

# AGFEO

kommunizieren mit System

AS 14  
AS 19

- Installation
- Operation
- Programming

jsdn

# Overview of functions

You have a telephone system that offers you the possibility of using ISDN features with analog terminals.

You can connect the following to your telephone system:

- an ISDN basic rate access (point-to-multipoint or point-to-point connection)
- up to eight (four, AS 14) analog terminals (telephones, answering machines, Group 2 and 3 fax, modems)
- a door phone unit (AS 19 only)
- an audio device (e.g. a CD player or a cassette recorder) as the source for external music on hold
- a serial printer for printing the call list, connection list, connection charges and connection information or a PC for configuration

(programming) of the telephone system for displaying the call list, connection list, connection charges and connection information.

The dialling method used by terminals is the dual tone multifrequency method (DTMF). Telephones using DTMF must have a signal key (inquiry key R) with the flash function. Flash time: 50..110 ms. If telephones use the pulse dialling method, you can only use them with restriction on the AS 14 or AS 19. Inquiry functions (R functions) are not possible.

An ISDN basic rate access with its two B channels enables two independent connections. Therefore you can conduct two external calls at the same time.

## Features

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Abbreviated dialling destinations, 200 available centrally for all users

Automatic dialling (connection without dialling)

Busy on busy

Call list printout

Call waiting / call waiting reject

Charge evaluation with TK-Bill

Code call

Computer-assisted telephony with TK-Phone

Conference, internal/external

Connection charge printing

Connection end information display

Connection list printing

Connection start information display

Day / night service, programmable and switchable

Diversion from (Follow me)

Diversion to internal and external users

Do not disturb by internal and external calls

External line selection automatic, adjustable

Fetching external and door calls

Forwarding with and without announcement

Inquiry / brokering

Music on hold, internal/external

Picking up calls from an answering machine

Point-to-point or point-to-multipoint connection

Remote support

Reserving a dial-up line

Restriction of external calls

Return call

Room inquiry/muting

Room monitoring

Support of multilink-compatible cordless telephones

Telephone system configuration by telephone or PC,

remote configuration

TK-Soft Windows software package with TK-Bill, TK-Phone,

TK-Set and TK-Timer

## Supported ISDN features

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Advice of charge at the end of a connection

Call forwarding (permanent, on busy, if no answer)

Call forwarding also if circuits are busy

Call hold

Call waiting

Calling line identification presentation / restriction (called party)

Calling line identification presentation / restriction (caller)

Direct dialling in

Malicious caller tracing

Multiple subscriber numbers (MSNs)

Return call on busy

Terminal portability

Three-party conference

# About this manual

## Introduction

- Overview of functions
- Presentation of features
- Safety notes
- Table of contents
- Pictograms and keys
- ISDN features

## Installation

Describes installation, connection of lines, of the door phone unit, of the printer, how to feed in external music on hold (MoH) and commissioning. If you want to install the telephone system yourself, read this section first. Please observe the safety and function notes.

## Operating instructions

In the operating instructions, the basic functions 'Telephony', 'Accepting a call' and 'Forwarding a call' are described first. The convenience functions then follow. You will find ISDN functions under 'ISDN ...'.

## Programming the telephone system

Modifying the 'as-delivered' settings. You can program (configure) the telephone system in three ways:

- Programming from an a/b telephone
- programming the telephone system from the main telephone connected to port 1
- Programming from a PC - The TK-Set configuration program is part of the TK-Soft software package. The corresponding 3.5" diskettes are included with the telephone system.
- Remote configuration by your specialist dealer

## Annex

- If something should go wrong
- Codes for testing the most important settings
- Ringing signals and tones
- Glossary, explanations of a few terms in these instructions
- Technical data
- 'As-delivered' settings, overview of the works settings
- List of key words

## Safety notes

The telecommunications system is intended for operation on an ISDN basic rate access (DSS1). You may connect all analog terminals to the telephone system that you are also permitted to operate on the analog telecommunications network. Any connected door phone unit must conform to the respective interface definition. All other uses of the telephone system are not in

conformity with the intended purpose and are therefore not permitted. The telephone system possesses a general connection permit. Approved terminals that conform to the general connection permit may be connected without extra permission to the transfer point of Deutsche Telekom AG. Please observe the safety notes.

### Safety notes



- The telephone system conforms to the prescribed conformity and safety regulations.
- 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! Before beginning installation work, briefly touch the subscriber connection terminal of the AS 14 or AS 19 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.

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







# Pictograms and keys

Operation of every function of the telephone system is explained clearly and lucidly with the aid of pictograms.

## Pictograms

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
Pictograms serve to describe operator control sequences.

-  Audible ringing signal (tone ringing)
-  Pick up the receiver
-  Enter phone numbers or code numbers
-  Tones you can hear in the receiver, (acknowledgement tone)
-  Conduct a call
-  Replace the receiver
-  Conference
-  Room monitoring by telephone

## Keys

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Keys indicate target keystroke actions.

-  Signal key for making an inquiry during a call. DTMF flash: 50 ... 110 ms.
-  Star key is needed for internal dialling to automatically select an external line (variant 2) or
-  to  Digit keys for entering digits

# Installation

## Checking the scope of delivery

- 1 Telephone system
- 1 Set of securing material (dowels, screws)
- 5 connection terminals (2 in the case of AS 14)
- 1 connecting cable (IAE-AS), 1.5 m
- 1 Instruction manual
- 8 Short-form operating instructions (4 in the case of AS 14)
- 1 PC connecting cable
- 3 3.5" diskettes for TK-Soft (Windows 3.1, Windows 95)

## Choosing a location

- Only install your telephone system 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
- Minimum distance between the housing and other limits above or below it: 50 mm.
- You must install the telephone system vertically, with the connection side pointing downwards, on a firm and flat surface.
- The distance between your telephone system and the 230 V mains socket and the IAE socket should not be more than 1 m (mains lead approximately 1.20 m long).
- It must be possible to place a printer (for printing connection data), a PC or a laptop (configuration) in the direct proximity of the telephone system (maximum length of the connecting cable 3 m).

## 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 23 VA.

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



Pay attention to the fact that the electrical connection (shock-proof socket) for the telephone system (and if applicable, for additional

devices) must have been installed by an authorised electrician. This will avoid any hazards for persons and property.



## Opening the housing

Press with a screwdriver onto the tabs in the slits on the connection side of

the housing. The cover is released and you can detach it.

**Caution: mortal danger !**  
Before removing the inner cover, pull out the 230 V mains plug to switch off the telephone system.

The inner cover may only be removed by a service technician.

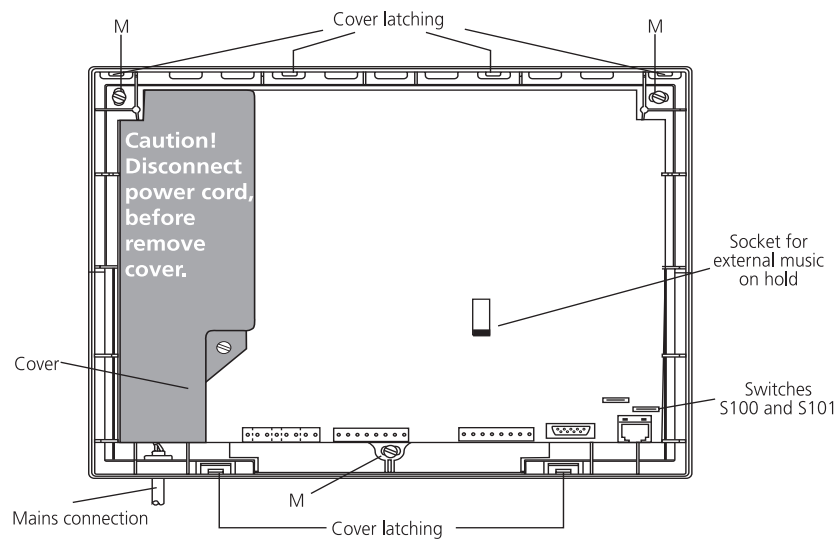


Figure 1:  
AS 14/AS 19 with the cover detached

## Securing the housing

- For flush-mounted cables, secure your telephone system so that the cables protrude through the openings on the underside of the housing.
- Pay attention to concealed pipes or cables at these points (gas, water and power lines etc.).
- Mark and drill the mounting holes at the securing points (points M in Fig. 1).
- Insert the dowels.
- Secure your telephone system.

## Connecting cables

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Only connect all cables to your telephone system after removing the 230 V mains plug and without a connection to the public telecommunications system.

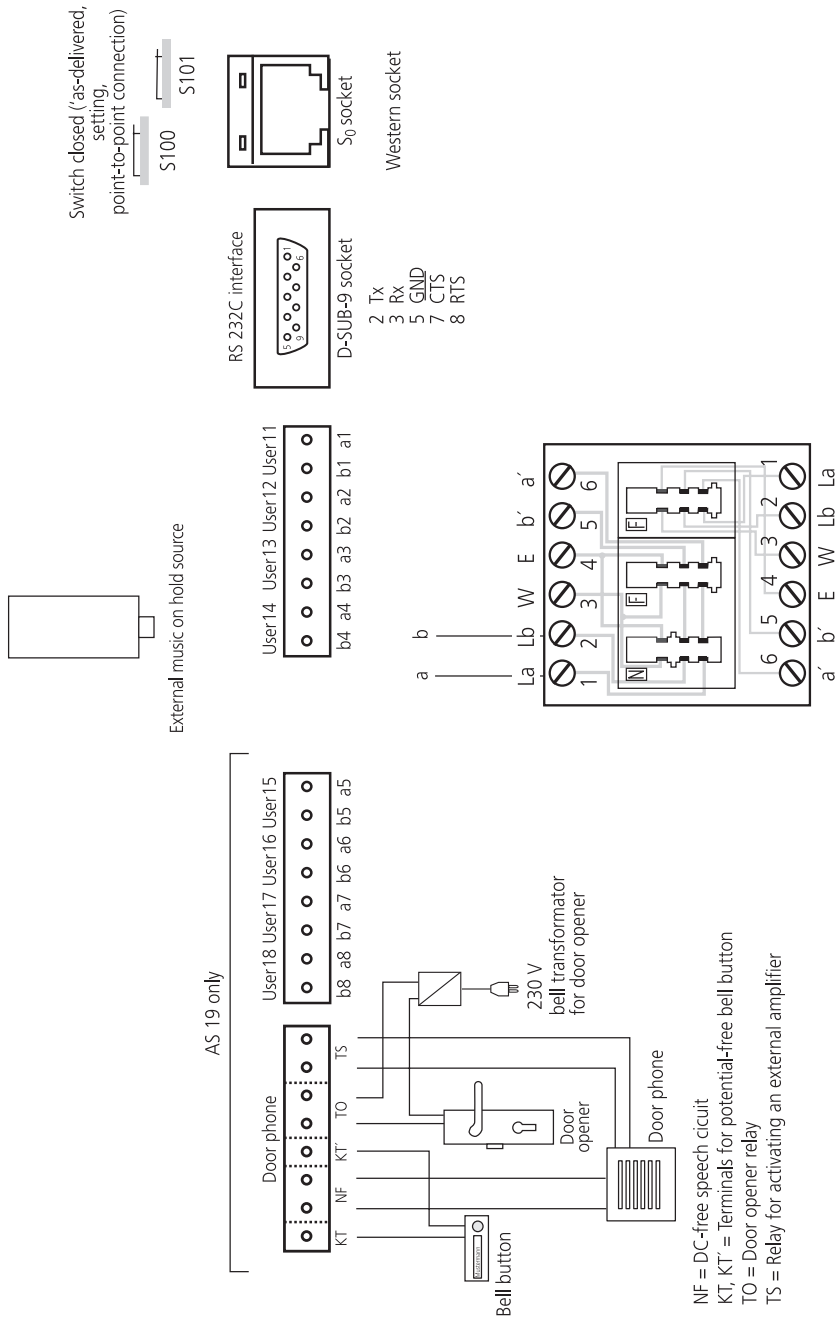
Protective measure! Before beginning installation work, briefly touch the subscriber connection terminal of the AS 14 or AS 19 with your finger. This will discharge any possible electrostatic charges, thus protecting the telephone system's electrostatically sensitive components.

- To avoid mutual interference for physical reasons, connect each terminal with two wires and by means of separate cables.
- Do not lay the connecting cables over long distances in parallel with power cables.
- Place the connecting leads through the housing openings.
- Fit the screw terminals to the connecting leads.
- If you route a connecting lead of the telephone system outside of the building, you are advised to use external lightning protection.
- Plug the screw terminals of the individual leads onto the provided slots (see Fig. 2).
- Insert one of the two Western plugs on the included connecting cable into the telephone system's Western socket. Do not insert the other Western plug in your ISDN telecommunications socket until you have completed installation. The Western plugs are locked after insertion. To unlock them, press the small lever to the side and pull out the plug at the same time.

## Connecting a door phone (AS 19)

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- You can connect a 4-wire door phone (TFE specification FTZ 123 D 12)
  - If you route a connecting lead of the telephone system outside of the building, you are advised to use external lightning protection.
- Connect it as follows:
- Plug the screw terminal onto the door phone slot (see Fig. 2).
  - You can only actuate the door opener from a terminal in your telephone system after connecting an external bell transformer (TO relay). Pay attention to the information provided with your door phone.
  - Maximum contact load of the TS and TO relays: 30 VDC/1 A or 125 VAC/0.5 A ohmic load (TS: relay for activating an external amplifier; TO: door opener relay)



**Assignments of a TAE 2x6/6 NF/F**  
for telephone, modem, fax, answering machine, radio cell connection

**Fig. 2: Pin assignments AS 14, AS 19**

## ISDN connection

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### Point-to-point connection

You can only connect one ISDN telephone system to a point-to-point connection. You cannot connect any further ISDN terminals. By means of the ISDN connecting cable, you connect the ISDN telephone system directly to the NTBA (NT) or to an ISDN socket (IAE/UAE) that is connected to the NTBA.

The NTBA does not need to be connected to the 230 V mains because the ISDN telephone system has its own power supply.

### Point-to-multipoint connection

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

By means of the ISDN 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 NTBA.

The NTBA then only needs to be connected to the 230 V main if ISDN terminals are connected to the S0 bus that have to be powered, e.g. ISDN telephones. The NTBA powers a maximum of four ISDN telephones. If the power should fail, an ISDN telephone entitled to emergency power receives a power supply (emergency operation).

