

SIMATIC

S7-1500/ET 200MP Power supply module PS 60W 24/48/60VDC HF (6ES7505-0RB00-0AB0)

Equipment Manual

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Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified persons are those who, because of their training and experience, are familiar with the installation, assembly, commissioning, operation, decommissioning and disassembly of the product and can recognize risks and avoid possible hazards.

Proper use of Siemens products

Note the following:

WARNING

Siemens products may only be used for the application described in the catalog and the associated usage information. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

Purpose of the documentation

This manual supplements the system manual S7-1500/ET 200MP Automation System (<https://support.industry.siemens.com/cs/ww/en/view/59191792>).

Functions that generally relate to the system are described in this manual.

The information provided in this manual and in the system/function manuals support you in commissioning the systems.

Changes compared to previous version

Compared to the previous version, this manual contains the following change:

Correction of technical specifications

Conventions

The term "CPU" is used in this manual both for the CPUs of the S7-1500 automation system and for interface modules of the ET 200MP distributed I/O system.

Also observe notes marked as follows:

NOTE

A note contains important information on the product described in the documentation, on the handling of the product, or on the section of the documentation to which particular attention should be paid.

1.1 Documentation guide

1.1.1 Information classes S7-1500/ET 200MP

1.1.1.1 S7-1500/ET 200MP documentation guide



The documentation for the SIMATIC S7-1500 automation system and the ET 200MP distributed I/O system is arranged into three areas.

This arrangement enables you to access the specific content you require. Changes and supplements to the manuals are documented in a Product Information.

You can download the documentation free of charge from the Internet (<https://support.industry.siemens.com/cs/ww/en/view/109742691>).

Basic information



The System Manual and Getting Started describe in detail the configuration, installation, wiring and commissioning of the SIMATIC S7-1500 and ET 200MP systems.

The STEP 7 online help supports you in the configuration and programming.

Examples:

- Getting Started S7-1500
- S7-1500/ET 200MP System Manual
- Online help TIA Portal

Device information



Equipment manuals contain a compact description of the module-specific information, such as properties, wiring diagrams, characteristics and technical specifications.

Examples:

- Equipment Manuals CPUs
- Equipment Manuals Interface Modules
- Equipment Manuals Digital Modules
- Equipment Manuals Analog Modules
- Equipment Manuals Communications Modules
- Equipment Manuals Technology Modules
- Equipment Manuals Power Supply Modules

General information



The function manuals contain detailed descriptions on general topics relating to the SIMATIC S7-1500 and ET 200MP systems.

Examples:

- Function Manual Diagnostics
- Function Manual Communication
- Function Manual Motion Control
- Function Manual Web Server
- Function Manual Cycle and Response Times
- PROFINET Function Manual
- PROFIBUS Function Manual

Product Information

Changes and supplements to the manuals are documented in a Product Information. The Product Information takes precedence over the device and system manuals.

You can find the latest Product Information on the S7-1500 and ET 200MP systems on the Internet (<https://support.industry.siemens.com/cs/ww/en/view/68052815>).

Manual Collection S7-1500/ET 200MP

The Manual Collection contains the complete documentation on the SIMATIC S7-1500 automation system and the ET 200MP distributed I/O system gathered together in one file.

You can find the Manual Collection on the Internet.
(<https://support.industry.siemens.com/cs/ww/en/view/86140384>)

Manual Collection fail-safe modules

The Manual Collection contains the complete documentation on the fail-safe SIMATIC modules, gathered together in one file.

You can find the Manual Collection on the Internet.
(<https://support.industry.siemens.com/cs/ww/en/view/109806400>)

SIMATIC S7-1500 comparison list for programming languages

The comparison list contains an overview of which instructions and functions you can use for which controller families.

You can find the comparison list on the Internet
(<https://support.industry.siemens.com/cs/ww/en/view/86630375>).

1.1.2 Basic tools

Tools

The tools described below support you in all steps: from planning, over commissioning, all the way to analysis of your system.

TIA Selection Tool

The TIA Selection Tool tool supports you in the selection, configuration, and ordering of devices for Totally Integrated Automation (TIA).

As successor of the SIMATIC Selection Tools, the TIA Selection Tool assembles the already known configurators for automation technology into a single tool.

With the TIA Selection Tool, you can generate a complete order list from your product selection or product configuration.

You can find the TIA Selection Tool on the Internet.
(<https://support.industry.siemens.com/cs/ww/en/view/109767888>)

SIMATIC Automation Tool

You can use the SIMATIC Automation Tool to perform commissioning and maintenance activities on various SIMATIC S7 stations as bulk operations independent of TIA Portal.

