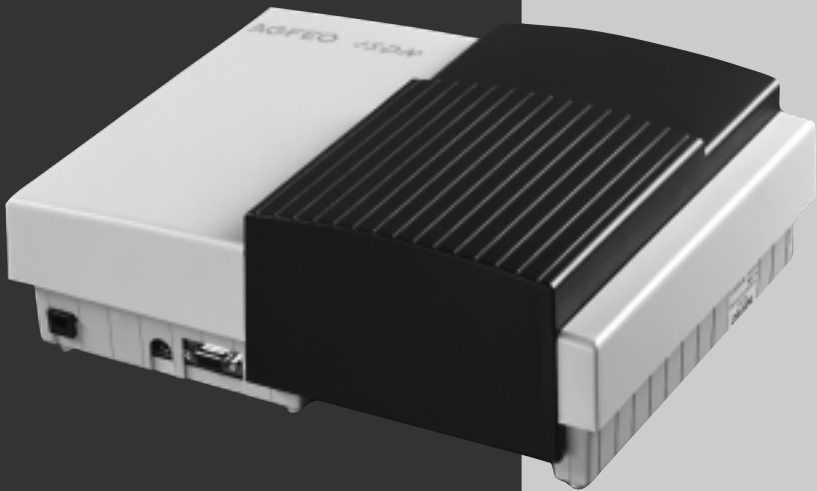


Profi-Line: AS 40, AS 40 P



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 that you are also allowed to operate directly on the ISDN network. Two digital AGFEO system tel-

ephones 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).

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 electrostatic 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 contents of delivery

- 1 Telephone system
- 1 Set of securing material (3 dowels S6, 3 wood screws (cross head recess) 4 x 40)
- 1 Bolt (module extractor)
- 1 Comb element with 20 inscription elements and 20 fit-on sleeves
- 1 ISDN connecting cable (IAE-IAE), 1.5 m
- 1 ISDN connecting cable (IAE-single wires)
- 1 PC connecting cable
- 1 Drilling template
- 1 Instruction manual
- 1 Installation manual
- 2 Short-form operating instructions for system telephones
- 3 Short-form operating instructions for a/b and ISDN terminals
- 8 Remote control cards
- 1 CD with TK-Suite software.

Choosing a location

- 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 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.

230 V power supply

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 45 VA.

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

Before opening the housing, remove the 230 V mains plug from the telephone system.

Removing the cover

- Grip the underside behind the finned cover that covers the telephone system's connection panel.
- Pull the edge of the cover down slightly

to unlatch it. Detach the cover towards you.

The cover is not locked in the as-delivered state of the telephone system.



Figure 1: telephone system with detached cover

External MøH feed
(3.5 mm jack socket)

PC / printer (RS 232C)
(D-Sub 9 socket)

Securing the housing

- Use the included drilling template to mark the three drilling holes.
- When marking the drill holes, make sure that there are no concealed pipes or cables at these points (gas, water and power lines etc.).
- Drill the three holes.
Stone drill: 6 mm, hole depth: 40 mm
or
Wood drill: 3.5 mm,
Hole depth: 35 mm
- Drive in the dowels until they are flush with the wall.
- Screw in the two top screws until their heads are at a distance of around 3 mm from the wall.
- Hook the telephone system onto the top screws and pull down the telephone system on the wall until it moves no further.
- Firmly screw down the telephone system with the third screw in the bottom dowel.

Safety notes

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 termi-

nator (NT) or the S0 bus.

3. Touch the metal shield of the PC/printer socket on the bottom 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.

Marking connecting leads

Mark connecting leads clearly to avoid confusion when expanding the telephone system or when reconnecting leads. Use the included marking system to mark the connecting leads. It consists of:

- Plastic comb element with 20 strips for inscription

- 20 transparent sleeves for securing
- Mark the strips with a pencil or a fibre tip pen.
- Break the trips off the comb element.
- Insert the strips in the small chambers of the sleeves.
- Slide the sleeves with the large chambers onto the ends of leads.

Installing and replacing modules

Installing a module

- Insert the module vertically, with the large connector strip pointing upwards, into the top hand bottom guide slits of one slot.
Slot X=0 (outside right) must be used for the connection module. The connection module must not be plugged into any other slot as otherwise a connector will be destroyed.
You can choose slots X=1 to 4 freely for all further modules.
- Carefully push the module down until the connectors engage and the latching lug of the module latches into the lock.
- Pull the adhesive label showing the module's connections off the information sheet (included with the

module packaging).

- Stick the adhesive label over the module's slot on the housing.

Replacing a module

- Undo the module's connecting leads. Mark the connecting leads clearly to avoid confusion on reconnection.
- Move the module extractor (bolt) carefully along next to the module and approximately in the center of the module towards the back. Turn the module extractor so that the hook hooks underneath the module.
- Press the lock upwards until the module's latching lug is free. Carefully pull the module out towards you using the module extractor.

The connection module

The connection module belongs to the basic telephone system.

Fixed slot X=0 (outside right). The connection module must not be plugged on to any other slot as otherwise the connector will be damaged.

Interfaces

- 1 External S0 interface S0 0/1 (ISDN basic access as a point-to-multipoint or point-to-point connection)
- 1 Internal / external switchable S0 interface S0 0/2 (external: ISDN basic access as a point-to-multipoint or point-to-point connection, internal: point-to-multipoint connection)
- 1 Symmetrical a/b interface for analog terminals
- 2 Interfaces (Vario ports) for system telephones or a/b terminals

