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
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 relevant 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.

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.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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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Preface

Purpose of this manual

This manual provides a comprehensive overview of the modular TS Adapter. It supports you during the installation and setting up of the hardware. It explains the requirements for operation and the hardware installation, and how to connect the individual components to the Ethernet and the telephone network.

The intended readership of the manual includes programmers and engineering personnel involved in configuration, commissioning and servicing of automation systems.

Basic knowledge required

The following knowledge is required in order to understand the manual:

- General knowledge of automation technology
- You will also need to know how to use computers or PC-like equipment (such as programming devices) under the Microsoft® Windows® operating system.
- Knowledge about STEP 7-programming
- Knowledge about Ethernet communication and modems.

Supplementary documentation

You can find information on PROFINET and Ethernet in the following documentation:

<table>
<thead>
<tr>
<th>Documentation</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFINET system description</td>
<td>Basic knowledge of PROFINET: Network component, data exchange and communications, PROFINET IO, Component Based Automation, application example - PROFINET IO and Component Based Automation</td>
</tr>
<tr>
<td>System manual</td>
<td></td>
</tr>
<tr>
<td>SIMATIC NET: Twisted-pair and fiber-optic networks Manual</td>
<td>Description of Industrial Ethernet networks, network configuration, components, installation regulations for networked automation systems in buildings, etc.</td>
</tr>
<tr>
<td>Communication with SIMATIC Manual</td>
<td>Basics, services, networks, communication functions, connecting PGs/OPs, project design and configuration in STEP 7</td>
</tr>
</tbody>
</table>
Range of validity of this manual

The manual is relevant to the following components:

<table>
<thead>
<tr>
<th>Components</th>
<th>Order number</th>
<th>As of version</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS Adapter IE Basic</td>
<td>6ES7 972-0EB00-0XA0</td>
<td>V 1.0.0</td>
</tr>
<tr>
<td>TS Module Modem</td>
<td>6ES7 972-0MM00-0XA0</td>
<td>V 1.0.0</td>
</tr>
<tr>
<td>TS Module ISDN</td>
<td>6ES7 972-0MD00-0XA0</td>
<td>V 1.0.0</td>
</tr>
<tr>
<td>TS Module RS232</td>
<td>6ES7 972-0MS00-0XA0</td>
<td>V 1.0.0</td>
</tr>
<tr>
<td>TS Module GSM</td>
<td>6GK7 972-0MG00-0XA0</td>
<td>V 1.0.0</td>
</tr>
</tbody>
</table>

This manual contains a description of the components which were valid at the time the manual was published.

Network approval for Europe

The TS Module Modem corresponds with the European standard TBR 21.

The TS Module ISDN corresponds with the telecommunication approval TBR 3.

Network approval for the USA

This TS Module Modem complies with ACTA.

Network approval for Canada

The Industry Canada (ic) label identifies certified TS Module Modem.

Recycling and disposal

The TS Adapter and the TS Module are recyclable due to their low pollutant content. For environmentally sound recycling and disposal of your old devices please contact a certified disposal service company for electronic scrap.
Product overview

2.1 Components

Components of the modular TS Adapter

A modular TS Adapter as a total unit consists respectively of the following two components:

- Basic unit
- TS Module

Only the combination of a basic unit and a TS Module forms a complete functional unit (total unit). Basic unit and TS Module are connected and assembled together through a connector.
Basic unit

The functions of the TS Adapter are implemented in the basic unit. The basic unit has an Ethernet port for the connection to a PG or to a PC or to the automation system. The basic unit is supplied and grounded with DC 24 V through a 3-pin socket board.

Use the following as a basic unit:

- TS Adapter IE Basic

More information about this can be found in the manual from the respective basic unit.

TS Module

The TS Module forms the electrical interface to the telephone network. The TS Modules are supplied with electricity from the basic unit through the shared connector.

The following TS Modules exist:

- **TS module modem** (Page 23)
  
  The TS Module Modem contains an analog modem for the connection to the analog telephone network.

- **TS Module ISDN** (Page 31)
  
  The TS Module ISDN contains a terminal adapter for the connection to the ISDN network.

- **TS Module RS232** (Page 39)
  
  The TS Module RS232 has a RS232 interface for the connection of an external modem.

- **TS Module GSM** (Page 45)
  
  The TS Module GSM contains a radio modem for connection to the GSM/GPRS network.

More information about the individual TS modules can be found in the respective chapters of this manual.
2.2 Hardware Requirements

Overview:

- In order to fulfill the installation requirements for UL, you must use a UL-listed NTBA on the TS Module ISDN. NTBA = Network Terminal Basic Adapter
- TS Module Modem: The following telephone cable is prescribed for compliance of the UL requirements:
  
  Phone cable of UL category DUXR, consisting of a line plus connector, with a cross-section of AWG 26.
  
  The supplied cable fulfills this requirement.
- TS Module RS232: All conventional modems permitted for industrial use can be connected to the TS Module RS232.
Product overview

2.2 Hardware Requirements
Mounting

3

3.1 Connect TS Adapter and TS Module

Before assembly

Before the assembly of the modular TS Adapter, the basic unit and the TS Module must be connected:

![Diagram showing the connection of the basic unit and TS Module](image)

- ① Basic unit
- ② TS Module
- ③ Plug connector from the TS module
- ④ Elements
- ⑤ Ethernet port
- ⑥ Cannot be opened!

Figure 3-1 Connect basic unit and module
Mounting

3.1 Connect TS Adapter and TS Module

**CAUTION**

A TS Module can be damaged if you touch the contacts of the plug connector sticking out sideways of the TS Module.

Follow the EGB directives and directions in order to avoid damaging the TS Module through electrostatic discharge.

Before you assemble the TS Module and the basic unit make sure that both are in a de-energized state and that all mounting parts (busbars, plates, etc.) are connected with the protective conductor.

**CAUTION**

Modules can get damaged.

- Before connecting the TS Module and basic unit, make sure that the contact pins sticking out sideways from the TS Module are straight and not bent.
- When connecting, ensure that the male connector and guide elements are positioned correctly.
- Don’t try to use force to connect a TS Module or a TS adapter basic unit to a module/block from a different system.
- Through constructive measures and coded guide elements, you can make sure that only TS modules can be connected with the TS adapter basic units. Do not change the mechanical construction with force and do not remove or damage the guide elements.
- Only place a TS module onto a basic unit of the modular TS adapter and vice versa.

