

# AGFEO

kommunizieren mit System

**Basic-Line plus: AS 140, AS 141  
AS 190, AS 191**

**- Installation**



# Safety notes

The telephone system is intended for connection to an ISDN basic access (DSS 1). You may connect all analog terminals to the analog user ports of the telephone system that you are also permitted to operate on the analog telecommunications network.

You may connect all DSS 1 ISDN terminals to an internal S0 bus (AS 141/191) that you are also allowed to operate directly on the ISDN network. Two digital AGFEO system

telephones can be also connected to every internal S0 bus.

Connected door hands free units must conform to the respective interface definition. Any other use of the telephone system is not in accordance with its intended purpose and is therefore not permitted.

The telephone system has a general connection permit (Germany: AAE).

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## Safety notes



- The telephone system conforms to the prescribed conformity and safety regulations.
- Attention! The telephone system must be electrically earthed. Therefore connect the Euro PE contact plug of the power cable only to an expertly installed socket (PE socket) to prevent danger to persons and material.
- Before connecting the subscriber lines to the subscribers and the ISDN network, pull out the 230 V mains plug to switch off the telephone system. Mortal danger!
- Protective measure! Touch the metal shield of the PC/printer socket of the telephone system briefly with your finger. This will discharge any possible electro-

static charges, thus protecting the telephone system's electrostatically sensitive components.

- You must not connect and disconnect subscriber lines during a thunderstorm.
- Lay subscriber lines in such a way that no-one can step on them or stumble over them.
- Prevent the ingress of liquid into the telephone system as otherwise short-circuits may occur.
- No liability can be assumed for consequential damages such as the cost of an unintentionally continued connection.
- The telephone system is out of operation whenever power failures occur. You cannot make telephone calls in such cases.

# Installation

## Checking the scope of delivery

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- 1 Telephone system
  - 1 Set of securing material (3 dowels S6, 3 wood screws (cross head recess) 4 x 40, connection terminals)
  - 1 ISDN connecting cable (IAE-IAE), 1.5 m
  - 1 PC connecting cable
  - 1 Drilling jig
  - 1 Instruction package including instruction manual, installation manual, short-form operating instructions for system
- telephones, short-form operating instructions for a/b and ISDN terminals, 8 remote control cards
- 1 Set of 3.5" diskettes with the programs: TK-Set, TK-LCR, TK-Bill, TK-Phone and TK-Timer.
- On our homepage "[www.agfeo.de](http://www.agfeo.de)", you may find the operating manuals for download.

## Choosing a location

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- The telephone system must only be installed in a dry room in which there are no explosion hazards.  
It must not be installed: in the proximity of air conditioning systems, radiators, devices that produce inadmissible interference radiation, in locations that are subject to direct sunlight, in environments containing excessive amounts of dust or in locations where it may be splashed with water or chemicals.
- Ambient temperature: 5°C to 40°C
- Humidity: max. 70% (no condensation)
- You must install the telephone system vertically, with the connection side pointing downwards, on a firm and flat surface.
- Minimum distance between the housing and other limits above or below it: 50 mm.
- The distance between the telephone system and the 230 V mains socket and the IAE socket should not be more than 1 m (mains lead approximately 1.2 m long).
- For configuration of the PBX AS 140/190 via the serial PC / printer interface (RS 232C), it must be possible to place a laptop or a PC in the direct proximity of the telephone system.  
The PBX AS 141/191 however, can be configured by a PC with ISDN adapter via the internal S0 bus.

## 230 V power supply

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A separate circuit is recommended for the telephone system's 230 V mains power supply.

Short-circuits caused by other domestic appliances will then not have any detrimental influence on the telephone system.

Power consumption of the telephone system: approximately 30 VA (full load).

