

SIEMENS

SIMATIC

S7-300

Product Information on SIMATIC S7-300 Automation System Module Data

Product Information

Preface

Power supply modules

1

Dimensional drawings

2

This description forms part of the documentation package with the order number: S7-300 Automation System: 6ES7398-8FA10-8BA0.

05/2010

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Legal information

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.
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with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
NOTICE
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

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.

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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.

Preface

Preface

Introduction

This product information amends the S7-300 automation system manual Module data, edition 08/2009.

New power supply modules

This product information applies to the following power supply modules:

- Power supply module PS 307; 2A (6ES7307-1BA01-0AA0)
- Power supply module PS 307; 5A (6ES7307-1EA01-0AA0)
- Power supply module PS 307; 10A (6ES7307-1KA02-0AA0)

The power supply modules are characterized by their compact design and automatic voltage switching capacity. They are replacing the modules with order numbers 6ES7307-1BA00-0AA0, 6ES7307-1EA00-0AA0 and 6ES7307-1KA01-0AA0.

Additional support

If you have any questions relating to the products described in this product information and do not find the answers in this document, please contact your local Siemens representative (<http://www.siemens.com/automation/partner>).

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- The right documentation for you using our Service & Support search engine.
- The bulletin board, a worldwide knowledge exchange for users and experts.
- Your local contact for Automation & Drives in our contact database.
- Information about on-site services, repairs, spare parts, and lots more.

Table of contents

	Preface	3
1	Power supply modules.....	7
1.1	Power supply module PS 307; 2 A; (6ES7307-1BA01-0AA0).....	7
1.2	Power supply module PS 307; 5 A; (6ES7307-1EA01-0AA0).....	10
1.3	Power supply module PS 307; 10 A; (6ES7307-1KA02-0AA0).....	13
2	Dimensional drawings.....	17
2.1	Dimensional drawings of the power supply modules.....	17
	Index.....	19

Power supply modules

1.1 Power supply module PS 307; 2 A; (6ES7307-1BA01-0AA0)

Order number

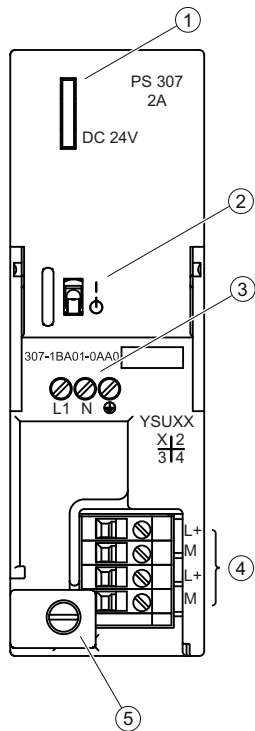
6ES7307-1BA01-0AA0

Properties

Properties of the PS 307; 2 A power supply module:

- Output current 2 A
- Output voltage 24 VDC; short circuit-proof, open circuit-proof
- Connection to singlephase AC mains
(rated input voltage 120/230 VAC, 50/60 Hz)
- Safety isolation to EN 60 950
- May be used as load power supply

Wiring diagram of PS 307; 2 A



- ① Display for "Output voltage DC 24 V present"
- ② 24 VDC On/Off switch
- ③ Mains and protective conductor terminals
- ④ Terminals for 24 VDC output voltage
- ⑤ Strain-relief

Block diagram PS 307; 2 A

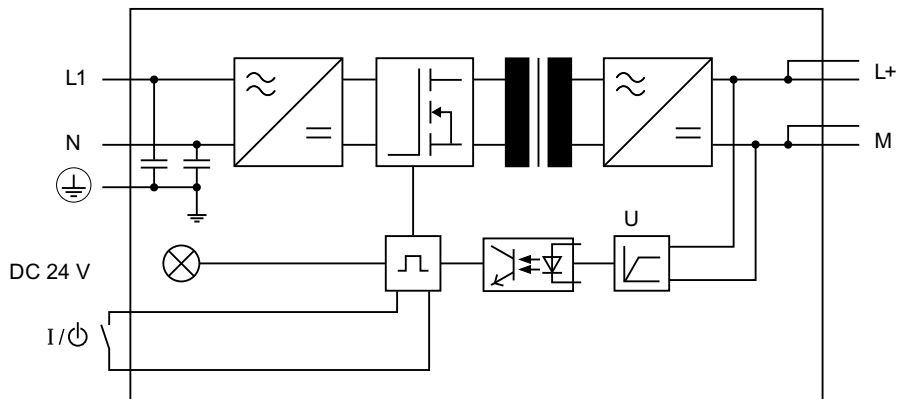


Figure 1-1 Block diagram of the PS 307; 2 A power supply module

Line protection

The mains supply of the PS 307; 2 A power supply module should be protected with a miniature circuit-breaker (for example Siemens 5SN1 series) of the following rating:

- Rated current at 230 VAC: 3 A
- Tripping characteristics (type): C.