## Connecting a printer for printing connection data

You can connect any serial 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 data is not stored. To print the connection list, the printer does not need to be on all the time. Your telephone system stores at least 100 connection records.

The total connection charges for your telephone system, for every user and for every MSN are stored permanently, even in the event of power failures.

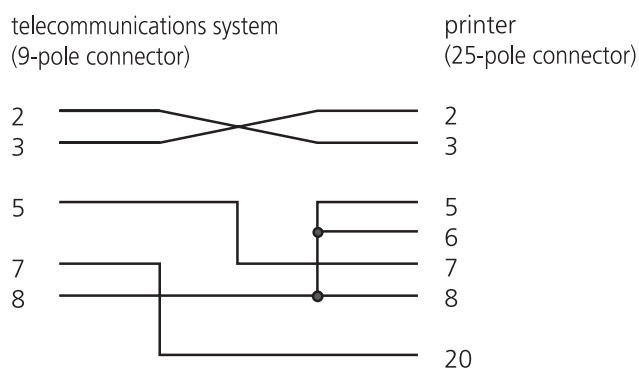


Figure 3: Printer cable pin assignments

## Connecting external music on hold (MoH)

If you wish to feed in external music on hold, set internal MoH to „0“ - off (see „Programming further functions“).

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 (external MoH) of your AS 14 or AS 19 (Fig. 2).

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“. You hear the music on hold and can adjust the volume.

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

## Terminators for the S0 bus

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With the switch S100 and S101 (Fig. 2), you set the terminators (100 Ohm) for the  $S_0$  bus. The switches must both be either closed or open.

If you have connected your telephone system to a **point-to-point connection** and directly to the NT, both switches must be closed.

On a **point-to-multipoint connection**, both switches must be 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.

On a **point-to-multipoint connection**, both switches must be closed ('as-delivered' setting)  
- if the telephone system is connected directly to the NTBA  
or the telephone system is connected to the last IAE/UAE socket and the 100 Ohm terminators are not installed in the socket.

A wrong switch setting may lead to malfunctions.

In the 'as-delivered' settings, both switches are closed.

See Fig. 2 for details of the switch settings.

## Closing the housing

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- Hook the four top cover tabs into the cover latch of the bottom housing half.
- Press onto the bottom edge of the cover until it engages.
- 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.

Telephones with the DTMF dialling method must have a signal key (inquiry key R) with the flash functions. Flash time: 50 - 110 ms.

Telephones with the pulse dialling method can only be used with restrictions. Inquiry functions (R functions) are not possible.

- The systems are pre-programmed. If you connect your terminals according to this programming, you do not need to program any terminal connections.

AS 14: 11 and 12 - telephone 13 - answering machine, 14 - fax (combined unit)

AS 19: 11 to 16 - telephones, 17 - answering machine, 18 - fax (combined unit)

- 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.

- Your telephone call distributes calls from the outside according to service mode 1. The telephone terminals ring.

- By programming on the main telephone or PC via the RS 232 C interface, you can set the functions of your telephone system to suit your needs.

- To avoid incorrect dialling, after installation dial a digit on a terminal with DTMF. This allows your telephone system to recognise the dialling method.
- Dial a digit higher than 0 if you change the

- dialling method on a terminal from DTMF to pulse dialling.
- If you operated two terminals on one terminal connection, both of them must dial in accordance with the same dialling method.

## Data transfer

Your telephone system supports the V.32bis (144000 bps), V.42bis (data compression) and V.34 (28800) standards for data transfer.

For usage of a modem, it is recommended to define the port for "automatic line seizure" by TK-Set. Otherwise it is imperative to configure the

modem to 'blind dialling' because most modems do not detect the dial tone of a telecommunications system. On modems that operate with the Hayes command repertoire, blind dialling is set by means of the X0 ... X4 parameters.

# Making telephone calls

To reach an external subscriber, you can set one of three variants for each terminal. How you make external or internal calls and how you initiate functions on your telephone systems

depends on the set variant. If necessary, ask the person who installed your telephone system what variant is set for your terminal.

## Making telephone calls - variant 1 (outside line seizure variant "0")

After picking up the receiver you hear the internal dial tone.

### Calling an external subscriber

After the code **0** has been dialled, the telephone system automatically selects a free outside line (B channel).

After the code **50** has been dialled on the combined port (instead of '0'), the telephone system also selects an outside line. However, it assigns the fax identification to the connection. When an outside line is selected with '0', the telephone service identifier is assigned.

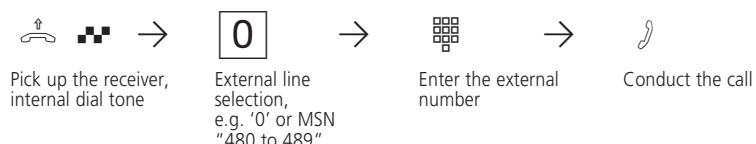
If you are operating your telephone system on a point-to-multipoint connection, the external number (MSN) assigned to your terminal for

outgoing external connections is sent to the ISDN exchange. Connection costs are then assigned to this MSN. This MSN is also presented to your called party, provided presentation of your line identification has been enabled.

If you wish to have connection charges assigned to a different MSN, to select an outside line you must dial the following code instead of '0':

**480** = MSN 0, **481** = MSN 1, ... , **489** = MSN 9.

On the combined port it is also possible to selected an outside line with a code from 480 to 489. The connection is assigned the telephone service identifier.

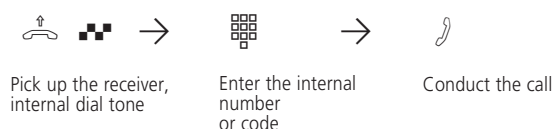


### Calling an internal user

Enter the internal number. The internal numbers to are defined.

### Initiating a function

If you wish to initiate a function (e.g. activating do not disturb), enter the code instead of the internal number.





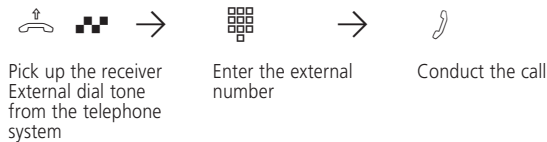
## Making telephone calls - Variant 2 (automatic outside line variant)

After picking up the receiver, you hear the external dial tone.

### Calling an external user

Simply enter the external number. The outside line is selected automatically.

On a point-to-multipoint connection, the multiple subscriber number (MSN) assigned to your terminal for outgoing connections is presented. Connection charges are recorded under this MSN.

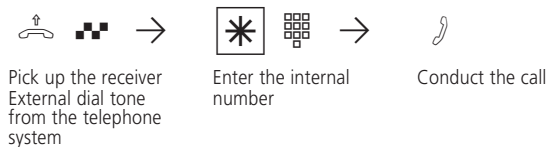


### Calling an internal user

Enter \* and the internal number. The internal numbers 11 to 18.

### Initiating a function

If you wish to initiate a function (e.g. activating do not disturb), enter \* and the code.



## Making telephone calls - Variant 3 (direct outside line seizure variant, without internal dialling, not on the main telephone 11)

After picking up the receiver, you hear the dial tone of the exchange.

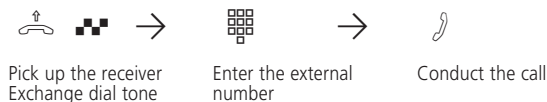
### Calling an external user

Simply enter the external number. The outside line is selected automatically.

In this variant, you cannot dial any

internal users and you cannot initiate any functions.

On a point-to-multipoint connection, the multiple subscriber number (MSN) assigned to your terminal for outgoing connections is presented. Connection charges are recorded under this MSN.



## Reserving an outside line

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If you hear the busy tone after seizing an outside line (e.g. by dialling „0“), this means that both outside lines are busy. You can reserve an outside line for yourself. As soon as an outside line

is free, the telephone system will call you. When you pick up the receiver, you hear the external dial tone and you can enter the external phone number.



## Notes

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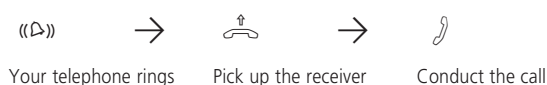
- Making a telephone call - Variant 2: you cannot dial any internal users from telephones that do not have a \* key.
- If, when seizing an outside line, you hear the error tone instead of the external dial tone, this means that your telephone has no external phone number dial access.
- If you hear the error tone after reserving the line, this means that the outside line is already reserved.
- The telephone system rings you for 30 seconds when the reserved outside line is free. The outside line is offered to you again when you become free after you have been busy.
- The reservation is cleared after one hour if no connection comes into being.
- DTMF post-dialling is possible for all existing external connections, even in an inquiry, when brokering and during a three-party conference. You can post-dial digits and symbols (1...0, \*, and #).

# Accepting calls

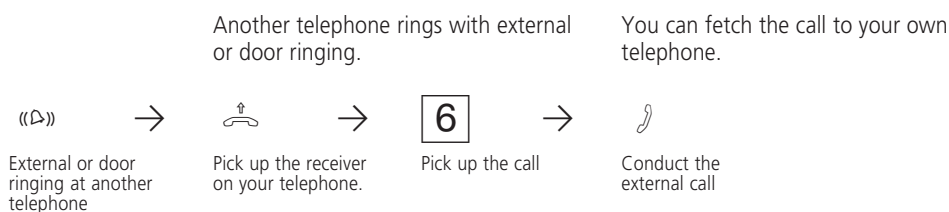
Thanks to different ringing rhythms on your telephone, you can distinguish between internal calls, code calls, door calls and external calls.

When your telephone rings and you pick up the receiver, you are connected to the caller. You can end the call at any time by replacing the receiver.

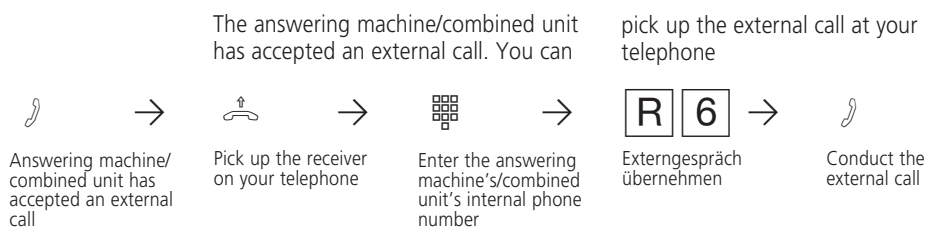
## You are called



## Picking up a call



## Picking up a call from the answering machine/combined unit



## Notes

Users who are only allowed to make internal calls:

- cannot pick up any external calls
- cannot pick up calls from the answering machine/combined unit

- for you to be able to pick up a call from an answering machine/combined unit, the terminal connection must be programmed as an answering machine or a combined unit.

After the code **6**, you hear the error tone.

# Forwarding a call

You can forward an external call to another internal user. Two kinds of forwarding are possible.

## Forwarding with announcement

You call the internal user in an inquiry, you announce the external call and you replace the receiver. You have now forwarded the external call.

## Forwarding without announcement

You call up the internal user in an inquiry and you replace the receiver without speaking with the internal user. The internal user hears external ringing, and is connected to the external subscriber after lifting the receiver.

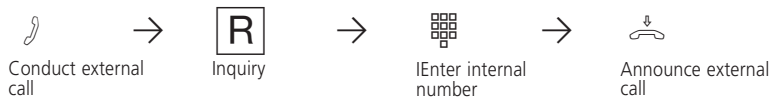
### Forwarding with announcement

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### Forwarding without announcement

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### Notes

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- You can only forward external calls to telephones that are entitled to accept external calls.
  - If the internal user does not answer, you can connect back to the external subscriber by pressing **[R]** **[R]**. If necessary, you can forward the external subscriber to another internal user.
  - During forwarding, the external subscriber on hold hear a tune if 'Music on Hold' (MoH) is on.
  - It is not possible to forward a call to an internal user who has activated call diversion to external subscriber. You are immediately called back.
- After internal forwarding without

- announcement, you receive a return call:
- immediately if the internal user is not entitled to accept external calls,
  - if the internal user has activated do not disturb on his/her telephone,
  - immediately if the internal user is busy,
  - immediately if the internal user has activated call diversion to an external subscriber,
  - after 45 seconds if the internal user has not accepted the forwarded call within this time.

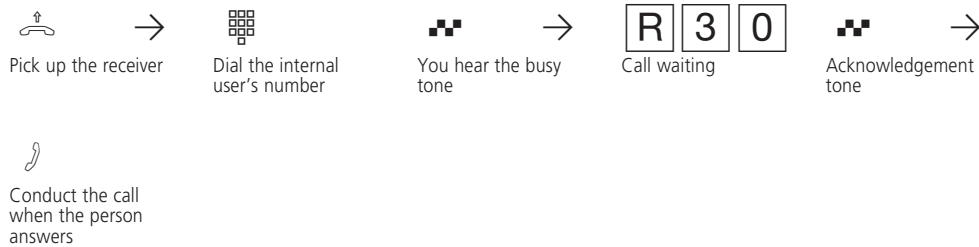
You are connected back to the external subscriber if you accept the return call. The connection is cleared after 60 seconds if you do not accept the return call.

# Call waiting

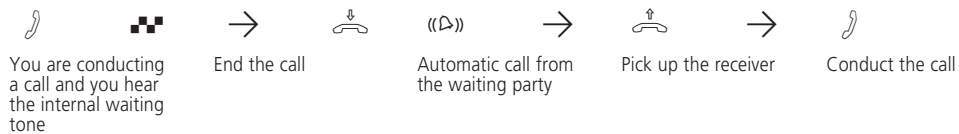
You can make yourself noticeable to a busy internal user by means of a call waiting tone. The call waiting tone can be heard in the existing call. The user you have called receives your call immediately after replacing the receiver.

Internal users and external subscriber can announce waiting calls to you. If you do not want anyone to announce their waiting calls to you, activate the do not disturb feature on your telephone.

