

EM 241 MODULES

Overview

- Modem expansion module for SIMATIC S7-200
- The Plug&Play solution for all classical modem tasks in the PLC field
- Used for remote maintenance/remote diagnostics, CPU-to-CPU/PC communication or SMS/pager messaging
- Minimal engineering outlay required
- Replaces external modems connected via the communications interface of the CPU
- Easy to retrofit



Application

The EM 241 is a modem expansion module for SIMATIC S7-200. It can be used for all classical modem tasks in the PLC field, such as remote maintenance and diagnostics, CPU-to-CPU/PC communication or SMS messaging.

The EM 241 is the ideal solution for remote PLC maintenance, remote control, alarm systems and remote communication in conjunction with SIMATIC S7-200. It reduces the engineering outlay previously associated with external modem solutions, because instead of time-consuming programming, it is only necessary to program the module.

Retrofitting can even be carried without additional overhead, as additional communication cables and free CPU interfaces are not required.

Design

The EM 241 modem features:

- 8 status LEDs for indicating all important modem states
- Standard RJ11 socket for connection to the worldwide analog network
- 2 rotary switches for country settings specific to the country of use (see manual for list of countries)

The module is mounted on a standard rail as any other S7-200 expansion module and connected via the integrated connection cable on the expansion bus. The power is supplied via the screw-type terminals on the device. It can be supplied directly from the 24 V DC sensor supply of the S7-200. The configuration data is read out of the CPU automatically on connection.

Function

4 operating modes using different integrated communication protocols:

- Teleservice (Mode 1):
incl. program modification, status, etc., via STEP 7-Micro/WIN; configuration is not necessary.
- Modbus master/slave (Mode 2)
- Text messages/pager messages (Mode 3)
- CPU-to-CPU communication, Modbus or PPI (Mode 4)

A freely programmable protocol cannot be implemented with the EM 241 modem.

Additional functions:

- Automatic selection of the transmission speed between 300 and 33,600 bps
- Pulse or tone dialing
- Activated callback function and password protection for maximum security

Programming

Communication via operating modes 2 to 4 (Modbus master/slave, SMS/pager and CPU-to-CPU messaging) is parameterized with the modem assistants integrated into STEP 7-Micro/WIN from V3.2 and automatically integrated into the project. Time-intensive programming is not necessary.

The actual transmission protocol is a component part of the firmware of the modem and does not reserve any RAM in the CPU. A freely programmable protocol cannot be implemented with the EM 241 modem.

Technical specifications

6ES7 241-1AA22-0XA0**Supply voltage**

Load voltage L+

- Rated value (DC) 24 V
- permissible range, lower limit (DC) 20.4 V
- permissible range, upper limit (DC) 28.8 V

Input current

from load voltage L+ (without load), max. 70 mA

from backplane bus 5 V DC, max. 80 mA; from expansion bus

Power losses

Power loss, typ. 2.1 W

Interfaces

Number of RS 485 interfaces 0

Modem

- Standards Bell 103, Bell 212, V. 21, V. 22, V. 22 bis, V. 23c, V. 32, V. 32 to, V. 34
- Tone dialing Yes
- Pulse dialing Yes
- Telephone lines RJ11 (4 cables, 6 contacts)

Communication functions

Bus protocol/transmission protocol PPI, Modbus

Width 71.2 mm

Height 80 mm

Depth 62 mm

Weight, approx. 190 g