Reaction to atypical operating conditions

Table 1- 1 Reaction to atypical operating conditions of the PS 307; 2 A power supply module

If then ...	DisplayDC 24 V
the output circuit is overloaded: • $I > 2.6$ A (dynamic) • $2\text{ A} < I \leq 2.6$ A (static)	Voltage dip, automatic voltage recovery Voltage drop, reduction of service life	flashes
short-circuit at the output	Output voltage 0 V; automatic voltage recovery after short-circuit is eliminated	off
overvoltage on primary side	risk of destruction	-
undervoltage on primary side	Automatic shutdown; automatic voltage recovery	off

Technical specifications of PS 307; 2 A (6ES7307-1BA01-0AA0)

Technical specifications	
Dimensions and weight	
Dimensions W x H x D (mm)	40 x 125 x 120
Weight	ca. 400 g
Input parameters	
Input voltage • Rated value	120/230 VAC (automatic switching)
Mains frequency • Rated value • Permitted range	50 Hz or 60 Hz 47 Hz to 63 Hz
Rated input current • at 230 V • at 120 V	0.5 A 0.9 A
Inrush current (at 25 °C)	22 A
I^2t (at inrush current)	1 A ² s
Output parameters	
Output voltage • Rated value • Permitted range • Rampup time	24 VDC 24 V ± 3 %, open circuit-proof max. 2.5 s
Output current • Rated value	2 A, parallel wiring is available

1.2 Power supply module PS 307; 5 A; (6ES7307-1EA01-0AA0)

Technical specifications	
Short-circuit protection	electronic, non-latching 1.1 to 1.3 x I _N
Residual ripple	max. 150 mV _{pp}
Characteristics	
Safety class to IEC 536 (DIN VDE 0106, Part 1)	I, with protective conductor
Isolation rating • Rated isolation voltage (24 V to L1) • Test voltage	AC 250 V DC 4200 V
Safety isolation	SELV circuit
Buffering of power supply failure (at 93 V or 187 V) • Repeat rate	Min. 20 ms min 1 s
Efficiency	84 %
Power consumption	57 W
Power loss	typ. 9 W
Diagnostics	
"Output voltage present" display	yes, green LED

1.2 Power supply module PS 307; 5 A; (6ES7307-1EA01-0AA0)

Order number

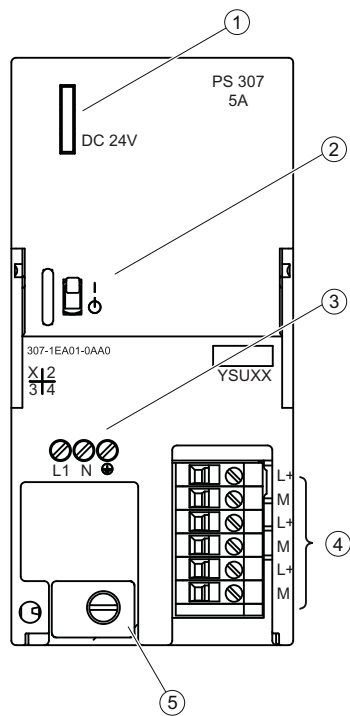
6ES7307-1EA01-0AA0

Properties

Properties of the PS 307; 5 A power supply module:

- Output current 5 A
- Output voltage 24 VDC; short circuit-proof, open circuit-proof
- Connection to singlephase AC mains
(rated input voltage 120/230 VAC, 50/60 Hz)
- Safety isolation to EN 60 950
- May be used as load power supply

Block diagram of PS 307; 5 A



- ① Display for "Output voltage DC 24 V present"
- ② Terminals for 24 VDC output voltage
- ③ Strain-relief
- ④ Mains and protective conductor terminals
- ⑤ 24 VDC On/Off switch