switch S1301
ab/cd

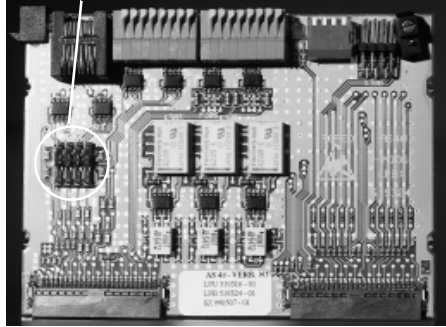


Figure 2: Inserted connection module with the terminators

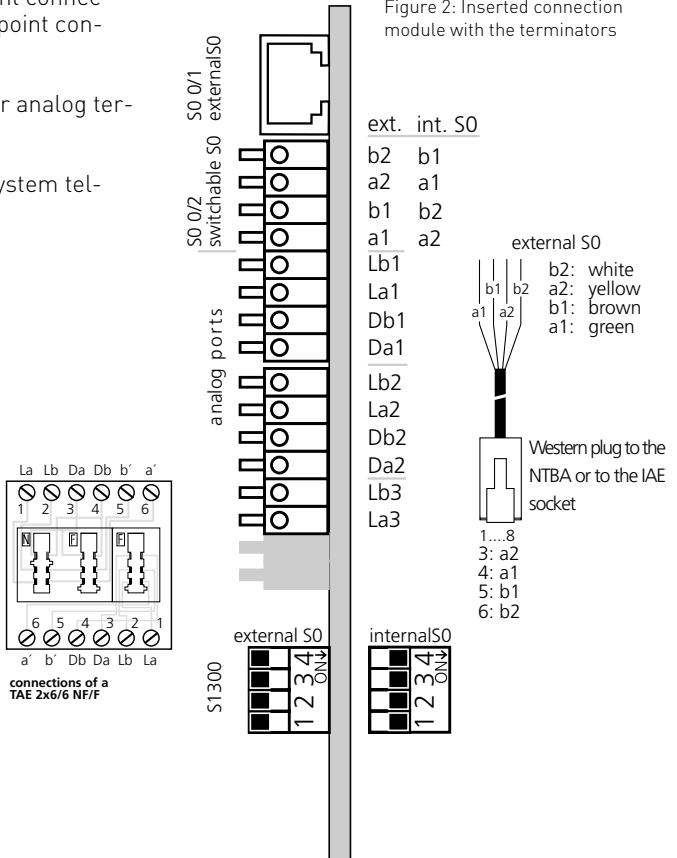


Figure 3: Pin assignments of the connection module

Connect analogue extensions

You may connect any analogue apparatus to the system which has been approved for connection to the public switched telephone network.

a/b apparatus is:

- Telephone (2 wire Phone or POT) either LD or MF Dialling with Timed Break Recall (TBR) (60 – 800 ms)
- LD Phones may only have limited feature access.
- Fax machines Group 3
- Telephone Answering Machines
- Modem 56k (V.90 to 56600 bps, may reduce to 33600 bps due to quality of lines V.34+)

Connect the analogue apparatus via 2 wires to the a and b wire (Speech Pair) of the system port You must not connect the Da and Db connections.

System telephones

Connect system telephones by four wires to the Vario ports by connecting them to the La and Lb wires (speech wires) and the Da and Db wires (data wires; data for signalling and displays)

Connection of wire

- Mark the lines with the marking system included
- Strip the cable by 11 mm.
- Push the single wire all the way into the connection block without pressing the release catch.
- To disconnect a wire, press the release catch with a small screwdriver while at the same time pulling out the conductor

External S0 connection fixed (RJ45 socket)

Point-to-point connection

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

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

Terminators for the external S0 access S0 0/1

For a point-to-point connection, the two switches S1301/ab (on the component side of the module) for the 100 Ohm terminators must be closed.

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 S0 bus. Besides the ISDN telephone system, you can connect up to 7 further ISDN terminals to the S0 bus.

Terminators for the external S0 access S0 0/1

For the point-to-multipoint connection, the two switches S1301/ab for the 100 Ohm terminators must be:

- closed if the external S0 access is connected directly to the NTBA 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.

Use the ISDN connecting cable to 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 NTBA.

Switchable S0 connection S0 0/2(internal or external S0 connection) ———

External S0 connection S0 0/2

You may connect the external S0 Connection to a System Access (PTP) or Standard Access (PTMP) line. Please refer to External S0 Connection (RJ45 Socket). Use the enclosed ISDN Cable and connect the four wires to the S0 connection block of the module.

- Push the wire all the way into the connection block without pressing the release catch.
- Connector: a1 -green
b1 -brown
a2 -yellow
b2 -white
- To disconnect a wire, press the release catch with a small screwdriver while at the same time pulling out the conductor.
- Guide the cable through the cable comb.

Termination Resistors for the external S0 Connection

System Access (PTP) –Both switches S1301/cd for the 100 Ohm terminators must be closed ("as-delivered" setting).

Standard Access (PTMP) - Both switches S1301/cd for the 100 Ohm terminators must be:

- **closed or set to on** if the connection is made directly onto the NTTP or on the last socket which has no 100 Ohm Termination Resistors fitted.
- **open or set to off** if the last socket has the 100 Ohm Termination Resistors installed or if the telephone system is not the last ISDN device on a PTMP line.

Plug the ISDN Plug into the ISDN connection after completion of all installation work.

Both switches S1301/cd are on the compo-

nent side of the module.

Do not insert the Western plug of the connecting cable into your ISDN connection socket until all installation work has been completed.

Internal S0 connection S0 0/2

You can connect up to 8 ISDN devices like on a PTMP connection on the internal S0 Bus of the System.

ISDN Apparatus:

Digital AGFEO System Phones (max 2 digital phones per S0 Bus)

-ISDN -Telephones

-ISDN -PC-Cards

-ISDN -Fax machines

Up to four ISDN devices without additional power may be connected. For example: 4 ISDN Telephones or 2 Digital System Phones plus 2 ISDN Telephones.

Connections of further ISDN devices will need their own power source.

ISDN Apparatus must use the DSS1 protocol.

You will need the following material to install an internal S0 Bus.

Telephone wire CW1308 (minimum 2 pair) or CAT5 Cable

RJ45 Sockets max. 12 per Bus

2 Termination Resistors, 100 Ohm 0.25 W

Maximum S0 Bus length will be 130 m.

(Telephone System to last RJ45 Socket)

Termination Resistors for the Internal S0 Connection

The internal S0 Bus must be terminated.

