The PBX is able to download the latest firmware by pressing a button. The manual has information about being up-to-date in the chapter "Automatic Firmware Update".
Attention: Outside of Germany you have to add the international access code for Germany with the PC program COMpact 2104 Set to the number of the update server.

COMpact 2104
COMpact 2104 USB
COMpact 2104 DSL

Operation Manual for
ISDN PBX systems

Auerswald ®

Icons used in this Manual

Hang up the receiver.	100 ... 299 — Dial number within the indicated range. (in this case numbers from 100 to 299).	Dial internal telephone number or subscriber's telephone number. For programming 00 is representing all internal subscribers.
Pick up the receiver.	1 / 0 — Switch on/off function (1: switch on, 0: switch off).	Dial external numbers or numbers that are to be dialled via exchange line.
Pick up the receiver of the programming telephone.	1 / 2 / 0 — Switch with three conditions.	You are hearing a tone, described in detail in the corresponding chapter.
A telephone is ringing.	((1) / ☀(0) — Day/night service switching (1: night on ; 0: day on).	Make a call. If you start the call yourself, you will hear the ringing tone (ringback tone) for some time.
Dial the number of the group (1-4).	Dial password, e.g. secret password: Default factory setting 1111.	Press Flash key (ignore with pulse dial telephones).
1 ... 5 — Dial the number of the signal for distinctive ringing (1-5).	Duration (the digits to be dialled are stated in the corresponding chapter).	1 — Dial a fixed digit (e.g. 1).
31 / 12'99 — Date: 01-31 (day), 01-12 (month), 00-99 (year).	12:30 — Time with 4-digits: 00-23 (hours), 00-59 (minutes).	Attention/advice sign.

Abbreviations used

AOCD	ISDN-feature: Advice of Charge during the call
AOCE	ISDN-feature: Advice of Charge at the End of the call
CF	Call Forwarding
CCBS	ISDN-feature: Completion of Calls to Busy Subscriber
CFB	ISDN-feature: Call Forwarding Busy
CFNR	ISDN-feature: Call Forwarding No Reply
CFU	ISDN-feature: Call Forwarding Unconditional
CLIP	ISDN-feature: Calling Line Identification Presentation
CLIR	ISDN-feature: Calling Line Identification Restriction
DDI	Direct Dialling In with PTP connection only
DIN	Deutsches Institut für Normung e.V. (German Standards Institute)
DSS1	Digital Signalling System No. 1
IWJ	ISDN wall jack
PULSE	Pulse dialling
DTMF	Tone dialling
MSN	Multiple Subscriber Number with PTMP connection
NT	Network Termination for ISDN Basic Access
PTP	Point to Point
PTMP	Point to Multi-Point
Scr	Subscriber
TAE	Telekommunikations-Anschluss-Einheit (German telephone connector)
PBX	PBX system
3PTY	ISDN-feature: Three Party Service

Connection Options
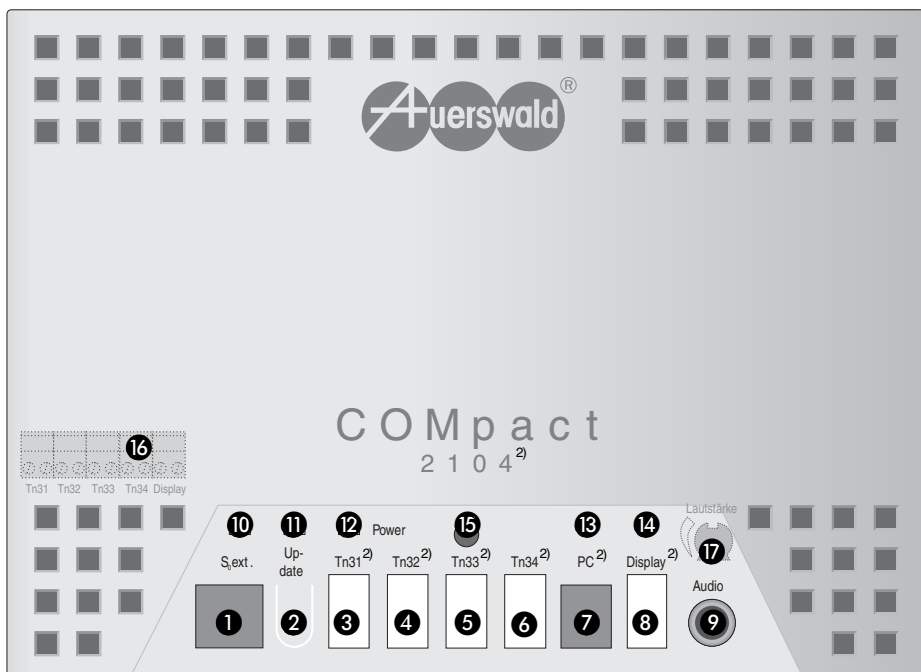
① Western modular jack for the connection to the NT.

② Button to start the automatic PBX firmware updates.

③ TAE jack[1] [2] for the connection of an analog device, e.g. telephone, fax machine (telephone number 31).

④ TAE jack[1] [2] for the connection of an analog device, e.g. telephone, fax machine (telephone number 32).

⑤ TAE jack[1] [2] for the connection of an analog device, e.g. telephone, fax machine (telephone number 33).

⑥ TAE jack[1] [2] for the connection of an analog device, e.g. telephone, fax machine (telephone number 34).

⑦ *COMpact 2104*: Western modular jack for the connection of a PC/printer (serial interface).
COMpact 2104 USB and *COMpact 2104 DSL*: USB jack for the connection to a PC.

⑧ *COMpact 2104 DSL*: Western modular jack for the connection to the splitter.
COMpact 2104 and *COMpact 2104 USB*: TAE jack for the connection of a system display SD-420.

⑨ Cinch socket for the connection of an audio device for external Music on Hold.

⑩ LED for display of activities on the S_0 bus (page 85).

⑪ LED for display of the status of the PBX firmware updates (page 87).

⑫ LED for display of the power condition (on/off).

⑬ *COMpact 2104 DSL*: LED for USB status/data transfer.

⑭ *COMpact 2104 DSL*: LED for DSL synchronisation/data transfer.

⑮ Screw for the case cover.

⑯ Removable Clamps (in the case; parallel connected to ③ ... ⑥ and ⑧[3]) for fixed wiring of TAE wall jacks for telephones, fax machine and a system display SD-420.

⑰ Volume control for the external Music on Hold (in the case).

---

1) Or Western modular jack (depending on the country versions; pinout see page 85)
2) Depending on the PBX type different text labels are possible
3) With *COMpact 2104* and *COMpact 2104 USB* only.

Features

ISDN Features
- Call Waiting signal (CW)
- Three-party conference (3PTY)
- Alternation (HOLD)
- Presentation restriction of the own telephone number (CLIR)
- Connected Line Identification Presentation (CLIP) on special analog terminals with date and time[1] and on SD-420
- Presentation of the destination number to the caller (COLP)
- Presentation restriction of the destination number to the caller (COLR)
- Call charge information at the end of (AOCE) and during (AOCD) the call
- Call forwarding on busy (CFB), if nobody answers the call (CFNR), unconditional (CFU); destination can be programmed from external telephone
- Automatic recall on busy (CCBS)

Security Functions
- 6 exchange line authorisation modes
- Password protection in 4 levels
- Automatic dialling / baby call
- Data protection for fax machine and modem
- Priority call
- Blocking numbers
- Release numbers in combination with the blocking numbers
- Emergency call numbers memory with special rights
- Emergency call priority function
- Room monitoring internal / via exchange line

Call Data Management
- Call data recording in power failure safe call data memory (1000 call data sets)
- Separation of private and business calls
- Call charge metering[2]
- Call charge accounting per extension[2]
- Call charge limitation possible[2]
- Call charge pulses [2]
- Call data management with bundled PC software

Short-Code Dial Memory, power failure proof
- 176 telephone numbers public
- 10 telephone numbers per extension
- 10 emergency numbers with special rights
- 4 memories for up to 100 digits, e.g. for pager or SMS messages (Dialling pause is programmable)
- Short-code dial authorisation as extension of the exchange line authorisation modes
- power failure proof call data memory

Additional Extension Features
- Busy-on-Busy
- Call groups (4)
- Different ringer rhythms for internal and external calls

- Dial tone selectable
- Do-not-Disturb function internal/external
- Exchange line reservation
- Direct exchange line telephone, internal functions still possible
- Pickup
- 3 calls at the same time
- Free of charge calls between all internal extensions
- Alternation and Three-party conference call internal / external
- Call forwarding, alternation, conference via 2nd B channel, destination configurable from external telephone
- Call forwarding, Follow me internal
- Automatic recall on busy and on no response internal
- Clock function
- Day/night switching via internal clock/manually
- Wake-up function
- Transfer a call to external party
- Music on Hold 7 internal melodies, also external via audio input, predefined announcement text can be mixed
- TAPI 2.1 support
- Least Cost Routing software included

Installation and Service
- Automatic recognition of the dialling method and learning function for FLASH Time on the analog extensions
- Load PBX firmware update via ISDN by pressing a button
- Remote service and programming via exchange line (with Password Protection)
- Programming via telephone/PC
- Plug & Phone - easy installation, jacks available in the case
- Reset (Initialisation) of single function levels

Data Interface for Internet, TAPI and CAPI-Applications[3]
- USB interface for connection to the PC
- TAPI 2.1 support via USB
- NDISWAN driver for
  - Channel bundling, Internet access with up to 128 kBits/s
  - Dynamic bandwidth use under Windows 2000
- CTI/UMS software package COMsuite included for
  - Telephone
  - Fax Group 3 and 4 send/receive
  - Answering machine
  - EuroFile transfer
  - Internet access via Dial-Up Networking

Integrated DSL Modem[4]
- Highspeed Internet access
- ADSL access according to U-R2 standard (768 kBit/s down- and 128 KBit/s upstream), compatible toT-DSL
- Integrated USB hub for connection to the PC
  - connection to the built-in ADSL modem (a network controller is not necessary)

The scope of functions described here is only completely usable with a professional installation and a correct configuration of the PBX and the connected PC. We highly recommend to consult your authorized dealer first.

Please ask your network operator about the availability of some ISDN service attributes. Some of these functions may be available for an extra fee.

There may be some incompatibility in combination with terminals and devices of other vendors, that adversely influence the usability of functions.

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1) Special analog terminals supporting CLIP (FSK) are necessary.
2) Charge information is necessary at the end (AOCE) or during (AOCD) the call. If using the call allowance, the charge information will be necessary during (AOCD) the call.
3) *COMpact 2104 USB* and *COMpact 2104 DSL* only.
4) *COMpact 2104 DSL* only.

Contents

Installation

PTMP Connection

PTP Connection

Computer

Operation

Programming

Help

Appendix

Index

Reach Your Goal faster...

First Operation of the COMpact 2104 USB:

❶ **Connection to an Exchange Line:** The COMpact 2104 USB must be next to the NT in order to avoid long transmission ways between both units (the enclosed ISDN connection cable is app. 1 m long). Before you continue to connect the plug, **please close the case for safety reasons**.

Connect the Western modular jack on the left side of the PBX named „S$_0$ ext." directly with the enclosed ISDN cable to the NT. Connect the PBX with the 230 Volt mains. (Detailed information and different installation options can be found on .)

❷ **Connection of the telephones:** Connect the analog telephones directly with the TAE jacks (labelled „31", „32" etc.) of the PBX. It is preferred to start with the connector „31". Please connect at least two telephones. (Detailed information can be found on .)

❸ **Test:** You can do an internal test call by calling the telephone number „32" from the telephone in the TAE jack „31". Now the telephone in the TAE jack „32" has to ring. – You can also call an external subscriber by dialling his telephone number with the leading digit „0" for the exchange line access.

❹ **Connection of your PC:** Now switch your PC on. Put the flat plug of the enclosed USB cable into the USB connector of your PC and the other end into the USB jack of the PBX labelled „PC". (More details can be found on .)

❺ **Installation of the driver and of the PC configuration software:** Once you connected the Auerswald USB device to your PC, the „Add New Hardware Wizard" of Windows 98/ Me/2000/XP will be launched automatically. You will be assisted to install the necessary drivers (in this case the USB driver). Insert the CD (Auerswald Mega Disk) into the CD-ROM drive. Select the „***Search for the best driver for your device***". Select „***Specify a location***" and click on „***Browse...***". Search on the CD for the directory „\Treiber...\". Follow the further instructions. (Information on this matter can be found in the enclosed CAPI/TAPI manual in the chapter „First Installation of the Drivers" step1-3.)

After the USB driver installation has terminated, the installation assistant will automatically be launched from the Auerswald Mega Disk. Install the configuration programs *Easy Setup* and *COMpact 2104 Set* as well as the *Auerswald-CAPI-2.0 driver* with the assistant (if no other ISDN PC-controller has been installed earlier and the ISDN PC-controller functions of the PBX should be used). (Further information on .)

❻ **Configuration of the PBX with your PC:** You have installed the USB driver, the CAPI driver and the configuration software on your PC now. Start the program *Easy Setup* from your desktop. Follow the instructions of the program step by step. If you like to perform advanced configurations please use the configuration program *COMpact 2104 Set*. (Operating instructions are on .)

❼ **Access to the Internet:** Please follow the instructions in the CAPI/TAPI manual.

💡 If you have an NT with the connection type *Point-to-Point connection* (PTP: telephone number with Direct Dialling Inward (DDI) number block), you cannot use the program *Easy Setup*. In this case immediately configure your PBX with *COMpact 2104 Set.*

First Operation of the COMpact 2104 DSL:

❶ Connection to an exchange Line: The COMpact 2104 DSL must be next to the NT and splitter in order to avoid long transmission ways between both units (the enclosed ISDN and DSL connection cables are app. 1 m long). Before you continue with connecting the plug, **please close the case for safety reasons**.
Connect the Western modular jack on the left side of the PBX named „S_0 ext." directly with the enclosed ISDN cable to the NT. Connect the Western modular jack on the right side of the PBX named „DSL" with the enclosed DSL cable to the Western modular jack of the splitter. Connect the PBX with the 230 Volt mains. (Detailed information and different installation options can be found on .)