**Mounting methods**

You have the following alternatives for the mounting of the TS Adapter and TS Module:

- Installing on the S7-300 standard rail (Page 13)
- Installation on a standard rail (Page 15)
- Wall mounting (Page 17)
- Cubicle Mounting (Page 18)
3.2 Installing on the S7-300 standard rail

Requirement

- You have connected the basic unit and TS Module to the total unit.
- The S7-300-mounting rail is installed.

Mounting

1. Hang the standard rail adapter (optional) ② on the upper edge of the S7-300-standard rail ①.
2. Clamping the profile rails adapter ② with both screws ③ to the S7-300-standard rail ①.
3. Hang the total unit ④ in the standard rail profile of the adapter ② and move it backwards until you hear it lock. Make sure that you position the total unit directly above the fixing bolt.

Figure 3-2 Mount on S7-300-rails
Dismounting

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the plug of the analog cable and Ethernet cable from the TS Module and from the basic unit before you remove the voltage and thus, separate the grounding of the TS Adapter.</td>
</tr>
</tbody>
</table>

1. Remove both latching mechanisms on the underside of the basic unit and TS Module with a screwdriver and disengage the latching mechanism.

2. Move the basic unit and TS Module forwards out of the standard rail profile.
3.3 Installation on a standard rail

Requirement

- You have connected the basic unit and TS Module to the total unit.
- The DIN rail is mounted.

Mounting

Note

If you install the total unit in vertical installation or in an environment with strong vibrations, use the end bracket 8WA1 808 on the DIN rail to prevent that the TS Module comes off the TS Adapter IE Basic.

You can also use screws as described in section "Wall mounting (Page 17)".

**CAUTION**

<table>
<thead>
<tr>
<th>TS Module GSM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Always</strong> use the end retainers 8WA1 808 with the TS Module GSM to prevent loosening of the TS Module from the TS Adapter IE Basic.</td>
</tr>
</tbody>
</table>

1. Hang the total unit ② in the standard rail ①.
2. Tip the total unit back until you hear it engage.

![Diagram showing mounting on DIN rails](image)

- ① DIN rail
- ② Total unit

Figure 3-3 Mounting on DIN Rails
Mounting

3.3 Installation on a standard rail

Dismounting

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the plug of the analog cable and Ethernet cable from the TS Modul and from the basic unit before you remove the voltage and thus, separate the grounding of the TS Adapter.</td>
</tr>
</tbody>
</table>

1. Remove both latching mechanisms on the underside of the TS Adapter and TS Module with a screwdriver and disengage the latching mechanism.

2. Move the basic unit and TS Module forwards out of the standard rail.
3.4 Wall mounting

Requirement

You have connected the basic unit and TS Module.

Mounting

1. Move the attachment slider ① to the backside of the basic unit and TS Module in the direction of the arrow until it engages.

2. Screw the basic unit and TS module to the position marked with ② to the designated assembly wall.

The following image shows the total unit in the view from behind with the attachment sliders ① in both positions:

![Wall mounting diagram]

① Attachment slider
② Drill holes for wall mounting

Figure 3-4 Wall mounting
3.5 Cubicle Mounting

Minimum clearances for mounting, wiring and heat dissipation

If you install the modular TS Adapter in a cubicle, you must maintain the following minimum clearances to the side, above and below the modules:

![Diagram showing minimum clearances in a cubicle]

- Power supply module
- CPU
- Modules
- TS Module
- TS Adapter basic unit
- S7-300 profile rail / DIN rail

Figure 3-5 Minimum clearances in a cubicle

The clearance from the front of the module to the cubicle lid and front door must be at least 25 mm.
4.1 Change the voltage

Rules for wiring voltage

Observe the following rules when connecting lines to the voltage:

<table>
<thead>
<tr>
<th>Rules for wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid conductor</td>
</tr>
<tr>
<td>Flexible conductor without ferrule</td>
</tr>
<tr>
<td>Flexible conductor with ferrule</td>
</tr>
<tr>
<td>Number of conductors per clamp</td>
</tr>
<tr>
<td>Diameter of wire insulation</td>
</tr>
</tbody>
</table>
| Length of insulation to be stripped for the single conductor | 8 to 10 mm without ferrule  
10mm with ferrule |
| Ferrules according to DIN 46228 without insulating collar | Shape A, 10 mm to 12 mm long |
| Ferrules according to DIN 46228 with insulating collar | Shape E, to 12 mm long |
**Procedure**

To change the voltage, proceed as follows:

1. If you want to use ferrules, isolate the wires to 10 mm. Cap the crimp ferrules with the lines.
   - Strip about 8 to 10 mm off the wires.
2. Place the cores on (①).
3. Screw the ends of the cores with the voltage, tightening torque: 0.6 to 0.8 Nm (②).

![Diagram of connecting process](image)

**Plug on voltage**

Place the wired voltage ① until it locks into the power socket.

![Diagram of plug on voltage](image)
4.2 Connecting cables

Requirement

The following requirements must be met:

- You have connected the TS Adapter basic unit and the TS Module.
- You have mounted the total unit (TS Adapter-Basic Unit + TS Module).
- You have wired the voltage (Page 19) with which the total unit is supplied with DC 24 V.

Safety information

**WARNING**

Personal damages may occur.

Through overvoltage on the telephone lines, there may be personal damage if you do not maintain the prescribed sequence when connecting and separating the lines.

That is why you should observe the following instructions:

Connecting lines

1. Make sure that the power supply for the total unit is turned off.
2. Place the wired voltage for the TS Adapter on the socket board for the power supply with DC 24 V.
3. Connect the lines for L+ and M to the DC 24 V power supply.
4. Connect the ground connection of the TS Adapter to the ground.
5. With the help of the Ethernet cable, establish the connection from the TS Adapter to the PG/PC or to the automation system.
6. Establish the connection between the TS Module and telephone network.
7. Switch on the power supply for the total unit.

Separating lines

1. Switch off the power supply for the total unit.
2. Disconnect the connection between the TS Module and telephone network.
3. Disconnect the remaining connections.
4.2 Connecting cables
5.1 Scope of delivery and replacement parts for the TS Module modem

Product package

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS Module Modem</td>
<td>6ES7 972-0MM00-0XA0</td>
</tr>
<tr>
<td>Analog phone cable with 2 RJ11 connectors length 3 m</td>
<td>A5E00243688</td>
</tr>
<tr>
<td>TAE connector</td>
<td>A5E00243701</td>
</tr>
</tbody>
</table>

Spare parts

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog phone cable with 2 RJ11 connectors length 3 m</td>
<td>A5E00243688</td>
</tr>
<tr>
<td>TAE connector</td>
<td>A5E00243701</td>
</tr>
</tbody>
</table>

Please order the spare parts from your local Siemens representative.
5.2 Properties of the TS module modem

Properties

The TS Module Modem has an internal analog modem. The analog modem port is the 6-pin RJ11 socket behind the lower front panel. See the image in the chapter LED display of the TS Module Modem.

