

SIMATIC

CP 541 Communications Processor

Manual

EWA 4NEB 812 6188-02

Edition 1

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Preface

Purpose

The information in this Manual allows you

- to connect a programmable controller of the SIMATIC S5 family to the CP 541;
- to connect a programmable controller of the SIMATIC S5 family via the CP 541 to SINEC L2;
- to integrate a programmable controller of the SIMATIC S5 family via the CP 541 as a DP slave in SINEC L2-DP;
- to connect the CP 541 and start it.

Audience

This Manual is intended for readers wishing to integrate a programmable controller of the SIMATIC S5 family via the CP 541 in SINEC L2. It is assumed that you already have experience in or knowledge of working with programmable controllers of the SIMATIC S5 family and SINEC L2.

Scope of this Manual

This Manual applies to:

Device	Order No.	From Revision Level
CP 541	6ES5 541-8AA11	01
Connecting cable 1 m	6ES5 735-8BB00	—
Connecting cable 2.5 m	6ES5 735-8BC50	—

This Manual contains a description of all functions of the CP 541 at the time of publication of the Manual. We reserve the right to describe modifications to the functions in a product information.

1.3 View of the CP 541

View

Figure 1-2 is a view of the CP 541

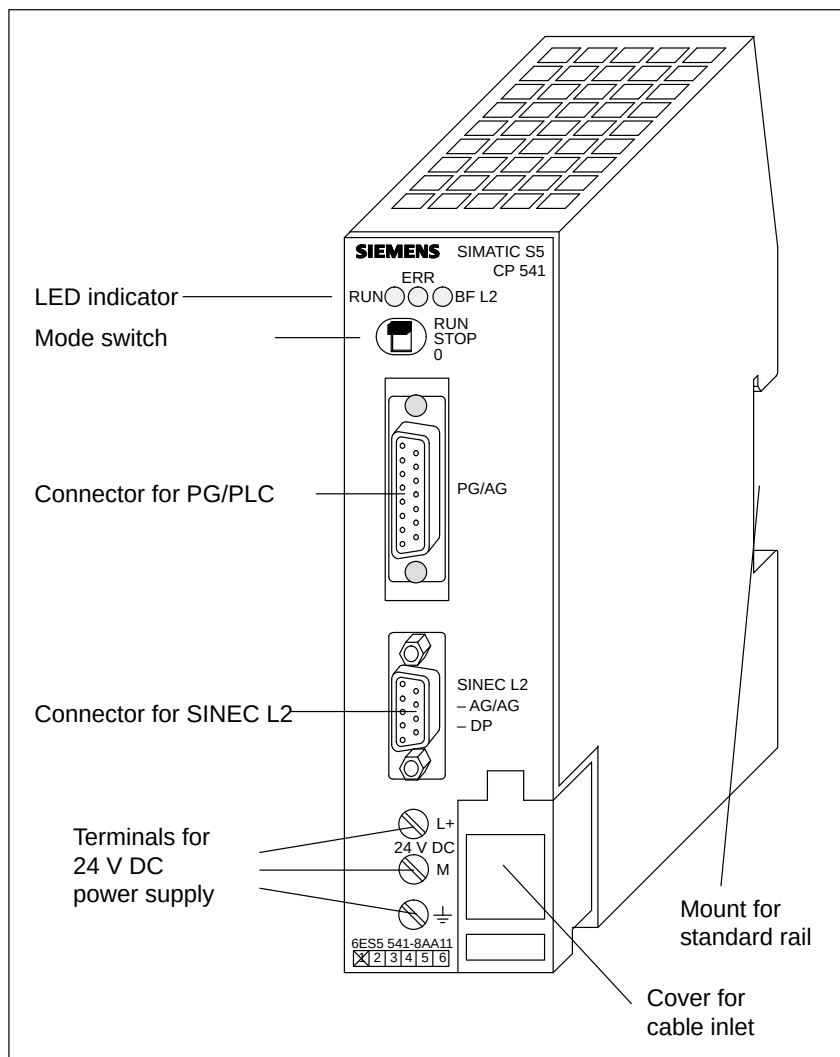


Figure 1-2 View of the CP 541

Technical Data

A

What are General Technical Data?

The general technical data contain the standards and test values met and satisfied by the CP 541; that is, the criteria to which the CP 541 has been tested.

CE Mark



Our products meet the requirements of EU Guideline 89/336/EEC for electromagnetic compatibility and the harmonized European Norms (ENs) listed there.