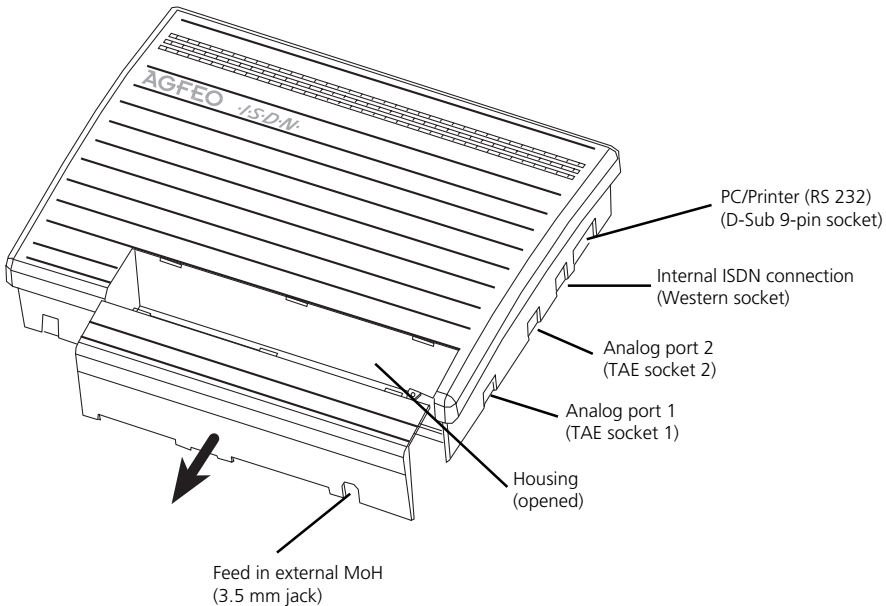
Do not plug in the 230 V mains plug until you have completed installation and checked the wiring after closing the housing.

Attention! The telephone system must be electrically earthed. Therefore connect the Euro PE contact plug of the power cable only to an expertly installed socket (PE socket) to prevent danger to persons and material.

## Opening the housing

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- Reach behind the cover on the bottom which covers the housing of the telecommunications system.
- Pull the edge of the cover down slightly so that the cover snaps out. Remove the cover to the front.



**Fig. 1: Telecommunications system with the cover removed**

## Important note

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Pin strips with shorter pins are used in the telecommunications systems AS 140, AS 141, AS 190, AS 191 to increase the touch protection. For safe contacting, only use the

terminals provided to connect the subscriber lines, the lines to the door handsfree unit and the lines for the internal S0 bus.

## Securing the housing

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- Use the enclosed template to draw the three drill holes.
- When drawing the drill holes, make sure that there are no concealed pipes at these points (gas, water, power lines or similar)!
- Drill the three drill holes.  
Masonry drill: 6 mm, drill hole depth: 40 mm or wood drill: 3.5 mm  
drill hole depth: 35 mm
- Hammer in the plug flush with the wall
- Turn the two top screws in until the screw head is about 8 mm from the wall.
- Hang the telecommunications system on the top screws and pull the telecommunications system down the wall to the stop.
- Screw the telecommunications system with the housing open into the bottom plug with the third screw.

## Safety notes

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Pay attention to the safety notes

- before installing or removing a module,
- before connecting or disconnecting a connecting lead

