



SIMATIC

Embedded Automation S7 Modular Embedded Controller

Operating Instructions

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Introduction

S7-modular Embedded Controller - Conventions

- *S7 Modular Embedded Controller*

The *S7-modular Embedded Controller* system consists of an Embedded Controller, S7-300 modules, and the optional expansion modules EM PC and EM PCI-104. The system is referred to for short as *S7-mEC*.

- *EC31, EC31-RTX, EC31-RTX F, EC31-HMI/RTX*

In the documentation, the terms *Embedded Controller* or *device* are also used for the product labels *EC31, EC31-RTX, EC31-RTX F, EC31-HMI/RTX* if the description does not refer to a specific version.

Purpose of the manual

This manual contains all the information you need for commissioning and using the *S7-modular Embedded Controller* system.
It addresses programmers who commission the device.

Scope

This manual is valid for the following components of the *S7-mEC*:

Table 1 Components of the *S7-mEC*

Component	Order no.:	Release
Embedded Controller EC31	6ES7677-1DD10-0BA0	08/2010 or later
Embedded Controller EC31-RTX	6ES7677-1DD10-0BB0	08/2010 or later
Embedded Controller EC31-RTX F	6ES7677-1FD10-0FB0	08/2010 or later
Embedded Controller EC31-HMI/RTX 128 PT	6ES7677-1DD10-0BF0	08/2010 or later
Embedded Controller EC31-HMI/RTX 512 PT	6ES7677-1DD10-0BG0	08/2010 or later
Embedded Controller EC31-HMI/RTX 2048 PT	6ES7677-1DD10-0BH0	08/2010 or later
Expansion module EM PCI-104	6ES7677-1DD40-1AA0	08/2010 or later
Expansion module EM PC	6ES7677-1DD50-2AA0	01/2009 or later

Note

Identification of the product variants

The Embedded Controller always has the label **EC31** with order number 6ES7677-1DD10-0BA0. The two letters above the power connector identify the product variant.

2.6 Expansion module EM PC

2.6.1 EM PC

Scope of delivery

The following components ship with the product:

- Expansion module EM PC
- Product Information

Properties

The EM PC expansion module features standard PC interfaces. Additional memory slots and communication ports are available in addition to the connection options for a local operation and monitoring.