Block diagram PS 307; 5 A

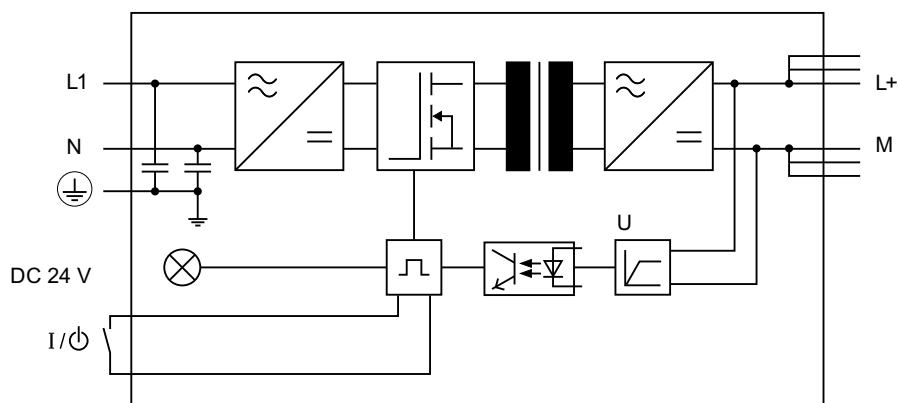


Figure 1-2 Block diagram of the PS 307; 5 A power supply module


Line protection

The mains supplies of the PS 307; 5 A power supply module should be protected with a miniature circuit-breaker (for example Siemens 5SN1 series) of the following rating:

- Rated current at 230 VAC: 6 A
- Tripping characteristics (type): C.

Reaction to atypical operating conditions

Table 1-2 Reaction to atypical operating conditions of the PS 307; 5 A power supply module

If then ...	DisplayDC 24 V
the output circuit is overloaded: <ul style="list-style-type: none"> • $I > 6.5 \text{ A}$ (dynamic)  • $5 \text{ A} < I \leq 6.5 \text{ A}$ (static) 	Voltage dip, automatic voltage recovery Voltage drop, reduction of service life	flashes
short-circuit at the output	Output voltage 0 V; automatic voltage recovery after short-circuit is eliminated	off
overvoltage on primary side	risk of destruction	-
undervoltage on primary side	Automatic shutdown; automatic voltage recovery	off

Technical specifications of PS 307; 5 A (6ES7307-1EA01-0AA0)

Technical specifications	
Dimensions and weight	
Dimensions W x H x D (mm)	60 x 125 x 120
Weight	ca. 600 g
Input parameters	
Input voltage <ul style="list-style-type: none"> • Rated value 	120/230 VAC (automatic switching)
Mains frequency <ul style="list-style-type: none"> • Rated value • Permitted range 	50 Hz or 60 Hz 47 Hz to 63 Hz
Rated input current <ul style="list-style-type: none"> • at 120 V • at 230 V 	2.3 A 1.2 A
Inrush current (at 25 °C)	20 A
I^2t (at inrush current)	1.2 A ² s
Output parameters	
Output voltage <ul style="list-style-type: none"> • Rated value • Permitted range 	24 VDC 24 V ± 3 %, open circuit-proof
<ul style="list-style-type: none"> • Rampup time 	max. 2.5 s
Output current <ul style="list-style-type: none"> • Rated value 	5 A, parallel wiring is available

Technical specifications	
Short-circuit protection	electronic, non-latching 1.1 to 1.3 x I _N
Residual ripple	max. 150 mV _{pp}
Characteristics	
Safety class to IEC 536 (DIN VDE 0106, Part 1)	I, with protective conductor
Isolation rating	
• Rated isolation voltage (24 V to L1)	250 VAC
• Test voltage	4200 VDC
Safety isolation	SELV circuit
Buffering of power supply failure (at 93 V or 187 V)	Min. 20 ms
• Repeat rate	min 1 s
Efficiency	87 %
Power consumption	138 W
Power loss	typ. 18 W
Diagnostics	
"Output voltage present" display	yes, green LED

