MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Selected official pages for procurement and maintenance review

PRODUCT BRAND

Siemens

PRODUCT MODEL

6ES7288-7DP01-0AA0

EM DP01 PROFIBUS Slave Module. Relevant section pages: 845, 846, 847, 848, 849. Adjacent model text on shared pages is outside this product reference.

OFFICIAL SOURCE

S7-200 SMART System Manual; V2.5, 01/2020

Siemens original documentation and product reference

Historical V2.5 (01/2020) technical reference, not installation instructions or the latest manual. Named CPU and separate port-power limits apply. Adjacent battery-board and cable data are outside DP01 scope.

AMIKON PRODUCT SUPPORT

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Amikon Limited prepared this independent reference package. Selected manufacturer pages follow with their original content and pagination visible.

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.

⚠ 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 personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. 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.

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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.

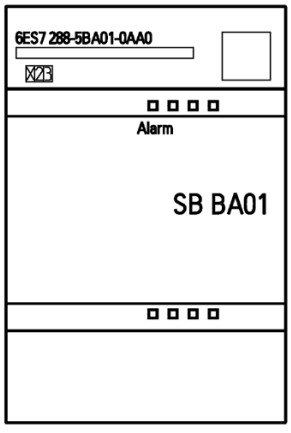
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Diagnostics	SB BA01 Battery Board
Critical battery level	< 2.5 V
Battery diagnostic	Low voltage indicator: • Low battery voltage causes the LED on the BA01 panel to illuminate with the red light continuously ON. • Diagnostic alarm and/or digital output status of battery low condition available
Battery status	Battery status bit provided 0 = Battery OK 1 = Battery low
Battery status update	Battery status is updated at power up and then once per day while CPU is in RUN mode.

Table A- 158 Wiring diagram for the SB BA01 Battery board (6ES7288-5BA01-0AA0)

SB BA01 Battery board (6ES7288-5BA01-0AA0)	
	

A.10 EM DP01 PROFIBUS DP module

Table A- 159 General specifications

Technical data		EM DP01 PROFIBUS DP
Article number		6ES7288-7DP01-0AA0
Dimensions W x H x D (mm)		70 x 100 x 81
Weight		176.2 g
Power dissipation		1.5 W (no load)
V DC requirements		
	+5 V DC (SM Bus)	150 mA (no load)
	+24 V DC	See below

Table A- 160 EM features

Technical data	EM DP01 PROFIBUS DP module
Number of ports (limited power)	1
Electrical interface	RS485
PROFIBUS DP / MPI baud rates (set automatically)	9.6, 19.2, 45.45, 93.75, 187.5, and 500 Kbps; 1.5, 3, 6, and 12 Mbps
Protocols	PROFIBUS DP slave and MPI slave
Cable length	
Up to 93.7 Kbps	1200 m
187.5 Kbps	1000 m
500 Kbps	400 m
1 to 1.5 Mbps	200 m
3 to 12 Mbps	100 m
Network capabilities	
Station address settings	0 to 99 (set by rotary switches)
Maximum stations per segment	32
Maximum stations per network	126, up to 99 EM DP01 stations
MPI connections	6 total (1 reserved for an OP)

Table A- 161 Power supply

Technical data	EM DP01 PROFIBUS DP
24 V DC input power requirements	
Voltage range	20.4 to 28.8 V DC (Class 2, Limited Power, or sensor power from PLC)
Maximum current: Module only with port active Add 90 mA of 5 V port load Add 120 mA of 24 V port load	 30 mA 60 mA 180 mA
Ripple noise (< 10 MHz)	< 1 V peak to peak (maximum)
Isolation (field to logic) [1]	500 V AC for 1 minute
5 V DC power on communications port	
Maximum current per port	900 mA @ nominal 5 V
Current limit	2.7 A @ 5 V
Isolation (5 V DC to logic)	500 V AC for 1 minute
24 V DC power on communications port	
Voltage range	20.4 to 28.8 V DC
Maximum current per port	120 mA @ nominal 24 V

Technical data	EM DP01 PROFIBUS DP
24 V DC input power requirements	
Current limit	0.7 to 2.4 A
Isolation	Not isolated, same circuit as input 24 V DC

[1] No power is supplied to module logic by the 24 V DC supply. 24 V DC supplies power for the communications port.