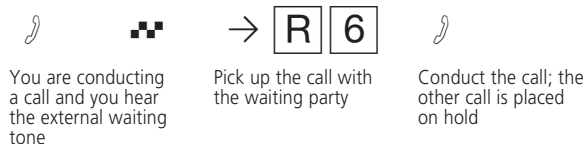
## Announcing a waiting call to a busy internal user



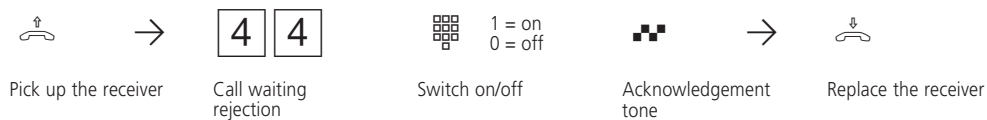
## An internal user announces a waiting call to you



## An external subscriber announces a waiting call to you (free dial-up line)



## Switching call waiting rejection



## Notes

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- If you announce a waiting call to a busy internal user, this user hears the call waiting tone. You hear the positive acknowledgement tone.
- If an external user announces a waiting call to you, you hear the call waiting tone every 10 seconds.
- You can also end an external call by placing it on hold or by parking it.

You cannot announce a waiting call to an internal user

- who is in a conference
- who has activated do not disturb or call waiting rejection
- who is currently dialling
- that is set up as an answering machine, as a fax, as combined unit or as a modem.

You hear the error tone.

You hear the error tone when **pickup up a person who is announcing call waiting**

- if the internal waiting caller is the other call partner.
- if an external call is waiting and both outside lines are busy. To be able to speak with the waiting party, you must end the first call (replace the receiver, place the call on hold or park it).

With the **'as-delivered'** settings, call waiting rejection

AS 14:

- is off on terminals 11 and 12
- is on on terminals 13 and 14

AS 19:

- is off on terminals 11, 12, 13, 14, 15 and 16
- is on on terminals 17 and 18.

## Printing the call list


The telephone system stores external calls that have not been answered by anyone in a call list. From the main telephone 11 you can print the call list with a maximum of 32 entries and you can delete it.

The call list contains the following information:



- Date and time of a call

- Caller's number (if the call comes from the analog network or if the calling line presentation in the ISDN network is restricted, the caller's number is shown as 'unknown')
- Called party's number (DDI or multiple subscriber number of the internal user)
- Service (telephony, fax, data)

### Printing the call list

 → **4 7 3 1**  →   
 Pick up the receiver      Enter the code for printing the call list      Acknowledgement tone      Replace the receiver

### Deleting the call list

 → **4 7 3 0**  →   
 Pick up the receiver      Enter the code for deleting the call list      Acknowledgement tone      Replace the receiver

### Example: call list set to 80 characters/line

Call list					
Date	Date	Call from	Call to	Service	
16.12.96	11:52:10	0309876543210987	87654321	Tel	
16.12.96	12:05:35	unknown	87654322	Tel	
17.12.96	07:45:56	05219988776	87654323	Fax	

### Example: call list set to 24 characters/line

```
( Call list )
-----
16.12.96 11:52
from 0309876543210987 Tel
to 87654321

16.12.96 12:05
from unknown          Tel
to 87654322
```

# Do not disturb

You do not want to be disturbed by calls and so you activate the do not disturb function. Ringing on your telephone is turned off. You can still make phone calls in the manner to which you are

accustomed. When you pick up the receiver, a special dial tone reminds you that do not disturb is on.

## Activating do not disturb for internal calls

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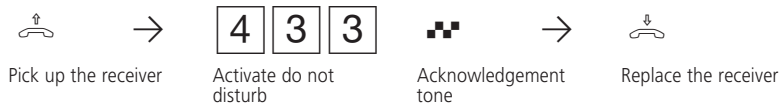
## Activating do not disturb for external calls

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## Activating do not disturb for all calls

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## Deactivating do not disturb

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## Notes

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- Do not disturb is not possible:
- on the main telephone 11,
  - at terminals that are configured as radio cells,

- You can initiate calls back despite having activated do not disturb. The callback temporarily cancels do not disturb.
- If you use your telephone as a telephone for room monitoring, do not disturb is not active.



# Changing the service mode

When an external call arrives, one telephone rings or several telephones ring simultaneously. The called internal user who picks up the telephone first is connected to the caller. Which telephones ring is defined in the call distribution settings

defined during programming. Different ringing distributions are possible for day and night by setting two different service modes. You can activate service mode 1 (day service) or service mode 2 (night service) at any time.

## Activating service mode



## Activating service mode



# Automatic dialling (off-hook dialling)

For an emergency, you can activate „Automatic dialling“ on your telephone. When you pick up the receiver, after 10 seconds

the telephone system automatically dials a stored telephone number if you do not press any keys.

## Activating automatic dialling

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## Deactivating automatic dialling

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## Notes

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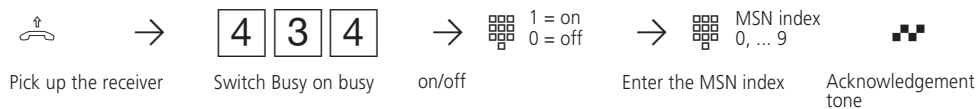
- You can only store the emergency number from the main telephone 11. The emergency number may be an internal or an external number.
- For "Automatic dialling", the external line seizure variant 1 (external line seizure with "0") must be programmed for the telephone. "Automatic dialling" is not possible with the external line seizure variants 2 and 3 (automatic external line seizure).
- If the called party is busy, the telephone system repeats dialling the emergency number every 30 seconds. Automatic dialling is cancelled after 12 attempts.
- If you hear the error tone when activating "Automatic dialling", this means that no emergency number is programmed.

# Activating/deactivating busy on busy

Point-to-multipoint connection only - an external subscriber calls your MSN, for which ringing distribution to several terminals is programmed. The terminals that are free ring. You are busy, and there is no-one there who can take the call. The caller hears the ringing tone.

To make sure the caller does not get the impression that no-one is there, you can activate the "Busy on busy" feature for your MSN. The caller hears the busy tone provided a user in the ringing distribution settings is busy.

## Activating/deactivating busy on busy



## Notes

An ISDN terminal on a point-to-multipoint connection to which an MSN is assigned that is identical to the telephone system's MSN is always rung, regardless of whether „Busy on

busy" is on or off in the telephone system for this MSN. The caller hears the ringing tone.

## Code calls

Six code calls are at your disposal. By means of a code call, you can search for a specific person in the house or you can send a signal to everyone. Beforehand, you must agree with the others on who is meant or what is to be done if a certain code call sounds.

The code calls always begin with a long ringing tone. They are followed by one to four short tones.

You can address **code calls to radio cells** by

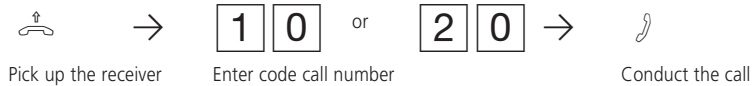
means of the code numbers 51, 52, 53 and 54. For example, if you dial the code call number 51, all users of free radio cells are called with the tone sequence of code call 1.

You address **code calls to all** users with the code call numbers 10 and 20. All free telephones ring with the tone sequence of code call A or B.

The first user to pick up the receiver is connected to you.

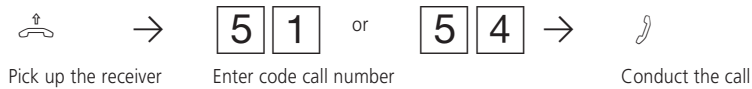
### Code calls to all

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### Coderufe an Funkzellen

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### Notes

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- Code calls are not possible to internal users configured by programming as an answering machine, a fax, a combined unit or a modem.
- You can also use the code call feature internally in an inquiry.

## ISDN - malicious call identification

You can only use the "malicious call identification" feature after placing a special order with your network carrier.

The ISDN exchange stores the caller's number, your number, the date and the time of the call. You can trace the caller during a conversation.

### Identifying a caller

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### Notes

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- Press the signal key twice **R** if you wish to continue the call after identifying the caller.
- Until you continue or cancel the call with the caller, the caller hears a tune if "music on hold" (MoH) is activated.

You hear the error tone:

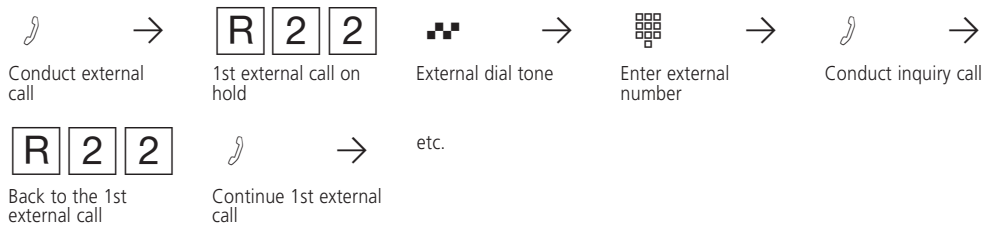
- if you have not placed an order for identification of malicious callers with your network carrier.
- if the caller could no longer be identified by the exchange.

# ISDN - Call hold

On a point-to-multipoint connection only, you can place an external connection on hold in the ISDN exchange in order to conduct an inquiry call with a second external subscriber on the same

outside line. You then switch back to the first telephone conversation. You can also switch between both external calls (brokering).

## Hold



## Notes

- If you hear the error tone instead of the external dial tone, then the call cannot be placed on hold in the exchange. You are connected back to the external subscriber after pressing **R****R**.
- You clear the current call if you replace the receiver. You receive a return call if a subscriber is still on hold in the exchange.
- Connection charges are incurred for the current external call and for the one on hold.

# ISDN - Terminal portability

On a **point-to-multipoint connection only**, you can briefly interrupt an external call (parking) if, for example,

- you wish to move somewhere else,
- you wish to continue the call on another ISDN telephone on the point-to-multipoint connection.

You must resume a parked call within 3 minutes. After 3 minutes, the exchange will clear the parked call.

As several calls can be parked on your ISDN

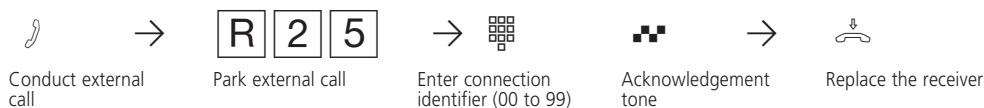
connection, you must assign a "connection identifier" to each parked call.

You can resume a parked call:

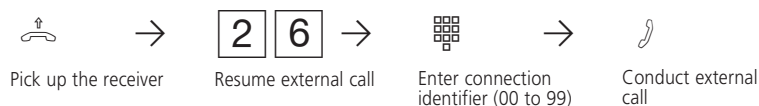
- at any telephone of the system
- at an ISDN telephone on your point-to-multipoint connection.

Please refer to the corresponding operating instructions for details of how to park and resume a call with an ISDN telephone.

## Parking a call



## Resuming a call



## Notes

- If you hear the error tone when parking an external call, an external call has already been parked under the entered connection identifier. You are connected back to the external subscriber after entering **R****R**.
- If you hear the error tone when resuming, no external call is parked under the connection identifier you have entered.
- Connection charges are incurred for the parked external call.

# ISDN - Number presentation

Your telephone system already communicates your number to an external subscriber before the call is connected (,as-delivered' settings).

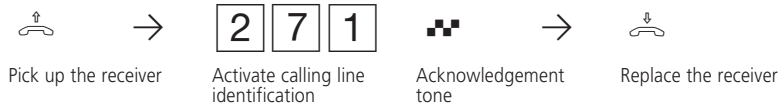
In the ISDN network, two variants of number presentation are at your disposal:

- Presentation of the caller's number to the called party  
Your number is communicated to the external ISDN subscriber that you call.  
Depending on requirements, you can

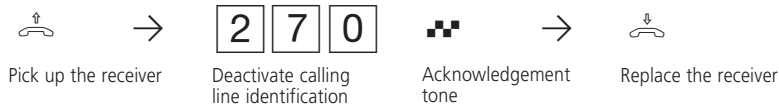
deactivate this number presentation free of charge.

- Presentation of the called party's number to the caller (chargeable)  
Your number is communicated to the external ISDN subscriber who calls you.  
Specify this feature on the form with which you apply for your ISDN connection.  
If you wish to be able to optionally turn this feature on or off, you must additionally apply for this (chargeable).

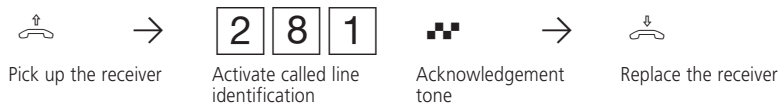
## Activating identification of your number to the called party



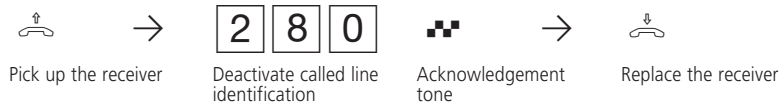
## Deactivating identification of your number to the called party



## Activating identification of your number to the caller



## Deactivating identification of your number to the caller



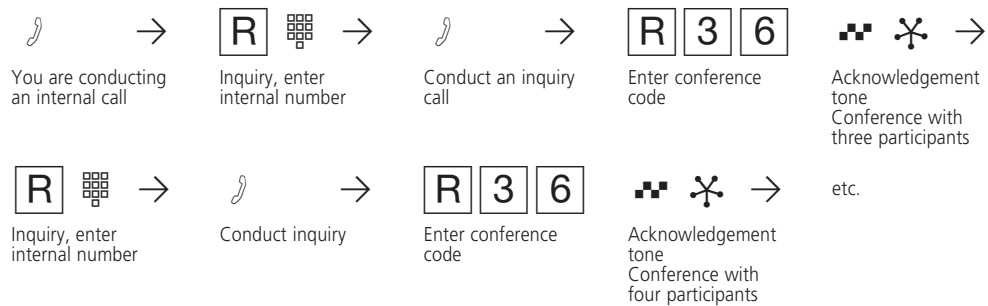


# Conference

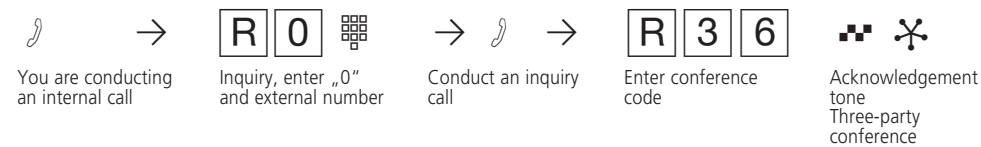
You can switch together all internal users of the telephone system in a telephone conference or you can conduct a three-part conference with

one external subscriber and one internal user. Two independent conferences can also be conducted simultaneously.