❷ Connection of the telephones: Connect the analog telephones directly with the TAE jacks (labelled „31", „32" etc.) of the PBX. It is preferred to start with the connector „31". Please connect at least two telephones. (Detailed information can be found on .)

❸ Test: You can do an internal test call by calling the telephone number „32" from the telephone in the TAE jack „31". Now the telephone in the TAE jack „32" has to ring. – You can also call an external subscriber by dialling his telephone number with the leading digit „0" for the exchange line access.

❹ Connection of your PC: Now switch your PC on. Put the flat plug of the enclosed USB cable into the USB connector of your PC and the other end into the USB jack of the PBX labelled „PC". (More details can be found on .)

❺ Installation of the driver and of the PC configuration software: Once you connected the Auerswald USB device to your PC, the „Add New Hardware Wizard" of Windows 98/ Me/2000/XP will be launched automatically (Plug and Play). You will be assisted to install the necessary drivers (in this case the USB driver and the DSL driver). Insert the CD (Auerswald Mega Disk) into the CD-ROM drive. Select the *„**Search for the best driver for your device**"*. Select *„**Specify a location"**" and click on *„**Browse...**"*. Search on the CD for the directory „\Treiber...\". Please follow the instructions.
After the USB and DSL driver installation has terminated, two installation assistants will automatically be started from the Auerswald Mega Disk. Install the configuration programs *Easy Setup* and *COMpact 2104 Set* as well as the *Auerswald-CAPI-2.0 driver* with one assistant (if no other ISDN PC-controller has been installed earlier and the ISDN PC-controller functions of the PBX should be used). Install the AME ADSL Modem Driver Suite with the other assistant. (Further information can be found in the accompanying CAPI/TAPI and DSL manuals)

❻ Configuration of the PBX with your PC: You have installed the USB driver, the CAPI driver and the configuration software on your PC now. Start the program *Easy Setup* from your desktop. Follow the instructions of the program step by step. If you like to perform advanced configurations, please use the configuration program *COMpact 2104 Set*. (Operating instructions are on .)

❼ Access to the Internet: Please follow the instructions in the DSL manual.

💡 If you have an NT with the connection type *Point-to-Point connection* (PTP: telephone number with Direct Dialling Inward (DDI) number block), you cannot use the program *Easy Setup*. In this case immediately configure your PBX with *COMpact 2104 Set*.

Contents

Installation

PTMP Connection

PTP Connection

Computer

Operation

Programming

Help

Appendix

Index

First Operation of the COMpact 2104:

❶ **Connection to an exchange Line:** The COMpact 2104 must be next to the NT in order to avoid long transmission ways between both units (the enclosed ISDN connection cable is app. 1 m long). Before you continue to connect the plug, **please close the case for safety reasons**.

Connect the Western modular jack on the left side of the PBX named „S_0 ext." directly with the enclosed ISDN cable to the NT. Connect the PBX with the 230 Volt mains. (Detailed information and different installation options can be found on page 11-13.)

❷ **Connection of the telephones:** Connect the analog telephones directly with the TAE jacks (labelled „31", „32" etc.) of the PBX. It is preferred to start with the connector „31". Please connect at least two telephones. (Detailed information can be found on page 12.)

❸ **Test:** You can do an internal test call by calling the telephone number „32" from the telephone in the TAE jack „31". Now the telephone in the TAE jack „32" has to ring. – You can also call an external subscriber by dialling his telephone number with the leading digit „0" for the exchange line access.

❹ **Connection of your PC:** Insert the D-Sub plug of the bundled PC cables into the COM-port of your PC and the Western modular plug into the jack of the PBX labelled „PC". (Detailed information can be found on page 24.)

❺ **Installation of the PC configuration software:** Now start the connected PC. Insert the CD-ROM (Auerswald Mega Disk) into the CD-ROM drive.
Windows 95/98/ME usually has an Autostart functionality for the Setup. Sometimes the installation will not be started automatically. In this case you can start Setup manually: On your desktop click on the „Start" button in the task bar and select „Run" <CD-Laufwerk>:\Setup.exe"). Select the page „Software Installation" for the PBX *COMpact 2104* and install the configuration programs *Easy Setup* and *COMpact 2104 Set*. (Detailed information can be found on page 27.)

❻ **Configuration of the PBX with your PC:** You have installed the configuration software on your PC now. Start the program *Easy Setup* from your desktop. Follow the instructions of the program step by step. If you like to perform advanced configurations, please use the configuration program *COMpact 2104 Set*. (Operating instructions are on page 27.)

○ If you have an NT with the connection type *Point-to-Point connection* (PTP: telephone number with Direct Dialling Inward (DDI) number block), you cannot use the program *Easy Setup*. In this case immediately configure your PBX with *COMpact 2104 Set*.

Short Description of the PBX Systems

With your new PBX you decided on a telecommunication system that enables you to use the features of Euro-ISDN with already existing devices such as telephone, fax machines, answering machines etc..

The PBX systems *COMpact 2104 USB* and *COMpact 2104 DSL* are bundled with an ISDN application package that can be used to perform the most important features of modern data communication (fax, answering machine, data transfer, internet) in a professional way via PC.

In the PBX *COMpact 2104 DSL* an additional DSL modem is integrated. If DSL is used, the two ISDN channels for the fax machine and the telephone are still available.

Contents

Connection and Installation

⚠ **Please absolutely pay attention to the safety advice on page 83.**

Besides this pay attention to the chapter *Technical Data on page 84*.

The ISDN Connection

First of all you are in need of an S_0 connection with the European protocol DSS1 (Euro-ISDN). Your PBX is designed for the following connection types:

- Basic rate connection as a Point-to-Mulitpoint (PTMP) connection; is often used for PBX systems of this size).
- Basic rate connection as a Point-to-Point (PTP) connection).

If you are not sure which type of connection you have (e.g. because you didn't apply for your ISDN connection yourself), you should contact your service provider.

For connecting your ISDN equipment, your provider will install in your house or office one (or two) NTs (network terminators for basic access.) You will be able to recognize the NT by its green or white rectangular housing and the two sockets ❶ (what are known as the ISDN sockets), which are generally located on the bottom end face of the housing; there are, however, variations depending on the country and the manufacturer. Your PBX will only function correctly if the NT is also running properly. The PBX may only operate on NTs that have a sufficient electric isolation between telecommunication network and S_0 bus (2 kV AC minimum). This is the prerequisite for a sufficient protection against overvoltage surges from the telecommunication network. NTs of the Deutsche Telekom meet these requirements.
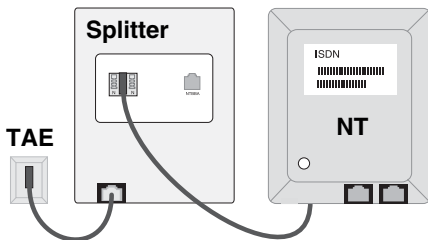
COMpact 2104 DSL: If you sign up for a DSL connection at your network operator, you will get a so-called splitter (network terminating unit for the ADSL exchange line access) that is installed in between the jack to the public exchange line and the NT as shown in the picture. The description of the connection and installation can be learned from the manual in the package of your network operator (different options are possible depending on the manufacturer).

Installation Location

It is a definite advantage if you operate your PBX directly next to your NT to prevent long transfer routes between the two devices (the supplied ISDN connection cable is about one meter long). If there is an S_0 bus on your NT, you can of course connect your PBX to one of the ISDN sockets on it. Apart from this, you need a power supply (an **easily accessible** 230-V mains socket close to the installation location) for your PBX and for the NT (if it has a mains plug and your ISDN is a PTMP one.)

Do not install your PBX on premises that are subject to high levels of humidity, that are at risk from dirt or extreme temperatures. You should also avoid mechanical stress (e.g. vibrations) and keep away from equipment that emit electromagnetic fields or respond in a sen-

sitive way to electromagnetic radiation (e.g. radio receivers, ham radio equipment, or similar.). Please keep a distance of 2-3 meters to DECT systems.

💡 **If you only connect your PBX to the NT – that means no additional ISDN devices – you will be able to save energy by not connecting the NT to a 230-V AC outlet.**

Opening and Assembling the Housing

The housing consists of a base plate and the top section. Both parts are connected with a screw. Remove it with a screw driver and open the cover.

This is how to mount your PBX on the wall: Use the four screws and pegs supplied with the PBX to fasten the base by means of the fastening holes in the corners of the base plate. You should use the drilling template to mark the positions of the holes.

⚠️ **Please take care that the power plug is always pulled out when opening the case. Touching the live conductor lines or the telephone connections may be danger to life.**

Do not install the PBX in a thunderstorm.

For safety reasons, you must not remove the PCB with mounted components from the housing.

This system is only designed for wall mounting!

Connecting Telephones

You can connect the following equipment to the analog subscriber's stations on the PBX: analog LD or DTMF telephones, mobile phones (DECT, cordless phones), fax machines, modems, answering machines, etc. After closing the case the devices can directly be connected to the TAE jacks[1] labelled with „(Tn)31" to „(Tn)34". If the telephones have to work in a larger distance from the PBX, the connection can be done via wall jacks connected to the screw clamps „Tn31" to „Tn34" (circuit board). How to do this installation is described on .

💡 **The internal telephones have the internal telephone numbers 31 (Tn31) to 34 (Tn34).**

To be able to carry out the commissioning steps described in this manual, you should connect at least two telephones to the PBX. In this case, please use the jacks „(Tn)31" and „(Tn)33".

Connecting to the ISDN and Carrying Out Initial Commissioning

At connection to the ISDN and commissioning, there are several differences that depend on whether you have a **PTMP** or a **PTP connection.** For this reason, the description is divided up from now on: depending on the type of ISDN connection that you have, you should now continue either to or to . The register tabs on the edge of the page are intended to guide you to the chapter that is relevant to your type of connection.

---

[1] Or Western modular jacks (depending on the country versions; pinout see)

PTMP Connection

The sections below describe how to connect your PBX to a PTMP connection and how to put it into service. In addition, there is a detailed description of the settings that you must make to ensure that each telephone rings when the desired calling number is called.

⚠ **Close the case before using your PBX.**

Connecting to ISDN
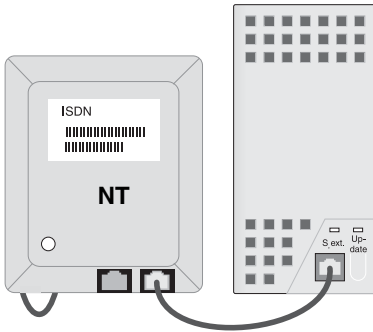
To be able to connect your PBX to the ISDN, you need the supplied ISDN cable with the two identical RJ 45 (Western) jacks on both ends. You can either connect your PBX to one of the two ISDN sockets of your NT, or if you have laid an S_0 bus on your NT, you can connect the PBX to one of the ISDN sockets on it. Plug one end of the supplied ISDN cable into the RJ 45 (Western) socket labelled „S_0 ext." on your PBX. Plug the other end of the cable into the ISDN socket of the NT or of the S_0 bus that may be available on it.
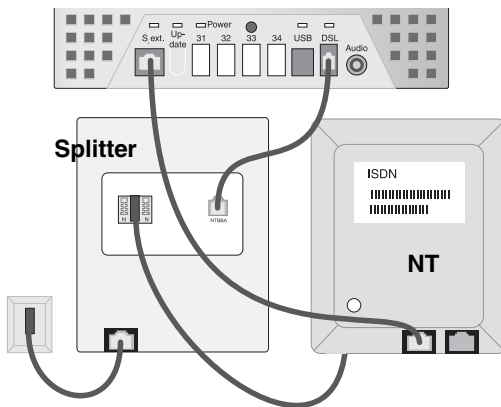
COMpact 2104 DSL: If you have signed up for a DSL connection at your network provider, you connect the PBX also with the splitter now. Connect the Western modular jack on the right side of the PBX named „DSL" with the enclosed DSL cable to the Western modular jack of the splitter. The connector layout of the splitter can be learned from the manual in the package of your network provider (different options are possible depending on the manufacturer).

💡 Always remove the **230-V mains plug of your NT** (if it is fitted with one) and of your PBX while carrying out this work

(If you like to plug the Western modular plug out of the jack, you have to press the lever at the same time in order to remove it.)

First Use

If your NT is equipped with a 230-V power supply cable and you like to connect other ISDN devices in parallel to the PBX, please pay attention that the power cable is plugged in. Now

plug the PBX into an **easily accessible 230-V mains socket.** The Power-LED starts glowing on the case cover.

♀ If you only connect your PBX to the NT – that means no additional ISDN devices – you will be able to save energy by not connecting the NT to a 230-V AC outlet.

If there is a PC for programming available, you have to establish the computer connection and configure the most important settings with the PC program now (chapter *Computer Connection and Installation of the Software* on page 24).

COMpact 2104 USB and *COMpact 2104 DSL*: Once you connected the Auerswald USB device to your PC, the „Add New Hardware Wizard" of Windows 98, Windows Me and Windows 2000 will be launched automatically (Plug and Play). You will be assisted to install the necessary drivers. Please consult the enclosed CAPI/TAPI manual (in case of *COMpact 2104 DSL* the DSL manual also).

Resetting the System

The steps described below are intended to return the PBX to the as-delivered status with the default settings (for a description of the settings in this status refer to chapter *Default Settings* on page 82). If this is not the case – because the system has already been in operation and programming was carried out – you must carry out the following programming step. If the secret password, 1111, has been altered, you must of course take this into account.