Install two 100 Ohm Resistors in the last RJ45 Socket

(See Diagram). Both switches S1301/cd must be closed.

Connect the cable to the switchable S0 connection of the module

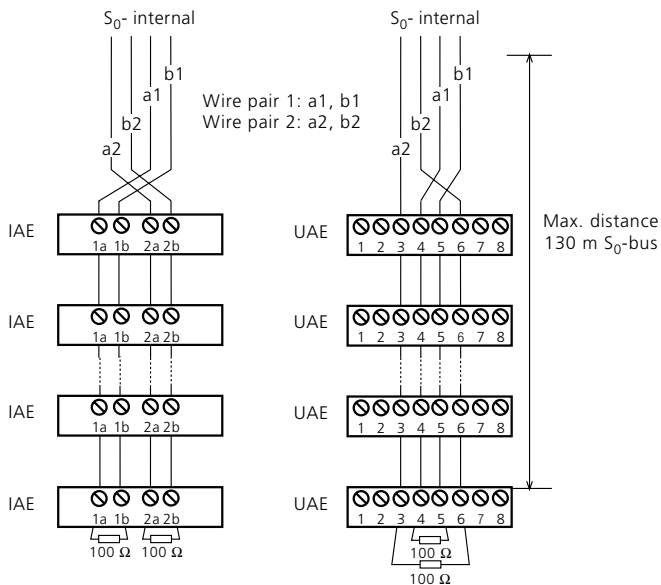
- Mark the cable with the included marking system
- Strip 11 mm off the wires
- Push the individual wires into the terminal until they move no further **without** pressing the terminal spring.
- To separate a connection, use a suitable

tool (screwdriver with a narrow blade) to press down the terminal spring and pull out the wire.

- Switching over to internal S0 connection
On the module, set all switches of the DIP switch S 1300 to "ON" (all sliders to the right).

Guide the cable through the cable comb element.

Figure 4: Wiring an internal S0 connection



Colour Code for Telephone Cable CW1308

S0 Bus	Contact	Colour
a1	4	Blue/white Bands
b1	5	White/Blue Bands
a2	3	White/Orange Bands
b2	6	Orange/White Bands

Colour Code for T568 A (ISDN)

S0 Bus	Contact	Colour
a1	4	Blue/white
b1	5	White/Blue
a2	3	White/Orange
b2	6	Orange/White

Colour Code for T568B (CAT5)

S0 Bus	Contact	Colour
a1	4	Blue/White
b1	5	White/Blue
a2	3	White/Green
b2	6	Green/White

Most common used standard for S0 Bus installation is T568B (CAT5)

Ensure that pairs are not mixed up.

The T Module 404 (User module)

The T Module 404 features 4 interfaces (Vario ports) for system telephones or a/b terminals.

Slots: X=1 - 4, freely optional

Connecting analog users

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

a/b terminals are:

- Telephones (a/b telephones) with tone dialling (DTMF), an **[R]** key as the flash key (flash time: 50 - 180 ms.), a **[*]** key and a **[#]** key.
Only restricted use can be made of telephones that are set to pulse dialling.
- Group 3 fax machines
- Answering machines
- Modems (up to 28 800 bps)

Connect a/b terminals by means of two wires to the La and Lb wires (speech wires) of the Vario ports. You must not connect the Da and Db wires.

System telephone

Connect system telephones by means of four wires to the Vario ports by connecting them to the La and Lb wires (speech wires) and the Da and Db wires (data wires; data for signalling and displays).

Connecting subscriber lines

- Mark the cables with the included marking system
- Strip 11 mm off the wires
- Push the individual wires into the terminal until they move no further **without** pressing the terminal spring.
- To separate a connection, use a suitable tool (screwdriver with narrow blade) to press down the terminal spring and pull out the wire.

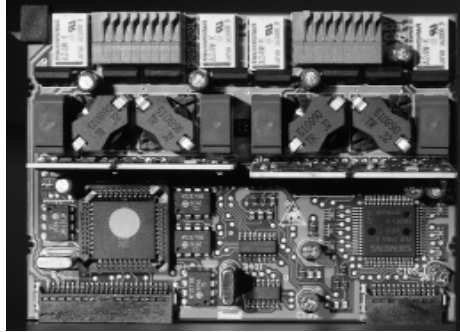


Figure 5: T Module 404

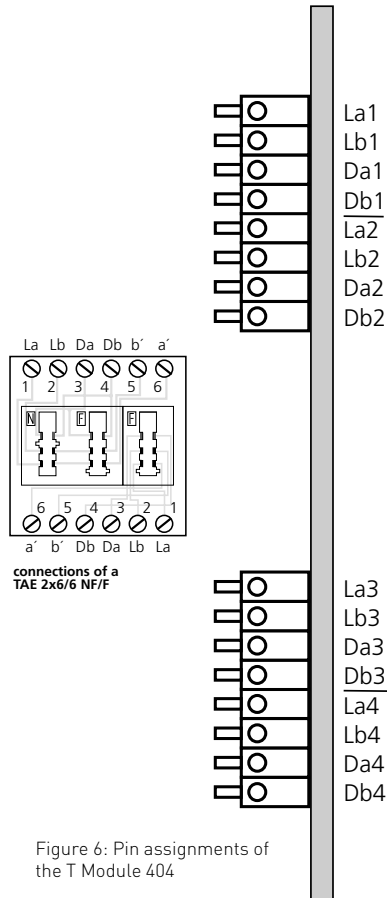


Figure 6: Pin assignments of the T Module 404

The T Module 407 and 408 (User module)

The T Module 407 features 7 interfaces for a/b terminals. This modul supports the CLIP function on a/b-terminal (Geman CLIP)

module 407 the a/b-terminals on the T module 408 have the CLIP function.