## Internal conference



## External / internal conference



## Notes

- Every conference participant can call further internal users into the internal conference. New conference participants are announced with the acknowledgement tone.
- Every participant can only be in one conference at a time.
- An external or door call is signalled with the external call waiting tone if one of the called users is in the conference.
- Every conference participant can pick up a door call by entering **R 6**.
- During the external or door call, the participant is not longer in the conference. He can return to the conference by entering **R R**, provided he has not replaced the receiver.
- A user is switched out of the conference when he replaces the receiver. He can only be fetched back into the conference by one of the conference participants entering **R 3 6**.
- The conference is ended once all participants have replaced their receivers.

## ISDN three-party conference

Only on a **point-to-multipoint connection**. In the ISDN exchange, you can establish a three-party conference with two external subscribers. You only seize one dial-up line. To establish the three-party conference, you must first place the first external call on hold in the ISDN exchange in order to conduct an inquiry call with a second external subscriber on the same dial-up line.

You then switch both parties together in a three-party conference.

Important: you must have called up the second external subscriber. As far as the first call is concerned, it makes no difference whether you have been called or whether you have called the external subscriber.



## Notes

- When you dial the 2nd external subscriber, the multiple subscriber number that has been programmed for your terminal for outgoing connections is presented to the called party. Targeted line selection via a different MSN is not possible.
- If you hear the error tone instead of the external dial tone, this means that the subscriber cannot be placed on hold in the exchange. You are connected back to the 1st external subscriber after pressing R|R.
- A three-party conference is not possible if you hear the error tone after dialling the three-party conference code.
- When an external subscriber hangs up, he/she is no longer in the conference.
- You as the person convening the conference cannot switch any external subscribers out of the conference.
- You end the three-party conference when you, as the conference convener, hang up.
- Call charges are incurred for the external calls participating in the three-party conference.

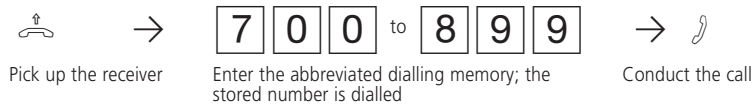
# Abbreviated dialling

From the **main telephone 11**, you can store up to 200 external telephone numbers in your telephone system's abbreviated dialling memory.

All users who are at least entitled to accept external calls (incoming) may dial the abbreviated dialling destinations.

## Dialling abbreviated dialling numbers

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## Notes

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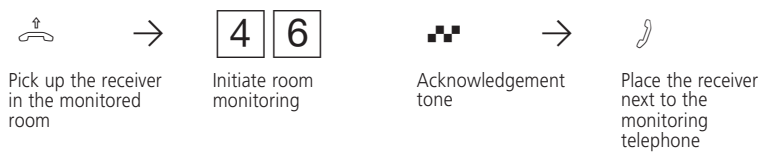
- You can post-dial further digits after selecting an abbreviated dialling destination.
- You hear the error tone if you have entered an empty abbreviated dialling memory.

# Room monitoring

From any internal or external telephone, you can acoustically monitor a room in which one of the telephones belonging to the telephone system is

installed. You call the monitoring telephone and listen into the room.

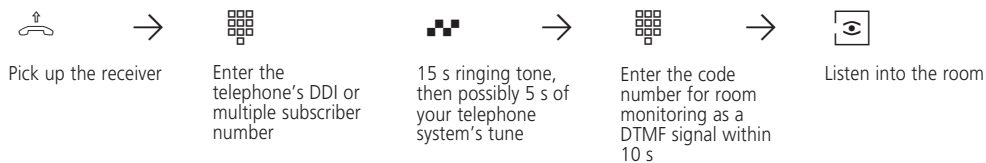
## Preparing room monitoring



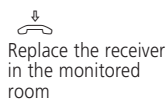
## Room monitoring from an internal user's set



## Room monitoring from an external subscriber's set



## Cancelling monitoring



## Notes

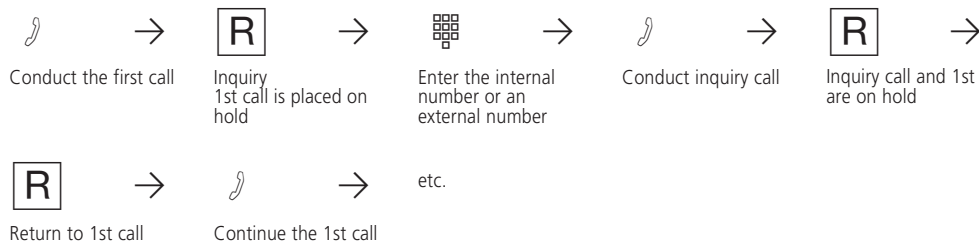
- You can also use a telephone in hands free mode as the monitoring telephone.
- The monitoring telephone must be the only terminal assigned to the specific multiple subscriber number
- If you hear the busy tone after dialling the number of the monitoring telephone, this indicates that the room is already being monitored by another caller.
- Within 10 s, you must enter the right code number as DTMF signals with a hand-held DTMF transmitter or a telephone as otherwise the telephone system will clear the connection.
- When monitoring a room, pay attention to the fact that you can also be heard in the monitored room when you speak

# Inquiry / brokering

You can interrupt your telephone call and conduct an inquiry call with a second person in the meantime. The telephone system places your

first call on hold. You then switch back to the first telephone call.

## Inquiry / brokering



## Notes

- To call someone in an inquiry, internally you can use the code calls and externally you can use abbreviated dialling.

In an inquiry call, you can:

- actuate the door opener (during a door call),
- accept a call from the answering machine and the combined port.

- An external subscriber on hold hears a tune when "music on hold" (MoH) is activated.

If you replace the receiver during an inquiry:

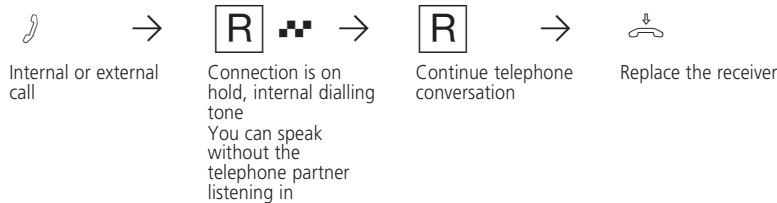
- you clear the current call,
- you are called back if a call is still on hold,
- you transfer a call on hold to the internal user with whom you were in an inquiry connection

- Call charges are still incurred for the external call while it is on hold.

## Inquiry in the room (muting)

You can interrupt your telephone conversation and speak with someone in the room in the meantime without your telephone

partner being able to listen in. An external subscriber on hold hears a tune when „music on hold“ (MoH) is activated or when it is fed in from an external source.

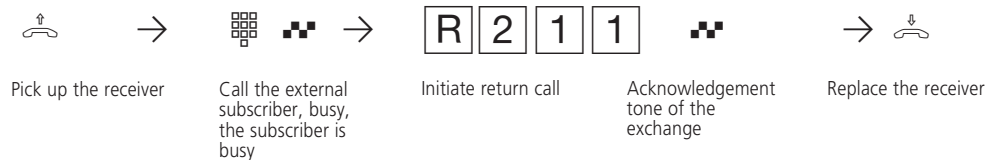


# Completion of calls to busy

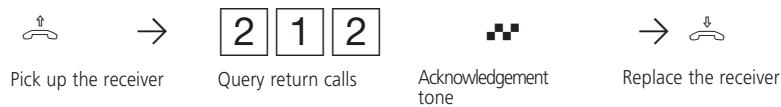
## Completion of calls to external subscribers (ISDN)

On a **point-to-multipoint connection only**. If an external subscriber is busy, you can initiate an automatic **return call** return from this **subscriber**, provided the person is an ISDN subscriber or is connected to a digital exchange. As soon as your required party hangs up, you telephone rings and you are called back. The subscriber is called automatically as soon as you pick up the receiver.

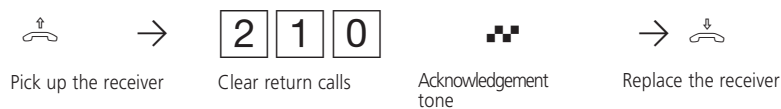
On your telephone, you can **query and clear the return calls** that you have initiated. When querying, you hear the acknowledgement tone if at least one return call is initiated. You hear the error tone if no return calls are initiated. When clearing, you clear all return calls that you have initiated.



## Querying return calls from external subscribers



## Clearing return calls from external subscribers



## Notes

If you hear the error tone, then return calls are not possible from your required telephone partner:

- the person is not an ISDN subscriber or is not connected to a digital exchange
- the "Completion of calls to busy external subscribers" feature is not available in the exchange
- your telephone system is connected to a point-to-point connection.

If you should not be obtainable after initiating a return call, it will be aborted after 20 seconds and cleared. If necessary, initiate the return call again.

A return call is cleared if the return call conversation has come into being or if it has not come into being within 45 minutes of initiating the return call.

## Return call from internal users

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If an internal user is busy, you can initiate a return call from this person on your telephone. Your telephone rings as soon as this person replaces the receiver. The other person is rung automatically as soon as you pick up the receiver.



## Notes

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You can initiate several return calls (from every internal user).

If you hear the error tone, then a return call from the other person is not possible:

- another person is already expecting a return call from that person
- the other person has activated do not disturb for his/her telephone
- the user station is a radio cell.
- If you have activated do not disturb on your telephone, a return call will temporarily cancel do not disturb.

- If you have activated call diversion to another telephone on your own telephone, a return call initiated by you will also be diverted.

If you should not be obtainable after initiating a return call, it will be aborted after 60 seconds and cleared. It will always be restarted whenever the user from whom the return call is expected replaces the receiver.

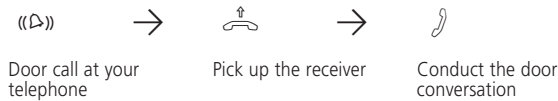
- A return call is cleared if the return call conversation has come into being or if it has not come into being within one hour of initiating the return call

# Door call and activating the door opener (AS 19)

If a door phone is connected to your telephone system, you can speak to a visitor via your telephone who is standing at the door. Your telephone rings with the door ringing sequence when the visitor presses the doorbell.

If a different telephone rings with the door ringing sequence, you can pick up the door call at your own telephone. During a door conversation, you can actuate the electrical door opener from your telephone.

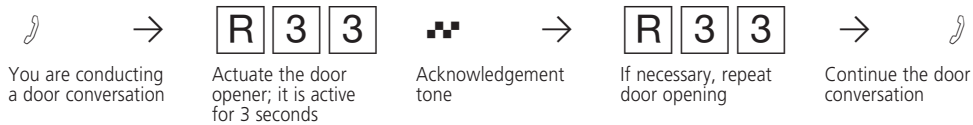
## Accepting a door call



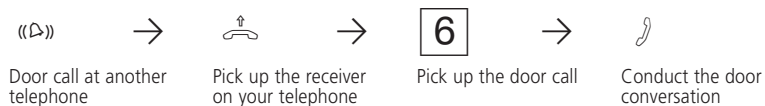
## Calling the door station



## Actuating the door opener



## Picking up a door call



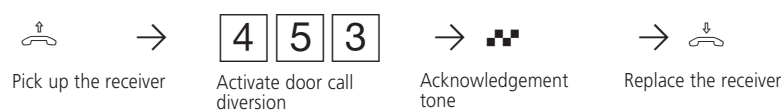


## Diverting door calls to an external subscriber (AS 19)

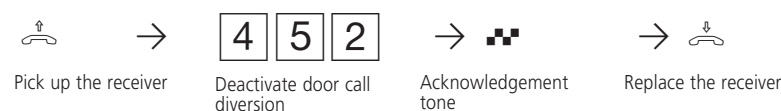
To ensure that a visitor is able to reach you even when you are not at home, you can divert door calls to an external telephone number, e.g. a mobile phone.

If you divert to an ISDN terminal that is able to recognise a caller's number, you can see that the call is a door call.

### Activating door call diversion



### Deactivating door call diversion



### Programming the door call diversion destination

Enter 9090 to start programming mode.



Enter the external number 9999.

### Notes

- The external number for door call diversion can only be programmed on the main telephone 11.
- You hear the error tone: if no external telephone number is entered.
- Door call diversion is only possible if at least one outside line is free.
- The connection charges for door call diversion are charged to user 11.
- You cannot actuate the electrical door opener from an external location.

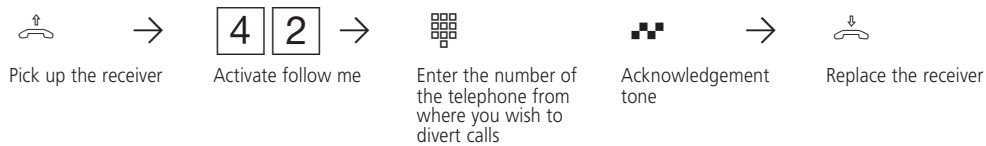
# Follow me - diverting calls from other telephones

You have gone to a different telephone in your telephone system. You want all calls to your telephone to be signalled there. Without having to go to your telephone, you can activate the follow me feature on the other telephone. Now, everyone will be able to reach you on the

other telephone. You can divert calls to your telephone from any number of telephones.

After you have picked up the receiver on your telephone, the special dial tone reminds you that follow me is activated.

## Activating follow me



## Deactivating follow me



## Notes

- Diverted external calls can also be accepted at telephones that are otherwise only allowed for internal communications.
- "Diversion from" a telephone that is set to Do not disturb is not possible you hear the error tone.
- Calls can only be diverted once. Calls diverted to you are signalled on your telephone, even if you have activated a diversion on your telephone.
- After a power failure, all activated diversions are deactivated.
- You can divert calls to your telephone and from different telephones. The last "diversion from" is active.
- Users of radio cells cannot activate any diversion.

# Diversion to - diverting calls to another telephone

## Diversions through your telephone system

You can divert all calls for your telephone

- to another telephone in the telephone system
- to an external subscriber.

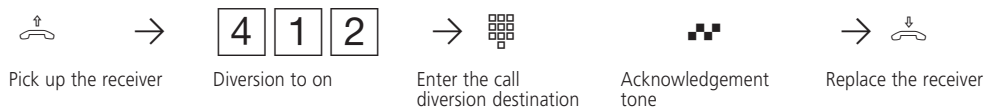
Despite diversion, you can continue to make telephone calls in the usual fashion. When you pick up the receiver, the special dial tone reminds you that diversion is on.