Returning the -PBX to its default settings:

| Programming telephone | Internal dial tone | 8 | Secret password | Acknowledgement Tone | 9 0 | Acknowledgement Tone | |

Dialling mode

To enable the PBX to detect the dialling mode (DTMF or LD) used by the connected analog telephones, dial on each telephone the number „7".

Let the PBX learn the dialling method:

on each telephone   7

Calling numbers of the PTMP Connection

When you apply to a network provider for a PTMP connection, you are generally assigned between **three and a maximum of ten multiple subscriber numbers MSNs,** e.g. 4711, 4712, 4718 (the numbers do not necessarily have to be sequential). You will find these calling numbers in the confirmation order that you get from the network provider.

If you have laid an S_0 bus on your NT, you can switch in parallel up to seven pieces of ISDN equipment in addition to your PBX. By contrast with the ISDN equipment on an internal S_0 bus, you **cannot** make internal, toll-free calls. You can assign the MSNs to the individual devices in any way you like and even make multiple assignments. After this, the respective piece of equipment only reacts to the specific calling number that is assigned to it. You can assign the MSNs that you want to use for your PBX in any way you like to the individual analog. Examples:

| Ext 31 (analog phone) | 4711/4712 | Ext 33 (analog phone) | 4712 |
| Ext 32 (analog phone) | 4711 | Ext 34 (analog fax) | 4718 |

Checking the S_0 Connection

As delivered, the PBX's S_0 connection is set up as a PTMP connection. You should now check this set-up by calling your own extension via the exchange (make an external call).

This is how you can check the setting of the PTMP connection:

| Tele-phone set 31 | Internal dial tone | Access digit | External dial tone | Own calling number (MSN) | 32, 33 and 34 if connected | One of the ringing tele-phone sets | External connection with 31 |

In our **example,** you could punch in ⓪ ④⑦①① to make an external connection to another telephone set in the PBX.

This test only functions like this while no MSNs have been entered in the PBX **(default setting)** and the connection is not busy.

If this test doesn't work, even though you are sure that you have followed all the instructions as stated: Start; if necessary, by resetting the system to the default setting. Make sure again that your connection really is a PTMP connection. If you are in doubt, set the PBX's S_0 connection to PTP connection. Check the S_0 connection again (see chapter *PTP Connection* on page 18).

Carrying out Set-Up by Telephone

You can now make internal and external telephone calls. If somebody makes an external call to you, all connected internal telephones will ring.

By programming (punching in specific strings of digits) from **telephone set 31,** you can set up the functions of the telephone system to meet your requirements. When carrying out every programming step, ensure that you have entered the complete string of digits before replacing the handset. Depending on the instruction, lift the handset on the relevant telephone set or on the programming telephone. After entering the initiating digit – a 7 or an 8 – and the valid password, the system outputs an acknowledgement tone (a pulsating tone). After you enter the rest of the programming digits, you hear another acknowledgement tone. You now have the option of ending programming by replacing the handset or immediately

entering another sequence of programming digits (omit the initiating digit and the password), assuming that this sequence is initiated with the same digit and password. If you hear an engaged tone, you have made a mistake (entered the wrong digit or similar). Replace the handset and repeat the programming step. For more information on programming the PBX, refer to chapter *Programming* on page 52.

> The chapter *Test-listening internal tones and Music on Hold* on page 70 contains more information to help you to understand the meanings of the **tones.**
>
> Once you have made the connection to your computer, you should by preference carry out programming steps from the **PC** (see chapter *Computer Connection and Installation of the Software* on page 24).

Entering Calling Numbers

Now enter in the table on the fold-out cover flap all the programming steps below that refer to calling number. When you have done this, you can cut the table out and place it next to your programming telephone (as-delivered Ext 31).

First, you must tell your PBX which calling numbers it is allowed to respond to. You must, however, dial the MSNs in this programming step as well as in later ones (e.g. call forwarding). To simplify later programming steps and to make it easier for the PBX to process the calling numbers, you should assign a sequential two-digit number to each MSN and always enter these programming steps in the table on the fold-out cover flap. Enter in column "Calling number" the Multiple Subscriber Numbers (MSNs) that your network provider gave you.

In columns „Ext 31 to 34" you can then tick the telephone set that is intended to ring on a particular calling number. Programming this "call distribution" procedure will be described in the next chapter.

Example:

Number		Calling number	Ext 31	Ext 32	Ext 33	Ext 34
1st MSN:	01	4711				
2nd MSN:	02	4712				
3rd MSN:	03	4718				
4th MSN:	04					
5th MSN:	05					
...	...					
10th MSN:	10					

Enter MSN (e.g. 4718) as a number (e.g. 3rd MSN=03) in the system:

| Programming telephone | 8 | Secret password | 8 4 0 | 2-digit number of MSN memory | One of your calling numbers (MSN) | # [Ignore for pulse dialling and hang up the receiver instead.] |

💡 Only enter the MSN as the calling number and omit the associated **local dialling code** (e.g. in case of 0815 - 4711 enter 4 7 1 1 only).

Query the MSN you entered to check that the system has saved it correctly:

| Programming telephone | 8 | Secret password | 8 4 8 | 2-digit number of MSN memory | Digit-by-digit output of the MSN (followed by an acknowledgement tone) |

Call Distribution (Ringing)

You must now assign the MSNs that you have entered to the available extensions. Do not forget to make a note in the table on the fold-out cover flap of the programming steps that you have carried out. You can (successively) assign to every extension several calling numbers (1st to 10th MSN).

On calling a specific calling number (1st to 10th MSN), it is intended the extension rings either immediately, with a delay or not at all:
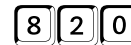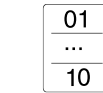
| Programming telephone | 8 | Secret password | 8 2 0 | Internal calling number 00: all | Number of MSN memory 00: all | 1: on 0: off 2: delayed |

💡 In the *user program,* you can set different ringing tones for **day and night operation.**

This concludes installation on a PTMP connection. If you want to carry out further programming steps on your PBX, refer to chapter *Programming* on page 52.

PTP Connection

The sections below describe how to connect your PBX to a PTP connection and how to put it into service. In addition, there is a detailed description of the settings that you must make to ensure that each telephone rings when the desired calling number is called.

⚠ **Close the case before using your PBX.**

Connecting the ISDN

You can only operate **one** piece of ISDN equipment on your PTP (point-to-point) connection, i.e. in this case the PBX itself. All the other analog are connected to the PBX.
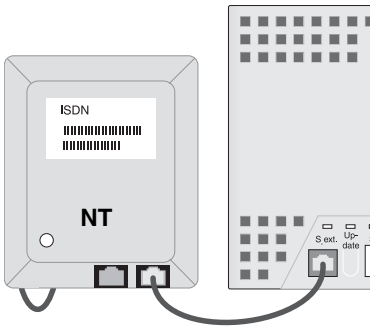
PTP Connection

You connect the PBX to the ISDN by means of one of the ISDN sockets (ISDN connection units) on the bottom end face of the NT. To make this connection, use the supplied ISDN cable with the two identical RJ 45 (Western) jacks on both ends. Plug one end of the supplied ISDN cable into the RJ 45 (Western) socket labelled „S_0 ext." on your PBX. Plug the other end of the cable into one of the ISDN sockets of the NT (the second ISDN socket must always be kept free).
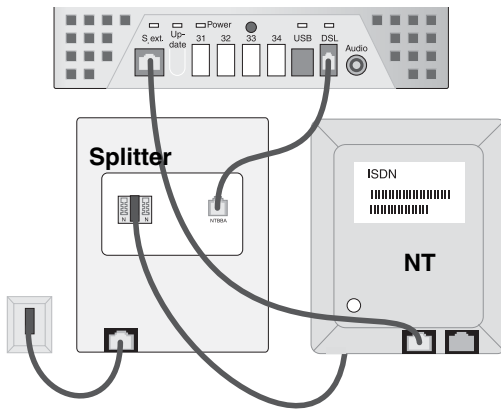
COMpact 2104 DSL: If you have signed up for a DSL connection at your network provider, you connect the PBX also with the splitter now. Connect the Western modular jack on the right side of the PBX named „DSL" with the enclosed DSL cable to the Western modular jack of the splitter. The connector layout of the splitter can be learned from the manual in the package of your network provider (different options are possible depending on the manufacturer).

💡 If you like to remove the Western modular plug out of the jack, you have to press the lever at the same time in order to remove it.

First Use

Now connect the PBX to the mains **(an easily accessible 230-V mains socket)**. The power LED on the case cover starts glowing.

💡 If there is a PC for programming available, you have to establish the computer connection and configure the most important settings with the PC program now (chapter *Computer Connection and Installation of the Software* on page 24).

COMpact 2104 USB and *COMpact 2104 DSL*: Once you connected the Auerswald USB device to your PC, the „Add New Hardware Wizard" of Windows 98, Windows Me and Windows 2000 will be launched automatically (Plug and Play). You will be assisted to install the necessary drivers. Please consult the enclosed CAPI/TAPI manual (in case of *COMpact 2104 DSL* the DSL manual also).

Resetting the System

The steps described below are intended to return the PBX to the as-delivered status with the default settings (for a description of the settings in this status refer to chapter *Default Settings* on page 82). If this is not the case – because the system has already been in operation and programming was carried out – you must carry out the following programming step. If the secret password, 1111, has been altered, you must of course take this into account.

Returning the PBX to its default settings:

Programming telephone	Internal dial tone	8	Secret password	Acknowledgement Tone	9 0	Acknowledgement Tone	

Dialling mode

To enable the PBX to detect the dialling mode (DTMF or LD) used by the connected analog telephones, dial on each telephone set the number „7".

Let the PBX learn the dialling method:

on each telephone   7

Setting the Type of Connection

First of all, you must set up the system to match your type of connection.

You want to set up the PBX's S_0 port as a -PTP connection:

Programming telephone	Internal dial tone	8	Secret password	Acknowledgement Tone	8 9 0 1	Acknowledgement Tone	

Calling Numbers of the PTP Connection

If you have applied for a PTP connection with your network provider, you will be given a PBX phone number (e.g. 4711) and an associated calling number block that consists of single- or multiple-digit direct dialling-in (DDI) numbers, which are appended to the PBX phone number.

In the confirmation of order that you get from your network provider, the PBX phone number is listed together with an appended digit that we will refer to as the global call number. This calling number (the PBX phone number + the global call number) is generally the one that is listed in the phonebook. If your confirmation of order doesn't clearly indicate the range of numbers that belong to the calling number block, you should consult your network provider. (With a basic access, it is possible but not certain that you have been assigned 0 as the global call number with a calling number block of 10-99. In our example, we have assumed that the global call number is 5 and numbers 60-79 are the DDIs.)

💡 If the global call number is 5, you can no longer use DDI numbers 50 to 59, since they contain the global call number 5. This would also apply to 0 to 9.

Callers who dial an unknown DDI (exists on the basic rate connection but has not been configured in the PBX) or an incomplete DDI (hesitated too long), will be switched to the first DDI/global call number after 4 seconds.

At a later stage, you must enter the calling numbers in your PBX and distribute them to the internal extensions. After this, the connected devices only respond to the calling numbers that you have assigned to them, e.g.:

Ext 31 (analog phone)	4711-5 / -61	Ext 33 (analog phone)	4711-63
Ext 32 (analog phone)	4711-62	Ext 34 (analog fax machine)	4711-64

Checking the S_0 Connection

You should now check the settings that you have made up to now by calling your own extension via the exchange (make an external call).

This is how you can check the setting of the PTP connection:

Telephone set 31	Internal dial tone	Access digit	External dial tone	Own calling number (PBX phone number + DDI)	32, 33 and 34 if connected	One of the ringing telephone sets	External connection with 31

💡 In our **example,** you could punch in ⓪ ④⑦①① ⑥② to make an external connection to another telephone set in the PBX.

This test only functions like this while no PBX phone number, global call number or DDI have been entered in the PBX (**default setting**) and the connection is not busy.

If this test doesn't work, even though you are sure that you have followed all the instructions as stated: Start, if necessary, by resetting the system to the default setting. Make sure again that your connection really is a PTP connection. If you are in doubt, set the PBX's S_0 connection to a PTMP connection by punching in ⟨8⟩⟨1⟩⟨1⟩⟨1⟩⟨1⟩⟨8⟩⟨9⟩⟨0⟩⟨0⟩. Check the S_0 connection again (see).

Carrying out Set-Up by Telephone

You can now make internal and external telephone calls. If somebody makes an external call to you, all connected internal telephones will ring.

By programming (punching in specific strings of digits) from **telephone set 31,** you can set up the functions of the telephone system to meet your requirements. When carrying out every programming step, ensure that you have entered the complete string of digits before replacing the handset. Depending on the instruction, lift the handset on the relevant telephone set or on the programming telephone. After entering the initiating digit – a 7 or an 8 – and the valid password, the system outputs an acknowledgement tone (a pulsating tone). After you enter the rest of the programming digits, you hear another acknowledgement tone. You now have the option of ending programming by replacing the handset or immediately entering another sequence of programming digits (omit the initiating digit and the password), assuming that this sequence is initiated with the same digit and password. If you hear an engaged tone, you have made a mistake (entered the wrong digit or similar). Replace the handset and repeat the programming step. For more information on programming the PBX, refer to .

The contains more information to help you to understand the meanings of the **tones.**

Once you have made the connection to your computer, you should by preference carry out programming steps from the **PC** (see).

Entering Calling Numbers

Now enter in the table on the fold-out cover flap all the programming steps below that refer to calling numbers. When you have done this, you can cut the table out and place it next to your programming telephone (as-delivered Ext 31).