Figure 5-1 TS Module Modem
### Pin assignment and signal description of analog modem port

<table>
<thead>
<tr>
<th>Figure</th>
<th>Pin no.</th>
<th>Signal name</th>
<th>Signal direction</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Pin Diagram]</td>
<td>1</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>b1</td>
<td>Bi-directional</td>
<td>Incoming wire pair</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>a1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>–</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Analog phone cable

Using the supplied analog phone cable, you connect the RJ11-socket to a phone socket.

![Analog Phone Cable Diagram]
5.2 Properties of the TS module modem

Note
Use the supplied cable with ferrite to comply with EMC values and make sure that the ferrite is on the module side.

Note
How to connect the RJ11 connector:
1. Grasp the cable just below the RJ11 connector.
2. Make sure the RJ11 connector engages audibly.

Note
To use the TS Module Modem outside Germany, you can fit a country-specific TAE connector onto the RJ11 connector of the phone cable. For Germany, a TAE6N connector is supplied. In some countries phone sockets with RJ11 ports are available, so you can use the phone cable without a TAE connector.

See also
LED display of the TS Module modem (Page 27)
5.3 LED display of the TS Module modem

Overview

The following image shows the LEDs on the front side of the TS Module Modem. The LEDs, DCD, RxD and TxD are located behind the upper front panel. The TS Module Modem is illustrated in the image without front panels.

Figure 5-2 LEDs and interface of the TS Module Modem
Meanings of the LEDs

<table>
<thead>
<tr>
<th>Designation</th>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Green</td>
<td>Lights up if the TS Module Modem is supplied with electricity.</td>
</tr>
<tr>
<td>DCD</td>
<td>Yellow</td>
<td>Lights if a remote connection is established through the internal analog modem. Off when the remote connection is down.</td>
</tr>
<tr>
<td>RxD</td>
<td>Green</td>
<td>Displays the data transfer to the receive path of the TS Module Modem. The LED flickers during data transmission.</td>
</tr>
<tr>
<td>TxD</td>
<td>Green</td>
<td>Displays the data transfer to the transmission path of the TS Module Modem. The LED flickers during data transmission.</td>
</tr>
</tbody>
</table>

Start-up characteristics

The LED ON is switched on when the power is restored.
5.4 Technical data of the TS Module modem

Specifications

- Dimensions: Approx. H 100 x L 30 x W 75 mm
- Weight: Approx. 98 g
- ITU transmission standards:
  V.21, V.22, V.22bis, V.23, V.32, V.32bis, V.34, V.34x, K56flex, V.90, V.92
- Error correction and data compression
- a/b port
- Hayes (AT) command set
- All data formats
- Dial procedures: Dual-tone multiple-frequency (DTMF), pulse dialing

Country list

Explicit telecommunications approvals have been obtained for the following countries:

- Australia
- Belgium
- Bulgaria
- Denmark
- Germany
- Estonia
- Finland
- France
- Greece
- Great Britain
- Ireland
- Iceland
- Italy
- Canada
- Latvia
- Lithuania
- Luxembourg
- Malta
- New Zealand
- Netherlands
- Norway
- Austria
- Poland
- Portugal
- Romania
- Sweden
- Switzerland
- Slovakia
- Slovenia
- Spain
- Czech Republic
- Hungary
- USA
- Cyprus

For information on approval in other countries, please contact Technical Support.

Note

The TS Module Modem is designed so that it can be used worldwide. Ensure compliance with national laws and country-specific requirements when installing and operating the TS Module Modem.

You can find the general technical specifications of the TS Module Modem in the section Technical Specifications (Page 57).
5.4 Technical data of the TS Module modem
6.1 Scope of delivery and replacement parts of the TS Module ISDN

Product package

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS Module ISDN</td>
<td>6ES7 972-0MD00-0XA0</td>
</tr>
<tr>
<td>ISDN phone cable with 2 RJ45 connectors length 3 m</td>
<td>A5E00243651</td>
</tr>
</tbody>
</table>

Spare parts

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISDN phone cable with 2 RJ45 connectors length 3 m</td>
<td>A5E00243651</td>
</tr>
</tbody>
</table>

Please order the spare parts from your local Siemens representative.
6.2 Properties of the TS module ISDN

Properties

The TS Module ISDN has an internal terminal adapter with an S0 interface. The S0 port is the 8-pin RJ45 socket behind the lower front panel. See the image in the chapter LED display of the TS Module ISDN (Page 34).
Pin assignment and signal description of S0 port/ISDN port

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Signal name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>–</td>
</tr>
<tr>
<td>3</td>
<td>TX+</td>
</tr>
<tr>
<td>4</td>
<td>RX+</td>
</tr>
<tr>
<td>5</td>
<td>RX–</td>
</tr>
<tr>
<td>6</td>
<td>TX–</td>
</tr>
<tr>
<td>7</td>
<td>–</td>
</tr>
<tr>
<td>8</td>
<td>–</td>
</tr>
</tbody>
</table>

ISDN phone cable

Using the supplied ISDN phone cable, you connect the RJ45-socket to an ISDN S0 socket.

Note

How to connect the RJ45 connector:
1. Grasp the cable just below the RJ45 connector.
2. Make sure the RJ45 connector engages audibly.
6.3 LED display of the TS Module ISDN

Overview

The following image shows the LEDs on the front side of the TS Module ISDN. The LEDs, DCD, RxD and TxD are located behind the upper front panel. The TS Module ISDN is illustrated in the image without front panels.