Slots: X=1 - 4, freely optional

The T-Modul 408 features 8 interfaces for a/b-terminals. The T modul 408 doesn't support the CLIP function. With one T

Connecting analog users

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

a/b terminals are:

- Telephones (a/b telephones) with tone dialling (DTMF), an **[R]** key as the flash key (flash time: 50 - 180 ms.), a **[*]** key and a **[#]** key.
Only restricted use can be made of telephones that are set to pulse dialling.
- Group 3 fax machines
- Answering machines
- Modems (up to 28 800 bps)

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

Connecting subscriber lines

- Mark the cables with the included marking system
- Strip 11 mm off the wires
- Push the individual wires into the terminal until they move no further **without** pressing the terminal spring.
- To separate a connection, use a suitable tool (screwdriver with narrow blade) to press down the terminal spring and pull out the wire.

T 407
Lb1, La1
not assigned

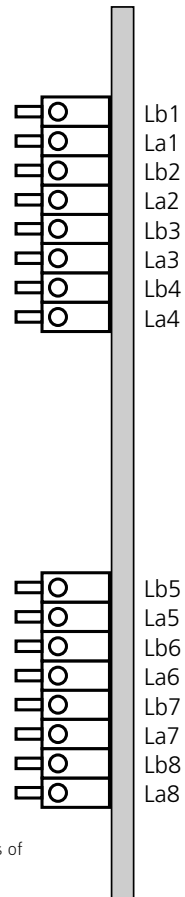


Figure 7: Pin assignments of the T module 407 and 408

The S0 Module 420

The S0 module features the following interfaces:

- 1 External S0 interface S0 X/1 (ISDN basic access as a point-to-multipoint or point-to-point connection)
- 1 Switchable internal / external S0 interface S0 X/2 (external: ISDN basic access as a point-to-multipoint or point-to-point connection, internal: point-to-multipoint connection)

Slots: X=1 to 4, freely optional

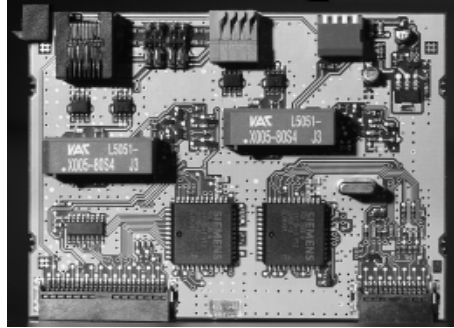


Figure 8: S0 module 420 with the terminators

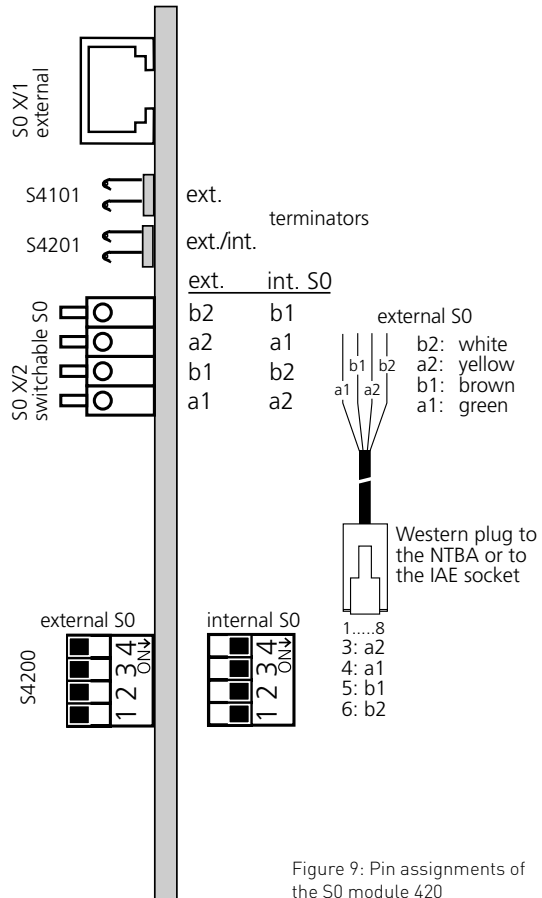


Figure 9: Pin assignments of the S0 module 420

External S0 connection, fixed S0 X/1 (Western socket) ---

Point-to-point connection

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

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

Terminators for the external S0 access S0 0/1

For a point-to-point connection, the two switches S1301/ab (on the component side of the module) for the 100 Ohm terminators must be closed.

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 S0 bus. Besides the ISDN telephone system, you can connect up to 7 further ISDN terminals to the S0 bus.

Terminators for the external S0 access S0 0/1

For the point-to-multipoint connection, the two switches S4101/ab for the 100 Ohm terminators must be:

- closed if the external S0 access is connected directly to the NTBA 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.

Use the ISDN connecting cable to 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 NTBA.

Switchable S0 access S0 X/2 (internal or external S0 access)

External S0 connection S0 X/2

You may connect the external S0 Connection to a System Access (PTP) or Standard Access (PTPM) line. Please refer to External S0 Connection (RJ45 Socket). Use the enclosed ISDN Cable and connect the four wires to the S0 connection block of the module.

- Push the wire all the way into the connection block without pressing the release catch.
- Connector: a1 -green
b1 -brown
a2 -yellow
b2 -white
- To disconnect a wire, press the release catch with a small screwdriver while at the same time pulling out the conductor.
- Guide the cable through the cable comb.

Termination Resistors for the external S0 Connection

System Access (PTP) –Both switches S4102/ab for the 100 Ohm terminators must be closed ("as-delivered" setting).

Standard Access (PTMP) - Both switches S4102/ab for the 100 Ohm terminators must be:

- **closed or set to on** if the connection is made directly onto the NTTP or on the last socket which has no 100 Ohm Termination Resistors fitted.
- **open or set to off** if the last socket has the 100 Ohm Termination Resistors installed or if the telephone system is not the last ISDN device on a PTMP line.

Plug the ISDN Plug into the ISDN connection after completion of all installation work.

Both switches S4102/ab are on the compo-

nent side of the module.

Do not insert the Western plug of the connecting cable into your ISDN connection socket until all installation work has been completed.

Internal S0 connection S0 X/2

You can connect up to 8 ISDN devices like on a PTMP connection on the internal S0 Bus of the System.