Example:

PBX phone number	4711

Number		Calling number	Ext 31	Ext 32	Ext 33	Ext 34
1st DDI:	01	60				
2nd DDI:	02	61				
3rd DDI:	03	62				
...	...					
10th DDI:	10	69				
Global no.:	99	5				

Now, you must tell your PBX which calling numbers it is allowed to respond to. You must, however, dial the DDIs in this programming step as well as in later ones (e.g. call forwarding). To simplify later programming steps and to make it easier for the PBX to process the calling numbers, you should assign a sequential two-digit number to each DDI and always enter these programming steps in the table on the fold-out cover flap. First enter the direct dialling-in numbers (DDIs), the PBX phone number and the global call number that your network provider gave you.

In columns „Ext 31 to 34" you can then tick the telephone set that is intended to ring on a particular calling number. Programming this "call distribution" procedure will be described in the next chapter.

Enter the PBX phone number (e.g. 4711):

31	8	1111	8 9 1		#
Programming telephone		Secret password		PBX phone number	[Ignore for pulse dial telephones and hang up the receiver instead.]

💡 Only enter the PBX phone number and omit the associated **local dialling code** as well as the DDI or the global call number.

Check the configured PBX telephone number:

31	8	1111	8 9 9	
Programming telephone		Secret password		Digit-by-digit output of the PBX phone number (followed by an acknowledgement tone)

Enter one of the DDIs (e.g. 63) as the number (e.g. 4. DDI=04) in the system:

31	8	1111	8 4 0	01 ... 10		#
Programming telephone		Secret password		2-digit number of DDI memory	Appended calling number (DDI)	[Ignore for pulse dial telephones and hang up the receiver instead.]

💡 After entering a two-digit DDI you will hear the acknowledgement tone immediately and you do not have to press the #-key or hang up the receiver. (Precondition: The connection type PTP connection is configured.

Check the configured DDI:

31	8	1111	8 4 8	01 ... 10	
Programming telephone		Secret password		Number of the DDI memory	Digit-by-digit output of the DDI (followed by an acknowledgement tone)

Enter the global call number (e.g. 5) as number 99 in the system:

| Programming telephone | Secret password | | Number of the DDI memory | Global call number | [Ignore for pulse dial telephones and hang up the receiver instead.] |

After entering a two-digit global call number you will hear the acknowledgement tone immediately and you do not have to press the #-key or hang up the receiver. (Precondition: The connection type PTP connection is configured.

Check the global call number:

Programming telephone | Secret password | Number of the DDI memory | Digit-by-digit output of the global call number (followed by an acknowledgement tone)

Call Distribution (Ringing)

You must now assign the DDIs that you entered to the available extensions. Do not forget to make a note in the table on the fold-out cover flap of the programming steps that you have carried out. You can (successively) assign to every extension several calling numbers (1st to 10th DDI or global call number).

On calling a specific calling number (1st to 10th DDI or global call number), it is intended the extension rings either immediately, with a delay or not at all:

Programming telephone | Secret password | Internal calling number 00: all | Number of DDI memory 00: all 99: global call number | 1: on 0: off 2: delayed

In the *user program,* you can set different ringing tones for **day and night operation.**

This concludes installation on a PTP connection. If you want to carry out further programming steps on your PBX, refer to chapter *Programming* on page 52.

Computer Connection and Installation of the Software

On the bundled CD „Auerswald Mega Disk" are different PC programs for the configuration and the operation of the PBX.

- With the configuration program *COMpact 2104 Set* you can configure the PBX according to your requirements. In this program package you additionally find single PC programs for the administration of wake-up times, call allowance as well as short-code dial numbers and special numbers.

- The PC programs *Easy Setup* is designed for **easy and quick operation** to let you do the most important settings of the configuration program.

- The PC program *COMlist* helps you to manage and analyse the call data in the call data memory of the PBX.

- In the PC program *Soft-LCR* the necessary data for the manual and automatic Least Cost Routing can be managed.

- *COMpact 2104 USB* and *COMpact 2104 DSL* only: The bundled ISDN application package can be used to perform the most important features of modern data communication (fax, answering machine, data transfer, internet) in a professional way via PC. You will be supported by the CAPI/TAPI manual during the installation and operation of this package.

The following connection options are available for the connection of the PC:

- Your PC is connected with the external S_0 port (NT) of the PBX via an ISDN PC-controller with CAPI 2.0 driver software installed on your PC.

- *COMpact 2104 USB* and *COMpact 2104 DSL* only: Your PC is connected directly via USB port with the PBX.

- *COMpact 2104* only: Your PC is directly connected via serial port (RS-232-C, V.24) with the PBX. The serial port of the PBX alternatively offers a connection option for a serial printer in case you want to printout the charge and call data directly.

Minimum Requirements for the PC

- PC with Intel Pentium 166 or compatible processor
- Windows 95,98, Me, 2000, XP; Windows NT 4.0 with service pack 3 or later,
  COMpact 2104 USB and *COMpact 2104 DSL*: Windows 98, Me, 2000, XP if you use USB interface
- RAM memory
  for Windows 95/98/Me: 32 MB, 64 MB recommended
  for Windows 2000/NT/XP: 64 MB, 128 MB recommended
- *COMpact 2104 USB* and *COMpact 2104 DSL*: USB interface (if used) according to USB specification 1.1
- CD-ROM drive
- Mouse or compatible pointer device
- SVGA graphic board with 800*600 resolution and 256 colours/grey scales
  32768 colours recommended

Computer

Connection via the USB Interface (only COMpact 2104 USB and COMpact 2104 DSL)

The connection of the PBX to an existing USB interface is made with the included USB cable with two different plugs at both ends. It depends on how many devices you like to connect to your PC, you are able to connect the PBX to a hub directly to the PC (you will find more details about it in the chapter *General Information on USB on page 28*). The flat plug is plugged into the master device (PC or hub) and the other plug into the PBX.
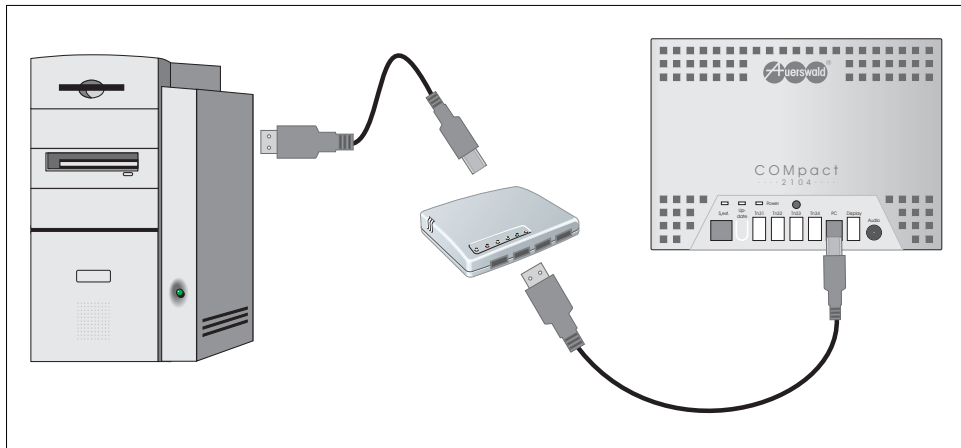
Once you connected the PBX to your PC and both devices are switched on, the „Add New Hardware Wizard" of Windows 98, Windows Me and Windows 2000 will be launched automatically (Plug and Play). You will be assisted to install the necessary drivers. **Consult the enclosed CAPI/TAPI manual (in case of COMpact 2104 DSL the DSL manual also).**

After you have installed the configuration software, you have to select the interface (USB) in the PC program.

Connection via serial Port V.24 (only COMpact 2104)

The serial port of the PBX can be connected with the serial port of a PC (COM 1 to 4) as well as with the serial port of a printer. For the connection of the computer or printer you need a 9- or 25-pole D-Sub connector (see PC/printer). Enclosed is a 9-pole D-Sub jack connected via cable with a Western modular plug that will be plugged into the Western modular jack labelled with „PC" after closing the case.

If you need a cable with 25-pole D-sub jack (you may also use any standard adapter) or a longer cable you can also manufacture it yourself if you have the necessary tools. The connector pinout is documented in the following picture.

Computer

RXD PCGND TXD   TXD PCGND RXD

TXD RXD PCGND   RXD TXD PCGND
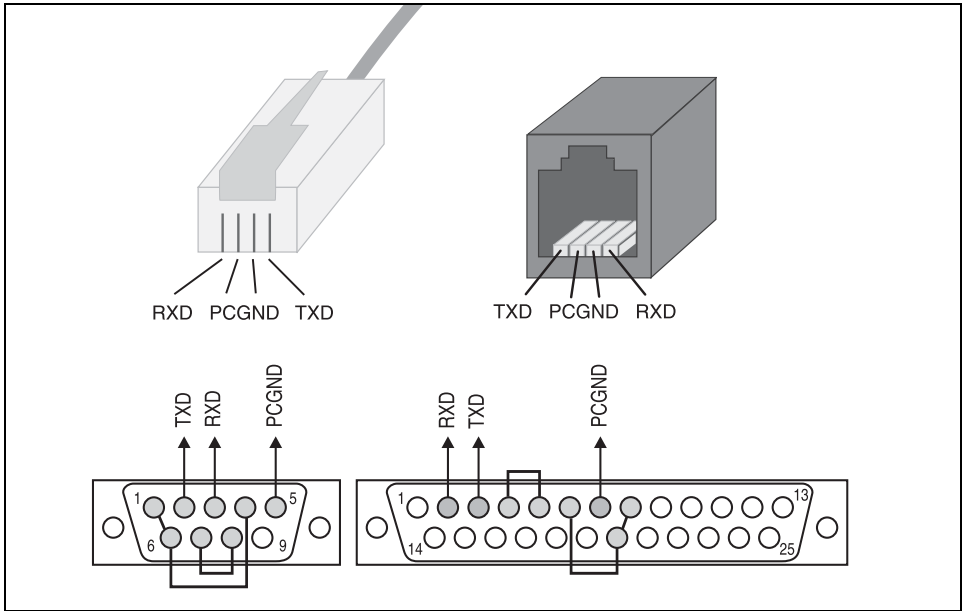
💡 **After you have installed the configuration software, you have to select the port (V.24) in the PC program and the COM-port of the PC (COM 1 to 4) connected to your PBX.**

Distances above 10 meters can cause problems even if you use shielded cables. It is not possible to guarantee correct functioning, since performance can be affected significantly by the way in which the cable is routed and the condition of your computer interface.

Computer

Connection via ISDN PC-Controller

If you like to configure the PBX via the external S_0 port, you need a CAPI 2.0 compatible ISDN PC-controller. Get the latest information from the manufacturer of the ISDN PC-controller about the support of CAPI 2.0. If you have problems with your ISDN PC-controller, please read the manual of your ISDN PC-controller or contact the vendor of the ISDN PC-controller directly about compatibility with CAPI 2.0. Try to get the most recent drivers with CAPI 2.0 support. Most vendors offer the option to download new drivers from the Internet or via mailbox. Install the ISDN PC-controller in the PC and connect it to the public telephone network (in case of PTMP connection in parallel to the PBX on the NT or external S_0 port).

💡 **After you have installed the configuration software, you have to select the port „ISDN PC-controller (CAPI 2.0)" and enter one of your telephone numbers.**

Each access to the system will cost at least one charge unit and must be authorised by dialling 9 9 on an internal telephone.

If you encounter problems during a running transfer, please check your cabling. If necessary, contact your dealer or supervisor for help.

Software Installation

a) Insert the CD-ROM (Auerswald Mega Disk) into the CD-ROM drive.

b) Windows usually has an Autostart functionality for the Setup. Sometimes the installation will not be started automatically. In this case you can start Setup manually: On your desktop click on the „Start" button in the task bar and select „Run".

c) Click on „Search". Open the CD-ROM drive with the Auerswald CD-ROM. Select the application „Setup" in the root directory by double click. Then click on „OK".

d) Follow the instructions on the screen. You will find the installation for programs *Easy Setup*, *COMpact 2104 Set*, *COMlist* and *Soft-LCR* under the software for the corresponding PBX system.

Configure your PBX with *Easy Setup*

a) Put your PBX into operation (see chapter *Connecting to the ISDN and Carrying Out Initial Commissioning on page 12*).

b) Start the program *Easy Setup*.

c) Follow the instructions of the program step by step.

Configure your PBX with *COMpact 2104 Set*

a) Put your PBX into operation (see chapter *Connecting to the ISDN and Carrying Out Initial Commissioning on page 12*).

b) Start the program *COMpact 2104 Set*.

c) Select the interface in the menu under „options... interface".
If there is a connection via USB interface, select the „USB" option.
If there is a connection via serial interface, select the connected V.24 COM port of the PC (e.g. COM 1).
If there is a connection via an ISDN PC-controller, select the option „ISDN PC-controller (CAPI 2.0)".

d) Click on the top left button „New" to open a new configuration. If you like to modify the internal telephone numbers assigned by the default settings of your PBX, read the existing configuration out of the PBX instead of opening a new configuration (with the button „Open" and then „from PBX").

e) If you like to configure your PBX quickly, perform the most necessary configurations first: Open the register card „exchange line numbers" under „external telephone numbers" and select the type of your ISDN connection there. Then enter the telephone number that your network provider assigned to you. Then open the register card „call distribution" under „subscriber settings" and select which internal telephone should ring for which external number.

f) This configuration has to be stored into the PBX. Click on the button „Save" and then on „PBX". For backup purposes you can save this configuration to disk by clicking on „Save" and then „File".

💡 **Via the menu „help...help files" or the key „F1" you can ask for help in the PC program *COMpact 2104 Set*.**

General Advice for using COMpact 2104 Set

Program Windows: This is divided into two parts:

■ In the left view are the themes listed in the order to be worked on. If you leave out a theme, it may happen that the following page is not available (e.g. because no subscriber with an internal telephone number has been configured yet).

■ The right view shows the page of the selected theme. For working on the program pages you need not the menu line. All the entries and changes are made directly on the pages via mouse or keys.

Help: With the menu „Help...Topics" you can open a help window that will offer you explanations to the respectively open page.