### Diverting to an external subscriber

Instead of the internal number, as the diversion destination you enter

- an external number (beginning with 0 for outline line selection) or
- a central abbreviated dialling destination (700 to 899).

## Diversion to - on



## Diversion to - off



## Notes

- Diverted external calls can also be accepted at telephones that are otherwise only allowed for internal communications.
- "Diversion from" a telephone that is set to Do not disturb is not possible you hear the error tone.
- Calls can only be diverted once. Calls diverted to you are signalled on your telephone, even if you have activated a diversion on your telephone.
- After a power failure, all activated diversions are deactivated.
- You can divert calls to your telephone and from different telephones. The last "diversion from" is active.
- Users of radio cells cannot activate any diversion.

## Diversion by the exchange (ISDN call forwarding)

You can only use the chargeable „call forwarding“ feature after applying to your telephone company for this feature. The ISDN exchange forwards all calls made to the phone number of your point-to-point or connection or multiple subscriber number to another destination specified by you. Calls can be forwarded without restriction to any connection in the world. The destination must be an abbreviated dialling memory of your telephone system. You can activate or deactivate the call forwarding variants from the main telephone 11:

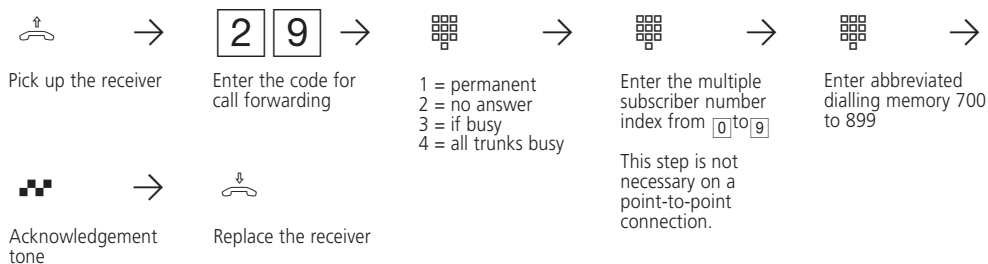
**Permanent call forwarding** – All calls are forwarded immediately.

**Call forwarding on busy** – All calls are forwarded immediately if your multiple subscriber number is busy.

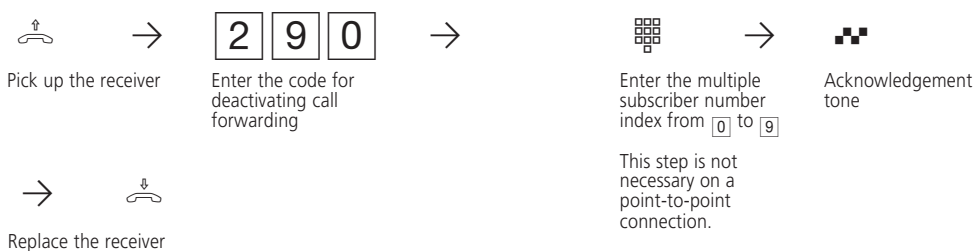
**Call forwarding if no answer** – All calls are forwarded after 15 seconds if nobody answers.

**Call forwarding even if the connection path is busy (all trunks busy)** - all calls are forwarded immediately even if the connection path to your connection is busy.

## Activating call forwarding



## Deactivating call forwarding



## Notes

- When activating/deactivating call forwarding, note that up to one minute may elapse between input and the acknowledgement tone from the ISDN exchange. Please do not hang up during this time.
- When call forwarding is activated, you hear the special dial tone of the exchange after seizing the outside line.
- You hear the error tone if the abbreviated dialling memory is empty.

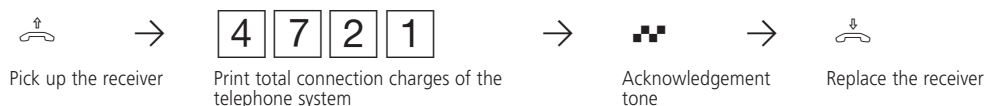
# Printing and clearing total connection charges

On the main telephone 11, you can print or clear the total connection charges for your telephone system, for every multiple subscriber number (MSN) or for every user at any time. You must have applied for the chargeable „Advice of charge“ feature from your network carrier.

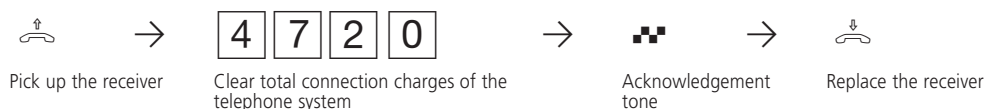
By programming, you can define

- printing the ,connection charges of each user, referred to your own rate for one unit (separate accounting for one user) or
- printing of the telephone system’s connection charges referred to the telephone company’s rate for one unit.

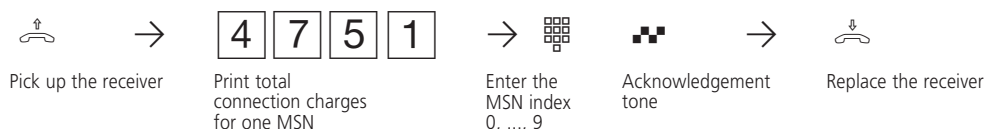
## Printing total connection charges of the telephone system



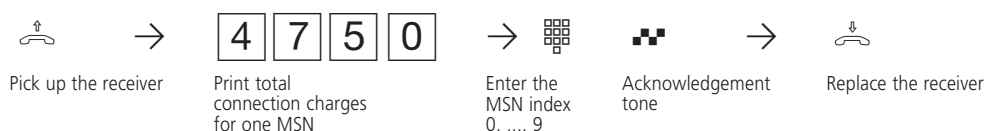
## Clearing total connection charges of the telephone system



## Printing total connection charges for one MSN

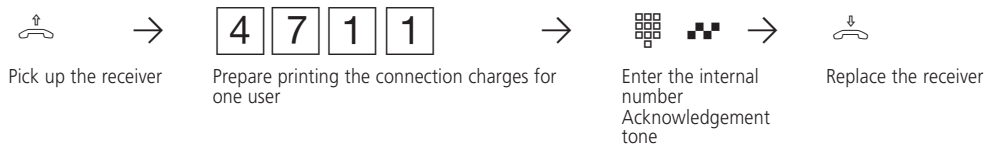


## Clearing total connection charges for one MSN



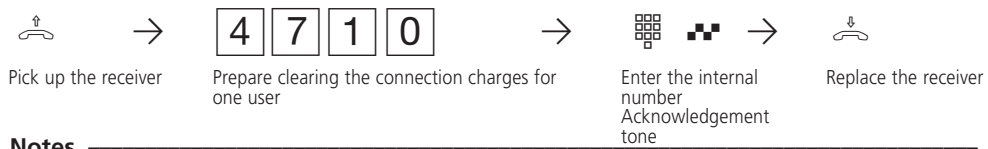
### Printing total connection charges for one user

---



### Clearing total connection charges for one user

---



### Notes

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- For technical reasons, the data on your network carrier's invoice may deviate from the total connection costs displayed by the telephone system. The charge units counter in the network carrier's exchange is always binding.

- Your telephone system stores total connection charges, even in the event of a power failure.

## Printing a connection list

Your telephone system is able to store the data of the last 100 outgoing and incoming external connections in a connection list. You can define which kind of connection is to be stored. You can print and delete the connection list from the main telephone 11.

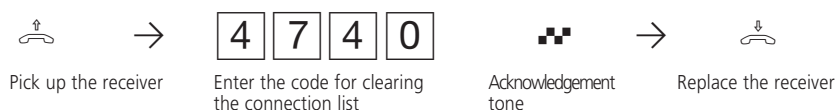
Information in the connection list:  
Date and time of the start of each connection

- Internal user
- Abbreviation denoting outgoing (ou) or incoming (in) connection
- Outgoing number: external number of the called party (complete, abbreviated, without) Incoming number: number of the caller
- service (telephony, fax, data)
- charge amount for an outgoing connection

### Printing the connection list



### Clearing the connection list



### Example: connection list set to 80 characters/line

```
( Connection list )
Date   Time User  Call from/to      Service Duration   Amount
-----
16.12.96 12:35 11 ou 05219988776      Tel 00:01:10    0,60 DM
16.12.96 13:55 13 in 03076543219      Tel 00:05:22    0,00 DM
```

### Example: connection list set to 24 characters/line

```
( Connecting list )
-----
16.12.96 12:35 User 11 ou
05219988776      Tel
0:01:10          0,60 DM

16.12.96 13:55 User 13 in
03076543219      Tel
0:05:22          0,00 DM
```

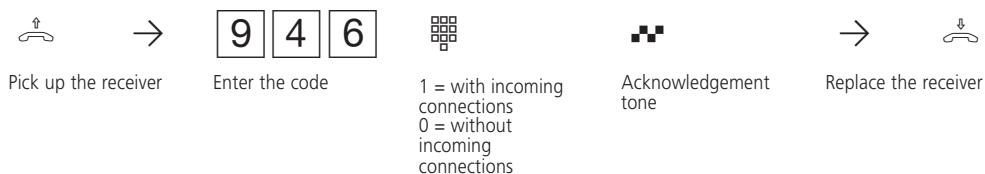
The connection list is cleared in the event of a power failure. When the connection list is

cleared, the data that the TK-Bill connection charge evaluation program needs is also deleted.

### Connection list with/without incoming connections

---

Start programming mode: 9090

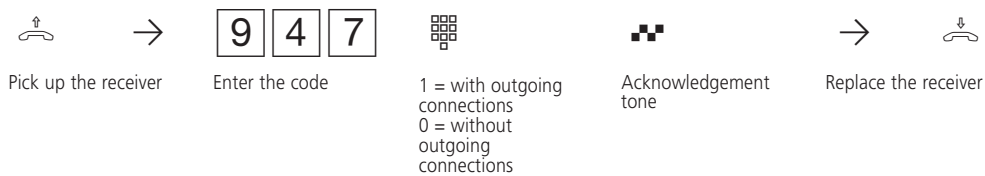


If necessary, end programming mode: 9999

### Connection list with/without outgoing connections

---

Start programming mode: 9090



If necessary, end programming mode: 9999



# Important notes on programming

You can only program your telephone system from the main telephone 11 or from a connected PC via the RS 232 C interface. These operating instructions only describe how to program the system from the main telephone 11.

Programming from a telephone as the main telephone always embraces the steps: Starting the programming mode, input and ending the programming mode

When programming, pay attention to the dial tones or dialling pulses in the receiver. After entering every digit, wait until it has been dialled. Only then will you hear the acknowledgement tone, if applicable, if your input is valid or the error tone if your input is invalid.

The programming tables contain the program codes that you have to dial. Enter your settings in the tables. You can then check settings any time you like.

## Starting programming mode

Replace the receiver

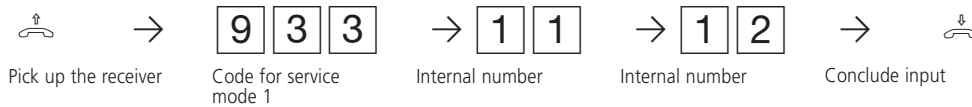


## Input (example - service mode 1)

After picking up the receiver, you first enter a code, which always begins with the digit **9**. You then enter one or even several telephone number(s) (e.g. for ringing distribution). All inputs for one code must be concluded by replacing the receiver. If you have made a typing error during input,

replace the receiver and begin again. You hear the error tone if you have entered an invalid code or an invalid telephone number.

If you wish to clear an input, simply enter the program code and replace the receiver.



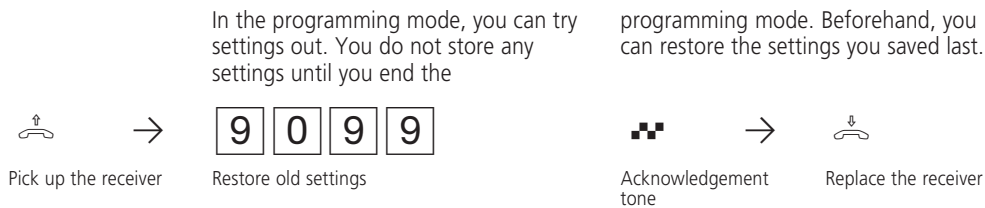
## Ending programming mode

End programming mode once you have made all settings. This ensures that the new settings are stored.

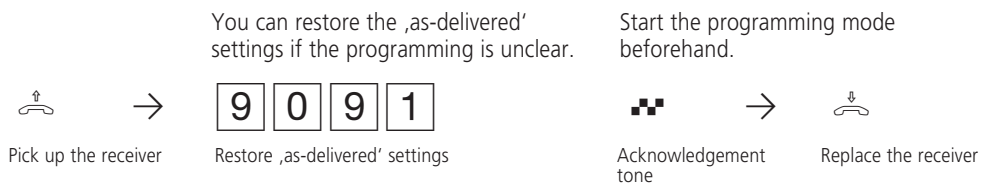
Settings are retained even in the event of a power failure.



## Restoring old settings



## Restoring the ,as-delivered' settings



- The ISDN bus is set to a point-to-point connection. You now only have to enter the system number.
- Terminal settings:
  - AS 14: 11, 12 - telephone, 13 - answering machine, 14 - combined port
  - AS 19: 11 to 16 - telephone, 17 - answering machine, 18 - combined port
- All users have unrestricted external access
- Point-to-multipoint connection: the multiple subscriber number (MSN) that is presented during outgoing external connections is the MSN that is stored under the index 0.
- The external line selection variant 1 (external line selection with "0") is set for all users.
- All telephones are set in service variant 1 (day service). Service variant 1 is active.
- Terminals 11, 17 (13) are entered in service mode 2 (night service).
- No terminal is entered for call forwarding. Call forwarding time 110 s.
- Do not disturb is off for all terminals.
- Call waiting rejection is off for all telephones. Call waiting rejection is on for terminals 17 (13) and 18 (14).
- Calling and called line number presentation is on.
- Internal music on hold is on (tune 1).
- All telephones are entered in the door phone service mode 1 (day service).
- automatic dialling is not active.
- Connection start information off
- Connection end information, incoming and outgoing, off for all users
- Connection information in German and with 80 characters/line
- Base factor (network operator) for one unit: 12 pfennigs
- User factor for one unit: 50 pfennigs
- Busy on busy: off
- Code number for room monitoring: 0000
- Remote configuration is not active.