Figure 6-2 LEDs and interface of the TS Module ISDN
Meanings of the LEDs

<table>
<thead>
<tr>
<th>Designation</th>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Green</td>
<td>Lights up if the TS Module ISDN is supplied with electricity.</td>
</tr>
<tr>
<td>DCD</td>
<td>Yellow</td>
<td>Lights if a remote connection is established through the internal terminal adapter. Off when the remote connection is down.</td>
</tr>
<tr>
<td>RxD</td>
<td>Green</td>
<td>Displays the data transfer to the receive path of the TS Module ISDN. The LED flickers during data transmission.</td>
</tr>
<tr>
<td>TxD</td>
<td>Green</td>
<td>Displays the data transfer to the transmission path of the TS Module ISDN. The LED flickers during data transmission.</td>
</tr>
</tbody>
</table>

Start-up characteristics

The LED ON is switched on when the power is restored.
6.4 Technical data of the TS Module ISDN

Specifications

- Dimensions: H 100 x L 30 x W 75 mm
- Weight: Approx. 92 g
- D-channel protocols DSS1 (Euro-ISDN), 1TR6
- Multiple subscriber number (MSN)
- Support of the most important B-channel-protocols:
  - V.110 (9600 bit/s, 19200 bit/s, 38400 bit/s)
  - V.120 (64 Kbit/s)
  - X.75 (64 Kbit/s)
- AT command interpreter

Country list

You will find the current list of countries online at:
http://www.siemens.com/automation/service&support

Procedure

Proceed as follows:
1. Select the entry "Product support".
2. In product support, look for the term "TS Adapter IE Basic" or "TS Module ISDN".
3. Select the "List of contributions" tab.
4. Enter "Certificates" in the "Contribution type" selection box.
Explicit telecommunications approvals have been obtained for the following countries:

- Belgium
- Bulgaria
- Denmark
- Germany
- Estonia
- Finland
- France
- Greece
- Great Britain
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Norway
- Austria
- Poland
- Portugal
- Romania
- Sweden
- Switzerland
- Slovakia
- Slovenia
- Spain
- Czech Republic
- Turkey
- Hungary
- Cyprus

For information on approval in other countries, please contact Technical Support.

Note
Ensure compliance with national laws and country-specific requirements when installing and operating the TS Module ISDN.

You can find the general technical specifications of the TS Module ISDN in the section Technical Specifications (Page 57).
TS Module RS232

7.1 Scope of deliver of the TS module RS232

Product package

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS Module RS232</td>
<td>6ES7 972-0MS00-0XA0</td>
</tr>
</tbody>
</table>
7.2 Properties of the TS module RS232

Properties

The TS Module RS232 has a COM interface that serves exclusively for the connection of the external modem.

The COM interface, a 9-pin RS232 plug connector, is located behind the lower front panel. See the image in the chapter LED display of the TS Module RS232 (Page 43).

![Figure 7-1 TS Module RS232](image)

You can operate the following devices from the COM port:

- Standard modems
- ISDN terminal adapters
- GSM wireless modems with an RS232 port

**NOTICE**

The specifications relating to interference immunity and interference emission apply only when using devices, lines and connectors conforming to industrial requirements in accordance with EN 61000-6-4:2001 and EN 61000-6-2:2001.
Pin assignment and signal description of RS232 port

The RS232 plug connector has the following pin out:

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Short description</th>
<th>Meaning</th>
<th>Inputs/outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD</td>
<td>Received signal level - the DCE signals to the DTE the reception of a carrier and the connection setup.</td>
<td>Input</td>
</tr>
<tr>
<td>2</td>
<td>RXD</td>
<td>Receive data - from DCE¹ to DTE²</td>
<td>Input</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
<td>Transmit data - from DTE to DCE</td>
<td>Output</td>
</tr>
<tr>
<td>4</td>
<td>DTR</td>
<td>Ready to send - the DTE signals this to the DCE.</td>
<td>Output</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>Internal reference ground</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>Ready to operate - the DCE signals this to the DTE.</td>
<td>Input</td>
</tr>
<tr>
<td>7</td>
<td>RTS</td>
<td>Request to send - the DTE requests the DCE to transmit data on the data cable. The DTE waits for the CTS (ready-to-send) signal from the DCE.</td>
<td>Output</td>
</tr>
<tr>
<td>8</td>
<td>CTS</td>
<td>Ready to send - the DCE is able to transfer the data incoming from the DTE.</td>
<td>Input</td>
</tr>
<tr>
<td>9</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

¹ DCE = Data Communication Equipment (modem or ISDN-TA)  
² DTE = Data Terminal Equipment (TS Adapter)

---

**Note**

**Sub D connector design**

Please observe the maximum plug dimensions specified in the following image.
7.2 Properties of the TS module RS232

Figure 7-2  TS Module RS232 plug dimensions
7.3 LED display of the TS Module RS232

Overview

The following figure shows the front side of the TS Module RS232 without front covers.

![LED and interface of the TS Module RS232](image)

Meaning of the LEDs

<table>
<thead>
<tr>
<th>Designation</th>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Green</td>
<td>Lights up if the TS Module RS232 is supplied with electricity.</td>
</tr>
</tbody>
</table>

The TS Module RS232 does not have any other LED displays. The statuses of the DCD, RxD and TxD signals are displayed in the connected modem.

Start-up characteristics

The LED ON is switched on when the power is restored.
7.4 Technical data of the TS Module RS232

Specifications

- Dimensions: H 100 x L 30 x W 75 mm
- Weight: Approx. 100 g
- Operating mode: Full duplex, asynchronous
- Signals: TXD, RXD, DSR, CTS, RTS, DTR, DCD
- Data transmission rate: 2400...115 200 bit/s
- Telegram: 8 data bits (LSB first), no parity bit, 1 stop bit
- Rule: according to RS232 standard
- Connectors: D-sub 9-pin, male (PC COMx)

You can find the general technical specifications of the TS Module RS232 in the section Technical Specifications (Page 57).
8.1 Scope of delivery and accessories for the TS Module GSM

Note
The device is designed for industrial use.

Product package

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS Module GSM</td>
<td>6GK7 972-0MG00-0XA0</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Designation</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna ANT794-4MR</td>
<td>6NH9 860-1AA00</td>
</tr>
</tbody>
</table>

Please order the accessories from your local Siemens representative.

Detailed information can be found online on the sites from the Siemens Industrial Automation Customer Support under the following ID: 2311905
8.2 Properties of the TS module GSM

Properties

The TS Module GSM has a port for the connection of a GSM/GPRS antenna and a slot for a SIM card.

The antenna connection and the slot for the SIM card are located behind the lower front panel. Refer to the image in the LED display of the TS Module GSM (Page 50).

Figure 8-1 TS Module GSM
8.3 Activation of the SIM card for a CSD data connection

CSD data connection (Circuit Switched Data)

The TS Adapter IE Basic with TS Module GSM supports GPRS and CSD data connections for outgoing calls. For incoming calls, only CSD data connections are accepted.

To allow incoming calls, the SIM card inserted in the TS Module GSM must enable CSD data connections. You can check with your network provider whether your SIM card enables CSD data connections.

You can request CSD data connection enabling from your network provider.