1.3 Power supply module PS 307; 10 A; (6ES7307-1KA02-0AA0)

Order number

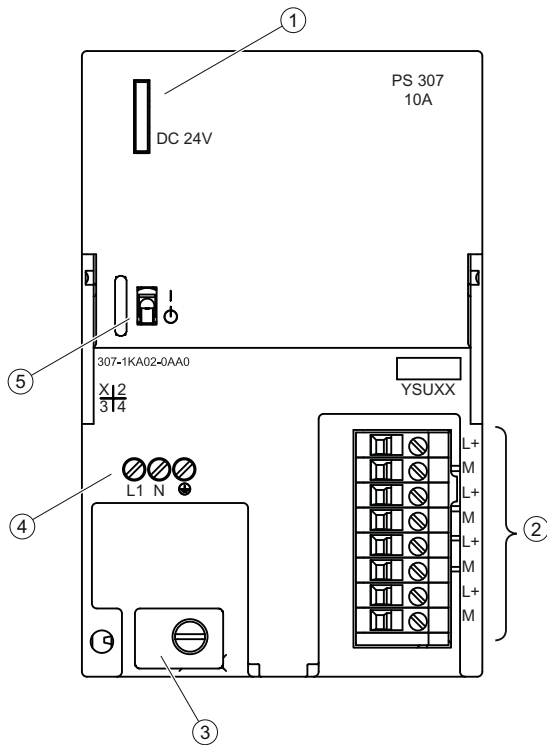
6ES7307-1KA02-0AA0

Properties

Properties of the PS 307; 10 A power supply module:

- Output current 10 A
- Output voltage 24 VDC; short circuit-proof, open circuit-proof
- Connection to singlephase AC mains
(rated input voltage 120/230 VAC, 50/60 Hz)
- Safety isolation to EN 60 950
- May be used as load power supply

Block diagram of PS 307; 10 A



- ① Display for "Output voltage DC 24 V present"
- ② Terminals for 24 VDC output voltage
- ③ Strain-relief
- ④ Mains and protective conductor terminals
- ⑤ 24 VDC On/Off switch

Block diagram PS 307; 10 A

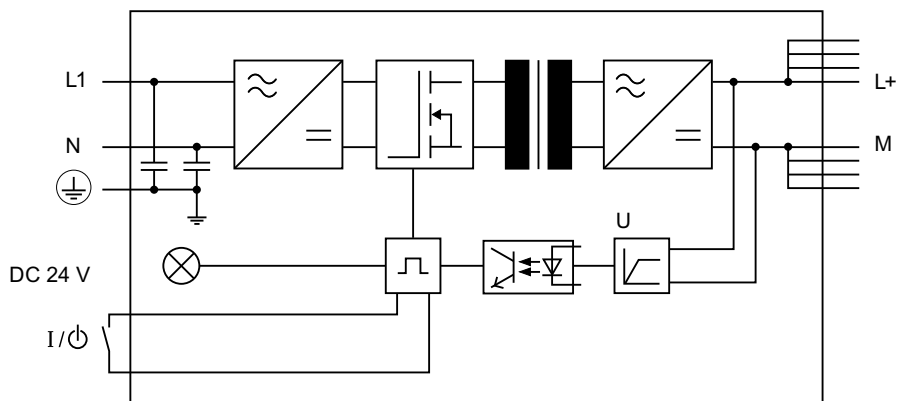


Figure 1-3 Block diagram of the PS 307; 10 A power supply module


Line protection

The mains supplies of the PS 307;10 A power supply module should be protected with a miniature circuit-breaker (for example Siemens 5SN1 series) of the following rating:

- Rated current at 230 VAC: 10 A
- Tripping characteristics (type): C.

Reaction to atypical operating conditions

Table 1- 3 Reaction to atypical operating conditions of the PS 307; 10 A power supply module

If ...	Module reaction	DisplayDC 24 V
.output circuit is overloaded:  <ul style="list-style-type: none"> • $I > 13 \text{ A}$ (dynamic) • $10 \text{ A} < I \leq 13 \text{ A}$ (static) 	Voltage dip, automatic voltage recovery Voltage drop (reduction of service life)	flashes
short-circuit at the output	Output voltage 0 V; automatic voltage recovery after short-circuit is eliminated	off
overvoltage on primary side	risk of destruction	-
undervoltage on primary side	Automatic shutdown; automatic voltage recovery	off

Technical specifications of PS 307; 10 A (6ES7 307-1KA02-0AA0)

Technical specifications	
Dimensions and weight	
Dimensions W x H x D (mm)	80 x 125 x 120
Weight	800 g
Input parameters	
Input voltage	
• Rated value	120/230 VAC (automatic switching)
Mains frequency	
• Rated value	50 Hz or 60 Hz
• Permitted range	47 Hz to 63 Hz
Rated input current	
• at 230 V	1.9 A
• at 120 V	4.2 A
Inrush current (at 25 °C)	55 A
I^2t (at inrush current)	3.3 A ² s
Output parameters	
Output voltage	
• Rated value	24 VDC
• Permitted range	24 V \pm 3 %, open circuit-proof
• Rampup time	max. 2.5 s
Output current	
• Rated value	10 A, parallel wiring is available