The EU conformity declarations are kept available for the appropriate authorities at the following address, in compliance with the above EU Guideline, Article 10:

Siemens Aktiengesellschaft
Bereich Automatisierungstechnik
AUT E 148
Postfach 1963
D-92209 Amberg

Field of Application

SIMATIC products are designed for operation in industry.

With an individual approval, SIMATIC products can also be used in domestic applications (homes, shops, trades and small businesses). You must obtain the individual approval from an authority or test center. In Germany, the individual approval is issued by the Federal Department for Post and Telecommunications and its regional centers.

Field of application	Requirement for	
	Spurious emission	Noise immunity
Industry	EN 50081-2 : 1993	EN 50082-2 : 1995
Domestic	Individual approval	EN 50082-1 : 1992

Installation Guidelines

SIMATIC products meet the requirements if you comply with the installation guidelines described in the manuals for installation and operation.

This Chapter

This chapter contains the technical data of the CP 541.

Climatic environmental conditions to IEC 1131-2	Electromagnetic compatibility (EMC)/interference immunity
Temperature Operation - Horizontal installation 0 ... + 60 °C - Vertical installation 0 ... + 40 °C Storage/transportation – 40 ... + 70 °C Temperature change - Operating 3 K/h max. - Non-operating 1 K/min max.	Discharge of static electricity to IEC 801-2 Severity 3 - Discharge of static electricity 8 kV discharge in air Discharge on all parts accessible to the user in normal operation - Test voltage 6 kV contact discharge
Relative humidity to DIN 40040 15 ... 95 % No condensation	Electromagnetic fields to IEC 801-3, Severity 3 Field strength 10 V/m
Atmospheric pressure - Operating 795 ... 1080 hPa - Non-operating 660 ... 1080 hPa	Fast transient noise voltages (burst) to IEC 801-4, Severity 3 - On power supply lines 2 kV - At communication interfaces 2 kV
Pollutants SO ₂ ≤ 0.5 ppm relative humidity ≤ 60% no condensation H ₂ S ≤ 0.5 ppm relative humidity ≤ 60% no condensation	Spurious emission to EN 55011 Limit class A
Degree of protection to IEC 529 - Construction IP 20 - Class I to IEC 536	RF test to IEC 801-6, Severity 3 - Test voltage 10 V - Frequency range 150 kHz – 80 MHz
Mechanical environmental conditions	IEC/VDE safety specifications
Vibrations to IEC 68-2-6 10 Hz ≤ f < 58 Hz const. amplitude 0.075 mm 58 Hz ≤ f < 150 Hz const. acceleration 1 g	Insulation rating - Between electrically independent circuits and circuits connected to central ground point to DIN VDE 0160 (05.1988) or UL 508 CSA 22.2 Nr. 142 - Between all circuits and central ground point to DIN VDE 0160 (05.1988) or UL 508 CSA 22.2 Nr. 142
Repetitive shock tested to VDE 0116 - Type of shock semi-sinusoidal - Shock intensity 15 g peak value 11 ms duration - Number 18 shocks	RFI suppression to EN 50081-2 industrial application
Drop and topple to IEC 68-2-31 Tested with drop height 100 mm	Test voltage - Rated voltage V_i = 0 ... 50 V DC - Test voltage 500 VDC

Dimensions and weight		Interface data	
Dimensions		Communication modes	
• Height	162 mm	• PLC-PLC	29 connections
• Width	46 mm	• Broadcast	125 connections
• Depth	120 mm	• DP connection	1 to DP master
Weight	415 g	Message length for	
		• PLC-PLC	64 bytes max.
		• Broadcast	64 bytes max.
		• DP connection	16 words max. (word-consistent)
		Permissible blocks	
		• Data blocks	DB1 and DB2
Supply of power		SINEC L2 data	
Input voltage		Main processor	80C537
• Rated value	24 VDC	Communications processor	V 25+ with SPC
• Permissible range	20 ... 30 VDC including ripple	Bus cable	twisted, shielded pair
• Ripple	$U_{ppmax} = 3 \text{ V}$	Interface	RS 485
Current consumption		Transmission method	bit serial
• From 24 V	200 mA typical	Transmission protocol	to DIN 19245, Part 1
• Power dissipation	4.8 W	Access method	
Output voltage		• Between active stations	token passing to DIN 19245, Part 1
• V1 for PG	5 V	• Between active and passive stations	master-slave to DIN 19245, Part 1
• Isolation	no	Transmission rates (adjustable in DB1)	
• V2 for SINEC L2	5 V		
• Isolation	yes		
Output current			
• From V1 for PG	$\leq 55 \text{ mA}$	Min. slave interval	
• Short-circuit protection	electronic		
• From V2 for SINEC L2	$\leq 100 \text{ mA}$	Manufacturer identifier	
• Short-circuit protection	fuse		
• Fuse rating	250 mA fast not replaceable		
Chassis ground and protective ground conductor are internally bridged.			

