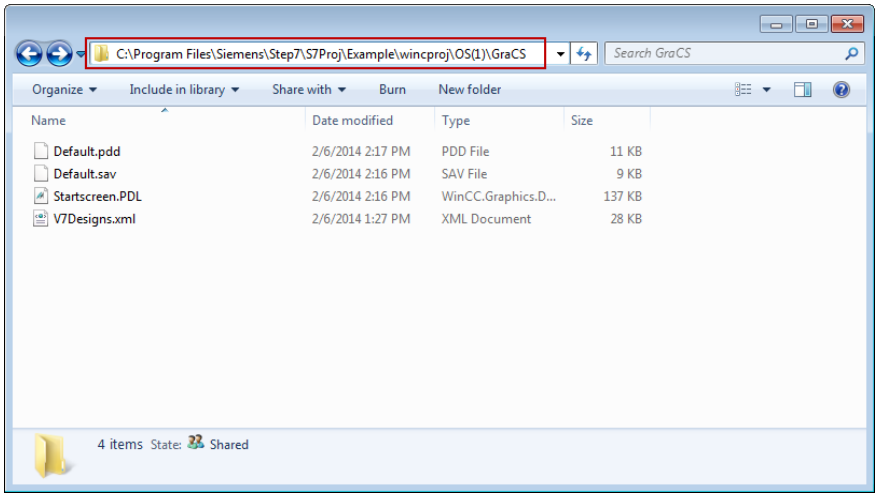
Supported languages

The screen windows support the following languages:

- English (USA)
- German (Germany)
- Chinese (PR China)

3.3.2 Opening the library in WinCC V7.2

Table 3-7

No.	Instruction
1.	Open the project folder “GraCS” in your project directory. In this description, the path to project folder “GraCS” is: C:\Program Files\Siemens\Step7\S7Proj\Example\wincproj\OS(1)\GraCS 
2.	Insert the screens “PSU8600.pdl” and “PSU8600_State.pdl” from library folder “HMI Screens (WinCC V7.2)” into the “GraCS” project folder. The screens are now contained in the WinCC V7.2 project.

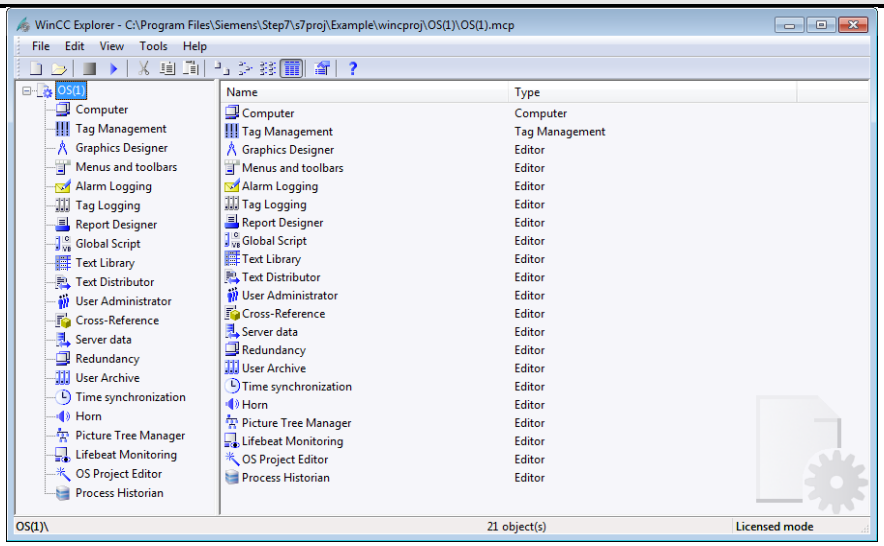
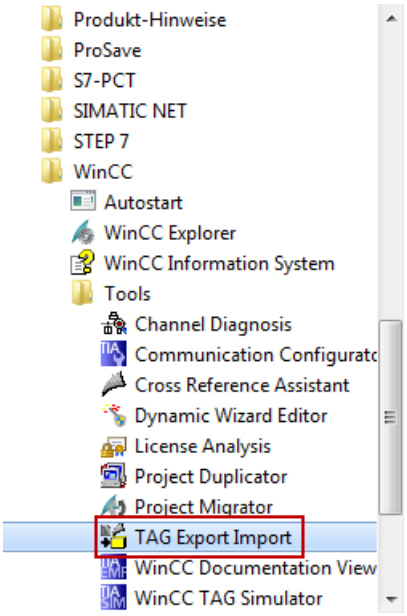
3.3.3 Inserting HMI tags in WinCC