# Programming a point-to-point connection

Your telephone system automatically recognises whether you are connected to a point-to-point connection or to a point-to-multipoint connection. You now only need to program the system telephone number. If your telephone system was previously operating on a point-to-multipoint connection, it automatically resets itself and is then set to a point-to-point

connection.

Your network carrier has assigned your point-to-point connection a system telephone number and the number block 0 ... 9. External callers reach your telephone system by means of your system telephone number, e.g. 987654 plus a DDI number 0 ... 9. You must program your system telephone number in your telephone system.

## Check: programming the ISDN bus as a point-to-point connection

The setting does not take effect until you end programming by entering the

code 9999 and after the automatic reset.

**Dial the code on any telephone and you will hear the tone.**

Telephone system connected to	Code	
Point-to-point connection	5900	Anknowledgement tone!-> Important! Program the system telephone number.

### Important

Resetting clears the following:

- All existing internal and external connections
- Activation of "Automatic dialling"
- Call waiting rejection
- Do not disturb
- Call list
- Line number presentation settings

- Remote support
- Room monitoring
- Internal return calls
- ISDN return call on busy
- Diversions to and from
- Connection list
- Outside line reservations

## Programming the system telephone number

**Dial the code on any telephone and you will hear the tone**

Telephone system connected to	Code	point-to-point connection
Point-to-point connection	910	

# Programming a point-to-multipoint connection

When delivered, your telephone is programmed for a point-to-point connection. It automatically recognises whether you are connected to a point-to-point connection or to a point-to-multipoint connection. It automatically resets itself and is then set to a point-to-multipoint connection. For a point-to-multipoint connection, your network carrier provides you with up to ten multi-

ple subscriber numbers (MSNs). Program the multiple subscriber numbers assigned to you in your telephone system without prefixes. External callers reach your telephone system by dialling one of these multiple subscriber numbers. To ensure that external subscribers can specifically reach a terminal, you must assign the multiple subscriber numbers to the terminals (see "Programming ringing distributions").

## Check: programming the ISDN bus as a point-to-point connection

The setting does not take effect until you end programming by entering the code 9999 and after the automatic reset.

**Dial the code on any telephone and you will hear the tone.**

Telephone system connected to	Code
Point-to-multipoint connection	5900 Error tone! -> Important! Program multiple subscriber numbers (MSNs).

### Important

Resetting clears the following:

- All existing internal and external connections
- Activation of "Automatic dialling"
- Call waiting rejection
- Do not disturb
- Call list
- Line number presentation settings
- Remote support
- Room monitoring
- Internal return calls
- ISDN return call on busy
- Diversions to and from
- Connection list
- Outside line reservations

## Programming multiple subscriber numbers

Enter each assigned multiple subscriber number under an MSN index (index 0 ... 9) beginning with the index 0. During further programming and operation of your telephone system, simply enter the one-digit MSN index instead of the multiple subscriber number comprising up to 11 digits.

To start the programming mode: 9090

**On the main telephone 11, dial a telephone number consisting of the code and multiple subscriber number**

MSN index	Codes	Multiple subscriber number (up to 8 digits, no prefix)
Index 0	911 0	
Index 1	911 1	
Index 2	911 2	
Index 3	911 3	
Index 4	911 4	
Index 5	911 5	
Index 6	911 6	
Index 7	911 7	
Index 8	911 8	
Index 9	911 9	

## Programming a point-to-multipoint connection

For each terminal, define the multiple subscriber number that is to be presented to the other party during an outgoing external connection. The connection charges are then recorded for this MSN. Regardless of what you have defined, every internal user can define a different MSN for recording of

charges for an external connection. Instead of external line selection by entering 0, such users dial a code from 480 (MSN 0) to 489 (MSN 9). For door call diversions to an external location (TFE 99), you can define an MSN to which connection charges are to be assigned. 'As-delivered' settings: MSN 0 is defined for all terminals.

Start programming mode: 9090

On the main telephone 11, dial the corresponding code and the terminal number

MSN index	Code	Terminal (nn)								Door phone
Index 0	913 0 nn	11	12	13	14	15	16	17	18	99
Index 1	913 1 nn	11	12	13	14	15	16	17	18	99
Index 2	913 2 nn	11	12	13	14	15	16	17	18	99
Index 3	913 3 nn	11	12	13	14	15	16	17	18	99
Index 4	913 4 nn	11	12	13	14	15	16	17	18	99
Index 5	913 5 nn	11	12	13	14	15	16	17	18	99
Index 6	913 6 nn	11	12	13	14	15	16	17	18	99
Index 7	913 7 nn	11	12	13	14	15	16	17	18	99
Index 8	913 8 nn	11	12	13	14	15	16	17	18	99
Index 9	913 9 nn	11	12	13	14	15	16	17	18	99

If necessary, end programming mode: 9999

## Notes

If no multiple subscriber number is entered for the assigned MSN index, or if an invalid one is entered, connection charges will be booked to the MSN with the index 0.

If an invalid MSN is selected, the exchange will present a valid MSN of your ISDN basic rate access to the called external subscriber.

# Programming ringing distribution settings

In the ringing distribution settings, you define which terminals in your telephone system are to ring when an external call arrives. You define

whether only one terminal is to ring or whether several of them are to ring simultaneously.

## Point-to-point connection - ringing distribution settings

External subscribers ring up your telephone system by way of the system telephone number. By adding further digits, the extension numbers 1 to 8 (corresponding to users 11 to 18), they

reach a specific user. If they dial the DDI digits 0, 9 or in invalid DDI digit, ringing is distributed according to the service mode. You program which terminals are to be rung in the service mode settings.

## Point-to-multipoint connection - ringing distribution settings

External subscribers dial one of your multiple subscriber numbers (MSNs). You define which telephones are to ring or whether the fax machine is to accept the call. As far as these settings (ringing

distribution) are concerned, there are three possibilities:  
 - Direct ringing distribution  
 - Ringing distribution via service modes  
 - Direct ringing distribution plus distribution via service modes.

Examples:

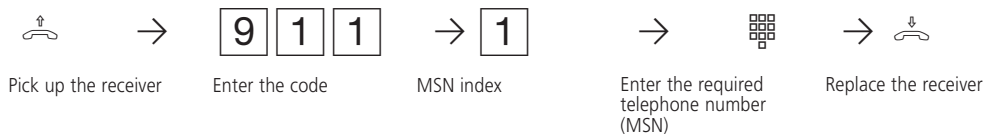
### Direct ringing distribution

Your fax machine is to always be reached via a specific telephone

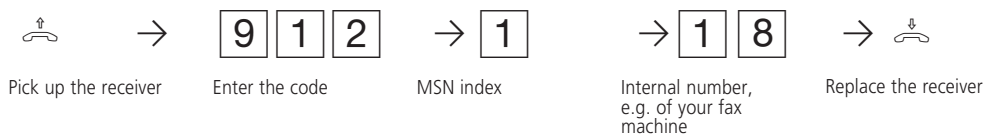
1. You enter this number (MSN) under any chosen index, e.g. 1.

Programmierung beenden mit: 9999

1. You enter this number (MSN) under any chosen index, e.g. 1.



2. A call with this number is only to reach your fax machine (internal number 18).



End programming by entering: 9999

Ringling distribution via service modes

If a call is made to a different number (MSN), two telephones (e.g. 12 and 13) are to ring during the day and only

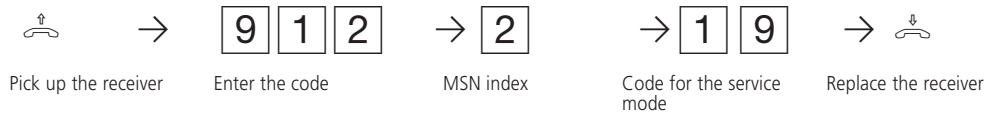
the answering machine (e.g. 17) is to ring at night.

Input example (start programming by entering: 9090)

1. You enter this number (MSN) under any chosen index, e.g. 2.



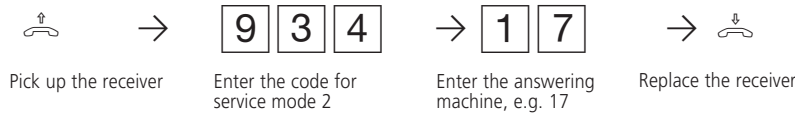
2. Program a call to MSN 2 so that it is signalled according to the active service mode.



3. Program day service (service mode 1). Enter telephones 12 and 13.



4. Program night service (service mode 2). Enter telephone 17.



End programming by entering: 9999

Direct ringing distribution plus distribution via service modes

A call, e.g. to your third telephone number (MSN) is always to ring on telephone 11. During the day it is to additionally ring on telephones 12 and 13 and at night it is to ring on the

answering machine (18). Program this analogously to the two other examples.

Program the ringing distribution for each multiple subscriber number

Start programming mode: 9090

**On the main telephone 11, dial the corresponding code and the terminal numbers**

<b>MSN index</b>	<b>Codes</b>	<b>Terminals ( direct ringing distribution)</b>								<b>Service mode</b>
Index 0	912 0	11	12	13	14	15	16	17	18	19
Index 1	912 1	11	12	13	14	15	16	17	18	19
Index 2	912 2	11	12	13	14	15	16	17	18	19
Index 3	912 3	11	12	13	14	15	16	17	18	19
Index 4	912 4	11	12	13	14	15	16	17	18	19
Index 5	912 5	11	12	13	14	15	16	17	18	19
Index 6	912 6	11	12	13	14	15	16	17	18	19
Index 7	912 7	11	12	13	14	15	16	17	18	19
Index 8	912 8	11	12	13	14	15	16	17	18	19
Index 9	912 9	11	12	13	14	15	16	17	18	19

If necessary, end programming mode:  
9999

#### Notes

- You hear the error tone if you
- have not started the programming mode
  - you have entered an invalid code or an invalid internal number.

The terminal that you assign to an MSN must at least have the external call class of service "incoming".



## Programming service modes

You can program two service modes and one call forwarding setting in your telephone system for calls from an external location.

Service mode 1 (day service) - you can define one or two terminal(s) that are to be rung by external callers during the day, for example.

Service mode 2 (night service) - you can define one or two terminal(s) that are to be rung by external callers during the night, for example. Either service mode 1 or service mode 2 is activated in the telephone system. You can change over the service mode at any time and at any telephone in the telephone system (service mode 1 = 401, service mode 2 = 402).

Call forwarding - a call by an external caller that is not accepted within a certain time is forwarded within the telephone system. You can define one or several terminals that is/are to

be rung. You can program the time from the first call to forwarding between 0 (immediately) and 100 seconds (5 seconds corresponding to one ring),

In the door phone ringing distribution settings (AS 19, AS 31 only), enter the terminals that are to ring when a visitor presses the doorbell of the door phone.

### 'As-delivered' settings

- The terminals 11 to 16 (12) are entered in service mode 1
- Service mode 1 is on
- The terminals 11, 17 (13) are entered in service mode 2
- No terminals is entered for call forwarding
- Call forwarding time 110 s
- The terminals 11 to 16 (12) are entered in the door phone ringing distribution settings for the doorbell

Start programming mode: 9090

**On the main telephone 11, dial the corresponding code and the terminal number**

Ringling distribution	Codes	Terminals							
Service mode 1	933	11	12	13	14	15	16	17	18
Service mode2	934	11	12	13	14	15	16	17	18
Call forwarding	931	11	12	13	14	15	16	17	18
Door phone 1	935	11	12	13	14	15	16	17	18
Door phone 2	936	11	12	13	14	15	16	17	18
<b>Call forwarding</b>		<b>Time in seconds</b>							
active after xxx s	932 xxx	xxx = s (000 (immediatly) to 110 s)							

If necessary, end programming mode: 9999

## Notes

- The terminals that you enter in the ringing distribution settings must at least have the „incoming“ external class of service.
- When programming call forwarding, make sure that telephone calls are not forwarded to a fax machine.
- If you wish to deactivate call forwarding, then simply clear the entered terminals. Pick up the receiver, dial the code **9|3|1** (call forwarding) and replace the receiver.

# Programming terminal connections

In the 'as-delivered' settings, the connections are programmed as follows:

- The ISDN bus is set to a point-to-point connection

Setting the terminal connections:

AS 14: 11, 12 - telephone, 13 - answering machine, 14 - combined port

AS 19: 11 to 16 - telephone, 17 - answering machine, 18 - combined port

## Programming terminal connections

You must program the terminal connections depending on the connected terminal. Depending on what this programming looks like, certain features are possible or are restricted.

- You can use the code calls on terminal connections that are defined as radio cells. Do not disturb, return calls and call diversion are not possible.
- Calls can be picked up from an answering machine/combined unit.
- To enable undisturbed operation of fax machines, answering machines, modems or combined units, call waiting is not possible on connections for these devices.
- You can optionally use the

telephony or fax service on connections for combined units (telephone, answering machine and fax in one).

When you select an external line by dialling "0", you use the telephony service.

When you select an external line by dialling "50", you use the fax service. On the combined unit connection, you can only use the telephone system's abbreviated dialling memory for the telephony service.

After every programming operation on a terminal connection, you must replace the receiver before you program any further terminal connection.

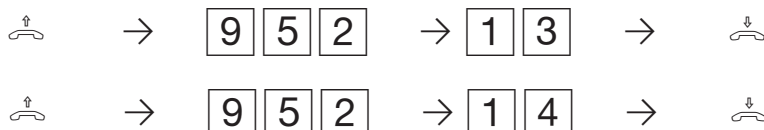
### Programming terminal connections

**On the main telephone 11, dial the corresponding code and the terminal number**

Terminal type	Codes	Terminal connection nn							
Telephone	951 nn	11	12	13	14	15	16	17	18
Radio cell	952 nn	11	12	13	14	15	16	17	18
Answering machine	953 nn	11	12	13	14	15	16	17	18
Fax	954 nn	11	12	13	14	15	16	17	18
Modem	955 nn	11	12	13	14	15	16	17	18
Combined port	956 nn	11	12	13	14	15	16	17	18

If necessary, end programming mode: 9999

Input example: setting terminal connections 13 and 14 to radio cell



# Programming external line selection

Your telephone offers three variants for external line selection (seizing a B channel).