Entry into a free field: A free entry field lets you enter a name or a number. Click into the corresponding field with the left mouse key and then enter a number or a name with the keyboard. Then click with the left mouse key into another entry field.

Modify number or name: If you entered a number or a name and like to completely change these, click twice onto the entry to be written over with the left mouse key. After that it will be marked blue and can be directly written over or be deleted with delete/backspace. Then you click into another entry field with the left mouse key.

Extendable tables: The table „external numbers" can be extended by yourself by entering the existing/requested telephone numbers. In order to delete an entry in extendable tables, the whole line can be deleted here. Therefore click with the left mouse click into a field of the line to be deleted. This field gets a yellow margin. By pressing the right mouse key then, a menu opens. Click on „delete line".

Automatic number generator: In the table „exchange line numbers" you can generate a sequence of successive telephone numbers with the help of the program. First you enter the lowest telephone number into a free field. Then you click into this field with the left mouse key. The field will get a blue edging. If you click the right mouse key then, a menu will open. Click on „new numbers until ...". Now you can enter a second telephone number to limit the range of telephone numbers.

Switch functions on or off: A square displays a switch field. An empty square means „off" or „no"; a little hook means „on" or „yes".

■ The switch over happens by simply clicking on it with the left mouse key.

■ If there are more boxes in a table column, the switching over is also done by simply clicking with the left mouse key.

■ If you like to switch over a whole column or a bigger part of this, first mark the corresponding fields. Then you can open a Popup-menu by clicking with the right mouse key into the corresponding column and select with the left mouse key. All marked fields will be changed at the same time. You can mark the whole column by clicking on the headline of the column with the left mouse key. You can mark parts of the column by drawing with the pressed left mouse key over the corresponding fields or by marking the first field with the left mouse key, holding the shift key pressed and click the last field.

## General Information on USB

The USB (Universal Serial Bus) is a serial bus system that connects different device types. Starting at the root hub, which the PC provides, the USB is set up in several levels (up to 5) with the so-called hubs (distributors) and the USB devices (up to 127 units).

Hubs are connected to the USB port of the PC or to the outputs of the preceding hubs. They work as receiver of signals of the PC and of preceding hubs as well as sender of signals to further hubs and to connected devices. The old and existing PC interfaces (parallel, serial...) can now be replaced by only one.

Another advantage of this system is the possibility of Plug-and-Play. In order to start operation of USB devices, it is not necessary anymore to open the PC and perform a complicated configuration. The device is simply connected to the existing bus and the corresponding drivers are installed on the PC. The unit will be ready for use at once. The Plug-and-Play compatible operating system Windows is essential for the PC. (e.g. Windows 98).

There are two speed classes of USB devices – „full speed" (12 MBit/s) and „low speed" (1,5 MBit/s). Due to the different data transfers rates different cable types and lengths for these both types of units are in use. For „full speed" devices such as this PBX (*COMpact 2104 USB* or *COMpact 2104 DSL*) only USB cables with a maximum length of 5 m are used.

There is another distinctive feature for the USB devices concerning the power supply. Self powered units such as the PBX (*COMpact 2104 USB* or *COMpact 2104 DSL*) supply themselves via an own power supply so that the USB power is not used. In contrast to this bus powered devices have to be supplied via the USB. These devices have the power supply classes „high powered" (up to 500 mA) and „low powered" (up to 100 mA). The USB is able to deliver a power supply up to a maximum of 500 mA for devices.

Computer
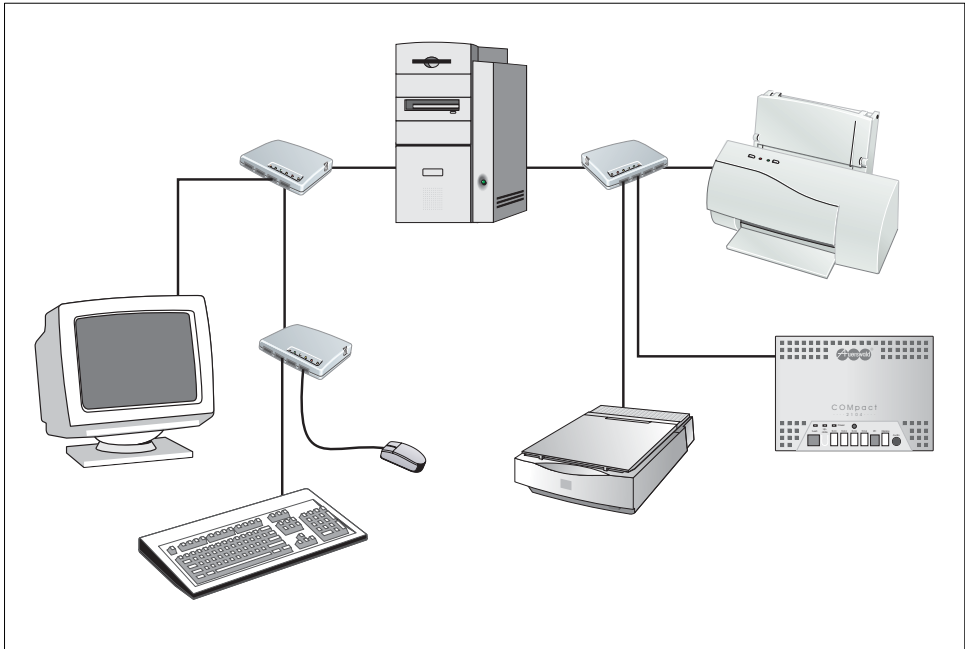
Operation

Carry out the actions that are depicted as symbols in left-to-right order. Symbols that are located under one another are available as alternatives. Change these symbols for the ones that are directly above them in the first row, depending on what you want to set or who you want to call. The symbols are described in more detail on the fold-out cover flap.

In addition, you will find here descriptions of a few programming functions that are indicated by the initial password that you have to enter. Depending on the instruction, lift the handset on the relevant telephone set or on the programming telephone. After entering the initiating digit – a 7 or an 8 – and the valid password, the system outputs an acknowledgement tone (a pulsating tone). After you enter the rest of the programming digits, you hear another acknowledgement tone. You now have the option of ending programming by replacing the handset or immediately entering another sequence of programming digits (omit the initiating digit and the password), assuming that this sequence is initiated with the same digit and password. If you hear an engaged tone, you have made a mistake (entered the wrong digit or similar). Replace the handset and repeat the programming step.

DTMF and pulse dialling telephones

You can connect to your PBX pulse dialling telephones pulse dialling as well as DTMF ones. As a result, there are several differences in operation and programming.

If you are already involved in a call with another (internal or external) party, on a DTMF telephone you must first press the Flash key (⎗ key, signal key) before punching in a digit for transferring the call. Pulse dialling telephone sets do not have a Flash key and they do not need them. This means that if you have a pulse dialling telephone set connected to your PBX, you do not need to press the Flash key.

The flash key of most DTMF telephones generates an interruption of app. 300 ms. This can lead to a problem for the PBX (e.g. the interruption can be recognized as hanging up). Help can be found in chapter *Telephones with Hook-Flash* on page 55.

If you enter a telephone number (e.g. entering of an external destination number for call forwarding), the PBX does not immediately know when this telephone number entry will be finished. Therefore finish the telephone number with the ⎗-Taste in case of DTMF telephones and you will then hear the acknowledgement tone. This ⎗-key does not exist on a pulse dialling telephone or it has no function. If you connect a pulse dialling telephone to your PBX, you ignore pressing the ⎗-key and simply hang up the receiver after entering the telephone number. You will hear no acknowledgement tone. Please pay attention when programming that **all** digits are dialled correctly. Pulse dialling telephones with digit keys need a certain time for output after entering the number.

💡 Any deviations with pulse dialling telephones are shown in square brackets ([ ]).

Making a call (internally and externally)

Making an external call:

	Internal dial tone	Access digit	External dial tone	External calling number	Call

Making an Internal call:

	Internal dial tone	Internal calling number e.g. 33	Call

💡 **When making an external call on the direct exchange line telephone** → omit the access digit.

When making an internal call on the direct exchange line telephone → punch in a ⊛ before the internal calling number (see chapter *Direct Exchange Line Telephone on page 55*).

Taking calls (when the telephone rings)

Taking a call:

Ringing: 1 long tone: external; 3 short tones: internal   Call

Punch in short-code dialling numbers (simplified dialling)

Making a call using short-code dialling:

	Internal dial tone	Number of short-code dialling memory	Call

100
...
299

💡 **Storing short-code dialling numbers** → chapter *Entering short-code dialling Numbers on page 57*.

Short-code dialling at the **direct exchange line telephone** → punch in a ⊛ before the short-code dialling number (see chapter *Direct Exchange Line Telephone on page 55*).

short-code dialling with **query** not possible. (Ausnahme: see chapter *External call to external extension on page 34*).

Operation

Query (second call)

If you want to ask somebody something during an ongoing conversation without ending it, you can use the query function. The ongoing conversation is interrupted to call another party. The 1st calling partner is on Hold in the background in the PBX and listens to the Music on Hold (only for external calling partners). In order to start a Query in case of DTMF telephones, you will have to press the FLASH key or R-key first (see chapter *DTMF and pulse dialling telephones* on page 30). Then you will hear the internal dial tone as after picking up the receiver and you can start a call as usual.

Query:

Call (no. 1)   Omit with pulse dialling)   Internal calling number e.g. 33   Query call (no. 2)

or   Access digit and external calling number

End query and continue 1st call:

Query call (no. 2)   [Omit with pulse dialling]   Call (no. 1)

Current calling partner hangs up → you are automatically back in the first conversation.

The calling partner in the background hangs up → the query conversation becomes a normal conversation.

You replace the handset → both calling partners are transferred (see chapter *Transferring a Conversation (from a Query Conversation)* on page 34 or chapter *External call to external extension* on page 34).

The party that you called second **does not respond** → punching in R 8 returns you to the first conversation [**with pulse dialling:** omit the R].

Instead of the ringing tone, the system issues an engaged tone for 2 seconds and returns to the first conversation → Called party is **engaged or** he does not have at least the necessary **semi-restricted exchange line authorisation**.

A wide range of options can result from a query conversation → **alternation, conference, transfer** (see the next few sections).

After punching in R you can also initiate a **group call** (see chapter *Initiating a group call (calling several people at the same time)* on page 37) or a **code call** (see chapter *Initiating a Distinctive Ringing (calling one person at several telephones)* on page 38).

On a **Direct Exchange Line Telephone** you hear the internal dial tone after pressing the FLASH or R-key. The operation in this case is the same like for the other telephones.

Operation

Alternation (from a query conversation)

Your PBX gives you the option of speaking alternately to two parties. For alternation with two external parties, you normally need the support of the exchange (alternation (HOLD) ISDN feature). You can, however, also carry out alternation without the exchange, since the PBX supports alternation via the second B channel (default settings; switchable in the configuration program).

From the query conversation to alternation:

Query conversation (no. 2)   R   [Omit with pulse dialling]   1   Conversation (No. 1)   R   [Omit with pulse dialling]   1   Query conversation (no. 2)

> **Transferring a call from the alternation status** to a fourth party is not possible. You must first end the conversation with one of the two calling partners.
>
> **Ending** → Same as query conversation: by punching in R 8 or by one of the calling partners replacing the handset. If you replace the handset, the other two parties are connected (see chapter *Transferring a Conversation (from a Query Conversation)* on page 34 or chapter *External call to external extension* on page 34).

Conference (from query conversation)

Your PBX gives you the option of speaking to two parties at the same time. For a conference with two external parties, you normally need the support of the exchange (three-party conference call (3PTY) ISDN feature). To save the additional charges that may be involved, the PBX supports conferences via the second B channel (default settings; switchable in the configuration program).

From the query conversation to the conference:

Query conversation (no. 2)   R   [Omit with pulse dialling]   6   Conference

> **Transferring from a conference** to a fourth party is not possible. You must first end the conversation with one of the two calling partners.
>
> **Ending** → Same as query conversation: by one of the calling partners replacing the handset. If you replace the handset, the other two parties are connected (see chapter *Transferring a Conversation (from a Query Conversation)* on page 34 or chapter *External call to external extension* on page 34).
>
> If a **hands-free telephone set** is involved in a conference with three internal extensions, you may hear echoes or whistling in the line.

Operation

Transferring a Conversation (from a Query Conversation)

Transferring from a query conversation:

Query conversation (no. 2)

Replace the handset – the other two parties are connected

Transferring an external conversation to another external extension → On your own telephone set, either set an appropriate authorization (*user program*) or initiate one of the two external conversations by punching in ⑥⑦ and the access digit ⓪ (chapter *External call to external extension* on page 34).

Transferring a conversation (exchange without query)

Using this function, you can pass on an external conversation to another internal party without announcing the conversation to him/her.

Transferring a conversation without previously announcing it:

External conversation

[Omit with pulse dialling]

Internal calling number e.g. 33

Replace the handset – the system continues to call the internal party – if he or she lifts the handset, they are connected with the external party.

The called party does not lift the handset → after 60 seconds, the system returns the call to your telephone (your telephone rings). If you still haven't lifted the handset after another 60 seconds, the conversation is separated. If your telephone is engaged in the meantime, the system interrupts the procedure after the first 60 seconds have expired and the external conversation is separated.

The system issues the engaged tone for 2 seconds and returns you to the first conversation → The called party is **engaged** or he does not have at least the necessary **semi-restricted exchange line authorisation**.

External call to external extension

If you want to transfer an external conversation to another external party, you must either set an appropriate authorization (*user program*) or initiate one of the external conversations by punching in ⑥⑦. If you initiated an external conversation by punching in ⑥⑦, the system remembers this status until you replace the handset. This means that you can make a variety of other query conversations until two external parties have been transferred.