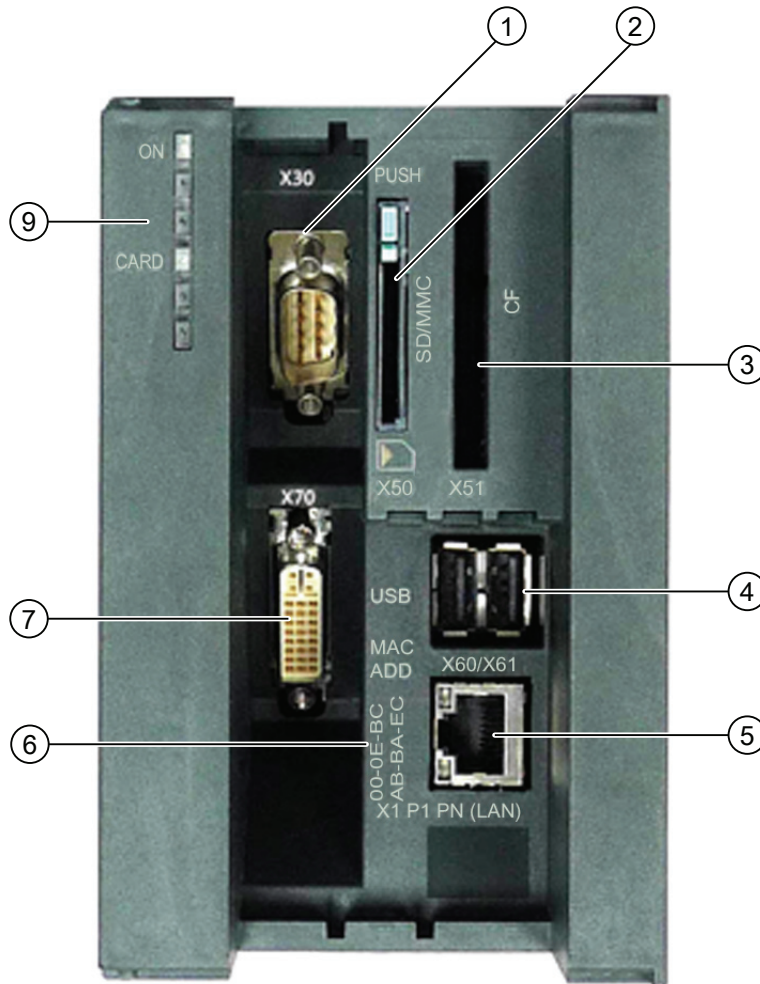


Figure 2-6 Expansion module EM PC

2.6.2 Display elements and EM PC interfaces

Display elements and interfaces

The figure below shows the display elements and interfaces of the EM PC.



- | | | |
|---|----------------|--|
| 1 | X30 | Serial interface V.24 (RS232) |
| 2 | X50 SD/MMC | Combination slot for SD or Multi Media Card with ejector |
| 3 | X51 CF | Slot for CompactFlash card |
| 4 | X60/X61 USB | 2 x USB 2.0 high-speed |
| 5 | X1 P1 PN (LAN) | Gigabit Ethernet connection |
| 6 | | MAC address |
| 7 | X70 | DVI-I graphics interface |
| 8 | | LED displays |

Status indicators

The following LED displays show the status of the EM PC:

Table 2- 10 Status displays EM PC

LED designation	Color	Meaning
ON	Green	Power On
CARD	Green	Flashes when SD/MMC or CF card is active. Lit if at least one memory medium is inserted.

Serial interface

The serial interface at the EM PC is emulated via USB controller.

When developing your own applications, always use the latest Microsoft development tools and program design. For additional information, refer to the Microsoft documentation.

10.8 Expansion module EM PC

Technical data of EM PC

Table 10- 7 Technical data of EM PC

Product version	
Order no.:	6ES7677-1DD50-2AA0
Hardware version	01
Power loss, typically	14 W from extension bus; incl. 2 x 0.5 A for USB = 5 W
Diagnostics	
Diagnostic Functions	Yes; ON LED, CARD LED for displaying accesses on SD/MMC, CF
EMC	
Limit class A, for use in industrial areas	Yes
Environmental requirements	
Operating temperature	
Min.	0 °C
Max.	50 °C
Storage/transport temperature	
Min.	-40 °C
Max.	70 °C
Degree of protection	
IP 20	Yes
Standards, approvals, certificates	
CE label	Yes
CSA approval	Yes
cULus	Yes
FM approval	Yes
ATEX approval	Yes
Interfaces	
Free slots	1 x slot for CF card; 1 x slot for SD/MMC
Graphics interface	1 x DVI-I
Serial interface	1 x V.24 (RS232)
USB	2 x USB 2.0 high-speed / 500 mA
Ethernet	Onboard, 10/100/1000 mbps, RJ45
Dimensions and weight	
Width (mm)	80; without bus connector extension bus
Height (mm)	125
Depth (mm)	115
Weight (kg)	Approx. 0.4

A.1.3 EM PC

Dimensional drawings of expansion module EM PC

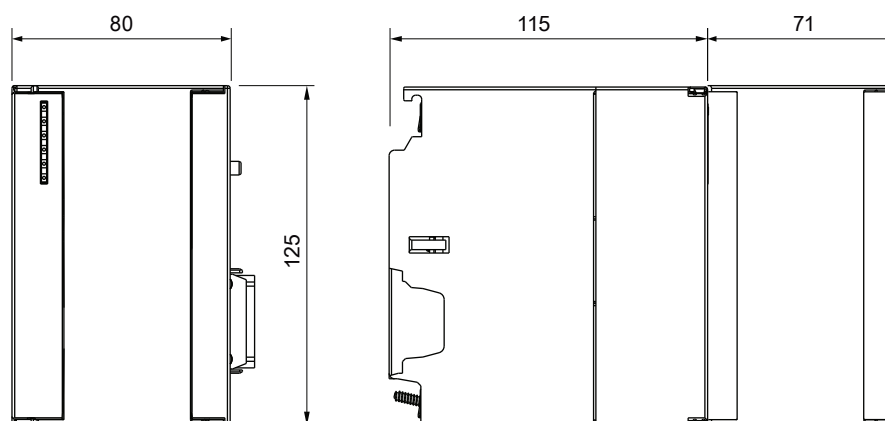


Figure A-4 Dimensional drawings EM PC (dimensions in mm)