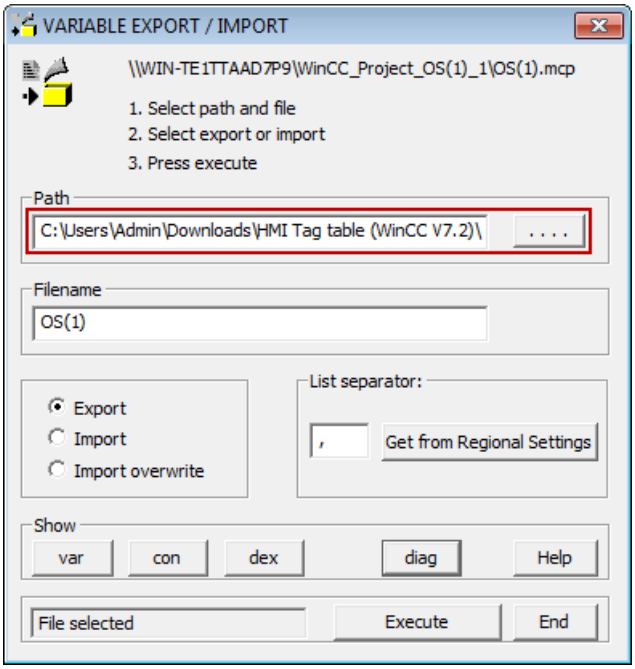
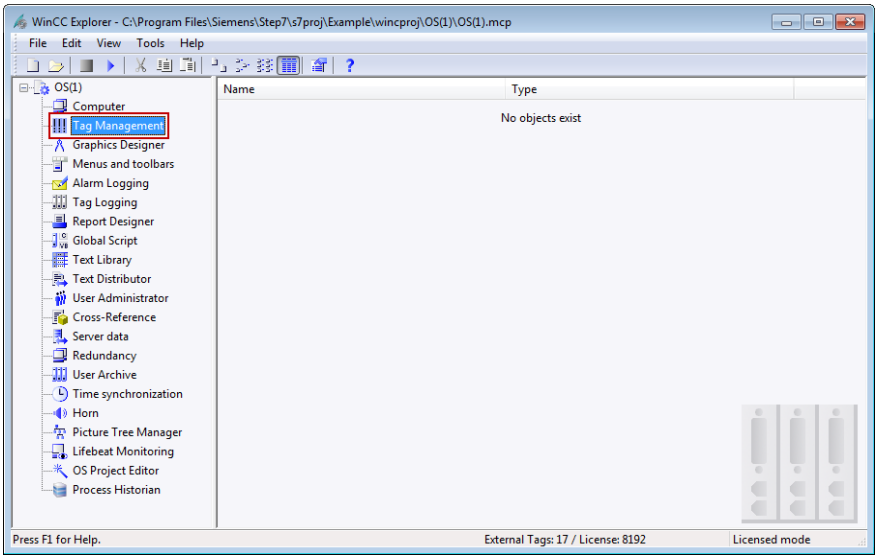
Inserting HMI tag table in WinCC

The following steps describe how to import the files from library folder “HMI Tag table (WinCC V7.2)” into the WinCC project.

Table 3-3

No.	Instruction
1.	Save the folder “HMI Tag table (WinCC V7.2)” from the library on your hard disk.
2.	Open the WinCC project.

No.	Instruction
	
3.	Open the smart tool “TAG Export Import” under “Windows Start > Siemens Automation > SIMATIC > WinCC > Tools”. 

No.	Instruction
4.	Under “Path”, just select the folder “HMI Tag Table (WinCC V7.2)” on your hard disk. 
5.	Enter the name “PSU8600_Tags” in “Filename”.
6.	Click on the “Import” radio button.
7.	Click on the “End” button.
8.	Navigate back to the WinCC project and open the “Tag Management”. 
9.	Check whether the “PSU8600 Tag table” structure has been created successfully. The tags required to display the parameters of the PSU8600 in the screen windows are now included in the WinCC project.