- **Variant 1:** you hear the internal dial tone when you pick up the receiver. If you wish to call an **external subscriber**, you must dial **0** to select an outside line. If you wish to call an internal user or initiate a function (e.g. Do not disturb), enter the internal number or a code.
- **Variant 2:** you hear the telephone system's external dial tone after picking up the receiver. If you wish to call an external subscriber, simply enter the external number. The outside line is

selected automatically. If you wish to call an internal user or initiate a function (e.g. Do not disturb), you must predial **\***.

- **Variant 3 (not on the main telephone 11):** you hear the dial tone of the exchange when you pick up the receiver. The **external line** has been selected **automatically**. Enter the external number. With this variant, you cannot call any internal users and you cannot initiate any functions. This variant is advisable as a setting for the fax and modem terminals.

## Programming external line selection

Start programming mode: 9090

**On the main telephone 11, dial the corresponding code on the terminal numbers.**

External line selection	Code	Terminal (nn)							
		11	12	13	14	15	16	17	18
Variant 1	957 nn								
Variant 2	958 nn								
Variant 3	959 nn								

If necessary, end programming mode:  
9999

## Notes

If you wish to use a telephone for „Automatic dialling“, you must program the external line selection variant 1 for this terminal.

„Automatic dialling“ is not possible with variants 2 and 3 (automatic external line selection).

# Programming outside line access privileges

With the telephone system's 'as-delivered' settings, every user is entitled to dial any number in the world without restriction. You can limit each user's privileges in respect of outgoing connections. You can assign five different outside line access privileges:

- none, user is only allowed to make internal calls within the telephone system
- accepting only incoming calls and dialling abbreviated dialling destinations

- close range only, i.e. all numbers with a local network and also the programmed close range numbers can be dialled
- national calls only, i.e. all numbers that do not begin with 00 can be dialled
- unrestricted

You can also bar numbers independently of users' outside line access privileges

## Entering outside line access privileges

Start programming mode: 9090

On the min telephone 11, dial a telephone number consisting of the code and the required terminal

Outside line access	Codes	Terminal (nn)							
none	962 nn	11	12	13	14	15	16	17	18
incoming only	963 nn	11	12	13	14	15	16	17	18
Close range	964 nn	11	12	13	14	15	16	17	18
National	965 nn	11	12	13	14	15	16	17	18
unrestricted	966 nn	11	12	13	14	15	16	17	18

## Entering the close range numbers

On the main telephone 11, dial a telephone number consisting of the code and the required terminal.

Codes	max 5-digit close range number	Codes	max 5-digit close range number
9900		9910	
9901		9911	
9902		9912	
9903		9913	
9904		9914	
9905		9915	
9906		9916	
9907		9917	
9908		9918	
9909		9919	

## Entering barred range numbers

On the main telephone 11, dial a telephone number consisting of the code and the required terminal.

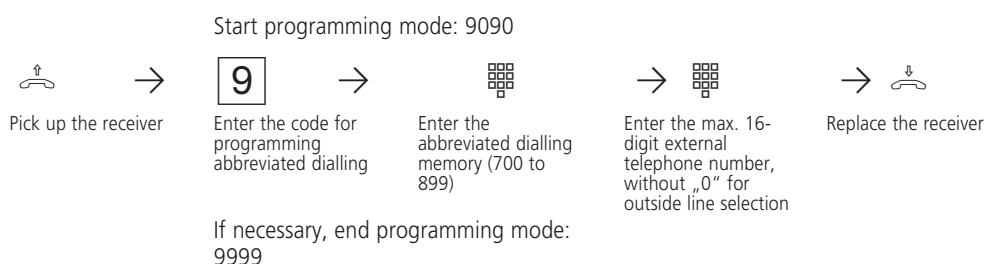
Codes	max 5-digit close range number	Codes	max 5-digit close range number
9920		9930	
9921		9931	
9922		9932	
9923		9933	
9924		9934	
9925		9935	
9926		9936	
9927		9937	
9928		9938	
9929		9939	

# Programming abbreviated dialling destinations

You can store 200 abbreviated dialling destinations. All users you at least have the

privilege that allows them to accept (incoming) external calls may dial these abbreviated dialling destinations

## Entering abbreviated dialling destinations



## Notes

Enter telephone numbers without „0“ for selection of an outside line. The dial-up line is selected automatically.

You can **clear an abbreviated dialling destination** by entering the program code, e.g. 9, and the abbreviation dialling destination you wish to clear, e.g. 700, and by replacing the receiver. The abbreviated dialling destination is then empty. If you select an empty abbreviated dialling destination, you will hear the error tone.

If you program the telephone system with a PC, you can also enter the abbreviated dialling destinations on the PC and you can assign a name to each. If a printer is connected to your PC, you can print a telephone list containing all abbreviated dialling numbers, which you may make available to all users. The telephone system does not store the names. Save your inputs in the PC.

If you use the ISDN call forwarding feature, the call forwarding destination must be an abbreviated dialling destination.

## Abbreviated dialling destinations 700 to 799

Abbreviated dialling destination	Telephone number	Abbreviated dialling destination	Telephone number
700		750	
701		751	
702		752	
703		753	
704		754	
705		755	
706		756	
707		757	
708		758	
709		759	
710		760	
711		761	
712		762	
713		763	
714		764	
715		765	
716		766	
717		767	
718		768	
719		769	
720		770	
721		771	
722		772	
723		773	
724		774	
725		775	
726		776	
727		777	
728		778	
729		779	
730		780	
731		781	
732		782	
733		783	
734		784	
735		785	
736		786	
737		787	
738		788	
739		789	
740		790	
741		791	
742		792	
743		793	
744		794	
745		795	
746		796	
747		797	
748		798	
749		799	

## Abbreviated dialling destinations 800 to 899

Abbreviated dialling destination	Telephone number	Abbreviated dialling destination	Telephone number
800		850	
801		851	
802		852	
803		853	
804		854	
805		855	
806		856	
807		857	
808		858	
809		859	
810		860	
811		861	
812		862	
813		863	
814		864	
815		865	
816		866	
817		867	
818		868	
819		869	
820		870	
821		871	
822		872	
823		873	
824		874	
825		875	
826		876	
827		877	
828		878	
829		879	
830		880	
831		881	
832		882	
833		883	
834		884	
835		885	
836		886	
837		887	
838		888	
839		889	
840		890	
841		891	
842		892	
843		893	
844		894	
845		895	
846		896	
847		897	
848		898	
849		899	

# Programming the recording of connection information

## Displaying connection start information

Even during a call, you can display information about an incoming external call on your PC's terminal or you can have it printed automatically. The telephone system presents the following information:

- caller's number (if the number is not presented, caller's number is indicated as "unknown")
- the called party's number (direct dialling in or multiple subscriber number of the internal user)
- service of the incoming call (telephony, fax or data)

You can activate or deactivate presentation of the connection start information on the main telephone 11 by means of programming codes.

## Displaying connection end information

At the end of an incoming or outgoing connection, you can display the connection end information on your PC's terminal or you can have it printed automatically. The telephone system presents a connection record with the following information:

- internal user
- date and time at the start of the connection
- outgoing (ou) or incoming (in) call
- service (telephony, fax or data)
- caller's number (from) (if the number is not presented, caller's number is indicated as "unknown")
- called party's number (to)
- duration of the connection
- units of the connection (in the case of incoming connections, or if the connection charges are not presented, the units are indicated as being not available)
- charge for the connection (amount)

To be able to record connection charges, you must have requested the chargeable "Presentation of connection charges at the end of connection" feature.



## Programming connection data recording

Start programming mode: 9090

On the main telephone 11, dial the corresponding code and the terminal number.

Connection start information	Code	
on	9491	Data format for any chosen terminal program
on	9492	Data format for TK-Phone
on	9490	

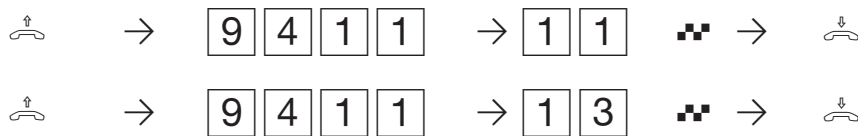
Connection end information	Code	Terminal (nn)							
outgoing for all - on	9401								
outgoing for all - off	9400								
outgoing for users - on	9411 nn	11	12	13	14	15	16	17	18
outgoing for users - off	9410 nn	11	12	13	14	15	16	17	18
incoming for users -on	9481 nn	11	12	13	14	15	16	17	18
incoming for users - off	9480 nn	11	12	13	14	15	16	17	18

On the main telephone 11, dial the corresponding code

Settings	Code
Connection information in German	9402
Connection information in English	9403
Connection information with 80 characters/line	9408
Connection information with 24 characters/line	9404
Connection record without telephone number	9420
Connection record with complete telephone number	9421
Connection record with abbreviated telephone number	9422
Factor for one network carrier unit (ppp=pfennigs)	943 ppp
User factor for one unit (ppp=pfennigs)	944 ppp

If necessary, end programming mode: 9999      ppp = max. 255 pfennigs

Input example: outgoing connection end information for users 11 and 13 on



### Example: printing connection start information with the 80 characters/line setting

incoming call from 05219988776 to 87654321  
Service telephony

incoming call from unknown to 87654323  
Service group 2/3 fax

**Example: printing connection start information with the 24 characters/line setting**

Call from 05219988776  
to 87654321 Phone

Call from unknown  
to 87654323 Fax

**Example: printing connection end information with the 80 characters/line setting**

User 11 16.12.96 10:11:30 incoming call Service telephony  
from 05219988776 to 87654321  
Duration 00:01:30 Units n. a.Amount 0.00 DM

User 12 16.12.96 10:13:45 outgoing call Service telephony  
from 87654322 to 05219988776  
Duration 00:05:10 Units 26 Amount 3.10 DM

User 18 16.12.96 10:15:30 outgoing call Service telephony Fax  
from 87654323 to 05219988775  
Duration 00:01:00 Units 5 Amount 0.60 DM

**Example: printing connection end information with the 24 characters/line setting**

User 11 16.12.96 10:11 ko  
from 05219988776 Phone  
to 87654321  
0:01:30 n.a.u 0:00 DM

User 12 16.12.96 10:13 ge  
from 87654322  
to 05219988776 Phone  
0:05:10 26E 3.10 DM

User 18 16.12.96 10:15 ge  
from 87654323 Fax  
to 05219988775  
0:01:00 5E 0.60 DM

**Notes**

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Your telephone unit charges connection charges for door call diversion to an external location to the main telephone user 11.

Power failure - the data of the connection start and connection end information is cleared after a power failure.

## Programming further functions

**Internal music on hold:** select a tune that an external subscriber is to hear while the connection is put on hold by the telephone system. You can also turn music on hold off. In the ‚as-delivered‘ settings, tune 1 is selected.

The following tunes are available:

- 1 Tom Dooley
- 2 When the saints go marching in
- 3 Freude schöner Götterfunken
- 4 Greensleeves
- 5 For Elise
- 6 Alabama
- 7 Im Frühtau zu Berge
- 8 Kein schöner Land
- 0 external music on hold/internal music on hold off

Set internal MoH to "0" - off - if you play external music on hold.

**Room monitoring** - to protect access, define a code number for room monitoring from an external location which the external subscriber additionally has to dial.

**Automatic dialling:** define an internal or external number as the emergency number. For an external number, you must enter a "0" in first place.

The emergency number is dialled automatically after 10 s if an internal user simply picks up the receiver. Beforehand, such users must have activated automatic dialling on their telephones. In the ‚as-delivered‘ settings, no emergency number is defined.

Check the entered emergency number by activating automatic dialling on another telephone and by picking up the receiver.

### Programming further functions

Start programming mode: 9090

#### Settings for functions

Funktions	Codes	Select a tune (0=off)									
<b>Music-on-Hold</b>	921	0	1	2	3	4	5	6	7	8	
		Code number for room monitoring from a external location									
<b>Room monitoring</b>	922	Emergency number, max. 16 digit									
<b>Automatic dialing</b>	923										

If necessary, end programming mode:  
9999

# Configuring from a PC

Without needing to have a knowledge of a programming language, you can program your telephone system from a connected PC. Easily understandable menus guide you through the TK-

Set configuration program. TK-Set is part of the TK-Soft software package. It is included on the 3.5" diskettes supplied with your telephone system.

## Minimum PC requirements

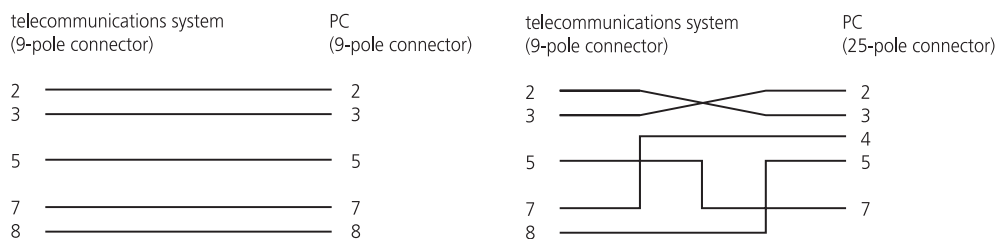
- IBM or compatible PC with an 80386 CPU or higher (Pentium)
- 3.5" diskette drive
- Hard disk
- VGA card
- Monochrome monitor
- MS-DOS 3.1 or comparable DR-DOS
- Windows 3.1, Windows 95, Windows 98, Windows NT

## Installing TK-Soft

- Insert diskette 1 in the drive. The diskette contains the installation program and a text file named READ.ME containing additional information
- Start Microsoft Windows
- Select the "Run" command from the Program Manager's "File" menu.
- enter a:\setup.exe and press the Enter key.
- When prompted to do, enter and confirm the path. All required files are now copied automatically from the diskette to the hard disk.

## Connecting the PC and configuration

- Connect the RS 232C interface (D-SUB-9 socket) of your telephone system to the PC's COM port. For connection, use a one-to-one V.24 extension lead with a male and a female connector. It must not be more than 3 m long. (The cable is included with the telephone system.)
- Switch on the telephone system and plug in the mains plug.
- Start "TK-Set" on the PC.
- Configure your telephone system. Your inputs are interactively accepted with menu prompting.
- After completing configuration, remove the V.24 cable from your telephone system.



**Note:** the connection to the AS 14 or AS 19 must be potential-free, i.e. a PC conductor must not be connected to the PC.