ISDN Apparatus:

Digital AGFEO System Phones (max 2 digital phones per S0 Bus)

-ISDN -Telephones

-ISDN -PC-Cards

-ISDN -Fax machines

Up to four ISDN devices without additional power may be connected. For example: 4 ISDN Telephones or 2 Digital System Phones plus 2 ISDN Telephones.

Connections of further ISDN devices will need their own power source.

ISDN Apparatus must use the DSS1 protocol.

You will need the following material to install an internal S0 Bus.

Telephone wire CW1308 (minimum 2 pair) or CAT5 Cable

RJ45 Sockets max. 12 per Bus

2 Termination Resistors, 100 Ohm 0.25 W

Maximum S0 Bus length will be 130 m.

(Telephone System to last RJ45 Socket)

Termination Resistors for the Internal S0 Connection

The internal S0 Bus must be terminated.

Install two 100 Ohm Resistors in the last RJ45 Socket

(See Diagram). Both switches S1301/cd must be closed.

Connect the cable to the switchable S0 connection of the module

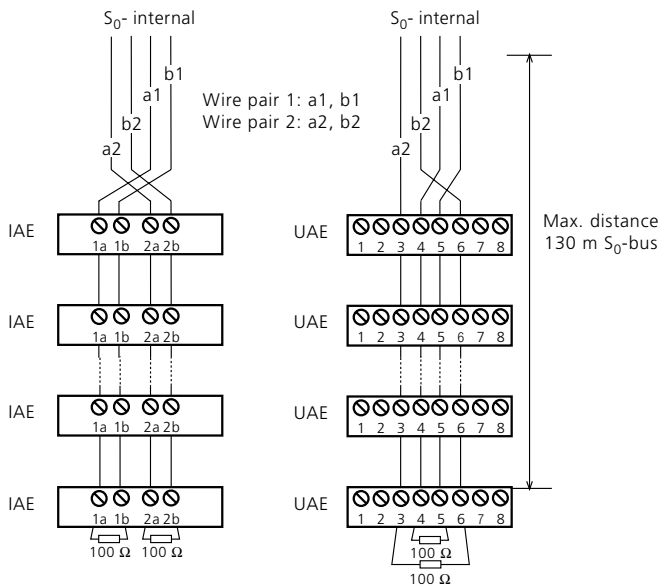
- Mark the cable with the included marking system
- Strip 11 mm off the wires
- Push the individual wires into the terminal until they move no further **without** pressing the terminal spring.
- To separate a connection, use a suitable

tool (screwdriver with a narrow blade) to press down the terminal spring and pull out the wire.

- Switching over to internal S0 connection
On the module, set all switches of the D1p switch S 4200 to "ON" (all sliders to the right).

Guide the cable through the cable comb element.

Figure 4: Wiring an internal S0 connection



Colour Code for Telephone Cable CW1308

S0 Bus	Contact	Colour
a1	4	Blue/white Bands
b1	5	White/Blue Bands
a2	3	White/Orange Bands
b2	6	Orange/White Bands

Colour Code for T568 A (ISDN)

S0 Bus	Contact	Colour
a1	4	Blue/white
b1	5	White/Blue
a2	3	White/Orange
b2	6	Orange/White

Colour Code for T568B (CAT5)

S0 Bus	Contact	Colour
a1	4	Blue/White
b1	5	White/Blue
a2	3	White/Green
b2	6	Green/White

Most common used standard for S0 Bus installation is T568B (CAT5)

Ensure that pairs are not mixed up.

The S0 Module 440

The S0 module features the following interfaces:

4 Switchable internal / external S0 interfaces

(external: ISDN basic access as a point-to-multipoint or point-to-point connection, internal: point-to-multipoint connection)

Slots: X=1 to 4, freely optional

Switching to an internal S0 access

Set both DIP-switches "ext./int." of the respective S0 access to "int."-position (ON).

Switching to an external S0 access

Set both DIP-switches "ext./int." of the respective S0 access to "ext."-position.

Terminators (100 Ohm)

Activate - set both DIP-switches "off/on" of the respective S0 access to "on"-position (ON).

Deactivate - set both DIP-switches "off/on" of the respective S0 access to "off"-position.

See "S0-module 420 - swifchable S0 access" for further hints for a correct termination of an external or internal S0 access.

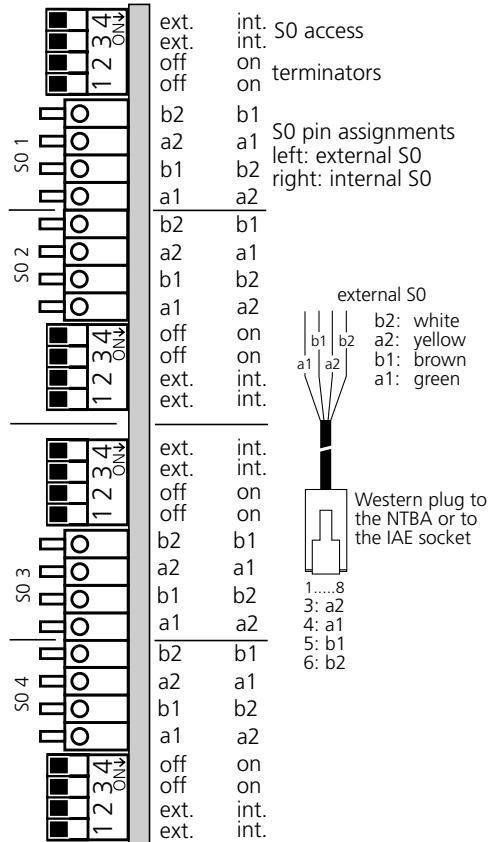


Figure 11: Pin assignments of the S0 module 440

The TFE Module 402 (door hands free unit)

The TFE module 402 features two interfaces conforming to the 4-wire TFE specification FTZ 123 D12 for the connection of door stations with amplifiers. For each interface, the

telephone system supports one bell button. Optionally, a loudspeaker system or an audio module can be connected to the FTZ 123 D12 interface for announcements.