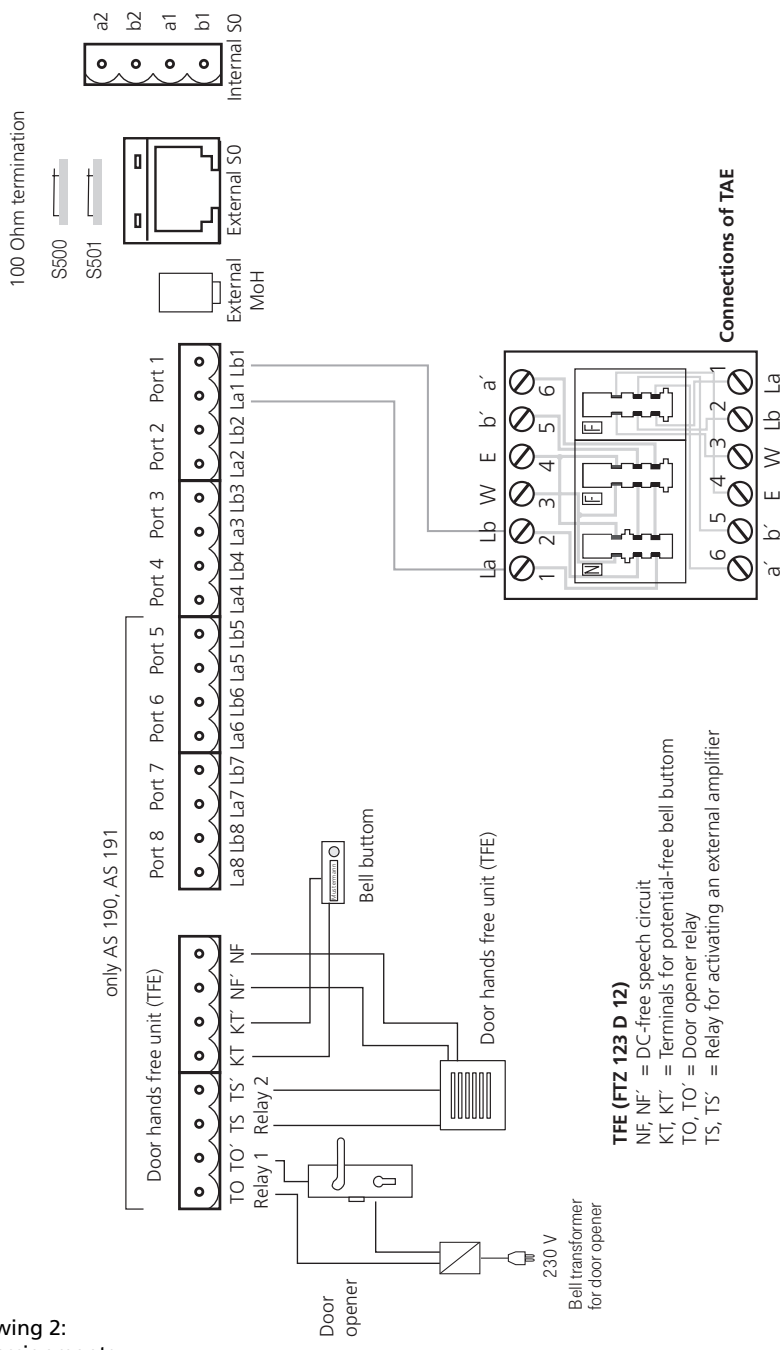
1. Remove the telephone system's 230 V mains plug from the socket.

2. Remove the Western plugs of all external ISDN basic accesses from the

telephone system, the network terminator (NT) or the S0 bus.

3. Protective measure! Touch the metal shield of the PC/printer socket of the telephone system briefly with your finger. This will discharge any possible electrostatic charges, thus protecting the telephone system's electrostatically sensitive components.

Drawing 2:  
Pin assignments



**TFE (FTZ 123 D 12)**

- NF, NF' = DC-free speech circuit
- KT, KT' = Terminals for potential-free bell button
- TO, TO' = Door opener relay
- TS, TS' = Relay for activating an external amplifier

**Connections of TAE**

## Connecting analog users

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You may connect all analog terminals to the telephone system that you are also permitted to operate on the analog telecommunications network.

**a/b terminals** are:

- Telephone (a/b telephone) with tone dialling (DTMF). **[R]** key as the flash key (flash time: 70-120 ms), **[\*]** key and **#[#]**key. Only restricted use can be made of telephones that are set to pulse dialling.
- Group 3 fax machines
- Answering machines
- Modems (up to 56600 bps, reduction of transmission speed to 33600 bps).

Connect a/b terminals by means of two wires to the La and Lb wires (speech wires)

of the analog ports AS 190/191: Ports 1 to 8, AS 140/141: Ports 1 to 4 (see drawing 2).

For connection, carry out the following work:

- Place the connecting leads through the housing openings.
- Fit the screw terminals to the connecting leads.
- Plug the screw terminals of the individual leads onto the provided slots (see drawing 2).
- If you route a connecting lead of the telephone system outside of the building, you are advised to use external lightning protection.