Carrying out transfer of external call to external extension:

1st external conversation	R [Omit with pulse dialling]	6 7	0 Access digit and external calling number	2nd external conversation	Replace the handset – the other two parties are connected

or

100 ... 299
Number of short-code dialling memory

You are **charged** for the transferred conversation.

A conversation that is transferred in this way may **last a maximum of 30 minutes.** This is for safety reasons, since if you transfer by mistake the time announcement and the weather forecast, for example, this could lead to an infinitely long conversation.

Carrying out Pickup (with calls to another telephone)

When you hear a telephone ring and you want to take the call for a party who isn't in the office, for example, you should use the Pickup function. This allows you to fetch the call to your own extension.

If you carry out undirected Pickup, you fetch the call from any telephone that happens to be ringing. If several telephones are ringing, and you want to take an external call, you should use external Pickup. If several telephones are ringing, and you want to take the call from a specific telephone, use directed Pickup.

Carrying out Pickups:

Remote telephone	Own telephone	Internal dial tone	6 Punch in a 6 and the internal calling number of the ringing telephone e.g. 33 for directed Pickup	Call

or   6 0
For external Pickup

or   6 1
For undirected Pickup

With engaged tone on external Pickup → at least the necessary **semi-restricted exchange line authorisation** is necessary.

Operation

Reserving the line for the next external call

If all the lines (1st and 2nd B channels of the external S_0 port) are engaged, you hear the engaged tone after punching in the access digit. You can now reserve a line so that the PBX informs you immediately when one is free.

Reserving the line for an external call:

Internal dial tone   Access digit   Engaged tone   Acknowledgement Tone

As soon as the line is free   External dial tone   External calling number   Call
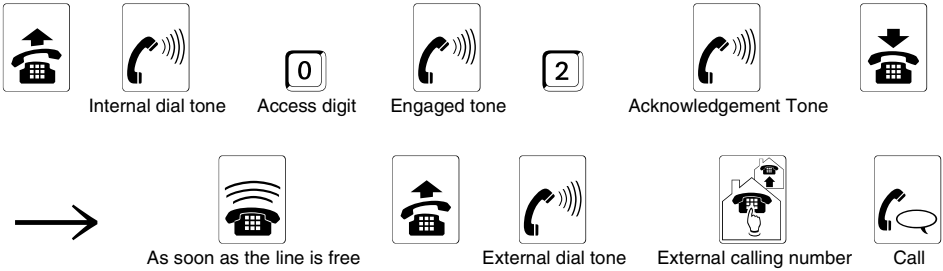
💡 **Punch in the short-code dialling number** → After lifting the handset of the ringing telephone, press the ✳ key or replace the handset for at least one second if there is no ✳ key on your phone or it is not working (pulse dialling telephones).

Make a private external conversation

Each party has his or her own personal password and a special private outgoing access that you can set independently of the normal (business) access. When you initiate private calls in this way, it is possible to record charges and call data separately from normal (business) recording.

To make a private external call, use the normal access digit and the calling number or an short-code dialling number and just punch in before them the following sequence of digits: ⑨⓪ and the private password. As-delivered, the private password is set with extension 31 to 3131 with extension 32 to 3232,... etc. Assuming that you want to make a call from extension 31 to somebody whose calling number is „0815 4711, you would punch in ⑨⓪ ③①③① ⓪ ⓪⑧①⑤ ④⑦①①.

Making a private call:

Internal dial tone   Private password e.g. 3232   Access digit and external calling number   Private call

or

| 100 |
| ... |
| 299 |

Number of short-code dialling memory
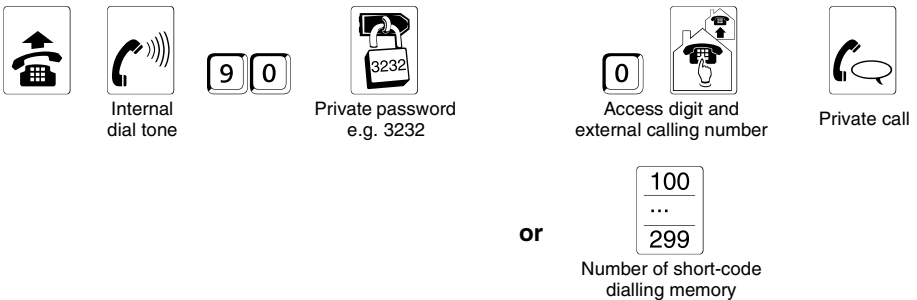
💡 **Outgoing access** is necessary for private calls.

Start External Call via different Providers (manual Least Cost Routing)

The PBX enables you to call easy and without prior thinking about the cheapest available network provider. This is called automatic Least Cost Routing. You have to configure several options with the PC software *Soft-LCR* in order to use this feature.

Besides this the automatic LCR must be allowed for your telephone (also with help of the PC program „Soft-LCR"). If you enable the automatic LCR for a telephone, the PBX will search for each external call started by you the cheapest provider. The provider will depend on the dialled number, date and time. The provider code number will automatically be dialled in front of the external number.

In addition to this or instead of this you can do a manual Least Cost Routing. In case of the manual Least Cost Routing you select the network provider yourself before dialling the main telephone number.

In the PC program „Soft-LCR" five network providers can be configured that will be dialled via special exchange line access numbers (⓪✳ to ④✳). Example: For the exchange line access number ④✳ you configure a network provider, e.g. Talkline (01050). You like to do a call to Switzerland and like to use exactly this network provider. You select ④✳ and the requested telephone number (e.g. 00412/12345). The provider code number will be dialled now in front of the external number. The complete number dialled by the PBX is: 01050-00412/12345.

Perform Least Cost Routing manually:

		0∗ ... 4∗		
	Internal dial tone	Exchange line access number for the provider memory 0 to 4	External telephone number	Call

Initiating a group call (calling several people at the same time)

You can group the staff of a specific department (marketing, sales, etc.) into call groups to enable you to call them at the same time. You must first program the extension groups accordingly (see *user program*).

Calling a call group:

		3 0		
	Internal dial tone		Number of the call group (1-4).	Call

💡 **Query** → with DTMF telephones, punch in Ⓡ③⓪ and the number of the call group.

Initiating a Distinctive Ringing (calling one person at several telephones)

If you arrange a bell signal with someone who cannot always be reached on the same telephone, you can call the person at several extensions within the PBX at the same time (distinctive ringing). The special ringer rhythm has the advantage that the intended person immediately recognizes who the call is for. At ports connected to fax machines or answering machines, distinctive ringing may not be allowed, since these devices take calls automatically (see chapter *Setting Up Various Pieces of Equipment (Quick Configuration)* on page 52).

The following ringer signals are available**:**

Number:	**Rhythm of the ringer signal:**
1	one long tone and one short one, pause.
2	one long tone and two short ones, pause.
3	one long tone and three short ones, pause.
4	one long tone and four short ones, pause.
5	one long tone and five short ones, pause.

Initiating Distinctive Ringing:

| Internal dial tone | | 4 0 | Number of the ringer signal (1-5) | Call |

Query → with DTMF telephones, punch in R 4 0 and the number of the bell signal.

Callback (the called telephone is engaged or nobody lifts the handset)

If you call somebody who is just making a call, you can reach them as soon as possible by initiating a callback (callback on busy). In this connection, your call and that of other parties is returned as soon as the other called party replaces the handset.

If you call an internal extension, you can – in addition to callback on busy – initiate a callback on no response. In this case, you and the other parties are called as soon as your busy called party has replaced the handset after completing his or her next call.

Initiating an internal callback

Generate an internal callback „on busy" or „on no response":

| Internal dial tone | Internal calling number e.g. 33 | Engaged tone or ringing tone | 2 | Acknowledgement tone | |

$\longrightarrow$

as soon as the called party replaces the handset
after this (or the next) call

Call

💡 Before punching in the suffix digit, ② **please wait three seconds.**

Starting external callback (CCBS)

Your PBX supports ISDN feature completion of calls to busy subscriber (CCBS).

Starting an internal callback on busy:

	Internal dial tone	Access digit	External calling number	Engaged tone	Acknowledgement tone	

0   **2**

$\longrightarrow$

As soon as the called party replaces the handset after this call

Lift the handset – the system calls the external subscriber

Call

💡 **No acknowledgement tone** → the exchange refused the desired callback.

Before punching in the suffix digit, ② **please wait three seconds.**

The external subscriber must have the appropriate technical **capability** to be able to carry out a callback.

With some network providers, callback to an external subscriber with a **PTP connection** is not possible.

The exchange may trigger the callback **before the external subscriber has replaced the handset**, due to the fact that only one of the B channels of his or her ISDN connection is available.

An **external callback on no response** is not possible.

A callback is stored in the exchange for **up to 45 minutes.** If the subscriber has not completed his or her call within this time, the system clears the callback automatically.

In the case of a callback, you are called **for up to 30 seconds.** If you do not lift the handset, the system clears the callback.

The external subscriber's telephone does not ring until you have accepted the callback by lifting your handset.

Call Waiting (Second Call Waiting When Your Telephone is Busy)

If you allow call waiting on your telephone (see chapter *Call Waiting Permission* on page 56), you can make a phone call at your leisure even though you are expecting an important external call. In this case, the calling party hears the ringing tone even though you are currently carrying on another conversation. For your part, you hear the call waiting signal. This is a signal to you that somebody else is trying to get in touch with you. You now have the option of rejecting the call waiting party – who then hears the engaged tone – or you can accept the call; in this case the previous calling party waits in the background.

Call waiting party (external pick-up):

1st conversation	Call waiting signal	[Omit with pulse dialling] R	6 0	2nd conversation

You now have **various options** for handling the two subscribers (alternation, conference). If you want to transfer the call waiting party that you have taken, you must first complete your conversation with the first calling partner.

Instead of pick-up, you can also complete your current conversation by **replacing the handset.** After this, initiate the other conversation in the normal way by lifting the handset. If you have already a Query call when it knocks, at least one of both calls has to be finished first.

Rejecting a call waiting party:

Call	Call waiting signal	[Omit with pulse dialling] R	6 9	Return to conversation

Call protection (do-not-disturb)

If you do not want to be reached, you can use the call protection feature to block your telephone for internal and external calls (e.g. because you don't want the phone in your nursery at home to ring at night). You can of course still make calls from your telephone in this status. (As-delivered, call protection is deactivated.)

Activating/deactivating call protection:
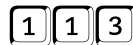
Appropriate telephone	7	Universal password	1 1 3	1 / 0 (1: on / 0: off)

By means of a **priority call,** an internal subscriber can still call a call-protected extension.

For general information on **programming by telephone** and the tones that are issued in this connection, refer to .

When you call a call-protected extension, you hear the **engaged tone.**

Initiating a priority call (if the called telephone is engaged)

An external subscriber cannot reach an extension that has initiated call protection. Internal subscribers, on the other hand, can get around call protection in case they have to pass on important information. If you hear an engaged tone after punching in an internal extension number and you still want to reach the extension, punch in another digit to initiate a priority call.

Initiating a priority call:

Internal dial tone   Internal calling number (e.g. 33)   Engaged tone   3   call

If you still hear the **engaged tone** for this extension after punching in a 3 → the subscriber is just making a call.

Before punching in the suffix digit, 3, **please wait three seconds**.

If you have already a Query call, no priority call is possible.

Taking an existing call (with answering machines)

If your modem or your answering machine, for example, answers a call that is intended for you, you can take this call by punching in the calling number of the corresponding device and then another digit to connect to the calling party. You can of course also take a call from any other extension if you think this is sensible. Once you have picked up the call, the subscriber at this extension hears the engaged tone. The other party must have allowed call pick-up (see chapter *Setting Up Various Pieces of Equipment (Quick Configuration)* on page 52 and in the *user program*).

Taking an existing call:

Internal dial tone   Internal calling number (e.g. 33) of the telephone that is making the call to be picked up.   Engaged tone   6   Picked-up call

To pick up external calls → at least semi-restricted exchange line authorisation is necessary.

Before punching in the suffix digit, 6, **please wait three seconds**.

If you are already talking to another subscriber, pick-up is not possible

Parking and Transferring on a PTMP Connection (external S_0 port)

The parking/changing over function on the PTMP connection allows you to park an external conversation that you are currently making using a piece of ISDN equipment (an ISDN telephone) and to transfer it to another piece of ISDN equipment that you are also running on your PTMP connection (NT/external S_0 bus).

Also with your PBX your can park an external call or take over a parked external call.

💡 Please pay attention that you do not enter any code digits when parking or taking over with your ISDN telephone because the PBX always parks or takes over a call without code digits (see also operation manual of the ISDN telephone).

The transfer must take place within the specified time of approximately three minutes.

Using the PBX to park an ongoing external conversation

Parking a conversation:

External conversation   [Omit with pulse dialling] $\boxed{R}$ $\boxed{6}\boxed{8}$ Acknowledgement tone

💡 **After approximately three seconds,** the acknowledgement tone changes to an **engaged tone;** you should not consider this to be a failed attempt at parking a call.

Instead of the acknowledgement tone, **the engaged tone appears immediately** → parking has failed and after a few seconds the system reconnects you with your calling partner. In this case, it may well be that your exchange does not support the Parking/changing over on the bus feature.

Using the PBX to take a parked external conversation

Taking back a parked conversation:

Internal dial tone $\boxed{6}\boxed{8}$ Call

💡 **Engaged tone** → parked with code digits, you have exceeded the maximum permissible parking duration (after three minutes, the exchange disconnects the call) or no call is parked.

Muting (with DTMF telephones)

To make a query in the room without your calling partner being able to hear you, you can mute the conversation for as long as you like on DTMF telephones.

Operation

Muting a call:

| Call | Muting: | Return to conversation | Call |

Follow-me (taking calls to other internal telephones with you)

Follow-me has the same function as permanent call forwarding to internal extensions, which is also described in this manual. The difference is that you set it up at the respective telephone and not at the telephone from which calls are rerouted. This means that you can go from office to office, for example and take your calls with you.