The SIMATIC Automation Tool offers a wide range of functions:

- Scanning of a PROFINET/Ethernet system network and identification of all connected CPUs
- Assignment of addresses (IP, subnet, Gateway) and device name (PROFINET device) to a CPU
- Transfer of the date and the programming device/PC time converted to UTC time to the module
- Program download to CPU
- RUN/STOP mode switchover
- CPU localization through LED flashing
- Reading out of CPU error information
- Reading the CPU diagnostic buffer
- Reset to factory settings
- Firmware update of the CPU and connected modules

You can find the SIMATIC Automation Tool on the Internet.

(<https://support.industry.siemens.com/cs/ww/en/view/98161300>)

PRONETA

SIEMENS PRONETA (PROFINET network analysis) is a commissioning and diagnostic tool for PROFINET networks. PRONETA Basic has two core functions:

- In the network analysis, you get an overview of the PROFINET topology. Compare a real configuration with a reference installation or make simple parameter changes, e.g. to the names and IP addresses of the devices.
- The "IO test" is a simple and rapid test of the wiring and the module configuration of a plant, including documentation of the test results.

You can find SIEMENS PRONETA Basic on the Internet:

(<https://support.industry.siemens.com/cs/ww/en/view/67460624>)

SIEMENS PRONETA Professional is a licensed product that offers you additional functions. It offers you simple asset management in PROFINET networks and supports operators of automation systems in automatic data collection/acquisition of the components used through various functions:

- The user interface (API) offers an access point to the automation cell to automate the scan functions using MQTT or a command line.
- With PROFlenergy diagnostics, you can quickly detect the current pause mode or the readiness for operation of devices that support PROFlenergy and change these as needed.
- The data record wizard supports PROFINET developers in reading and writing acyclic PROFINET data records quickly and easily without PLC and engineering.

You can find SIEMENS PRONETA Professional on the Internet.

(<https://www.siemens.com/proneta-professional>)

SINETPLAN

SINETPLAN, the Siemens Network Planner, supports you in planning automation systems and networks based on PROFINET. The tool facilitates professional and predictive dimensioning of your PROFINET installation as early as in the planning stage. In addition, SINETPLAN supports you during network optimization and helps you to exploit network resources optimally and to plan reserves. This helps to prevent problems in commissioning or failures during productive operation even in advance of a planned operation. This increases the availability of the production plant and helps improve operational safety.

The advantages at a glance

- Network optimization thanks to port-specific calculation of the network load
- Increased production availability thanks to online scan and verification of existing systems
- Transparency before commissioning through importing and simulation of existing STEP 7 projects
- Efficiency through securing existing investments in the long term and the optimal use of resources

You can find SINETPLAN on the Internet

(<https://new.siemens.com/global/en/products/automation/industrial-communication/profinet/sinetplan.html>).

1.1.3 SIMATIC Technical Documentation

Additional SIMATIC documents will complete your information. You can find these documents and their use at the following links and QR codes.

The Industry Online Support gives you the option to get information on all topics. Application examples support you in solving your automation tasks.

Overview of the SIMATIC Technical Documentation

Here you will find an overview of the SIMATIC documentation available in Siemens Industry Online Support:



Industry Online Support International

(<https://support.industry.siemens.com/cs/ww/en/view/109742705>)

Watch this short video to find out where you can find the overview directly in Siemens Industry Online Support and how to use Siemens Industry Online Support on your mobile device:



Quick introduction to the technical documentation of automation products per video (<https://support.industry.siemens.com/cs/us/en/view/109780491>)



YouTube video: Siemens Automation Products - Technical Documentation at a Glance (<https://youtu.be/TwLSxxRQQsA>)

Retention of the documentation

Retain the documentation for later use.

For documentation provided in digital form:

1. Download the associated documentation after receiving your product and before initial installation/commissioning. Use the following download options:

- Industry Online Support International: (<https://support.industry.siemens.com>)

The article number is used to assign the documentation to the product. The article number is specified on the product and on the packaging label. Products with new, non-compatible functions are provided with a new article number and documentation.

- ID link:

Your product may have an ID link. The ID link is a QR code with a frame and a black frame corner at the bottom right. The ID link takes you to the digital nameplate of your product. Scan the QR code on the product or on the packaging label with a smartphone camera, barcode scanner, or reader app. Call up the ID link.

2. Retain this version of the documentation.

Updating the documentation

The documentation of the product is updated in digital form. In particular in the case of function extensions, the new performance features are provided in an updated version.

1. Download the current version as described above via the Industry Online Support or the ID link.
2. Also retain this version of the documentation.

mySupport

With "mySupport" you can get the most out of your Industry Online Support.