## External fixed S0 port (Western socket)

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### Point-to-point connection

You can only connect one ISDN telephone system to an ISDN point-to-point connection. You cannot connect any further ISDN terminals.

By means of the ISDN connecting cable, connect the ISDN system directly to the NTBA or to an ISDN socket (IAE/UAE) that is connected to the NTBA.

### Terminators for the external S0 port

The two switches **S500** and **S501** for the 100 Ohm terminators, which must belong to one connecting line, must be closed for the point-to-point connection.

### Point-to-multipoint connection

The point-to-multipoint connection may consist of an S0 bus. Up to 12 ISDN sockets (IAE/UAE) may belong to this ISDN bus. Besides the ISDN telephone system, you can

connect up to seven further ISDN terminals to the S0 bus.

### Terminators for the external S0 port

For the point-to-multipoint connection, the two switches **S500** and **S501** for the 100 Ohm terminators, which must belong to one S0 connecting line, must be

- **closed** if the external S0 port is connected directly to the NT or to the last IAE/UAE socket and the 100 Ohm terminators in the socket are not connected,
- **open** if the 100 Ohm terminators in the last IAE/UAE socket are connected or the telephone system is not the last ISDN terminal on the point-to-multipoint connection.

By means of the connecting cable, connect the ISDN telephone system to an ISDN socket of the S0 bus.

If the point-to-multipoint connection does not consist of an S0 bus, you can connect the ISDN telephone system directly to the NT.

## Internal S0 port

The telecommunications systems AS 141 and AS 191 have an internal S0 port. An internal S0 port can be added to the telecommunications systems AS 140 and AS 190 by plugging the S0 module 110 later.

As in the case of a point-to-multipoint connection, you can connect up to eight ISDN terminals to one internal S0 port of the telephone system.

ISDN terminals:

- AGFEO system telephones digital
- ISDN telephones
- ISDN cards
- ISDN fax machines

Depending on current consumption, you may connect at least four ISDN terminals that do not have a power supply of their own.

Example: 4 ISDN telephones or 2 system telephones digital and 2 ISDN telephones.

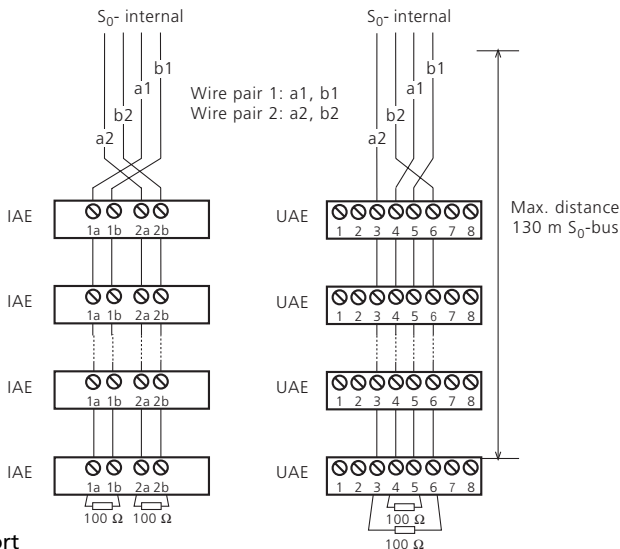
The ISDN terminals must operate in accordance with the DSS1 protocol.

Wire pair 1    red  
                   b1 black  
                   a2 white  
 Wire pair 2    b2 yellow

Pay attention during installation to the enumeration of the UAE sockets.

Do not confuse a2 with b2 or a1 with b1 !

**Drawing 3:**  
 Wiring an internal S0 port



The internal S0 port is fed to the Western socket RJ 45 on the right side of the housing. The Western socket is the first connection of an internal S0 bus. You can plug in an ISDN device directly there.

In case you want to connect several ISDN terminals to the internal S0 plug, you have to install an S0 bus with several sockets. You connect this bus via a 4 wire screw clip.