Setting up/deactivating follow-me:

| Target telephone | 7 | Universal password | 2 0 | Internal calling number of telephone to be diverted, e.g. 33 |

or   0 0

for deactivate

💡 For general information on **programming by telephone** and the tones that are issued in this connection, refer to page 52.

For redirected external calls, the target telephone needs at least semi-restricted exchange line authorisation.

Using Follow-me, you can also switch **calls from several subscribers** to the telephone closest to you.

Caution! If you set follow-me for an extension, this will deactivate this extension's call forwarding if it is set.

Call forwarding (internal and external redirection/diversion)

Your PBX offers you two possibilities to configure a call forwarding:

① Thanks to the subscriber Call Forwarding (CF) you are able to forward internal and external calls that are targeted to your telephone to other internal telephones.

② Thanks to the MSN/DDI Call Forwarding you are able to forward an (exchange line) telephone number (dialled by an external caller) to another external telephone number.

There are three types of call forwarding:

Permanent (CFU)	The call is redirected straight away.
On busy (CFB)	The call is redirected straight away if the corresponding telephones are engaged.
On no reply (CFNR)	If nobody replies at any of the telephones within the specified time, the call is redirected.

Operation

Subscriber Call Diversion (redirect the telephone internally)

To redirect a single telephone:

Telephone to be redirected

`7`

Universal password

`1` `2`

„Permanent"

Internal calling number of target telephone, e.g. 33

or `1` `3`

„On busy"

or `1` `4`

„On no reply"

Switch off a subscriber call forwarding:

Telephone to be redirected

`7`

Universal password

`1` `2`

„Permanent"

`0` `0`

or `1` `3`

„On busy"

or `1` `4`

„On no reply"

For general information on **programming by telephone** and the tones that are issued in this connection, refer to page 52.

For redirected external calls, the target telephone needs at least semi-restricted exchange line authorisation.

As soon as you have configured one of these subscriber call forwarding types on your telephone, an already existing subscriber call forwarding for this telephone will be deleted.

MSN/DDI-Call forwarding (redirect externally)

The MSN/DDI call forwarding to an external telephone will be realized by the direct entry of an destination telephone number or by selection of an already programmed short-code dial number. The programming is possible from the programming telephone but also as remote programming from any external telephone. (see chapter *Configure MSN/DDI call forwarding from an external telephone* on page 46).

Operation

Redirect a telephone number (MSN/DDI):

Program-
ming tele-
phone

`8`
Universal
password

`8` `5` `0`
„Permanent"

| 01 |
| ... |
| 10 |
Number of
MSN/DDI memory
99: global call
number

external
calling number
of target
telephone

`#`
[Ignore for pulse
dial telephones
and hang up the
receiver instead]

or `8` `5` `1`
„On busy"

or `8` `5` `2`
„On no reply"

Activation/deactivation or switching over (the set target calling number is retained):

Programming
telephone

`8`
Universal
password

`8` `5` `3`

| 01 |
| ... |
| 10 |
Number of MSN/DDI memory
99: global call number

`0`
For deactivate

or `1`
For activate
permanently

or `2`
For activation
on busy

or `3`
For activation
on no reply

Operation

💡 For general information on **programming by telephone** and the tones that are issued
in this connection, refer to .

As soon as you configure an MSN/DDI call forwarding for one of these telephone num-
bers, an already existing MSN/DDI call forwarding for this telephone number will be
deleted.

You can perform the MSN/DDI call forwarding **via the 2nd B-channel** (default set-
tings) **or in the public exchange** (selectable in the configuration program). The oper-
ation does not change.

Configure MSN/DDI call forwarding from an external telephone

The MSN/DDI Call Forwarding can also be programmed from an external telephone. You are in need of an analog DTMF telephone, an ISDN telephone with DTMF signalling or a DTMF sender. The PBX needs to be configured for this operation with the configuration software. You need to know the remote switching and programming MSN/DDI and the external password.

After starting the programming by calling the PBX and entering the external password, you will hear the external acknowledgement tone. Now you will be able to configure an MSN/DDI Call Forwarding. If the programming was successful, you will hear the external acknowledgement tone again. Now you can hang up the receiver or configure additional settings. If you failed to enter the sequence in time or entered the wrong sequence, you will hear a busy tone. In this case hang up the receiver and start again.

Start external Programming ...

| External phone | Own remote switching and programming MSN/DDI | Brief tone | Using DTMF telephone or DTMF generator | 8 | External password | ... |

... MSN/DDI call forwarding to any external telephone number:

... | 1 „Permanent" | 01 ... 10 Number of MSN/DDI memory 99: global call number | 9 „9" and external calling number of target telephone | # |

or 2 „On busy"

or 3 „On no reply"

... MSN/DDI call forwarding to a short-code dialling number:

... | 1 „Permanent" | 01 ... 10 Number of MSN/DDI memory 99: global call number | 110 ... 299 Number of short-code dialling memory |

or 2 „On busy"

or 3 „On no reply"

Operation

... switch on/off/over MSN/DDI call forwarding (destination number is preserved):

...	1	01 ... 10	0 0	1 / 0
	„Permanent"	Number of MSN/DDI memory 99: global call number		1: activate; 0: deactivate
or	2			
	„On busy"			
or	3			
	„On no reply"			
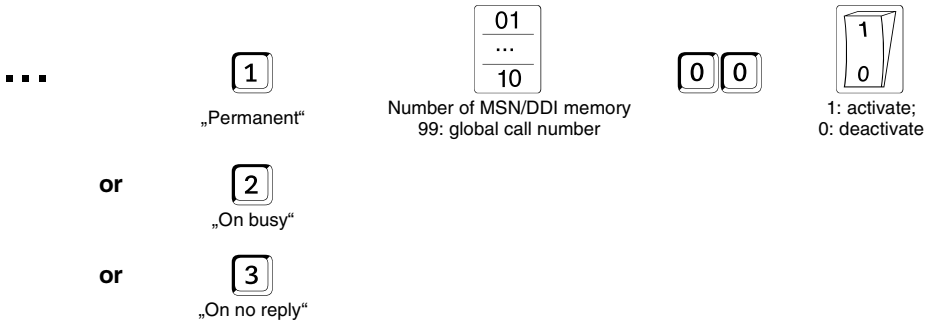
💡 **Important!** To prevent unauthorized persons from programming call forwarding on your system from an external phone, you should change the external password (chapter *Change the password* on page 75) or limit the authorization for programming call forwarding to activate/deactivate/enter short-code dialling number (as delivered, programming from an external telephone is prohibited see chapter *Allowing external programming* on page 74).

Using the wake-up functions

You can set wake-up times for each party that are specific to days of the week. At the programmed time, the corresponding telephone set rings for about one minute. It is possible to switch on and off the wake-up function for each party individually.

💡 After a **power failure** wake-up functions are not carried out again until you have either made a self-initiated external call or have set the time (see chapter *Setting the Time* on page 61).

For general information on **programming by telephone** and the tones that are issued in this connection, refer to page 52.

Setting the wake-up time

You use the following programming step to set a wake-up time for a party. The PBX retains this wake-up time until you carry out this programming step again for the same party. In this connection, the wake-up time is activated for a one-off wake-up call. If you want to be continually woken up at the set time, you must set "multiple wake-up" (see chapter *Switching wake-up calls on/off* on page 48). Assuming that you want to set for extension 34 a wake-up time between Monday and Friday of 12:30 (lunch break). In this case, punch in on extension 34 the following digits: 7 2 4 3 1 2 3 0 9. If you make this setting on a Sunday, the system will issue a wake-up call on the next Monday at 12:30. After this, the ringer deactivates automatically. However, if you additionally punch in on extension 34 digits 7 2 4 4 2, the system issues a wake-up call from Tuesday to Friday (every week until you deactivate the wake-up call again).

Setting a wake-up time for one telephone:

Appropriate telephone	7	Universal password	4 3	Clock time: 00-23 (hours) and 00-59 (minutes)	Day of week: 1-7 corresponds to Monday - Sunday (1 ... 7)

or [8] Saturday and Sunday

or [9] Monday to Friday

or [0] Every day

Switching wake-up calls on/off

Switching wake-up calls on/off at one telephone:

Appropriate telephone	7	Universal password	4 4

1: switch on for one-off wake-up / 0: switch off / 2: switch on for multiple wake-up

---

Querying the wake-up time

Querying the wake-up time set at a telephone:

Appropriate telephone	7	Universal password	4 5

Digit-by-digit output / 5th digit corresponds to day of week, 1-7: Monday - Sunday / 8: Saturday and Sunday / 9: Monday to Friday / 0: Every day

---

Manually switching over day/night mode

Your PBX allows you to set for each of the extensions different outgoing access, call distribution, etc. (see *user program*). You can specify whether you want to activate and deactivate day and night operation time-controlled by the PBX's internal clock (see chapter *Day/night mode switching* on page 62) or whether you want this to be carried out manually at appropriate times, e.g. at the start and end of the working day or at the start of breaks. Even if you have activated automatic day/night mode switching, you may still need to carry it out manually.

We assume that your PBX automatically switches from daytime to night-time operation at 19:00 and back again at 7:00. If you now switch over from daytime to night-time operation manually at 15:00, for example, the next automatic switchover from night to day takes place at 7:00.

Manually switching over to daytime/night-time operation:

 8 4 0 0

Universal
password

1: night-time operation
0: daytime operation

Query the switching status of the day/night circuit:

 8 4 0 1

Universal
password

1 tone: night-time operation
2 tones: daytime operation

💡 If you want to switch over, your telephone needs the appropriate **permission** (see *user program*/as-delivered, extension 31 has switchover permission.

For general information on **programming by telephone** and the tones that are issued in this connection, refer to .

Room monitoring (listening into a room by telephone)

You need this function if you want to acoustically monitor a room, e.g. to check whether your child is sleeping. You can set the extensions of the PBX in the room such that you can call this phone from any other phone (even an external one) and listen into the room.

Initiating room monitoring

Setting room monitoring:

 7 3 5

Telephone in the
room you want to
monitor

Universal
password

**After this, place the handset next to the
telephone set.**

💡 Room monitoring can only be activated **on one internal extension** at the same time. If you try to set up a second telephone, the system issues the **engaged tone** after you punch in the number.

To **deactivate** room monitoring → simply replace the handset of the corresponding telephone.

It is **not** possible to monitor a room secretly, since you must always set up the telephone according to the procedure described above.

For general information on **programming by telephone** and the tones that are issued in this connection, refer to .

Operation

Monitoring a room from an internal telephone:

	Internal dial tone	Internal calling number (e.g. 33) of the telephone that is set for room monitoring	Room monitoring

Monitoring a room from an external telephone:

External phone	Own remote switching and programming MSN/DDI	Brief tone	Using DTMF telephone or DTMF generator	8 External password	External acknowl-edgement tone (1-second contin-uous tone)	7 7	Room monitoring

Engaged tone → **wrong or incomplete code** or you waited longer than 15 seconds while entering the code. Replace the handset and start again from the beginning.

External room monitoring is conditional on your having informed the system of the remote switching and programming MSN/DDI and that you know the external pass-word (default setting is 4321) (see chapter *Necessary Settings for External Remote Switching and Programming* on page 72).

Immediate connection without dialling (automatic dialling after you lift the handset)

Using the immediate connection without dialling function, you can set a telephone in the PBX such that approximately two seconds after somebody lifts the handset the system automat-ically calls an external extension via an short-code dialling number or an internal extension. This means that it is not necessary to press any buttons on the phone. However, if you start manually dialling a number within the first two seconds, this is given priority. Note in this con-nection that many phones do not immediately start to output digits when you press the keys (it is often delayed by up to half a second). You should therefore start dialling promptly!

Configure Automatic dialling/BabyCall:

	7	Universal password		3	3 and internal calling number of target telephone (e.g. 33)

or 3 | 100 ... 299

3 and number of short-code dialling memory

Switch off Automatic dialling/BabyCall:

      7   3 0

      Within 2 seconds   Universal password

💡 For immediate connection without dialling to short-code dialling number → the correct exchange line authorisation for the stored telephone number is necessary.

For general information on **programming by telephone** and the tones that are issued in this connection, refer to page 52.

Operating an SD-420 System Display

If you have an SD-420 system display (optional accessory) connected to your PBX (if available in your country), you can query various status conditions in the system. You must assign the system display to an extension at which you want to make this query (see chapter *Assigning a System Display* on page 77). This telephone must be a DTMF telephone because the ⊛-key is necessary for the menu control.

In its basic status, the system display shows, amongst other things, the time and the assignment overview, i.e. it informs you of the B channels that are currently busy and the subscriber who is are currently making a call. Apart from this, a message line shows incoming calls or the settings that currently apply at the associated telephone.

Unsuccessful calls with presentation of the caller´s telephone number will be stored in the caller list (20 max.). Each entry can individually be deleted or can be used for direct dialling out of the menu (from the corresponding telephone).

As soon as you lift the handset of the telephone to which the system display is assigned (by default Ext 31), the system prompts you to dial. If you now press the ⊛ key, the system displays the main menu containing the query functions. There is a digit before each menu item that you punch in to choose the respective sub-menus. Pressing the ⊛ key always takes you back to the previous menu. Operation is simple and intuitive.

Automatically shutting down extensions

If a subscriber doesn't replace the handset properly or makes a relatively long pause while punching in a number, the system shuts down the extension after 60 seconds and applies the engaged tone. This prevents this extension from blocking the PBX. The function that the subscriber wanted to initiate but did not complete is aborted on shutting down. It is not possible to call a shut-down extension. You hear the engaged tone. To reverse the shutdown condition, replace the handset.

Operation

Programming

This is how you carry out programming:

Carry out the actions that are depicted as symbols in left-to-right order. Symbols that are located under one another are available as alternatives. Change these symbols for the ones that are directly above them in the first row, depending on what you want to set. The symbols are described in more detail in the banderole under *Icons used in the manual*.