Slots: X=1 to 4, freely optional

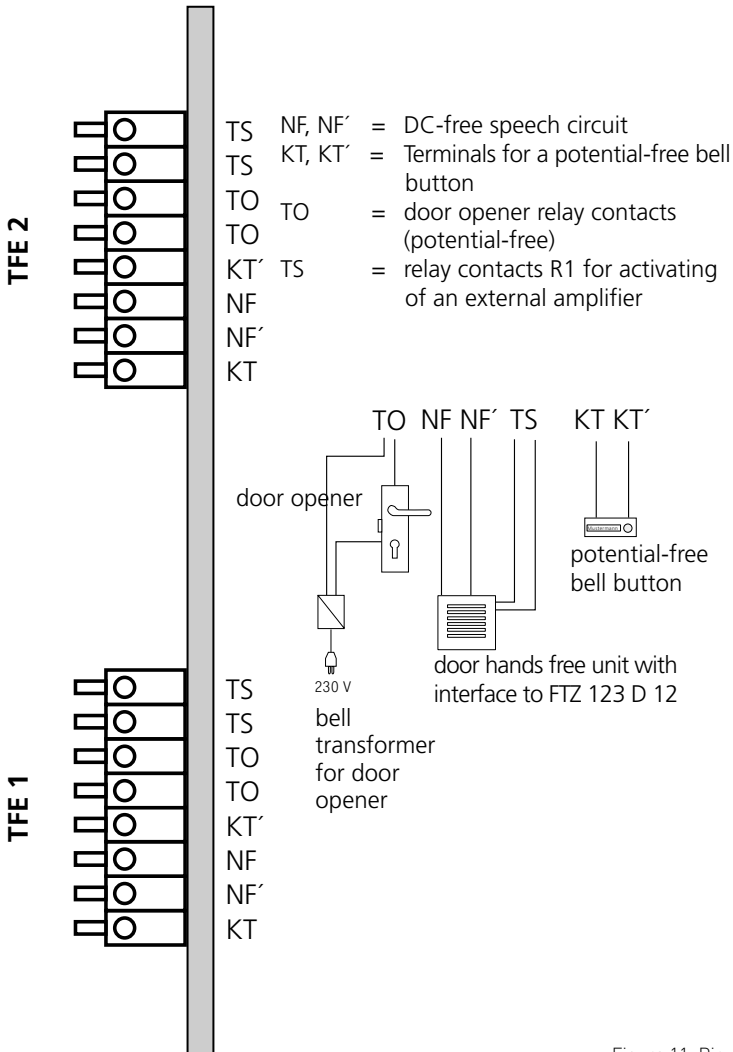


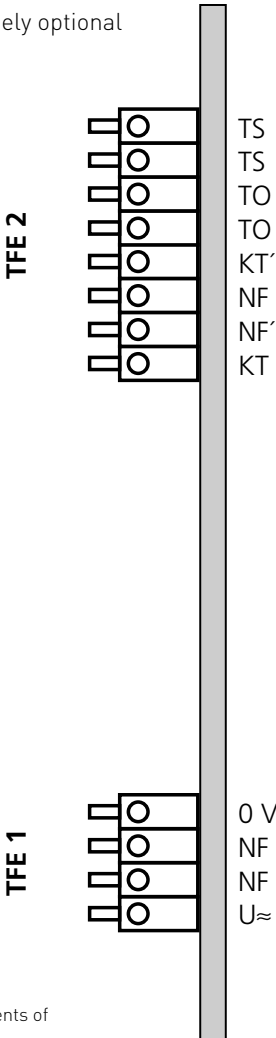
Figure 11: Pin assignments of the TFE module 402

The TFE Module 403 (door hands free unit)

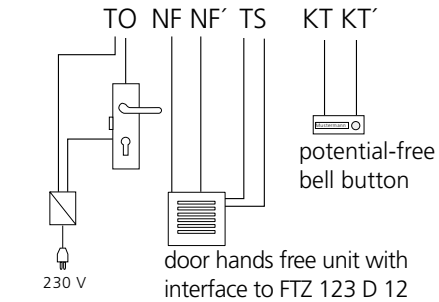
The TFE module 403 features an interface (TFE 1) that conforms to the Telekom 2-wire TFE (CE interface) specification for connecting DoorLine T01 to T04 door hands free units. The dialling method is DTMF. The telephone system supports up to four bell pushbuttons.

It features an interface (TFE 2) conforming to the 4-wire TFE specification FTZ 123 D12 for connecting door stations with amplifiers. The telephone system supports one bell pushbutton. Optionally, a loudspeaker system or an audio module can be connected to the FTZ 123 D12 interface for announcements.

Slots: X=1 to 4, freely optional



- NF, NF' = DC-free speech circuit
- KT, KT' = Terminals for a potential-free bell button
- TO = door opener relay contacts (potential-free)
- TS = relay contacts R1 for activating of an external amplifier



bell transformer for door opener

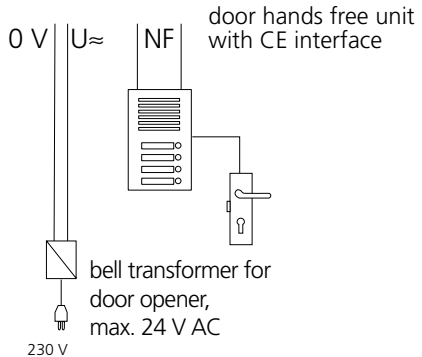


Figure 12: Pin assignments of the TFE module 403

Connecting the door hands free unit (TFE)

TFE Module 402

The TFE module 402 features two interfaces conforming to the 4-wire TFE specification FTZ 123 D12 for the connection of door stations with amplifiers.

Connections (Figure 11):

- Connect a potential-free bell pushbutton to the contacts KT and KT' (GND)

- Connect the DC-free speech circuit of the TFE of the loudspeaker system to the contacts NF and NF' (GND)

- Control of the door opener via the potential-free relay contacts T0

Maximum contact load: 30 V TC/1 A

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

- Control of the TFE or of the loudspeaker system (activate the amplifier or power supply) via the potential-free relay contacts TS

Maximum contact load: 30 V DC/1 A

TFE Module 403

The TFE module 403 features an interface (TFE 1) conforming to the Telekom 2-wire TE (CE interface) specification. The telephone system supports up to four bell pushbuttons.