You need the following material to install an internal S0 port:

- Telecommunications cable; we recommend the cable type I-Y (St) Y 2 x 2 x 0.6
- IAE or UAE connection sockets; up to 12 sockets
- Terminators, 100 Ohm, load carrying capacity 0.25 watt, 2 terminators

An internal S0 bus may be 130 m long (distance from the telephone to the last IAE / UAE socket).

You have to terminate the internal S0 bus. Add two 100 Ohm terminators to the last IAE/UAE connection socket (drawing 3).



## Connecting a door hands free unit (TFE, AS 190/191)

TFE - interface conforming to the 4-wire TFE specification FTZ 123 D12 for the connection of door stations with amplifiers.

Connections: (drawing 2)

- Connection of a potential-free bell pushbutton to the contacts KT and KT'. The telephone system supports one bell pushbutton.
- Connection of the DC-free speech circuit of the TFE to a loudspeaker system or an audio module AM 20 to the contacts NF and NF'.
- Control of the TFE, of the loudspeaker system (activation of the amplifier or power supply) or of the audio module AM 20 (voice/music changeover) via the potential-free relay contacts TS (R 2) and TS'. Maximum contact load-carrying capacity: 30 VDC/1 A or 123 VAC/0.5 A.
- Control of the door opener via the poten-

tial-free relay contacts T0 (R 1) and T0'. Maximum contact load-carrying capacity: 30 VDC/1 A or 123 VAC/0.5 A.

You can only activate the door opener from a terminal of the telephone system after connecting an external bell transformer.

For connection, carry out the following operations:

- Place the connecting leads through the housing openings.
- Fit the screw terminals onto the connecting leads.
- Insert the screw terminals of the individual leads onto the provided slots (see drawings 2).
- If you route a connecting lead of the telephone system outside of the building, you are advised to use external lightning protection.

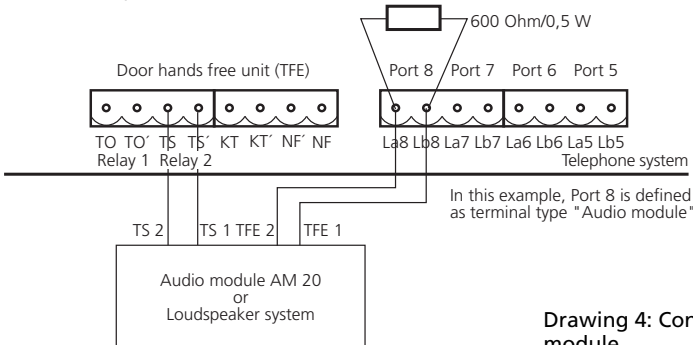
## Connecting an audio module or loudspeaker system (AS 190/191)

You can connect an audio module or a loudspeaker system in place of a TFE or to one of the eight ports for analog terminals. (Fig. 4)

The port used for connecting the audio module must be programmed to terminal type 'Audio module'. The relay R2 is assigned automatically to the audio module

(TS 1 - TS 2) with the programming. The relay controls the speech/music switching of the audio module in the case of an announcement.

You must connect a 600 ohm/0.5 Watt resistor to the a/b connections of the 'Audio module'.



**Drawing 4: Connections of Audio module**

## Switching relays

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You can put the relays to diverse use as individual switching relays R1 and R2 for other functions. For example, you can use them to connect a door hands free unit (TFE), an additional bell, a door opener or lighting.

By programming, for each relay you define whether it is to operate as a pulse relay (3 seconds on) or as an On/Off relay.

You can switch the relays from every inter-

nal or external telephone. You can also assign internal phone numbers to the relays in order to include them in the ringing distribution settings, e.g. when connecting an additional bell.

The relay contacts are bridged with a 1 kOhm, 100 nF spark quenching combination.

Maximum contact load: 30 VDC/1 A or 125 VAC/0,5 A, ohmic load.

## Connecting external music on hold (MoH)

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To feed in external music on hold, connect the headphone output of an audio device (CD player, cassette recorder or stereo system) with a 3.5 mm jack plug to the "external MoH" (NF and GND) terminal on the top pc board of the telephone system (drawing 2).