Power supply modules

1.3 Power supply module PS 307; 10 A; (6ES7307-1KA02-0AA0)

Technical specifications	
Short-circuit protection	electronic, non-latching 1.1 to 1.3 x I _N
Residual ripple	max. 150 mV _{pp}
Characteristics	
Safety class to IEC 536 (DIN VDE 0106, Part 1)	I, with protective conductor
Isolation rating <ul style="list-style-type: none"> • Rated isolation voltage (24 V to L1) • Test voltage 	AC 250 V DC 4200 V
Safety isolation	SELV circuit
Buffering of power supply failure (at 93 V or 187 V) <ul style="list-style-type: none"> • Repeat rate 	Min. 20 ms min 1 s
Efficiency	90 %
Power consumption	267 W
Power loss	typ. 27 W
Diagnostics	
"Output voltage present" display	yes, green LED

Dimensional drawings

2.1 Dimensional drawings of the power supply modules

Introduction

This appendix contains the dimensional drawings of the most important components of an S7-300. The specified dimensions are required to determine the dimensions of an S7-300 configuration. You need to take the dimensions of an S7-300 configuration into account when installing an S7-300 in cabinets, contact chambers, etc.

PS 307; 2 A (6ES7307-1BA01-0AA0)

The figure below shows the dimensional drawing of the PS 307; 2 A power supply module.

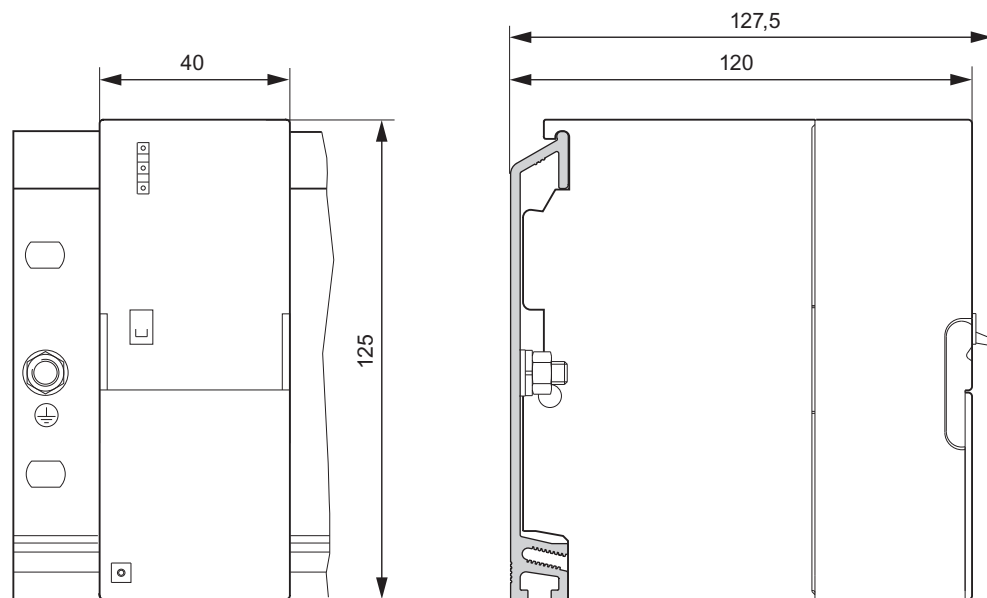


Figure 2-1 Power supply module PS 307; 2 A

PS 307; 5A (6ES7307-1EA01-0AA0)

The figure below shows the dimensional drawing of the PS 307; 5 A power supply module.