---

**Note**

As a rule, the network provider allocates a separate number (data number) for the CSD data connection.
8.4 SIM card installation

The SIM card slot is on the underside of the TS Module GSM.

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The SIM card may only be removed or inserted if the TS Module GSM is de-energized.</td>
</tr>
</tbody>
</table>

**SIM card installation**

1. Use a sharp object to press the SIM card tray's eject button (in the direction of the arrow) and remove the SIM card tray.

![Figure 8-2 TS module GSM with inserted SIM card](image)
2. Place the SIM card in the SIM card tray as shown and put the SIM card tray back into its slot.

Note

Ensure that the SIM card tray is inserted in the guide intended in precisely the right mounting position. If this is not done, the SIM card will not have the right contact and the SIM card tray can no longer be removed using the eject button.
8.5 LED display of the TS Module GSM

Overview

The following image shows the LEDs on the front side of the TS Module GSM. The CONNECTED and SIGNAL QUALITY LEDs are behind the top front flap. The TS Module GSM is illustrated in the image without the upper front panels.

![LEDs from the TS Module GSM](image)

Start-up characteristics

The LEDs are first activated after the initialization and are thus turned on a few seconds later corresponding to the current operating state.
## Meanings of the LEDs

<table>
<thead>
<tr>
<th>Designation</th>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Off</td>
<td>The TS Module GSM has not yet been initialized. The power supply for the TS Module GSM is missing.</td>
</tr>
<tr>
<td>Green</td>
<td>Blinks if the TS Module GSM is booked into the GSM/GPRS-network. Lights if the TS Module GSM is booked into the GSM/GPRS-network.</td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>Blinks if the TS Module GSM recognizes a faulty condition.</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>Off</td>
<td>There is no data connection (incoming/outgoing call).</td>
</tr>
<tr>
<td>Green</td>
<td>Lights up when there is a data connection.</td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>Blinks if an incorrect PIN was entered. Lights if the SIM card is not inserted or if it is faulty.</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>Off</td>
<td>The TS Module GSM does not have a GSM/GPRS network.</td>
</tr>
<tr>
<td>Yellow</td>
<td>Lights if the TS Module GSM is booked into a weak GSM/GPRS-network. Lights if the TS Module GSM is booked into a sufficient GSM/GPRS-network.</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>Lights if the TS Module GSM is booked into a good GSM/GPRS-network.</td>
<td></td>
</tr>
</tbody>
</table>

### Using the TS Module GSM

The TS Module GSM automatically searches for the GSM/GPRS network of the provider whose SIM card you are using and will book when it locates it.

If it does not find this GSM/GPRS network, the TS Module GSM searches for another GSM/GPRS network approved by the provider and books into it.

If it does not find a GSM/GPRS network here, it is not able to book.

**Causes:**

- It cannot receive the desired network (or alternative network).
- The antenna connection is faulty.
- The antenna is not adjusted correctly.
8.6 Technical data of the TS Module GSM

Specifications

- Dimensions: H 100 x L 30 x W 75 mm
- Weight: Approx. 118 g
- Speed
  - GPRS Multislot Class 10:
    - Up to 2 uplinks: GPRS: 13.4 kBit/s - 27 kBit/s Upload gross
    - Up to 4 downlinks: GPRS: 40 kBit/s - 54 kBit/s download gross
- Interfaces
  - SIM interface: 3 V / 1.8 V
  - Antenna connector: 1 x SMA antenna socket (50 Ohm)
- Frequency area; quad band: 850, 900, 1800, 1900 MHz
- Transmit output power:
  - 2 W at 850, 900 MHz
  - 1 W at 1800, 1900 MHz

Standards

The TS Module GSM satisfies the requirements of the following standards:

99/05/EC Directive of the European Parliament and of the council of
9 March 1999 on radio equipment and telecommunications
terminal equipment and the mutual recognition of their

3GPP TS 51.010-1 Digital cellular telecommunications system (Phase 2); Mobile
Station (MS) conformance specification

ETSI EN 301 511 V9.0.2 Candidate Harmonized European Standard
(Telecommunications series) Global System for Mobile
communications (GSM); Harmonized standard for mobile
stations in the GSM 900 and DCS 1800 bands covering
essential requirements under article 3.2 of the R&TTE directive

GCF-CC V3.31 Global Certification Forum - Certification Criteria

ETSI EN 301 489-1 V1.6.1 Candidate Harmonized European Standard
(Telecommunications series) Electro Magnetic Compatibility
and Radio spectrum Matters (ERM); Electro Magnetic
Compatibility (EMC) standard for radio equipment and services;
Part 1: Common Technical Requirements
8.6 Technical data of the TS Module GSM

ETSI EN 301 489-7 V1.3.1 Candidate Harmonized European Standard
(Telecommunications serie Electro Magnetic Compatibility and
Radio spectrum Matters (ERM); Eletro Magnetic Compatibility
(EMC) standard for radio equipment and ser vices; Part 7:
Specific conditions for mobile and portable radio and ancillary
equipment of digital cellular radio telecommunications system
(GSM and DCS)

IEC/EN 60950-1 of information technology equipment

Country list

Explicit telecommunications approvals have been obtained for the following countries:

- EEA (European Economic Area)
- Canada
- China
- USA
- Russia
- Argentina
- Bosnia
- Brazil
- Chile
- Ecuador
- India
- Israel
- Croatia
- Mexico
- Nicaragua
- Peru
- Philippines
- Serbia
- Taiwan
- Ukraine
- UAE (United Arab Emirates)

For information on approval in other countries, please contact Technical Support.

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>In principle the approvals stated on the TS Module GSM apply.</td>
</tr>
</tbody>
</table>

You will find the current list of countries online at:
http://www.siemens.com/automation/service&support

Proceed as follows:
1. Select the entry "Product support".
2. In product support, look for the term "TS Adapter IE Basic" or "TS Module GSM".
3. Select the "List of contributions" tab.
4. Enter "Certificates" in the "Contribution type" selection box.

Note
Ensure compliance with national laws and country-specific requirements when installing and operating the TS Module GSM.

You can find the general technical specifications of the TS Module GSM in the section Technical Specifications.

Safety information

Note
Take the following safety notes into account:

- **Radio**
  Never use the unit in areas in which the operation of radio equipment is not permitted. The device contains a radio transmitter, which can hinder electronic devices like hearing aids or pacemakers. Your doctor or the manufacturer of such devices can give you information about this. In order to make sure that no data carriers are demagnetized, please do not store any discs, credit cards or other magnetic data carriers near the device.