Set the volume of external music on hold on the audio device. To set or check the vol-

ume, call an internal user of the telephone system from an external source. The external connection is put on hold when the internal user presses the inquiry key "R" or the "brokering key". You hear the music on hold and can adjust the volume.

Note: tunes played must be free from third-party proprietary rights (GEMA-free).

## Connecting a printer for printing connection charges

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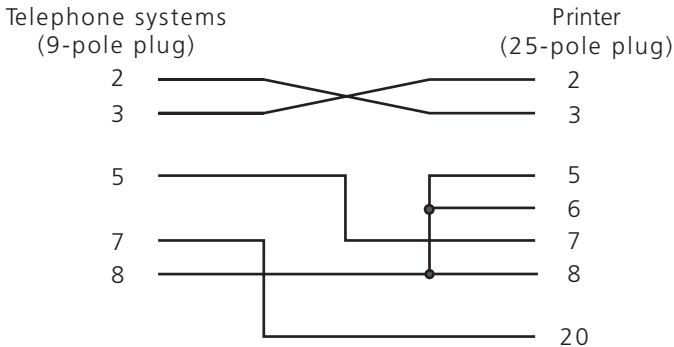
You can connect any printer to the telephone system's RS 232C interface to print out connection records. For connection, you need a cable that corresponds to the pin assignments given below (maximum length 3 m).

Your printer must be set as follows:

- 9600 baud
- 8 bits
- 1 stop bit
- no parity

To print out connection records, the printer must be on all the time and must be connected to the telephone system. The telephone system stores at least 500 connection records and the total connection charges, even in the event of a power failure.

Remove the printer cable from the system when no printer is connected. Close the housing.



Drawing 5: Printer cable pin assignments

## Closing the housing

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- First hang the cover for the housing to the top of the housing. The three catches hook in behind the edge of the housing.
- Press down on the cover until it snaps into the housing.
- The ventilation slots on the housing must not be concealed. Make sure that air circulation is not impeded.

# Commissioning

You have installed the telephone system. Now, only a few operations are necessary before you are able to make telephone calls.

- Connect terminals. You can connect all terminals that you are also allowed to connect to the public telecommunications network.
- Insert the Western plug on the ISDN connecting cable in the telecommunications socket (ISDN line unit, IAE or universal line unit UAE) of your ISDN connection.
- Switch on the telephone system by inserting the mains plug.

- Once the telephone system has been switched on, you can immediately make internal and external telephone calls. When an external subscriber calls, all connected telephones ring according to the telephone system's default settings ("as-delivered" settings).
- By programming on a PC, you can set the telephone system's functions to suit your needs. Remote setting by your specialist dealer is possible.

## Notes

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- To avoid wrong dialling, dial a digit on an a/b terminal with DTMF after installation. The telephone system recognises the dialling method in this way.
- If you switch the dialling method on an a/b terminal from DTMF to pulse dialling, dial a digit higher than 2.
- If you operate two terminals on one terminal connection, both of them must dial with the same dialling method.

## As-delivered state

The followings settings are active in the **as-delivered state**:

- The switches S500 /S501 (termination for the external S0 access) are closed and the 100 Ohm terminators are on.
- Line seizure: line seizure "0"
- Analog ports - internal phone numbers (decade 1 set) and terminal types
  - AS 190**: 11 to 18, telephone
  - AS 191**: 11 to 20, telephone
  - AS 140**: 11 to 14, telephone
  - AS 141**: 11 to 16, telephone
- External access: unlimited for all users
- Call variant 1 (day): on, no internal phone numbers entered, subscribers 11, 12 and 13 are called in the case of call
- Call variant 2 (night): off, no internal phone number entered
- Call forwarding internal: off
- Number of calls: 5
- Don't disturb: off for all terminals
- Knocking protection: off for terminals
- Transfer of phone numbers to the called party and the caller: on
- Music on Hold (MoH): internal on
- Door call variant 1 (day): on, no internal phone number entered, subscribers 11, 12 and 13 are called in the case of door call
- Door call variant 2 (night): off, Printout of dialed phone number: without
- Automatic dialing: off
- Printout of connection data set: off for all users
- no internal phone number entered: ohne
- Cost limit: no entry
- Own tariff units factor: 0,12 DM
- Base factor (network operator factor): 0, 12 DM
- Cleardown at cost limit: off
- Setup code: off
- Cost code: no entry
- Switch box code: no entry
- Least Cost Router (LCR): off, for all subscribers
- Busy on busy: off
- **AS 141, AS 191**: Transfer of "0" to dial from call list at internal S0 port: off