Registration	You must register once to use the full functionality of "mySupport". After registration, you can create filters, favorites and tabs in your personal workspace.
Support requests	Your data is already filled out in support requests, and you can get an overview of your current requests at any time.
Documentation	In the Documentation area you can build your personal library.
Favorites	You can use the "Add to mySupport favorites" to flag especially interesting or frequently needed content. Under "Favorites", you will find a list of your flagged entries.
Recently viewed articles	The most recently viewed pages in mySupport are available under "Recently viewed articles".
CAX data	The CAX data area gives you access to the latest product data for your CAX or CAE system. You configure your own download package with a few clicks: • Product images, 2D dimension drawings, 3D models, internal circuit diagrams, EPLAN macro files • Manuals, characteristics, operating manuals, certificates • Product master data

You can find "mySupport" on the Internet. (<https://support.industry.siemens.com/My/ww/en>)

Application examples

The application examples support you with various tools and examples for solving your automation tasks. Solutions are shown in interplay with multiple components in the system - separated from the focus on individual products.

You can find the application examples on the Internet.

(<https://support.industry.siemens.com/cs/ww/en/ps/ae>)

AI-powered online support chat

The "AskSUPport" function is an advanced AI-controlled platform that gives you access to the powerful knowledge base of the Siemens Support Portal (<https://sieportal.siemens.com/en-de/support>). You do not just receive mechanical answers to your questions, but precise, interactive informational material. This allows you to effectively speed up your research and decision processes.

The following link (<https://support.industry.siemens.com/cs/ww/en/view/109974274>) provides current information on the availability of AskSUPport:

You can also access the entry by means of the "AI powered Online Support Chat" command in the "Help" menu in TIA Portal.

Industrial cybersecurity

2.1 Introduction to industrial cybersecurity

Due to the digitalization and increasing networking of machines and industrial plants, the risk of cyber attacks is also growing. Appropriate protective measures are therefore mandatory, particularly in the case of critical infrastructure facilities.

Refer to the System Manual for general information and measures regarding industrial cybersecurity.

This section provides an overview of security-related information pertaining to your SIMATIC device.

2.2 Cybersecurity information

Siemens provides products and solutions with industrial cybersecurity functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial cybersecurity measures that may be implemented, please visit
<https://www.siemens.com/cybersecurity-industry>.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Cybersecurity RSS Feed under
<https://www.siemens.com/cert>.

2.3 Note on IT security

Siemens offers IT security mechanisms for its automation and drive product portfolio in order to support the safe operation of the plant/machine. We recommend that you inform yourself regularly on the IT security developments regarding your products. You can find information on this on the Internet (<http://support.automation.siemens.com>).

You can register for a product-specific newsletter here.

For the safe operation of a plant/machine, however, it is also necessary to integrate the automation components into an overall IT security concept for the entire plant/machine, which corresponds to the state-of-the-art IT technology. You can find information on this on the Internet (<http://www.siemens.com/industrialsecurity>).

Products used from other manufacturers should also be taken into account here.

2.4 Open Source Software

This product, solution or service ("Product") contains third-party software components. These are either open source software licensed under a license recognized by the Open Source Initiative (<https://opensource.com/>) or a license defined by Siemens as comparable ("OSS") and/or commercial software or freeware. With respect to the OSS components, the applicable OSS license conditions prevail over any other terms and conditions covering the Product. The OSS portions of this Product are provided royalty-free and can be used at no charge.

You can download the OSS sources via SIOS.

The Readme_OSS and the OSS sources are always available for download on the SIOS page together with the firmware update.

This product contains software developed by the University of California, Berkeley, and its contributors.

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Hertha-Sponer-Weg 3

91058 Erlangen
Germany

Keyword: Open Source Request (please specify Product name and version, if applicable)

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2.5 Cybersecurity-relevant information

Observe all relevant cybersecurity information.

Security features of the product	Reference
Signed firmware update	The topic of signed firmware updates is described in the Industrial cybersecurity section of the System Manual.

Product overview

3.1 Properties

Article number

6ES7505-0RB00-0AB0

View of the module

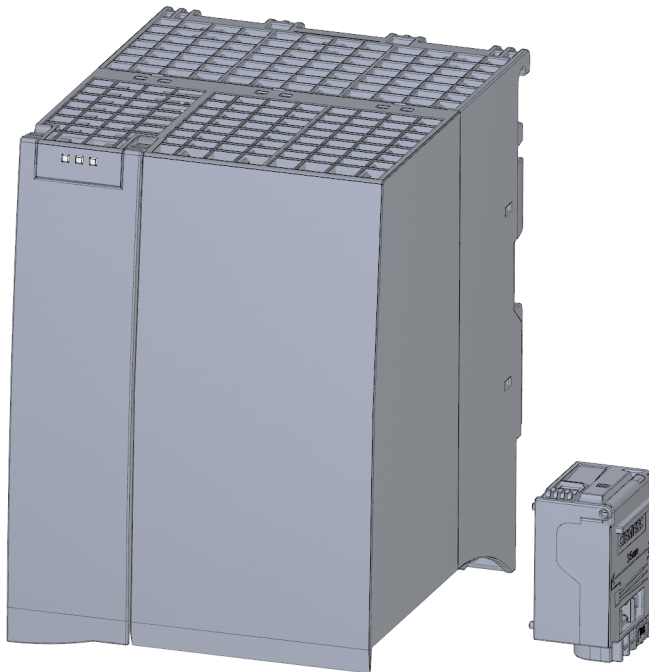


Figure 3-1 View of the PS 60W 24/48/60VDC HF module

Properties

The PS 60W 24/48/60VDC HF power supply module supports the use of additional modules.