A.10.1 S7-200 SMART CPUs that support the EM DP01 PROFIBUS DP module

The S7-200 SMART EM DP01 PROFIBUS DP module is an intelligent expansion module designed to work with the S7-200 SMART CPUs, firmware version 2.1 or later, shown in the following table.

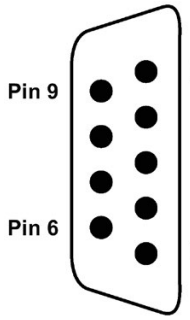
Table A- 162 EM DP01 PROFIBUS DP module compatibility with S7-200 SMART CPUs, firmware version 2.1 or later

CPU	Description
ST20	CPU ST20 (DC/DC/DC)
SR20	CPU SR20 (AC/DC/Relay)
ST30	CPU ST30 (DC/DC/DC)
SR30	CPU SR30 (AC/DC/Relay)
ST40	CPU ST40 (DC/DC/DC)
SR40	CPU SR40 (AC/DC/Relay)
ST60	CPU ST60 (DC/DC/DC)
SR60	CPU SR60 (AC/DC/Relay)

A.10.2 Connector pin assignments for EM DP01

The RS485 communication serial port on the EM DP01 is RS485-compatible on a nine-pin subminiature D female connector, in accordance with the PROFIBUS standard as defined in the European Standard EN 50170. The following table shows the connector that provides physical connection for the communication port and describes the communication port pin assignments.

Table A- 163 Pin assignments for the S7-200 SMART EM DP01

Pin Number	Connector	PROFIBUS
1		Shield
2		24 V Return
3		RS485 Signal B
4		Request-to-Send
5		5 V Return
6		+5 V (isolated)
7		+24 V
8		RS485 Signal A
9		NC

A.10.3 EM DP01 PROFIBUS DP module wiring diagram

Table A- 164 Wiring diagram for the EM DP01 PROFIBUS DP module (6ES7288-7DP01-0AA0

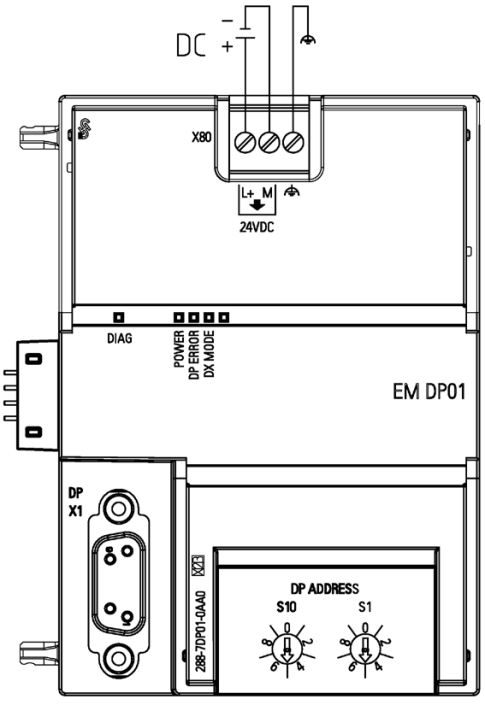
EM DP01 PROFIBUS DP module (6ES7288-7DP01-0AA0)	
	

Table A- 165 Connector pin locations for EM DP01 PROFIBUS DP module (6ES7288-7DP01-0AA0)

Pin	X80
1	L+ / 24 V DC
2	M / 24 V DC
3	Functional Earth

A.11 S7-200 SMART cables

A.11.1 S7-200 SMART I/O expansion cable

Table A- 166 S7-200 SMART Expansion cable

Technical Data	
Article number	6ES7288-6EC01-0AA0
Cable length	1 m
Weight	80 g

Refer to the installation section for information about installing and removing the S7-200 SMART expansion cable.