Connections (Figure 12):

- Connect the DoorLine T01 to T04 door hands free units to the contacts NF and NF'

- Controlling the door opener

Maximum contact load: 30 V DC/1 A

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

The TFE module 403 also has an interface (TFE 2) that conforms to the 4-wire TFE specification FTZ 123 D12 for the connection of door stations with amplifiers. The telephone system supports one bell pushbutton.

A loudspeaker system or an audio module can be optionally connected to the FTZ 123 D12 interface for announcements.

Connections (Figure 12): as described adjacently for the TFE module 402

Marking cables

- Use the included marking system to mark the cables

- Strip 11 mm off the wires

- Push the individual wires into the terminal until they move no further, but **without** pressing the terminal spring.

- To separate a connection, use a suitable object (screwdriver with a narrow blade) to press down the terminal spring and pull out the wire.

We advise you to install external lightning protection if you route a connecting lead of the telephone system outside of the building.

Switching relays

You can make versatile use of the relays on the TFE module either to connect a door hands free unit or as individual switching relays with potential-free contacts for other functions. For example, you can use them to connect an additional bell or lighting.

The number of available switching relays depends on the version of the TFE module. A maximum of 8 switching relays can be used in the telephone system.

Counting method of the relays
The relays on the TFE modules are counted upwards according to the module slots from left to right and on the modules from bottom to top.

TFE Module 402

Instead of a door hands free unit conforming to FTZ 123 D12, you can use the relays T0 and TS for other tasks.

Slot: TFE module 402 left (right)
TFE 2 relay TS = relay R4 (R8)
relay T0 = relay R3 (R7)
TFE 1 relay TS = relay R2 (R6)
relay T0 = relay R1 (R5)

If you want to use 8 switching relays and 1 TFE, you must plug the TFE modules in the following arrangement:

Slot from left to right -
TFE module 402 - relay 1 to 4,
TFE module 402 - relay 5 to 8,

TFE module 402 or 403 - TFE

TFE Module 403

Instead of the door hands free unit TFE 2 in conformity with FTZ 123 D12, you can use the relays T0 and TS for other tasks.

Slots TFE module 403 left (right)
TFE 2 relay TS = relay R4 (R8)
relay T0 = relay R3 (R7)

Example -
TFE module 402 and TFE module 403:

Slot: TFE module 402 left
TFE 2 relay TS = relay R4
relay T0 = relay R3
TFE 1 relay TS = relay R2
relay T0 = relay R1

Slot: TFE module 403 right
TFE 2 relay TS = relay R8
relay T0 = relay R7

By programming, you define for each relay whether it is to operate as a pulse relay (3 seconds on) or as an On / Off relay. You can switch the relays from any telephone and from an internal or an external source. You can also assign internal phone numbers to the relays to include them in a call distribution sequence, e.g. when connecting an additional bell.

The relay contacts are jumpered with a 100 kOhm, 10 nF spark quenching combination.

Maximum contact load: 30 V DC / 1 A or 125 V AC / 0.5 A, ohmic load.

Connecting an audio module

A loudspeaker system or an audio module can be optionally connected to the FTZ 123

D12 interface for announcements.

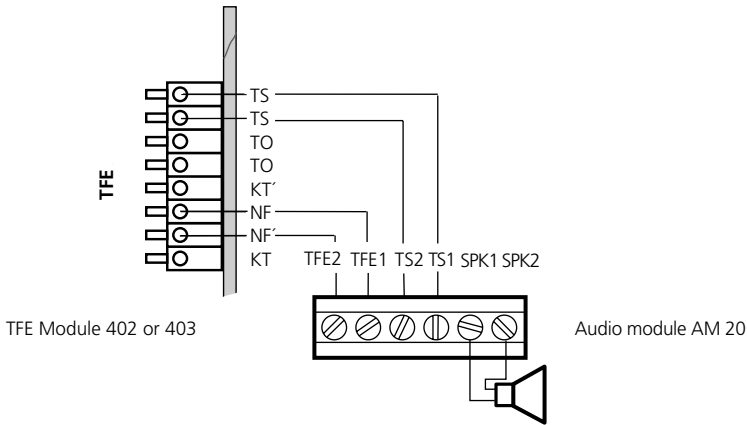


Figure 13: Connecting an audio module

Connecting external music on hold (MoH)

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 jack socket X (external MoH) on the underside of the telephone system (Figure 1).

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

volume, 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

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).

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 2000 connection records and the total connection charges, even in the event of a power failure.

Your printer must be set as follows:

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

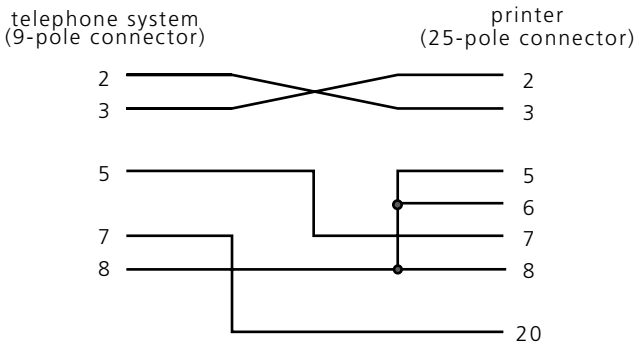
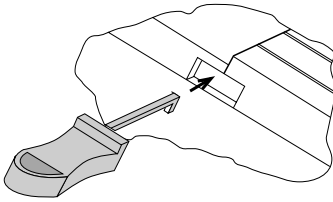


Figure 14: Printer cable pin assignments

Closing the housing

Replacing the cover

- First hook in the cover at the top of the housing. The three latches engage behind the edge of the housing.
- Press onto the cover until it latches into the housing at the bottom.