Advantage over the "standard" power supply module:

To save a higher volume of data retentively in case of power failure, the PS 60W 24/48/60VDC HF supplies power to the CPU.

The PS 60W 24/48/60VDC HF has the following properties:

- Technical properties
 - Rated input voltages 24/48/60 VDC
 - Output power 60 W
 - Power failure backup
 - Electrical isolation to the bus, safe electrical separation according to EN 61131-2

The module supports the following functions:

Table 3-1 Version dependencies of the module functions

Function	Firmware version of the module	Configuration software	
		STEP 7 (TIA Portal) as of V14 SP1	GSD file in STEP 7 (TIA Portal) V12 or higher, or STEP 7 V5.5 SP3 or higher
Firmware update	V1.0.0 or higher	X	X (PROFINET IO only)
Identification data I&M0 to I&M4	V1.0.0 or higher	X	
Configuration in RUN	V1.0.0 or higher	X	
Diagnostic alarms	V1.0.0 or higher	X	
Diagnostic interrupts	V1.0.0 or higher	X	
Only configurable on LH side next to interface module / CPU	V1.0.0 or higher	X	---
Extended retentivity of the CPU data area in the event of a power failure	V1.0.0 or higher	X (only with CPU S7-1500 firmware version V2.1 or higher)	

Accessories

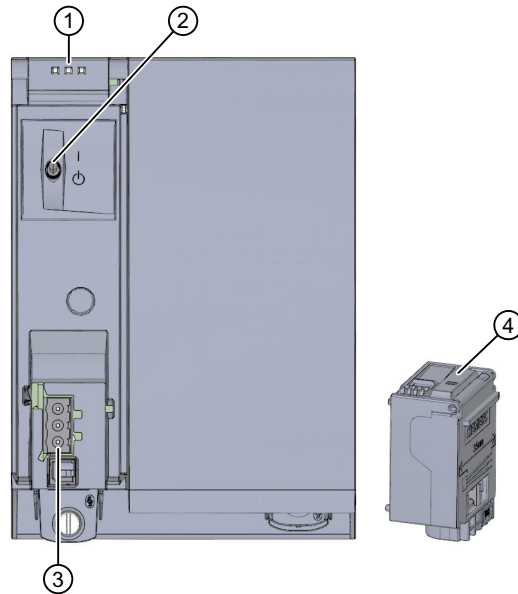
The following components are supplied with the power supply module:

- Power connector
- U connector

These components are also available as spare parts.

3.2 Operating and display elements

The following figure shows the control and connection elements of the PS 60W 24/48/60VDC HF behind the front panel as well as the power connector.



- ① LED displays indicating the current operating state and diagnostic status of the PS
- ② On/off switch
- ③ Power inlet for the power connector
- ④ Power connector; inserted in delivery state

Figure 3-2 View of the PS 60W 24/48/60VDC HF (without front panel) and of the power connector

Wiring

4.1 Connecting the supply voltage (PS 60W 24-48-60VDC HF)

This section contains information on connecting the power supply module to the mains voltage.

Mains connection

 WARNING
Installation instructions Risk of death or serious injury. Observe the general installation instructions applicable in your country when wiring the power supply module. Fuse the power cables according to their conductor cross-section.

The following applies to mains connection of the power supply module using the power connector:

- The power connector enables connection of the input voltage to the power supply module with touch protection.
- The power connector enables permanent wiring.
- The power connector features internal strain relief.
- The power connector ensures reverse polarity protection. A coding element assigns each power connector to a specific type of power supply module on delivery. A connector coded for 230 V AC does not fit in the connection to a 24 V DC power supply module.

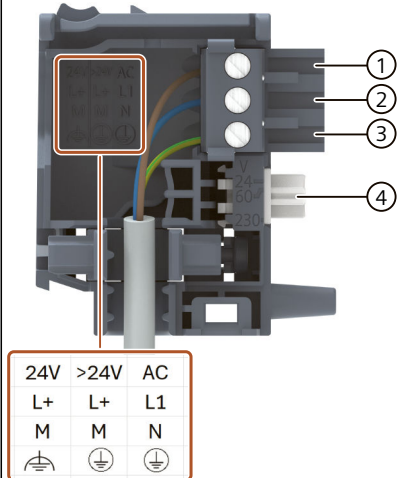
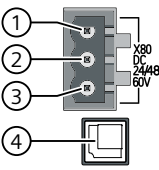
 DANGER
Do not manipulate or omit the coding element Changes to the coding element can result in dangerous states in your plant and/or damage to the outputs of the I/O modules. In order to avoid damage, do not manipulate the coding. The coding element may not be omitted.