### **AS 141, AS 191 with system telephone ST 25**

- Status display: off
- Cost display: off
- Display: German
- Call list: off

# Technical Data

Specification	<p><b>AS 140, AS 190:</b> ISDN telecommunications system without internal S0 access, internal S0 access by S0 module AS 110 can be retrofitted.</p> <p><b>AS 141, AS 191:</b> ISDN telecommunications system with internal S0 access, internal S0 access equipped ex-factory with S0 module AS 110</p>
Housing dimensions	32.2 x 24.4 x 8.1 cm (width x height x depth)
Weight	1.6 kg
Ambient temperature - operation / storage	5°C to 40°C / -25°C to +70°C
Humidity	max. 70% (no condensation)
Mains connection - power consumption at U <sub>rated</sub> = 230 V and full load	230 VAC, +10%/-10%, 50 Hz AS 140: 8W, I <sub>rated</sub> = 100 mA (23 VA) AS 141: 15 W, I <sub>rated</sub> = 100 mA (23 VA) AS 190: 12 W, I <sub>rated</sub> = 130 mA (30 VA) AS 191: 20 W, I <sub>rated</sub> = 130 mA (30 VA)
- Length of the power cable	approx. 1.20 m
S0 connection external - connection - Length IAE cable	System or multipoint connection, Euro ISDN via Western socket RJ 45 and enclosed IAE connection cable IAE8/IAE8 1.5 m
S0 access internal (with S0 module AS 110)	for AS 140 and AS 190 the S0 module AS 110 can be retrofitted, in AS 141 and AS 191 the S0 module AS 110 is installed at the factory
- Connection	Multipoint connection, Euro ISDN (DSS 1) 4-wire, pluggable at screw terminal or laterally by Western socket (RJ 45)
- Length	max. length of the connection 130 m
- ISDN terminals	max. 8 for one internal S0 access, of which a maximum of 4 are ISDN telephones
Analog terminals	AS 140/141: 4 a/b terminals AS 190/191: 8 a/b terminals
- Range	2 x 50 ohms (ø 0.6 mm, 800 m)
- Connection	symmetrical, 2-wire pluggable by screw terminal, the subscriber terminals 1 and 2 are fed additionally to TAE sockets externally (right housing side), TAE sockets without coding F or N
- Dialing method	pulse or DTMF
- Inquiry key	flash (70 ... 120 ms)

PC/printer interface	similar to RS 232C
- Range / level	3 m/ +/- 5 V
- Connection	9pin D-Sub socket
Feed in of external Music on Hold	e.g. by controllable headphones output of a cassette or CD player
- Input impedance	10 kohm, asymmetrical
- Input voltage	max. 100 mVpp
- Connection	3.5 mm stereo jack
Door handsfree unit	AS 190/191 - TFE interface FTZ 123 D12
- Connection	pluggable by screw terminal
Switching relay	AS 190/191 - in place of a door handsfree unit, 2 relays (TO and TS) can be used as a pulse or on/off relay
- Contact load	30 VDC / 1 A or 125 VAC / 0.5 A ohmic load potential free contacts with spark quench combination 1 kohm, 100 nF bridged
Loudspeaker system/audio module	a loudspeaker system or an audio module can be connected to an analog port in place of a TFE (AS 190/191)



This unit fulfills the requirements of the EU guidelines:  
91/263/EWG                    Telecommunications equipment  
73/23/EWG                    Low-voltage devices  
89/336/EWG                   Electromagnetic compatibility  
This is why your telephone system bears the CE mark.

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