Locking the cover

Figure 15

Locking the cover

- Insert the bolt with the hook facing downwards in the cover opening, turning the bolt slightly (Fig.15).
- Push the bolt past the pressure point in as far as the stop (Fig. 16).

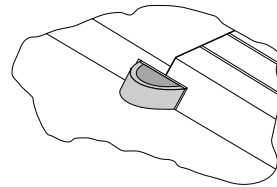


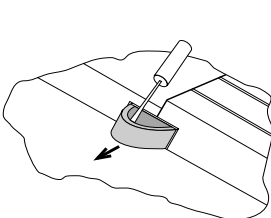
Figure 16

The housing must be locked before you plug in the 230 V mains plug of the telephone system.

Unlocking the cover

Before unlocking the cover, remove the 230 V mains plug from the telephone system.

- Pull out the black bolt slightly to the side using a narrow screwdriver blade (about 2 mm wide) until you can grip the bolt (Fig.17 and 18).
- hold the bolt and pull it right out turning it slightly (Fig. 18 and 19). You can use the bolt as a module extractor when exchanging a module.



Unlocking the cover

Figure 17

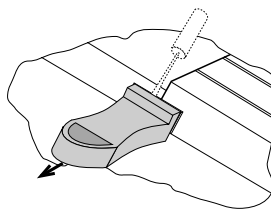


Figure 18

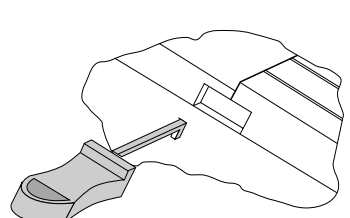


Figure 19

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

- 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 S130 /S01 (termination for the external S0 access) are closed and the 100 Ohm terminators are on.
- Switchable S0 access: set to external. The switches S130 /S02 (termination for the external S0 access) are closed and the 100 Ohm terminators are on.
- Internal phone numbers / terminal type: 11, 12, 13, telephone
- Outside line access: unlimited for all users
- Outside line seizure: "0"
- Call variant 1 (day time): no entry
- Call variant 2 (night time): no entry
- Internal call forwarding: off
- Do not disturb: off for all terminals
- Call waiting announcement prevention: off for all terminals
- Phone number communication to the called party and the caller: on
- Music on hold (MoH): internal on

- Automatic dialling: off
- Connection record printing: off for all users
- Dialed phone number printing: none
- Cost limit: no entry
- Own tariff units factor: 0006
- Basic factor: 0.06
- Cleardown at cost limit: off
- Set up code: off
- Switching box code: no entry
- Busy tone on busy: off
- Communication of "0" for dialling from the call list on the internal S0 access: off

System telephones ST 20 and ST 25

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

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.

Technical data

Specification	Modular ISDN telecommunications system with 4 module slots
Basic capacity	1 external S0 access (point-to-point or point-to-multipoint connection) One internal/external S0 access 2 Vario ports (optionally 2 system telephones or 2 a/b terminals) 1 a/b terminal
Expansion modules	
- T module 404	4 Vario ports (optionally 4 system telephones or 4 a/b terminals)
- T module 407	7 a/b terminals incl CLIP function. Only with one T module 407 you have the CLIP function on every T module 408.
- T module 408	8 a/b terminals
- S0 module 420	1 external S0 access, 1 switchable internal/external S0 access
- S0 module 440	4 switchable internal/external S0 access
- TFE module 402 4-wire	2 interfaces for the connection of 2 door hands free units to FTZ 123 D 12
- TFE module 403 2/4-wire	1 interface for the connection of 1 door hands free unit to FTZ 123 D 12 1 interface fore the connection of 1 door hands free unit to CE
Housing dimensions	26 x 32 x 10 cm (height x width x depth)
Weight	3.4 kg
Ambient temperature	
- Operation/storage	5 °C to 40 °C/ -25 °C to +70 °C
Humidity	Max. 70% (no condensation)
Mains connection	230 V AC, +6%/-10%, 50 Hz
- Power consumption	P = 50 W, I _{rated} = 300 mA
External fixed S0 access	Point-to-point or point-to-multipoint connection, Euro-ISDN via western socket RJ 45 and included IAE connecting cable IAE8/IAE8
- Access	

Switchable S0 access	Internal/external switchable S0 access (DIP switch) Internal: point-to-point, Euro-ISDN (DSS1) External: point-to-point or point-to-multipoint connection, Euro-ISDN (DSS1)
- Connection	4-wire by spring terminal connection
- Length	Max. length of the internal S0 access 130 m
- Power	4.5 Watt
- ISDN terminals	Max. 8
Analog terminals	
- Range	System telephones 2 x 75 Ohm (\emptyset 0.6 mm, 1200 m)
- Connection	a/b terminals: 2 x 50 Ohm (\emptyset 6 mm, 800 m), symmetric System telephones connected by 4 wires and a/b units connected by two wires via a spring terminal connection
- Dialling method	Pulse dialling or DTMF
- Inquiry key	Flash (50 - 180 ms)
PC/printer interface	Similar to RS 232C
- Range/level	3 m/+/- 5 V
- Connection	9-pole, D-sub socket
External music on hold	e.g. via a variable headphone output of a cassette recorder or CD player
- Input impedance	100 kOhm, asymmetrical
- Input voltage	Max. 100 mVpp
- Connection	3.5 mm stereo jack socket
Door hands free unit	door hands free unit interfaces FTZ 123 D 12 or CE interfaces depending on the door (telecom interfaces) hands free module:
- Connection	By spring terminal connection
Switching relay	Instead of a door hands free unit to FTZ 123 D12, the two relays (TO and TS) can be used as pulse or on/off relays.
- Contact load	30 VDC/1 A or 125 VAC/0.5A, ohmic load Potential-free contacts jumpered with spark quenching combination of 1 kOhm, 100 nF.
Loudspeaker system	Instead of a door hands free unit to FTZ 123 D 12, a loudspeaker system or an audio module can be connection
BZT approval number	D130625J

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You can only use the numerous ISDN features of your AGFEO-ISDN telephone system if your network operator has provided you with these features.



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