- **Antenna assembly**
  The compliance with the recommended radiation thresholds of the Radiological Protection Commission from September 13/14, 2001, must be guaranteed.

- **Assembly of an exterior antenna**
  With the installation of an antenna outdoors, it is necessary that the antenna is properly installed by a professional. The compliance with the lightning protection standard VDE V 0185 part 1 to 4 in its current edition and further standards are prescribed here.

- **The building lightning protection class (SK)**
  With an outdoor installation, the antenna may only be installed within the lightning protection zones O/E and 1. These lightning protection zones are predefined through the lightning protection ball radius.

- **The EMV lightning protection zones concept**
  The EMV lightning protection zones concept must be complied with. In order to avoid large induction loops, a lightning protection potential compensation must be used. If the antenna or the antenna cable is installed near the lightning protection system, the minimum clearance to the lightning protection system must be complied with. If this is not possible, an insulated assembly is required as described in the lightning protection standard VDE V 0185 part 1 to 4 in its current edition.
NOTICE

Ensure compliance with national laws and country-specific requirements when installing and operating the TS Module GSM.
8.6 Technical data of the TS Module GSM
9.1 General Specifications

<table>
<thead>
<tr>
<th>Modular TS Adapter</th>
<th>Power supply</th>
<th>Through the internal voltage of the TS Adapter IE Basic.</th>
</tr>
</thead>
</table>

**Horizontal and vertical mounting**
Comply with the general installation guidelines for SIMATIC. Cabinet installation is stipulated. You can install the modular TS Adapter vertically or horizontally. Permitted ambient temperatures:
- Vertical mounting: 0 to 40° C
- Horizontal mounting: 0 to 60° C.

1. Vertical mounting of a S7-300
2. Horizontal mounting of a S7-300
3. Profile rail
9.2 Electromagnetic Compatibility

Definition of "EMC"

Electromagnetic Compatibility (EMC) defines the capability of electrical equipment to operation satisfactorily in its electromagnetic environment without influencing this environment.

**WARNING**

Injury to persons or damage to property may occur.

Any installation of expansion units which are not approved for the modular TS Adapter may violate requirements and standards relating to safety and electromagnetic compatibility. Always use expansions approved for the system.

**NOTICE**

The specifications relating to interference immunity and interference emission apply only when using devices, lines and connectors conforming to industrial requirements in accordance with EN 61000-6-4:2007 and EN 61000-6-2:2005.

Pulsed interference

The table below shows the electromagnetic compatibility of the modular TS Adapter in relation to pulsed interference. This requires that the electrical installation to comply with relevant specifications and standards.

<table>
<thead>
<tr>
<th>Pulsed interference</th>
<th>Test voltage</th>
<th>Equivalent to severity</th>
</tr>
</thead>
</table>
| Electrostatic discharge according to IEC 61000-4-2 | Air discharge: ±8 kV  
Contact discharge: ±6 kV | 3 |
| Burst pulses to IEC 61000-4-4 | 2 kV (power supply line)  
2 kV (signal line >30 m)  
1 kV (signal line < 30 m) | 3 |
| Powerful single pulse (surge) according to IEC 61000-4-5 | 2 kV (power supply line) DC with protective elements ¹  
1 kV (signal/data line only >30 m), with protective elements as required | 3 |
| • Asymmetric coupling | 2 kV (power supply line) DC with protective elements ¹  
1 kV (signal/data line only >30 m), with protective elements as required | |
| • Symmetric coupling | 1 kV (power supply line) DC with protective elements ¹ | |

¹ e.g. surge arresters from Dehn
Type: BD VT AD24
Order no. 918402
Sinusoidal interference

The table below shows the electromagnetic compatibility of the modular TS Adapter in relation to sinusoidal interference.

Table 9-2  Sinusoidal interference

<table>
<thead>
<tr>
<th>Sinusoidal interference</th>
<th>Test values</th>
<th>Equivalent to severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF irradiation (electromagnetic fields) according to IEC 61000-4-3</td>
<td>10 V/m with 80% amplitude modulation of 1 kHz in the range from 80 MHz to 1000 MHz and 1.4 GHz to 2 GHz. 1 V/m with 80% amplitude modulation of 1 kHz in the range from 2 GHz to 2.7 GHz</td>
<td>3</td>
</tr>
<tr>
<td>RF current coupling on cables and cable shields to IEC 61000-4-6</td>
<td>Test voltage 10 V, with 80% amplitude modulation of 1 kHz in the 10 MHz to 80 MHz range</td>
<td>3</td>
</tr>
</tbody>
</table>

Radio interference emission

Interference emission of electromagnetic fields in accordance with EN 61000-6-4.

Additional measures

If you wish to operate the modular TS Adapter in an office area, you must implement additional measures to meet the requirements of EN 61000-6-3.

Take suitable additional measures if you need to increase the interference immunity of the system due to high external interference levels.
9.3 Transportation and Storage Conditions

Transportation and storage of modules

The modular TS Adapter exceeds requirements to IEC 61131-2 with respect to transportation and storage conditions. The following specifications apply to TS Adapter and TS Modules, which are transported and stored in their original packaging.

Climatic conditions compliant with IEC 60721-3-3, class 3K7 for storage and IEC 60721-3-2, class 2K4 for transportation.

Mechanical conditions compliant with IEC 60721-3-2, class 2M2.

Table 9-3 Transportation and storage conditions for modules

<table>
<thead>
<tr>
<th></th>
<th>Permitted range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>-40 to +70°C</td>
</tr>
<tr>
<td>Barometric pressure</td>
<td>1080 to 660 hPa (corresponding to an altitude of -1000 to 3500 m)</td>
</tr>
<tr>
<td>Relative humidity (at +25°C)</td>
<td>5 to 95%, without condensation</td>
</tr>
<tr>
<td>Sinusoidal vibration to IEC 60068-2-6</td>
<td>5 - 9 Hz: 3.5 mm</td>
</tr>
<tr>
<td></td>
<td>9 - 500 Hz: 9.8 m/s²</td>
</tr>
<tr>
<td>Shock impact to IEC 60068-2-29</td>
<td>250 m/s², 6 ms, 1000 shocks</td>
</tr>
</tbody>
</table>
9.4 Mechanical and climatic environmental conditions

Operating conditions

The modular TS Adapter is designed for weather-protected, stationary use. The modular TS Adapter complies with the operational requirements to DIN IEC 60721-3-3:

- Class 3M3 (mechanical requirements)
- Class 3K3 (climatic ambient conditions)

Operation with additional measures

In the following environments the modular TS Adapter must not be operated without additional measures:

- In locations with high levels of ionizing radiation
- In locations subject to difficult operating conditions, such as dust, aggressive fumes or gases, severe electrical or magnetic fields
- In installations requiring special monitoring, such as elevators and electrical systems in high risk areas

A suitable additional measure might be installation of the device in a cabinet or cubicle for example.