Note

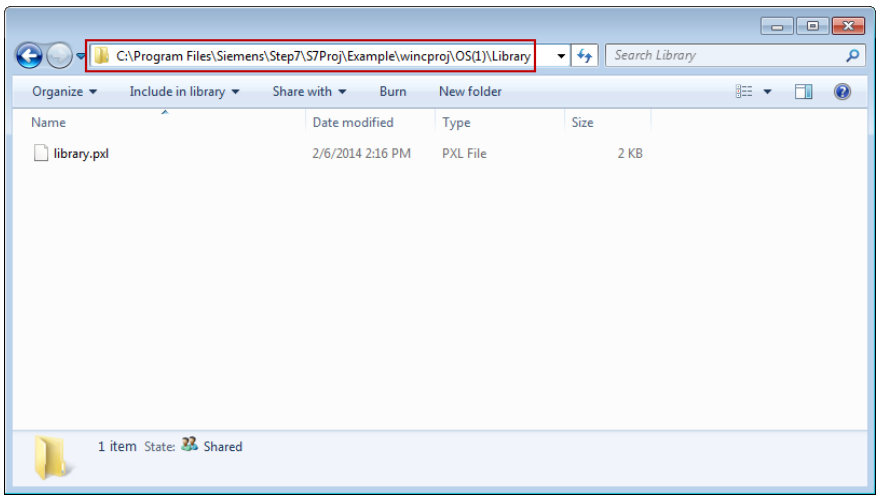
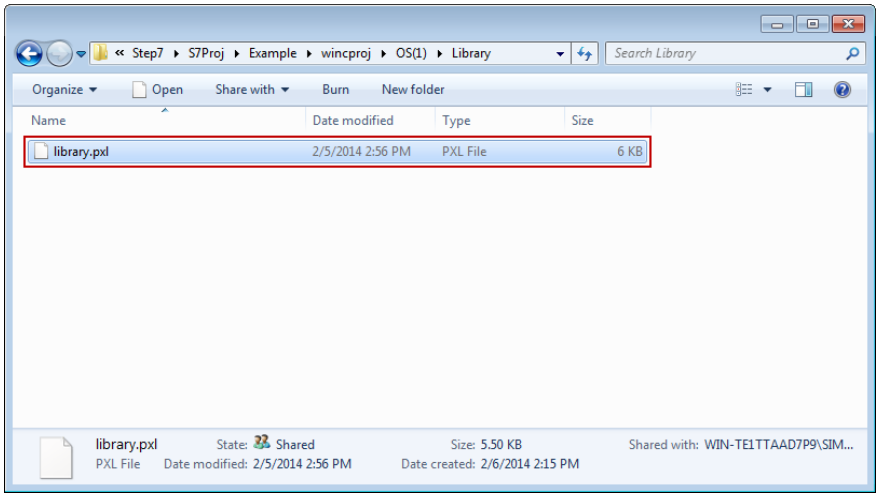
When using none, or less than three CNX8600 expansion modules, you need to reduce the number of trend tags.

See Chapter “3.3.5 Reducing the trend tags and trend displays”.

3.3.4 Inserting screen windows in a WinCC project

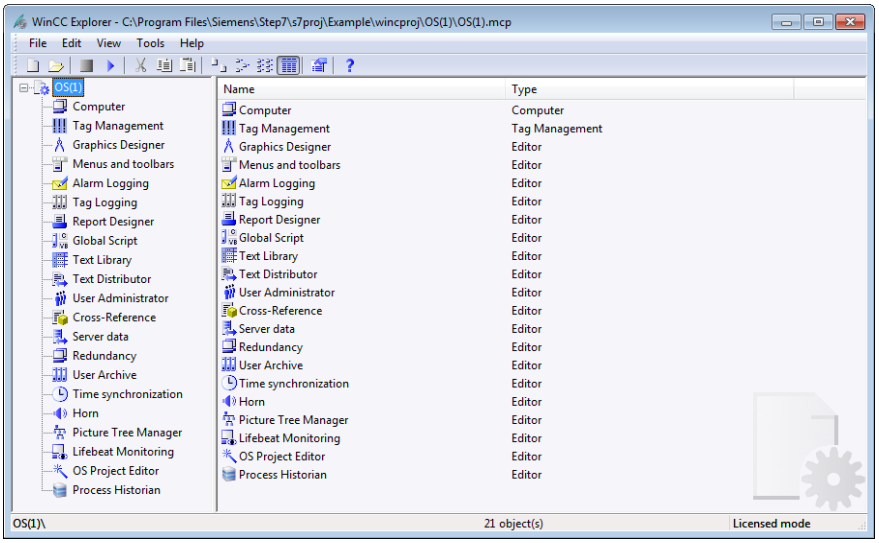
Adopting a screen in WinCC

Table 3-8

No.	Instruction
1.	Open the project folder “Library” in your project directory. In this description, the path to project folder “Library” is: C:\Program Files\Siemens\Step7\S7Proj\Example\wincproj\OS(1)\Library 
2.	Insert the “library.pxl” library from library folder “HMI Windows (WinCC V7.2)” into project folder “Library”, and overwrite the existing “library.pxl” file.  The screen windows are now included in your WinCC project in the project library.

Dragging screen windows into an HMI screen

Table 3-9

No.	Instruction
1.	Open the WinCC project. 
2.	Open the screen in which you want to configure the screen windows. In this example, the screen name is “Startscreen.pdl”.
3.	Open the project library in detail window “Library”. “PSU8600 library WinCC V7.2”
4.	Select entry “PSU8600” and drag and drop it onto the screen.

3.3.5 Reducing the trend tags and trend displays

The library is dimensioned for a theoretically fully equipped power supply system.

If some of the expansion modules are not needed, “unnecessary” tags can be assigned with “0” (zero).

Note It is also possible to delete the trend displays entirely if they are no longer needed. However, a retrospective expanding/adding becomes more elaborate.

4 References

Table 4-1

	Topic	Title
\1\	Siemens Industry Online Support	https://support.industry.siemens.com
\2\	Download page of the entry	https://support.industry.siemens.com/cs/ww/de/view/102379345
\3\	SITOP PSU8600 Manual	https://support.industry.siemens.com/cs/ww/en/view/105867947/76514247179

5 History

Table 5-1

Version	Date	Modifications
V1.0	11/2014	First version