4.1 Connecting the supply voltage (PS 60W 24-48-60VDC HF)

Connection plug

The connection plug for the power supply is plugged in when the power supply module ships from the factory.

The following figure shows the assignment of the connection plug:

Connector	PS connection	Name
		① L ② M ③ Protective conductor (L>24 V) ③ Functional earthing conductor (L=24 V) ④ Coding element

Cables

You need flexible cables to wire power to the power supply module. The conductor cross-section must be 1.5 mm² (AWG: 16). The diameter of a 3 x 1.5 mm² sheathed cable can be no more than 8.5 mm. The ground conductor of flexible cables must be longer than the two other conductors. The fusing must meet the requirements of the corresponding control cabinet.

Reference

You can find additional information about wiring the mains connector in the system manual S7-1500 automation system (<https://support.industry.siemens.com/cs/de/de/view/59191792/en>).

Siemens recommends the use of devices from the SITOP family of products for applications with load power supplies. Wiring information is available in the documentation for the load power supply.

Parameters

5.1 Parameters

Parameters of the PS 60W 24/48/60VDC HF

The PS 60W 24/48/60VDC HF is usually already integrated in the hardware catalog of STEP 7 (TIA Portal). In this case, STEP 7 (TIA Portal) checks the configured properties for plausibility during configuration.

However, you can also assign parameters to the module by means of a GSD file and the configuration software of any provider. The module does not check the validity of the configured properties until after the configuration has been loaded.

When you assign the module parameters in STEP 7, you use various parameters to specify the module properties. The following table lists the configurable parameters. The effective range of the parameters that can be set depends on the type of configuration. The following configurations are possible:

- Central operation with an S7-1500 CPU (with STEP 7 TIA Portal V14 SP1 or higher)
- Distributed operation on PROFINET IO in an ET 200MP system (with GSD file PROFINET IO in STEP 7 (TIA Portal) V12 or higher or STEP 7 V5.5 SP3 or higher)

For parameter assignment in the user program, the parameters are transferred to the module using the WRREC instruction (reparameterization in RUN) and data records; see section Parameter data record [\(Page 28\)](#).

Table 5-1 Configurable parameters and their defaults

Parameters	Range of values	Default setting	Parameter assignment in RUN	Scope with configuration software, e.g., STEP 7 (TIA Portal)	
				Integrated in the hardware catalog STEP 7 (TIA Portal) V14 SP1 or higher or GSD file PROFINET IO	GSD file PROFIBUS DP
Diagnostics / maintenance					
• Supply voltage monitoring *	Yes/No	No	Yes	Module	---
• Switch position Off *	Yes/No	No	Yes	Module	---

* In case of central operation of a S7-1500 CPU with firmware V2.1.0 or higher the diagnostics are **not** displayed in the diagnostics buffer to ensure reliable backup of the extended retentive data.

Interrupts, diagnostic alarms, error and status alarms

6

6.1 Interrupts

What is a diagnostic interrupt?

You can determine reactions to internal or external errors in the user program, by programming a diagnostic interrupt which interrupts cyclic program execution on the CPU and triggers the diagnostic interrupt OB (OB82). The event which led to the interrupt is entered in the start information of the OB82.

Trigger of a diagnostic interrupt

Events that can trigger a diagnostic alarm can also trigger a diagnostic interrupt:

- Supply voltage missing
- Overtemperature
- Overvoltage on the backplane bus
- Safety shutdown
- Switch position Off
- Malfunction

Reactions to a diagnostic interrupt

You can find the CPU reaction to a diagnostic interrupt in the function manual System diagnostics (<http://support.automation.siemens.com/WW/view/en/59192926>).

Detailed information on the error event is available in the diagnostic interrupt OB by executing the "RALRM" instruction (read additional interrupt information) and in the STEP 7 Online Help.

6.2 Diagnostic alarms

Diagnostic alarms

The following table shows the meaning of the diagnostic alarms and possible remedial measures for the respective cause.

One of the following "LED images" indicates directly on the PS that a diagnostic alarm was triggered.

- The red ERROR-LED is flashing.
Indicates external or internal errors.
- The yellow MAINT-LED is lit.
Maintenance; a maintenance request is active.
- All three LEDs are flashing permanently
The PS is in "Defective" state.

In STEP 7, the diagnostic results are displayed in plain text by means of the online and diagnostic view. You can read the diagnostic data records by means of the "RDREC" instruction.