Mechanical ambient conditions

The table below sets out the mechanical environmental conditions for the modular TS Adapter in the form of sinusoidal vibrations.

Table 9-4 Mechanical ambient conditions

<table>
<thead>
<tr>
<th>Frequency range in Hz</th>
<th>Test values</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ≤ f &lt; 9</td>
<td>3.5 mm amplitude</td>
</tr>
<tr>
<td>9 ≤ f &lt; 150</td>
<td>9.81 m/s² constant acceleration</td>
</tr>
</tbody>
</table>

Reduction of vibration

Where the modular TS Adapter is subject to major shock impact or vibration, you must take suitable measures in order to reduce the acceleration or amplitude.
9.4 Mechanical and climatic environmental conditions

Testing of mechanical environmental conditions

The table below provides information on the type and scope of testing of mechanical ambient conditions.

<table>
<thead>
<tr>
<th>Test of ...</th>
<th>Test standard</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibration</td>
<td>Vibration test to IEC 60068-2-6 (sine wave)</td>
<td>Vibration type: Frequency sweeps at a rate of change of 1 octave per minute. 5 Hz ≤ f &lt; 9 Hz, constant amplitude 3.5 mm 9 Hz ≤ f &lt; 150 Hz, constant acceleration 9.81 m/s² Vibration period: 10 frequency sweeps per axis on each of the 3 perpendicular axes</td>
</tr>
<tr>
<td>Shock</td>
<td>Shock impact test to IEC 60068-2-29</td>
<td>Type of shock: Half-sine shock pulse Shock intensity: 150 m/s² peak value, 11 ms period Direction of shock: 100 pulses on each of the 3 perpendicular axes</td>
</tr>
</tbody>
</table>

Climatic ambient conditions

The modular TS Adapter can be operated under the following climatic ambient conditions:

<table>
<thead>
<tr>
<th>Ambient conditions</th>
<th>Permitted range</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>0 to +60° C 0 to +40° C</td>
<td>Horizontal installation Vertical installation</td>
</tr>
<tr>
<td>Temperature change</td>
<td>Max. 3° C per min.</td>
<td>No condensation, corresponding to RH loading level 2 to IEC 61131-2.</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>Max. 95% at +25° C</td>
<td></td>
</tr>
<tr>
<td>Barometric pressure</td>
<td>1080 to 795 hPa (corresponding to an altitude of -1000 to 2000 m)</td>
<td></td>
</tr>
<tr>
<td>Pollutant concentration</td>
<td>SO₂: &lt;0.5 ppm; RH &lt;60%, no condensation H₂S: &lt;0.1 ppm; RH &lt;60%, no condensation</td>
<td>Test: 10 ppm; 4 days Test: 1 ppm; 4 days</td>
</tr>
</tbody>
</table>
9.5 Specifications for insulation, safety class, and degree of protection

Insulation requirements

The TS Adapter IE Basic with TS Module Modem can also be used in TNV-3 networks. The separation between the telephone side and the rest of the electronics was checked during the type test according to the requirements set forth in the IEC/EN 60950-1 and UL 60950-1 standards.

The ISDN interface was checked according to the IEC/EN 60950-1 standard with TS Module ISDN.

All other galvanic isolations were designed to meet the requirements of IEC/EN 61131-2.

Protection class

The modular TS Adapter meets protection class III according to EN 61140:2002 (VDE 0140-1).

Protection against foreign bodies and water

The modular TS Adapter

- meets the protection type IP20 according to IEC 60529,
- is protected against contact with standard probes,
- is not protected against water incursion.
9.6 Standards, Approvals, Certificates, Guidelines, Labels and Declarations

Note
The currently valid approvals are to be found on the product rating plate.

Safety requirements

- The modular TS Adapter meets the requirements and criteria of the IEC/EN 61131-2 standard.
- The IT interface is subject to the IEC 60950 standard (TS Module Modem / TS Module ISDN).

CE mark

Our products conform to the requirements and safety objectives of the EC Directives listed below. They are compliant with the harmonized European Standards (EN) for programmable logic controllers as published in the official gazettes of the European Community:

- 94/9/EC "Equipment and protective systems intended for use in potentially explosive atmospheres" (Explosion Protection Directive)

The EC declaration of conformity is held on file available to competent authorities at:

Siemens Aktiengesellschaft
Industry Sector
I IA AS RD ST Typetest
P.O. Box 1963
D-92209 Amberg

EMC Directive

For the TS Module RS232, the following guidelines apply:

<table>
<thead>
<tr>
<th>Fields of application</th>
<th>Requirement for Interference emission</th>
<th>Requirement for Interference immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>EN 61000-6-4 : 2007</td>
<td>EN 61000-6-2 : 2005</td>
</tr>
</tbody>
</table>
Explosion Protection Directive

To EN 60079-0:2006 and EN 60079-15:2005 (Electrical apparatus for potentially explosive atmospheres; Type of protection "n")

II 3 G Ex nA II T4

RTTE Directive

The following guidelines apply to Module Modem, TS Module ISDN und TS Module GSM:

- Safety: Telecommunications interface tested to EN 60950-1:2006 + A11:2009
- EMC:

<table>
<thead>
<tr>
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<th>Requirement for Interference immunity</th>
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</thead>
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<td>EN 61000-6-2 : 2005</td>
</tr>
</tbody>
</table>

Network compatibility

- TS Module ISDN: TBR3
- TS Module Modem:
  - ETSI ES 203021 V2.1.1
    Part 1 General aspects, August 2005
    Part 2 Basic transmission and protection of the network from harm, August 2005
    Part 3 Basic Interworking with the Public Telephone Networks, August 2005
- ETSI ES 201787 V1.1.1
  Loop Disconnect (LD) dialling specific requirements
- ETSI ES 201729 V1.1.1
  Timed break recall (register recall)

Marking for Australia and New Zealand

The TS Module RS232 meets the requirements of standard EN 61000-6-4.