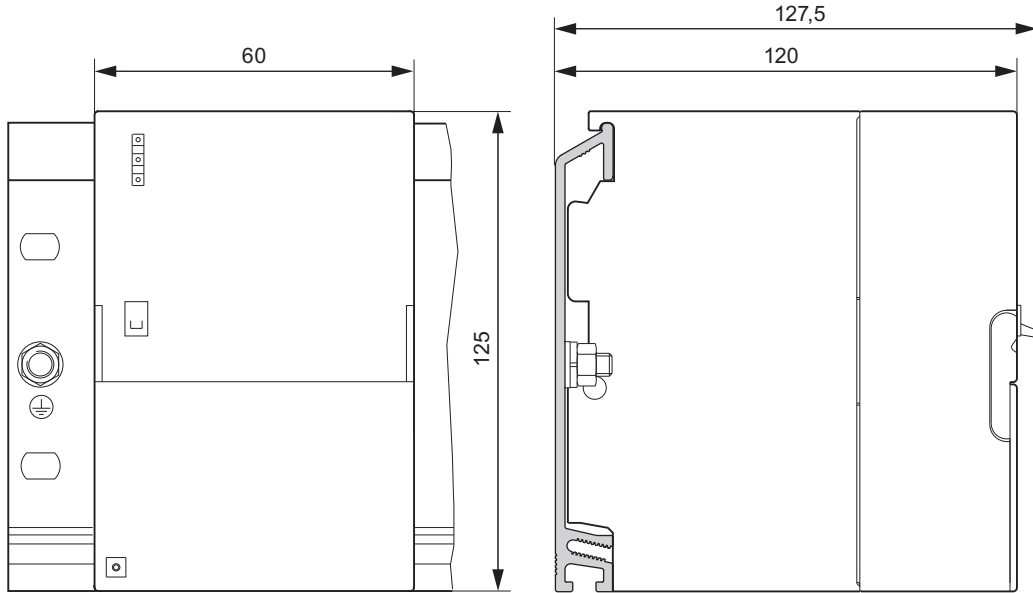


Figure 2-2 Power supply module PS 307; 5 A

PS 307; 10A (6ES7307-1KA02-0AA0)

The figure below shows the dimensional drawing of the PS 307; 10 A power supply module.

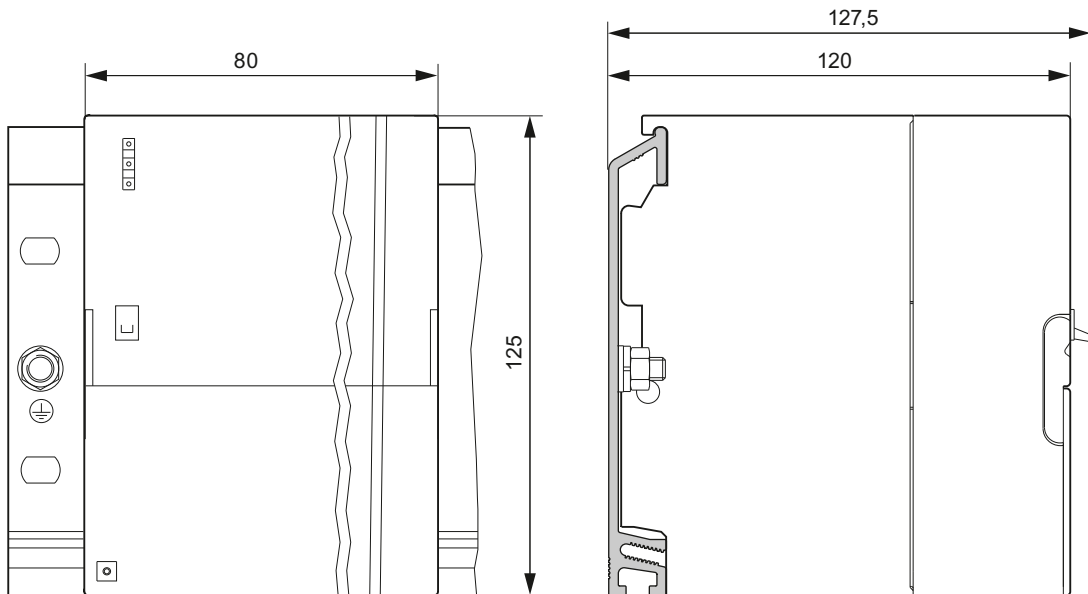


Figure 2-3 Power supply module PS 307; 10 A

Index

D

Dimensional drawing
PS 307 10 A, 18
PS 307 2 A, 17
PS 307 5 A, 18

I

Internet
Service & Support, 4

O

Order number
6ES7307-1BA01-0AA0, 7
6ES7307-1EA01-0AA0, 10
6ES7307-1KA02-0AA0, 13

P

Power supply module
PS 307 10 A, 13
PS 307 2 A, 7
PS 307 5 A, 10
PS 307 10 A
Schematic circuit diagram, 14
Technical specifications, 15
Wiring diagram, 14
PS 307 2 A
Schematic circuit diagram, 8
Technical specifications, 9
Wiring diagram, 8
PS 307 5 A
Schematic circuit diagram, 11
Technical specifications, 12
Wiring diagram, 11

S

Service & Support, 4

T

Technical Support, 3