Table 6-1 Diagnostic alarms, their meaning and remedies

Diagnostic alarm	Error code		Meaning	Reaction	Remedial measures
	Dec.	Hex.			
External error					
Supply voltage missing	266 _D	010A _H	No supply voltage, or incorrect insertion of the power connector into the PS.	1	Check the supply voltage.
Internal error					
Overtemperature	5 _D	0005 _H	Overtemperature on the printed circuit board.	2	Check PS load. Isolate PS from mains. Wait one minute before you power on the PS again.
Overvoltage backplane bus	267 _D	010B _H	High EMC interference or a defective PS, CPU or IM inserted.	2	Eliminate electromagnetic interference. Check inserted modules and bus connectors. Isolate PS from mains. Wait one minute before you power on the PS again.
Safety shutdown	285 _D	011D _H	Reliable operation of the module is no longer guaranteed.	2	Check ambient conditions. Isolate PS from mains. Wait one minute before you power on the PS again.
Maintenance					
Switch turned off	268 _D	010C _H	The PS is switched off.	1	Switch on PS.
Malfunction					
Module failure	256 _D	0100 _H	PS failure.	3	Replace PS.

External errors, internal errors and malfunctions

- External errors occur outside the PS. In the parameterization, specify whether or not an external error can trigger a diagnostic alarm. By default, external errors do not trigger diagnostic alarms.
- Internal errors occur inside the PS. If still possible, an internal error always triggers a diagnostic alarm.
- A malfunction is a static state; the PS must be sent in for repair. If still possible, a defect always triggers a diagnostic alarm.

Explanation of the reactions

The PS is switched off retentively. Alarm is only generated if the PS is still powered by the CPU or IM via the backplane bus. You cannot switch on the module unless you have eliminated the error and disconnected power to the PS for approximately one minute.

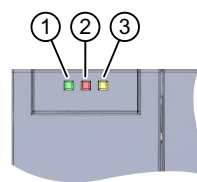
6.3 Status and error displays

Introduction

Diagnostics by means of LEDs is a basic tool for troubleshooting. Usually, you can pinpoint the source of error more precisely by analyzing the module status information in STEP 7, or in the diagnostic buffer of the CPU. These locations contain the corresponding error information in plain text.

LED displays

The following figure shows the LED displays (status and error displays) of the PS 60W 24/48/60VDC HF.



- ① RUN LED
- ② ERROR LED
- ③ MAINT LED

Figure 6-1 LED displays of PS 60W 24/48/60VDC HF

Meaning of the LED displays

The following table explains the meaning of the status and error displays. You can find remedial measures for diagnostic alarms in chapter Diagnostic alarms ([Page 21](#)).

Table 6-2 Status and error displays RUN/ERROR/MAINT

LED			Meaning	Remedy
RUN	ERROR	MAINT		
 Off	 Off	 Off	OFF; PS returns no bus voltage - External error; diagnostics is disabled - PS not powered in the system, no supply voltage at the PS and CPU/IM.	Switch on power to the PS Check the supply voltage Switch on PS
 On	 On	 On	Startup; all LED displays are lit briefly after system startup, or during module restart after firmware update.	-
 Flashing	Not relevant	Not relevant	Startup, PS returns bus voltage, PS waiting for parameterization	-
 Off	 Flashing	Not relevant	Error, PS supplies no bus voltage - Supply voltage missing and diagnostics is enabled - Internal error	Evaluate diagnostic alarms and take appropriate remedial measures; see chapter Diagnostic alarms (Page 21)
 Off	Not relevant	 On	Maintenance request, PS returns no bus voltage Switch is off; power is present and diagnostics is enabled	Switch on PS
 Flashing	 Flashing	 Flashing	Malfunction LEDs flash persistently	Replace PS

Technical specifications

Technical specifications of the PS 60W 24/48/60VDC HF

The following table lists the technical specifications as of the issue date. You will find a data sheet including daily updated technical specifications on the Internet (<https://support.industry.siemens.com/cs/ww/de/pv/6ES7505-0RA00-0AB0/td?dl=en>)

Article number	6ES7505-0RB00-0AB0
General information	
Product type designation	PS 60 W 24/48/60 V DC HF
HW functional status	from FS01
Firmware version	from V1.0.0
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V14 SP1
Supply voltage	
Rated value (DC)	24 V / 48 V / 60 V
permissible range, lower limit (DC)	19.2 V; Static 19.2 V, dynamic 18.5 V
permissible range, upper limit (DC)	72 V; Static 72 V, dynamic 75.5 V
Reverse polarity protection	Yes
Short-circuit protection	Yes
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Input current	
Rated value at 24 V DC	3 A
Rated value at 48 V DC	1.5 A
Rated value at 60 V DC	1.2 A
Inrush current, max.	≤ 8 A for t ≤ 1 s
Output current	
Short-circuit protection	Yes
Power	
Infeed power to the backplane bus	60 W
Power loss	
Power loss at nominal rating conditions	12 W
Interrupts/diagnostics/status information	
Status indicator	Yes
Isolation	
Isolation tested with	2 500 V DC (type test)