A.2 Order numbers

Embedded controllers, expansion modules and accessories

Table A- 1 Order numbers of embedded controllers, expansion modules and accessories

Designation	Order no.:
EC31 Embedded Controller with Intel Core Duo 1.2 GHz processor, 1 GB RAM, 4 GB flash memory, interfaces: 2 x USB, 2 x PROFINET, 1 x Fast Ethernet, 1 MMC slot, with Windows Embedded Standard 2009	6ES7677-1DD10-0BA0
EC31-RTX Embedded Controller with Intel Core Duo 1.2 GHz processor, 1 GB RAM, 4 GB flash memory, interfaces: 2 x USB, 2 x PROFINET, 1 x Fast Ethernet, 1 x MMC slot, with Windows Embedded Standard 2009, WinAC RTX 2010, and SIMATIC NET Softnet-S7 Lean Edition 2010	6ES7677-1DD10-0BB0
EC31-RTX F Embedded Controller with Intel Core Duo 1.2 GHz processor, 1 GB RAM, 4 GB flash memory, interfaces: 2 x USB, 2 x PROFINET, 1 x Fast Ethernet, 1 x MMC slot, with Windows Embedded Standard 2009, WinAC RTX F 2010, and SIMATIC NET Softnet-S7 Lean Edition 2010	6ES7677-1FD10-0FB0

Designation	Order no.:
EC31-HMI/RTX Embedded Controller with Intel Core Duo 1.2 GHz processor, 1 GB RAM, 4 GB flash memory, interfaces: 2 x USB, 2 x PROFINET, 1 x Fast Ethernet, 1 x MMC slot; with Windows Embedded Standard 2009, WinAC RTX 2010, SIMATIC NET Softnet-S7 Lean Edition 2010, and WinCC flexible 2008 Runtime EC31-HMI/RTX 128 PT EC31-HMI/RTX 512 PT EC31-HMI/RTX 2048 PT	6ES7677-1DD10-0BF0 6ES7677-1DD10-0BG0 6ES7677-1DD10-0BH0
Expansion module EM PCI-104	6ES7677-1DD40-1AA0
Expansion module EM PC	6ES7677-1DD50-2AA0
SIMATIC NET IE FC RJ45 PLUG 90 (for connector X1) Connector with rugged metal shell and FastConnect terminating technology, 90° cable outlet 1 per pack, 1 pack 10 per pack, 1 pack 50 per pack, 1 pack	6GK1901-1BB20-2AA0 6GK1901-1BB20-2AB0 6GK1901-1BB20-2AE0
WinAC RTX 2010	6ES7671-0RC08-0YA0
WinAC RTX F 2010	6ES7671-1RC08-0YA0
SIMATIC PC adapter cable, DVI-I compliant with VGA, 250 mm	6ES7648-3AB00-0XA0
SIMATIC PC DVI-I Y graphics adapter cable; DVI-I according to VGA and DVI-D	6ES7648-3AE00-0XA0
CP 5603 S7-mEC Package CP 5603 communication processor Installation kit CP 5603 for S7-mEC	6GK1560-3AE00
CP 5603 communication processor	6GK1560-3AA00
Installation kit CP 5603 for S7-mEC Panel for installation with slots for PROFIBUS DP plug-in connectors	6GK1560-3AA00-0AE0

Interface modules

Table A- 2 Interface module order numbers

Designation	Order no.:
IM 360	6ES7360-3AA01-0AA0
IM 361	6ES7361-3CA01-0AA0
IM 365	6ES7365-0BA01-0AA0