Note

Which of the following approvals has been issued in respect of your product is indicated by the markings on the rating plate.
cULus approval

Underwriters Laboratories Inc. to
- UL 508 (Industrial Control Equipment)
- CSA C22.2 No. 142 (Process Control Equipment)

cULus approval, Hazardous Location

Underwriters Laboratories Inc. to
- UL 508 (Industrial Control Equipment)
- CSA C22.2 no. 142 (Process Control Equipment)
- UL 1604 (Hazardous Location)
- CSA-213 (Hazardous Location)

APPROVED for Use in
- Cl. 1, Div. 2, GP. A, B, C, D T4A
- Cl. 1, Zone 2, GP. IIC T4

Note
The system installation must be compliant with NEC (National Electric Code) requirements.

For use in Class I, Division 2 environments, the modular TS Adapter must be installed in a cubicle with minimum IP54 protection to IEC 60529.

Information on use of the modular TS Adapter in Zone 2 hazardous areas is contained in the "Product Information ATEX Zone 2.pdf" file.

located on the product CD in the ".Product Information" folder.

WARNING
Explosion Hazard - Do not disconnect while circuit is live unless area is known to be non-hazardous.

Explosion Hazard - Substitution of components may impair suitability for Class I, Division 2 or Class I, Zone 2.
FM approval

Factory Mutual Approval Standard Class Number 3611,
Class I, Division 2, Group A, B, C, D, T4A.
Class I, Zone 2, Group II C, T4.

⚠️ WARNING
Injury to persons or damage to property may occur.
In potentially explosive atmospheres there is a risk of injury to persons or damage to property if you connect or disconnect a live electrical circuit (such as connectors, fuses, switches) when a modular TS Adapter is in operation.
Do not disconnect live circuits, except where the risk of explosion can be safely excluded.
For use under FM conditions, the modular TS Adapter must be installed in a cubicle with minimum IP54 protection to IEC 60529.

Safety requirements for mounting

The modular TS Adapter is "open equipment" in accordance with the IEC 61131-2 standard, and an "open type" in accordance with UL / CSA certification.
The alternative installation methods described below are stipulated in order to ensure safe operation with respect to mechanical strength, flame resistance, stability and touch protection:

- Installation in a suitable cabinet
- Installation in a suitable cubicle
- Installation in an appropriately equipped closed switchroom

Compliance with installation guidelines

The installation guidelines and safety instructions set out in this manual must be observed during commissioning and operation.

Connecting peripherals

Interference immunity requirements are met when connected to an industrial standard PC/modem in accordance with EN61000-6-2:2005.
EU approval

The TS Adapter IE Basic in connection with the TS Module Modem / TS Module ISDN / TS Module GSM has been approved in accordance with Council Decision 98/4827EG for pan-European single terminal connection to the public switched telephone network. However, due to differences between the individual PSTNs provided in different countries the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.
Customer Information for ACTA

This equipment is compliant with Part 68 of the FCC regulations and requirements adopted by ACTA. The label on the right side of this equipment also contains the product ID (US: CO4MM04B081TSMM for the TS Module Modem). This ID must be submitted to the telephone company on request.

The plug and jack used to connect this equipment to the circuit and telephone network at your site must conform to FCC Part 68 regulations and requirements adopted by ACTA. A compliant telephone cord and modular plug is supplied with this product. It is designed to be connected to a compliant modular jack. See the installation instructions for details.

The REN is used to determine the maximum number of devices on a analog telephone line. If the number of RENs on an analog telephone line is exceeded, the devices may not ring in response to an incoming call. In most areas the sum of RENs should not exceed five (5.0). Contact the local telephone company to ascertain the number of devices that may be connected to a line, as determined by the total RENs. For products approved after July 23, 2001, the REN forms part of the product identifier that has the format for the TS Module Modem: US: CO4MM04B081TSMM.

REN is set to NAN. The user does not need to calculate the REN, but may not exceed a maximum number of 8 ISDN terminals on the network termination.

The telephone company will notify you in advance if services are temporarily discontinued as a result of your TS Module Modem causing disturbances on the telecommunications network. If advance notice is not deemed practical, the telephone company will notify the customer as soon as possible. You will be advised of your rights of filing a complaint with the FCC.

The telephone company may modify its services, equipment, operations or procedures, which could affect operation of your equipment. In this case, the telephone company will notify you in advance, thus allowing you to adapt your equipment configuration for uninterrupted service.

If you experience trouble with the TS Module Modem and require repair or warranty information, please contact

Siemens Johnson City - SIAC -
One Internet Plaza
Johnson City, TN 37604

If the equipment is causing disturbances on the telecommunications network, the telephone company may ask you to disconnect the equipment until the problem is resolved.

Connections to a party line service are subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If your premises are equipped with an alarm system which is connected to the telephone line, ensure the installation of the TS Module Modem does not disable your alarm system. If you have questions about negative effects on your alarm system, contact your telephone company or a qualified service point.
9.7 Customer Information for ACTA

Note

Disruptions of the alarm functions of alarm equipment may occur not only as a result of faulty installation, but also in situations where the TS Module Modem is used as intended (dual channel mode).

Canada

IC: 4030A-081TSMM

This product meets the applicable Industry Canada technical specifications.

The Ringer Equivalence Number (REN=0.4) is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices not exceed five.
9.8 Technical Support

Technical support

How to contact Technical Support for all Industry Automation products

- Using the web form to request support
  [http://www.siemens.com/automation/support-request](http://www.siemens.com/automation/support-request)

Additional information about Siemens Technical Support is available on the Internet at
[http://www.siemens.com/automation/service&support](http://www.siemens.com/automation/service&support)

Service & Support on the Internet

In addition to our documentation, we offer a comprehensive online knowledge base on the Internet at:
[http://www.siemens.com/automation/service&support](http://www.siemens.com/automation/service&support)

There you will find:

- our Newsletter which continuously provides the latest information about your products.
- Relevant documentation for your application, which you can access via the search function in Product Support.
- The bulletin board, a worldwide knowledge exchange for users and experts.
- Your local partner of Industry onsite.
- Information about repairs, spare parts and consulting.
Additional support

If you have any questions about using the products described in the manual and do not find the correct answers in this document, please contact your Siemens representative at your local Siemens office.

You can find your local partner at:
http://www.siemens.com/automation/partner

A guide to our technical documentation for the various SIMATIC products and systems is available at:
http://www.siemens.com/simatic-doku

The online catalog and online ordering systems are available at:
http://www.siemens.com/automation/mall

Training Centers

Siemens offers corresponding courses to get you started with the SIMATIC S7 automation system. Please contact your regional training center or the central training center in 90327 Nuremberg, Germany.

http://www.siemens.com/sitrain
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