Dimension Drawing

The dimension drawing for the CP 541 is given in Figure A-1.

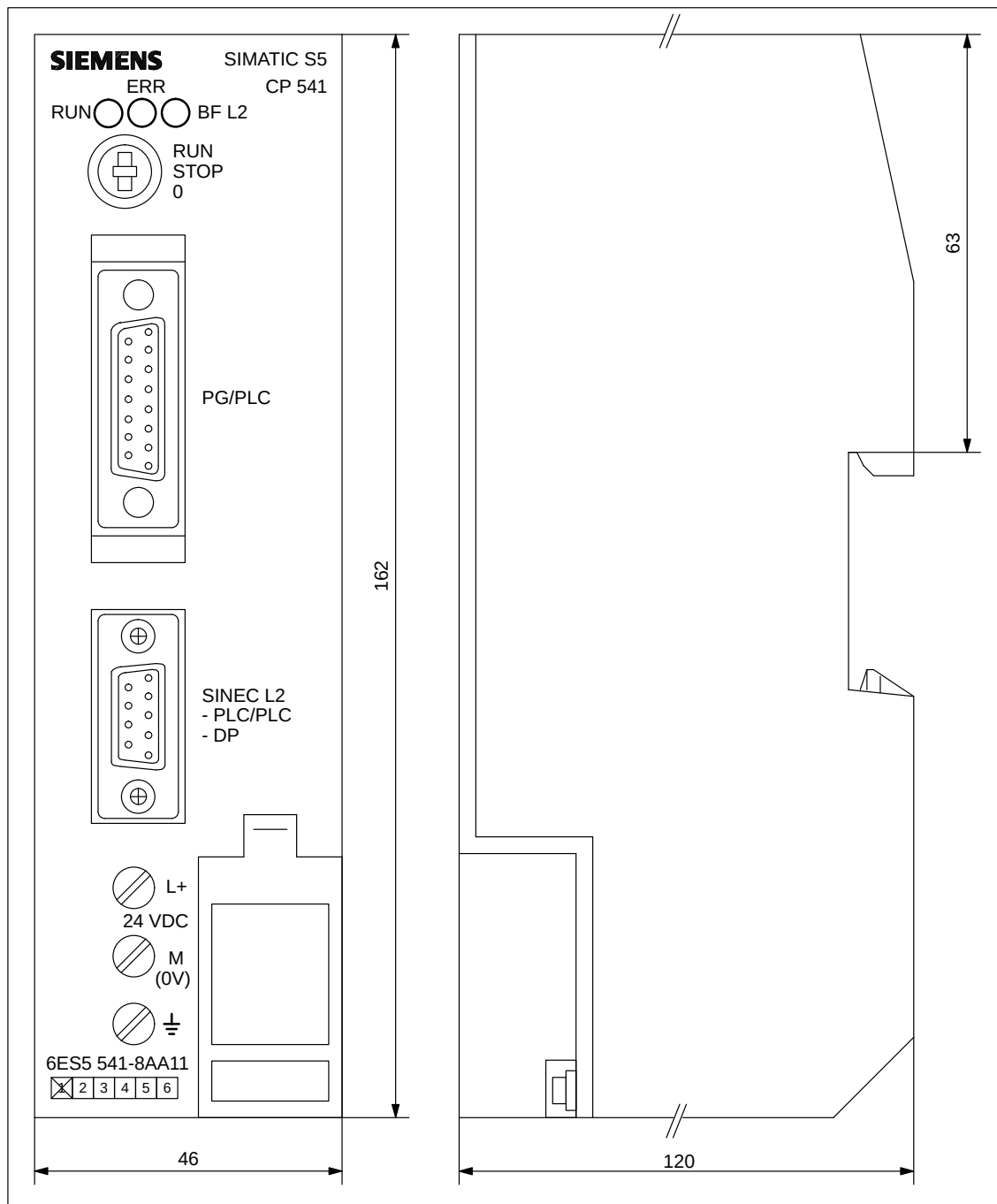


Figure A-1 CP 541 Dimension Drawing