## Remote setting and configuration

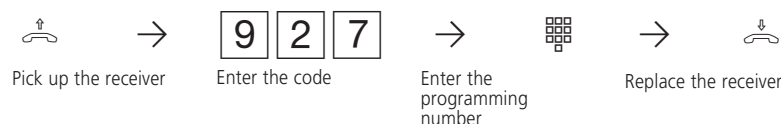
By means of remote setting, your specialist dealer can program your telecommunications system according to your wishes, and without the need for the dealer to come to your home. You decide when and what he is permitted to program. You can define whether your specialist dealer may read and write the central abbreviated dialling numbers.

For remote setting, you must enquire with your dealer to find out the programming phone number with which he intends to configure your

telecommunications system. You must enter this number in the telecommunications system including the prefix. Your specialist dealer can only program the telecommunications system if the entered programming number agrees with the number presented by the ISDN network. You must also enter a code to permit remote setting. In this way, you determine when access is permitted. If you have allowed remote setting, your specialist dealer can read the programming out of the telecommunications system and can modify and write it back again.

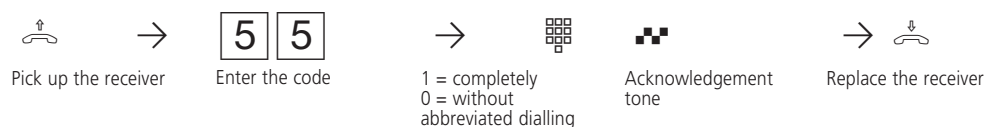
### Entering the programming telephone number

Start programming mode: 9090

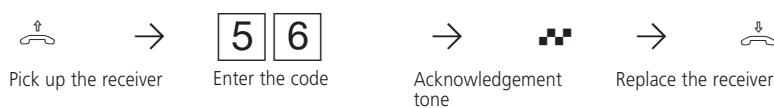


If necessary, end programming mode: 9999

### Allowing remote setting



### Prohibiting remote setting



### Notes

You must end the programming mode (9999) to enable your specialist dealer to program your telecommunications system.

Remote setting remains permitted for 15 minutes, after which it is automatically disabled again.

# If something should ever not function

## Checks

- In the event of malfunctions, please check your operating actions by referring to the instruction manual.
- Use the codes listed in the table to check the programming.
- Check whether the connectors of terminals and of the telecommunications system are inserted correctly.
- You must not remove the internal cover.
- If you cannot remedy a malfunction, your dealer will be pleased to help you.

### Dial the corresponding code on any telephone and pay attention to the acknowledgement tones

	Code	Acknowledgement tone	Error tone
<b>Outside line connection</b>	5900	Point-to-point connection programmed	Point-to-point connection programmed
<b>System telephon number</b>	5901	Programmed	Not programmed
<b>MSN with index n</b>	591n	Entered	not entered
<b>MSN with index n</b>	592n	Assigned to a user	not assigned to a user
<b>Service mode 1</b>	5930	One user entered	not user entered
<b>Service mode 2</b>	5931	One user entered	not user entered
<b>Call forwarding</b>	5940	One user entered	not user entered
<b>Call forwarding</b>	5950	More than 10 seconds	Less than 10 seconds

## Power failure

- If the power should fail, you can make neither external nor internal telephone calls.
- Your telecommunications system resets itself. When the mains power returns, the telecommunications system functions again according to the previously set program. All settings made via the programming mode or the PC program remain stored provided the programming mode was ended appropriately. Functions that have been cleared by the power failure are listed under "Reset".
- The total connection charges are stored.

## Reset

By means of a Reset, you can restore the telecommunications system's programming to a defined state. This may be necessary if you wish to reset unclear settings or if you intend to reprogram the telecommunications system.

After reset, the telecommunications system again functions in accordance with the previously set up program. All settings made via the programming mode or the PC program remain stored provided the programming mode has been ended appropriately.

### Important

The following are deleted when you reset the telecommunications system:

- All existing internal and external

connections

- Activation of "Automatic Dialling"
- Call waiting rejection
- Do not disturb
- Call list
- Line number presentation settings
- Remote support
- Room monitoring
- Internal return calls
- ISDN return call on busy
- Diversions from and to
- Connection list
- Outside line reservations

### Hardware reset

Remove the 230 V power mains plug, wait for 10 seconds and plug it in again.

### Reset

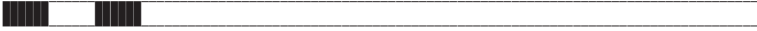
Carry out the following procedure on the main telephone 11



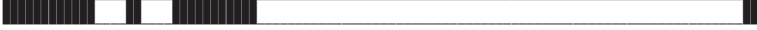
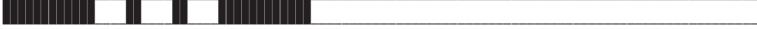
# Ringling tones

**External ringing**   
 An external subscriber rings

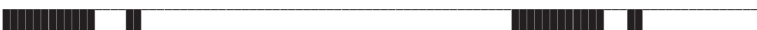
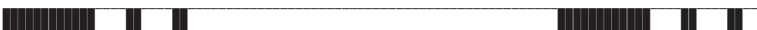
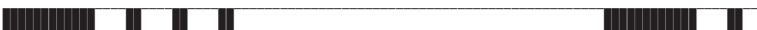

**Internal ringing**   
 An internal user rings

**Door ringing**   
 A visitor rings the doorbell

**Code calls to all internal users**

- Code call A   
 - Code call B 

**Coderufe an Funkzellen**

- Code call 1   
 - Code call 2   
 - Code call 3   
 - Code call 4 

0-----1-----2-----3-----4-----5-----6-----7-----8 s

**Explanation:**   
 Ringing Pause Ringing Pause Ringing Continued



# Tones

**Dial tone**

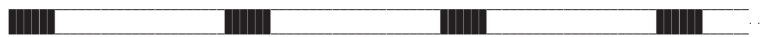
- internal



- external



**Ring tone**



**Busy tone**



**Special dial tone**



**Call waiting**

- internal



- external



**Acknowledgement tone**

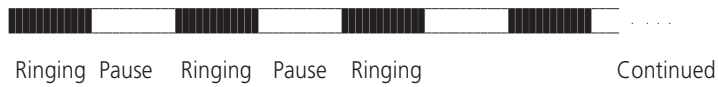


**Error tone**



0-----1-----2-----3-----4-----5-----6-----7-----8 s

**Explanation:**



# Glossary

## **Service mode**

The internal telephone numbers of the terminals that are to be rung in the event of an external call are defined in a service mode.

Different service modes can be defined for the day or night time. Service mode 1 (day service) and service mode 2 (night service) can be switched over at any time from any telephone.

## **Services**

In ISDN, a service identifier (e.g. telephony, fax) is transmitted whenever an ISDN subscriber calls. A connection is only established to the caller if the called terminal has the same service identifier. This prevents incorrect connections between two different terminals (e.g. telephone/fax).

## **Terminals**

These are devices which you as an internal user may connect to your telecommunications system, for example telephones, answering machines, fax machines, combined units (telephone, fax and possibly answering machine in one unit) and a modem.

## **External**

When telephone calls are made in a telecommunications system, a distinction is made between internal and external calls. External calls are local, long-distance or international calls for which you must pay charges to your telephone company. Connections between terminals of your telecommunications system and terminals on your point-to-multipoint connection are also external connections, which incur local charges.

## **Outside line selection**

Selection of an outside line (B channel) to call an external subscriber.

## **Outgoing external connection**

This is a connection to an external subscriber that is established from a terminal of the telecommunications system by seizing an outside line (e.g. by dialling "0") and by dialling an external phone number.

## **Pulse dialling**

Every dialled digit is assigned a defined number of interruptions. You hear these interruptions in the receiver when dialling.

## **Internal**

With regard to telephone calls in a telecommunications system, a distinction is made between internal and external calls. Internal calls are the calls that you make free of charge within the telecommunications system (with other users of the telecommunications system).

## **ISDN (Integrated Services Digital Network)**

All services (voice and data) can now be transmitted in one network.

## **Incoming external connection**

Connection to a terminal of the telecommunications system that is established by an external subscriber by dialling the telecommunications system's phone number.

## **Configuring**

Setting (programming) the telecommunications system's functions from a PC using a configuration program.

### **Dual tone multifrequency dialling (DTMF)**

Every dialled digit is assigned a specific tone. Telephones that operate on the basis of this dialling method required a signal key with the flash function.

### **MoH (Music on Hold)**

A waiting external subscriber hears music on hold while the connection while the connection is place on hold, i.e. when a call is being forwarded.

**MSN (Multiple Subscriber Number)**  
A multiple subscriber number is an ISDN telephone number for a point-to-multipoint connection .

### **NT (Network Termination)**

The network carrier lays its copper cables up to this access point ( $S_0$  basic access). Here, you connect the telecommunications system via a point-to-point or a point-to-multipoint connection.

### **Ringling distribution**

In the ringling distribution settings, you define which terminals of the telecommunications system are to ring in the event of a call. Is only one terminal to ring or are several terminals to ring at the same time?

### **Ringling distribution settings for calls from outside are:**

Service variant 1 (day service), service variant 2 (night service) and call forwarding).  
Ringling distribution settings for calls from the door (door phone unit).

### **Call forwarding**

A call from an external location that has not been accepted within a specific time is forwarded. The terminals of the telecommunications system that are defined in the call forwarding settings then ring. The time up to call forwarding can be set.

### **Signal key**

This is a key on the telephone that you must press if you wish to enquire with another user during a conversation. The signal key may have a flash function, i.e. it must produce a brief interruption (50 to 110 ms).

### **Door phone unit**

You can connect commercially available door call stations featuring a two-wire interface to your telecommunications system (AS 19). From a telephone, you can speak with visitors at the door and you can open the door.

### **Outside line (B channel/S0 basic rate access)**

You can connect an external  $S_0$  basic rate access to your ISDN telecommunications system. Every external  $S_0$  basic rate access behaves like two conventional analog outside lines. Therefore, you have two outside lines (B channels) on which you can make external calls (local, long-distance or international calls).

## Technical data

Housing dimensions	32 x 25 8.5 cm (width x height x depth)
Weight	2.4 kg
Ambient temperature	
- Operation	5 °C to 40 °C
- Storage	-25 °C to +70 °C
Mains connection	230 V AC, +6 % / -10 %, 50 Hz
Idle current	30 mA
Power consumption	23 VA (full load)
ISDN connection	Euro-ISDN (DSS1) Point-to-point or point-to-multipoint connection Connection by Western socket and included IAE connecting cable IAE8/IAE8
a/b terminals	AS 14: 4 AS 19: 8
- Dialling method	AS 14, AS 19: DTMF / pulse dialling (restricted)
- Signal key	AS 14, AS 19: Flash (flash times: 50 to 110 ms)
- Connection	Two-wire via screw terminals, recommended telecommunications cable J-Y (St) Y, twisted, wire diameter 0.6 mm
- Range of AS 14, AS 19	2 x 10 Ohm, this corresponds to a cable length between terminals and the telecommunications system of 160 m, with a wire diameter of 0.6 mm and a terminal resistance of up to 540 Ohm
- Data transfer with an analog modem	V.34, 28800 bps
PC/printer interface:	Similar to RS 232C
- Range/level	3 m +/- 5 V
- Connection	9-pole D-sub socket
Call data memory:	> 100 records
Data retention in the event of power failure	Unlimited
Connection for feeding external music on hold	AS 14, AS 19:
- Input socket	For 3.5 mm stereo jack plug
- Input impedance	100 kOhm unbalanced
- Input voltage	Max. 100 mV pp
Door phone unit (AS 19)	Two-wire
- Connection	Four-wire by means of screw terminals
- Contact load of the TS and TO relays	30 V DC / 1 A or 125 V AC / 0.5 A ohmic load
BZT / EC approval number - AS 14/AS 19	A119516F / Z119811F
The telecommunications system conforms to the EU guidelines 91/263/EWG, which is confirmed by the CE mark.	

## ‘As-delivered’ settings

- The ISDN bus is set to a point-to-point connection (Index: Point-to-point connection). You now only have to enter the system’s telephone number.
- Switches S100 and S101 (termination for the external S<sub>0</sub> connection) are closed.
- Terminal settings
  - AS 14: 11, 12 - telephone, 13 - answering machine (Index: Answering machine), 14 - combined port
  - AS 19: 11 to 16 - telephone, 17 - answering machine (Index: Answering machine), 18 - combined port
- All users have unlimited external access
- Point-to-multipoint connection (Index: Point-to-multipoint connection) - the multiple subscriber number (MSN) (Index: MSN Multiple Subscriber Number) that is presented during outgoing external connections is the MSN (Index: MSN Multiple Subscriber Number) that is stored under the index 0.
- The external line selection variant 1 (Index: Telephone operation, variant 1) (external selection with “0”) is set for all users.
- The terminals (Index: Terminals) 11, 12, 13, 14, 15 and 16 are entered in service mode (Index: Service mode) 1 (day service). Service mode (Index: Service mode) 1 is active.
- Terminals (Index: Terminals) 11 and 17 (13) are entered in service mode (Index: Service mode) 2 (night service)
- No terminal is entered for call forwarding (Index: Call forwarding), call forwarding (Index: Call forwarding) time 110 seconds.
- Do not disturb is off for all terminals (Index: Terminals).
- Call waiting rejection (Index: Call waiting reject) is off for terminals (Index: Terminals) 11 to 16 (AS 14: 11, 12). Call waiting rejection (Index: Call waiting reject) is on for terminals (Index: Terminals) 17 (13) (answering machine (Index: Answering machine) and 18 (14) (combined unit) (Index: Combined unit)).
- Calling and called line number presentation is on.
- Internal music on hold (MoH), tune 1, is on.
- Terminals (Index: Terminals) 11 to 16 are entered in door phone service mode (Index: Service mode) 1 of the door phone unit (Index: Door phone unit).
- Automatic dialling (Index: Automatic dialling) is not active.
- Connection start information (Index: Connection start information) off
- Connection end information, outgoing, off for all users
- Connection end information, incoming, off for all users
- Connection information (Index: Connection information, English/German) in German
- Connection information (Index: Connection information) with 80 characters/line
- Connection data record, outgoing, with abbreviated telephone number
- Factor (Index: Charge unit factor, network carrier) for one network carrier unit: 12 pfennigs
- User factor (Index: Charge unit factor, user) for one unit: 50 pfennigs
- Busy on busy (Index: Busy on busy): Off for all MSNs (Index: MSN Multiple Subscriber Number)
- Code number for room monitoring (Index: Room monitoring, code number programming): 0000
- Remote configuration disabled

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