Article number	6ES7505-0RB00-0AB0
EMC	
Interference immunity against voltage surge Interference immunity on supply lines acc. to IEC 61000-4-5	Yes; ± 1 kV (acc. to IEC 61000-4-5; 1995; surge symm.), ± 2 kV (acc. to IEC 61000-4-5; 1995; surge asymm.), no external protective circuit required
Degree and class of protection	
Equipment protection class	I, with protective conductor
Ambient conditions	
Ambient temperature during operation - min. - max. - horizontal installation, min. - horizontal installation, max. - vertical installation, min. - vertical installation, max.	-25 °C; up to FS02: 0 °C 60 °C -25 °C; up to FS02: 0 °C 60 °C -25 °C; up to FS02: 0 °C 40 °C
Ambient temperature during storage/transportation - min. - max.	-40 °C 70 °C
Altitude during operation relating to sea level Installation altitude above sea level, max.	2 000 m
Dimensions	
Width	105 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	865 g

Dimensional drawing

Dimensional drawing of PS 60W 24/48/60VDC HF

This appendix includes the dimensional drawing of the power supply module that is installed on a mounting rail with shielding bracket. Take the dimensions into account for installation in cabinets, control rooms, etc.

The following figure shows the front view and the side view of the module

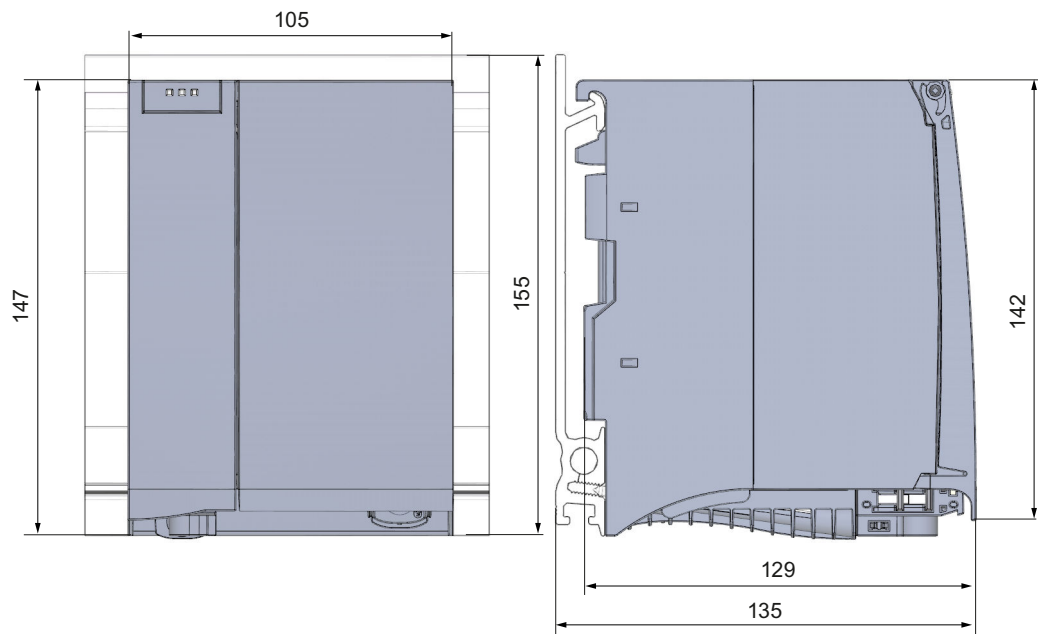


Figure A-1 Dimensional drawing of the PS 60W 24/48/60VDC HF module

The following figure shows the side view of the module with open front panel.

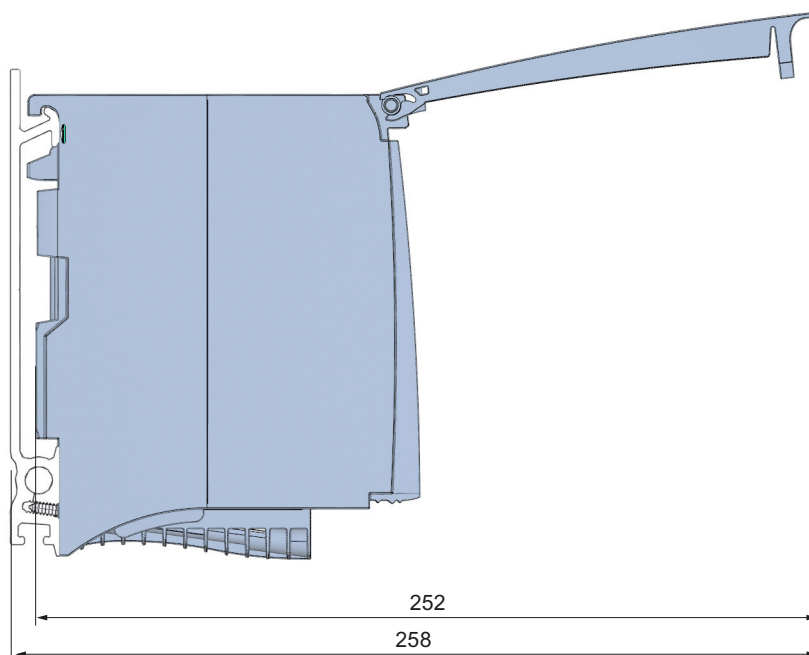


Figure A-2 Dimensional drawing of the PS 60W 24/48/60VDC HF module

Parameter data record

Parameter assignment in the user program

You have the option to re-parameterize the power supply module in RUN mode of CPU.

Changing parameters in RUN mode

The parameters of the power supply module are in data record 0. Using the instruction WRREC the adjustable parameters can be transferred to the power supply module. The parameters assigned in STEP 7 are not changed permanently in the CPU, which means the parameters assigned in STEP 7 are valid again after a restart.

Output parameter RET_VAL

The power supply module ignores errors that occur during transfer of parameters with the WRREC instruction and continues operation with the previous parameter assignment. However, a corresponding error code is written to the RET_VAL output parameter. If no error occurs, the length of the data actually transferred is entered in RET_VAL.

RET_VAL is 4 bytes long and structured as follows:

- Byte1: Function_Num, general error code
- Byte2: Error_Decode, location of the error detection
- Byte3: Error_Code_1, error detection
- Byte4: Error_Code_2, manufacturer-specific expansion of the error detection

The description of the WRREC instruction and the general error codes are available in the STEP 7 online help.

Module-specific errors are displayed by means of Error_Code_1 = 224_D or Error_Code_1 = 225_D.

Manufacturer-specific expansions of the error detection of the WRREC instruction have the following meaning:

Table B-1 Manufacturer-specific expansions of the error detection of the WRREC instruction

Error_Code 1	Error_Code 2	Meaning
224 _D Error in the data record header	1 _D	The version entered in the data record header is not supported by the module or reserved bits of the version are set.
	2 _D	The net length entered in the data record header is incorrect.
225 _D Errors in the net data entered in the data record (parameter)	1 _D	Diagnostic interrupt enable is incorrect
	16 _D	Reserved parameters are not 0

Data record structure

The following figure shows the structure of the data record 0.

- A fixed bit pattern is entered in byte 0. It indicates the version of the data record structure. Each time a data record is written, the module checks the written data and accepts only data records with major version 1.
- Byte 1 specifies the maximum data length that can be used for parameter data.
- Byte 2 contains the parameter data.
- Bytes 3 to 11 are reserved.

To enable a parameter in byte 2, set the corresponding bit to "1". The corresponding diagnostics is then activated, for example, for supply voltage monitoring. If you set the corresponding bit to "0", the diagnostics is deactivated.

You are not permitted to change byte 0, byte 1 or bytes 3 to 11.

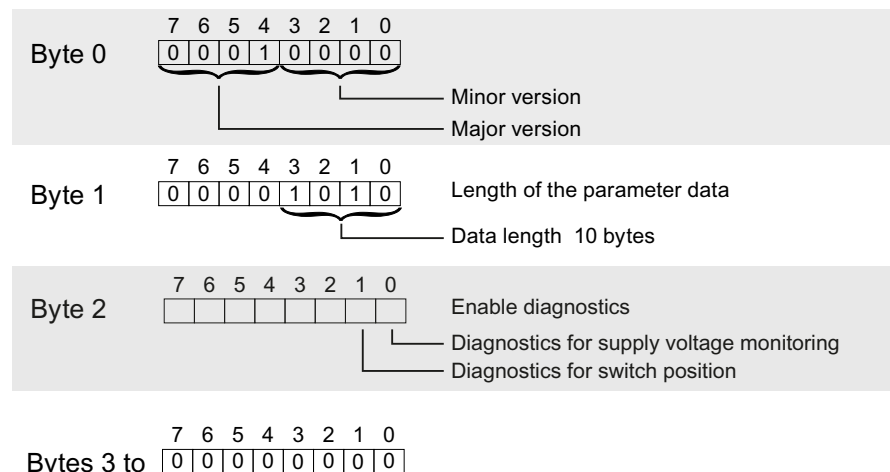


Figure B-1 Structure of data record 0

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