Depending on the instruction, lift the handset on the relevant telephone set or on the programming telephone. After entering the initiating digit – a 7 or an 8 – and the valid password, the system outputs an acknowledgement tone (a pulsating tone). After you enter the rest of the programming digits, you hear another acknowledgement tone. You now have the option of ending programming by replacing the handset or immediately entering another sequence of programming digits (omit the initiating digit and the password), assuming that this sequence is initiated with the same digit and password. If you hear an engaged tone, you have made a mistake (entered the wrong digit or similar). Replace the handset and repeat the programming step.

If you enter a telephone number (e.g. entry of a short-code dialling number), the PBX does not immediately know when this telephone number entry will be finished. Therefore finish the telephone number with the ⌗-Taste in case of DTMF telephones and then you will hear the acknowledgement tone. This ⌗-key does not exist on a pulse dialling telephone or it has no function. If you connect a pulse dialling telephone to your PBX, you ignore pressing the ⌗-key and simply hang up the receiver after entering the telephone number. You will hear no acknowledgement tone. Please pay attention when programming that **all** digits are dialled correctly. Pulse dialling telephones with digit keys need a certain time for output after entering the number.

Besides of the pure programming function there also is the possibility to query different configured settings (e.g. short-code dialling numbers, time and call charge sum). The numbers will be put out digit by digit via tones by the PBX. According to the digit the corresponding quantity of succeeding tones will be sent, that means for a „3" three tones, for a „6" six tones and for a „0" ten tones. If you like to ask for the time at 13:50 h, you will hear the following: 1 tone – pause – 3 tones – pause – 5 tones – pause – 10 tones – acknowledgment tone.

> 💡 If you configured your telephone as „**Direct exchange line telephone**", you can do this programming by pressing the ✳-key first. If your telephone has no ✳-key or this key has not the corresponding functionality, these functions cannot be executed (see chapter *Direct Exchange Line Telephone* on page 55).

Setting Up Various Pieces of Equipment (Quick Configuration)

Depending on the equipment that you want to connect to your PBX you must set up the individual extensions. This chapter is intended to make the job of doing this easier for you. You can use just one programming step to set up an extension as a telephone, a fax machine, a combined TAMFAX, a modem, an ISDN PC-controller or an answering machine. When you do this, the system automatically resets most of the settings on the extensions to the factory defaults and then sets appropriately the functions that are of importance for the respective piece of equipment. We chose the default extension settings such that you can run a tele-

phone without any problems virtually out of the box (see page 82). If you have connected a fax machine (a combined TAMFAX) or a modem, you have to change a few settings on the respective extension. The recommended settings for a device of this type are listed at the end of this chapter.

To **set all these functions in one step for one extension,** you should use one of the following quick configurations. When you do this, the system resets all the other possible extension settings to the factory defaults. Call distribution or dialling modes that may already have been set are retained. If passive fax switching is already set, a fax extension that is set here automatically becomes the passive fax extension.

Setting up an extension for a specific device:

Programming telephone   8   Secret password   [9] [6] [2] [0]   Telephone   Internal extension number (00: all)

or [9] [6] [2] [1]
Fax

or [9] [6] [2] [4]
Combined TAMFAX

or [9] [6] [2] [3]
Modem

or [9] [6] [2] [2]
Answering machine

We recommend the following settings for extension connection of fax machines, combined FAXTAMs, modems or answering machines.

- Call protection off (see chapter *Call protection (do-not-disturb)* on page 40)
- No call waiting signal (see chapter *Call Waiting Permission* on page 56)
- No call charge signal (see chapter *Switch off charge pulse* on page 63)
- Pick-up allowed (**answering machine** only; see *user program*)
- Code calling allowed, off (see *user program*)
- Remove extension from call groups (see *user program*)
- Partial outgoing access, but only accepting incoming external calls possible (**answering machines** only; see chapter *Granting Outgoing Access* on page 54)
- Continuous dial tone (see chapter *Choosing the dial tone mode* on page 71)
- Ringing rhythm 1 long tone (see chapter *Choosing ringing rhythms* on page 72)

Programming

Granting Outgoing Access

You use an outgoing access to specify whether an extension can make external calls and if so the numbers that can be dialled. You can specify separately business outgoing access – which applies when you dial access digit ⓪ – and private outgoing access by dialling ⑨⓪, entering a private password and then punching in ⓪. If you want to extend limited outgoing access you can use the release numbers and short-code dialling authorization. To limit outgoing access, use the restricted numbers (see *user program*).

Assign the Authorization to make external Calls to a Subscriber:

Programming telephone	Secret password	for business calls	Internal extension number (00: all)	No outgoing access (neither outgoing external calls nor accepting external calls are possible)
	8	8 0 6		0

or 8 0 1

for private calls

or 1

Emergency call authorization (outgoing external calls using emergency call short-code dialling numbers only)

or 2

Partial outgoing access (accepting external calls and outgoing external calls using emergency call short-code dialling numbers are possible)

or 3

Local call authorization (accepting external calls and outgoing external calls without area code or using emergency call short-code dialling numbers are possible)

or 5

Long-distance call authorization (accepting external calls and outgoing domestic external calls or using emergency call short-code dialling numbers are possible)

or 6

Full (unlimited) outgoing access

Incoming external calls are only switched through to extensions that have been assigned an MSN/DDI (**call distribution/ringing**), assuming that they are at least authorized to accept these calls. In the case of incoming external calls, outgoing access always applies to business calls and not private ones.

Programming

Telephones with Hook-Flash

On DTMF telephones with Hook-Flash function the flash key (also called signal key „R") initiates a longer signal interruption (up to one second) than on DTMF telephones without Hook-Flash function (check the operation manual of the telephone). Such a long signal interruption will normally be recognized by the PBX as „on Hook". If you connect a DTMF telephone with a Hook-flash function to your PBX, you have to configure this function for the corresponding subscriber so that the PBX may recognize this flash signal correctly. Please consider that the PBX can recognize the normal hanging up not earlier than after this corresponding longer time (depending on the configured Hook-Flash time). In the default settings the Hook-Flash function is switched off.

Set a Subscriber as a DTMF telephone with Hook-Flash Function:

Programming telephone	8	Universal password	1 1 8		Internal extension number (00: all)	1: Hook-Flash; 0: normal Flash

Set a certain Hook-Flash Time:

Programming telephone	8	Universal password	2 5	Hook-Flash time (3-9: 0,3-0,9 seconds; 0: 1 second)

💡 This time is valid for all connected telephones with configured Hook-Flash function.

Recommendation: It is better to configure the time longer than too short.

Direct Exchange Line Telephone

If most of your calls are external ones, you can set up an extension such that on lifting the handset you can punch in an external calling number without needing to enter the access digit first (the default setting for this function is off).

To be able to make internal calls on a direct exchange line telephone, to use short-code dialling numbers or to carry out programming steps, you must first press the star ([*]) key. If there is no star ([*]) key on your telephone (e.g. on pulse dialling telephones and many ISDN telephones) or the appropriate function has not been assigned to it, you cannot carry out these functions.

Configure an extension as a direct exchange line telephone:

Programming telephone	8	Universal password	1 0 9	Internal extension number (00: all)	1: switch on 0: switch off

This function cannot work properly until the PBX knows the **dialling mode** of the corresponding telephone set. If you have not made calls or carried out programming at the telephone you want to set, first punch in on this phone a ⑦ before carrying out this programming step.

If you have set the **programming telephone** (extension 31) as a direct exchange line telephone and it doesn't have a star (✳) key, or the appropriate function has not been assigned to it you can only switch off this function within ten seconds after disconnecting the power or via *configuration program*.

The extension needs the appropriate **outgoing access** (see chapter *Granting Outgoing Access* on page 54).

Call Waiting Permission

If you allow "call waiting", you can make a phone call at your leisure even though you are expecting an important external call. In this case, the calling party hears the ringing tone even though you are currently carrying on another conversation. For your part, you – and with analog phones your call partner – hear the call waiting signal. This is a signal to you that somebody else is trying to get in touch with you. You now have the option of rejecting the call waiting party – who then hears the engaged tone – or you can accept the call; in this case the previous calling party waits in the background (see chapter *Call Waiting (Second Call Waiting When Your Telephone is Busy)* on page 40). Call waiting should not be allowed with fax machines and modems, since the call waiting signal disturbs their data transfers. You also have the option of conditionally allowing call waiting. The Call Waiting is not absolutely necessary if another telephone rings for the same MSN.

Set/cancel call waiting permission at an extension:

| Relevant extension | 7 | Universal password | 1 1 1 | 0 Always off |

or 1
on if no other extension rings on the same MSN

or 2
always on

Busy on Busy

In case of an external call you can have many telephones ringing via one MSN/DDI in order to be reachable everywhere in the house. But if you are in a conversation with an external party having called this very MSN/DDI, all other telephones will be ringing once another call is coming in via this one MSN/DDI. The person calling will then get the impression that you are not at home. If you want to avoid that, you will activate the function "Busy on Busy". The person calling will then hear the engaged tone even though other extensions could be called right away.

Programming

Switching on/off the function "Busy on Busy" for an MSN/DDI:

| Programming telephone | | Universal password | | | | | Number of the MSN/DDI memory (00: all / 99: global call number) | | 1: switch on 0: switch off |

[8] [8] [2] [4]   01 ... 10   1 / 0

Entering short-code dialling Numbers

Short-code dialling numbers primarily make it easier for you to dial. You can store numbers that you use often as three-digit abbreviated numbers that you punch in directly after lifting the handset. After this, the PBX automatically dials the access digit and the stored calling number.

The PBX offers enough memory to you for up to 230 short-code dialling numbers. The first ten short-code dialling numbers are assigned to the individual subscribers, that means each of the 4 subscribers uses his own private telephone numbers (4 x 10 = 40 short-code dialling memory) when using the numbers 100-109. The remaining short-code dialling numbers, 110-299, are used by all the extensions in common (emergency call store, normal general short-code dialling memory and short-code dialling memory for long calling numbers). The following list gives you a brief overview:

100-109:	Up to 20-digit private short-code dialling numbers (separate for each extension)
110-119:	Up to 20-digit emergency call short-code dialling numbers
120-295:	Up to 20-digit general short-code dialling numbers
296-299:	Up to 20-digit general short-code dialling numbers (in addition to the digits 0-9, these numbers may also include pauses as well as the ∗ and # symbols)

All extensions can use short-code dialling numbers; however, they are subject to being checked for set outgoing access. This means that if an extension doesn't have outgoing access, it can't dial short-code dialling numbers, since only external calling numbers are stored in the short-code dialling memory. If an extension has local call authorization, the PBX doesn't dial an short-code dialling number in which a calling number is stored that contains an area code.

Short-code dialling authorization is an exception. Using this authorization, you can – as with release numbers – **expand a set outgoing access.** With the help of restricted numbers, you can **limit the granted outgoing access.** The restricted numbers, release numbers and short-code dialling authorization are not activated in the default setting (see *User program*).

Entering normal calling numbers in the general short-code dialling memory

All extensions can use the general short-code dialling memory. From each phone, you can store up to 20-digit calling numbers under short-code dialling numbers 120 to 295.

Storing a calling number in the general short-code dialling memory:

| Any telephone | 8 | Universal password | 5 | Number of short-code dialling memory (120 ... 295) | Calling number (20-digit max.) | # [Ignore for pulse dial telephones and hang up the receiver instead] |

💡 When programming, ensure that you punch in all the digits to the end. **Pulse dialling telephones** with a keypad need a short time after you punch in a digit to display it.

You can only store calling numbers in these short-code dialling memories that consist of the **digits 0-9.**

You may not program the **access digit** here.

To **delete,** replace the handset after the number of the short-code dialling memory that you want to delete.

Entering emergency call numbers in the general short-code dialling memory

Under short-code dialling numbers 110-119 you can store up to 20-digit emergency call numbers that all extensions can dial (with the exception of the ones without outgoing access).

Storing an emergency call number in the general short-code dialling memory:

| Programming telephone | 8 | Secret password (1111) | 5 | Number of short-code dialling memory (110 ... 119) | Calling number (20-digit max.) | # [Ignore for pulse dial telephones and hang up the receiver instead] |

💡 When programming, ensure that you punch in all the digits to the end. **Pulse dialling telephones** with a keypad need a short time after you punch in a digit to display it.

You can only store calling numbers in these short-code dialling memories that consist of the **digits 0-9.**

You may not program the **access digit** here.

To **delete,** replace the handset after the number of the short-code dialling memory that you want to delete.

In the default setting (German firmware), **emergency call numbers 110 and 112** are entered in emergency call short-code dialling numbers 110 and 112. This means that even people who have no idea about operating a PBX can still make an emergency call (if these calling numbers were not entered in the short-code dialling memory, you would have to punch in the access digit first).

Entering long calling numbers in the general short-code dialling memory

Short-code dialling numbers 296 to 299 are reserved for calling numbers that are up to 100-character-long. You can use these numbers if you want to save a message for D2-Message, for example.

In these memories, you can store the DTMF # and ∗ characters in addition to the digits 0-9. You can also insert pauses between the digits. The actual calling number that you use to dial up the SCALL service, for example, may only consist of the digits 0-9. You can combine the digits after the calling number with pauses and # and ∗ characters in any way you like. These characters form the actual message to the recipient and the PBX transmits them using DTMF.

To tell the PBX when the digits of the actual calling number finish, simply add a ∗ at the end of the number. The system then uses the subsequent characters for the message using DTMF. If you have a pulse dialling telephone, you can usually switch the dialling mode to DTMF by pressing the ⊞ key (refer to you telephone's operating instructions).

When entering digits, if you pause between entries for five or ten seconds the system saves these pauses too, i.e. as a two- or a twelve-second pause. When you program a pause, the system emits a brief tone after five and ten seconds to indicate that the desired pause has been accepted.

Storing a long calling number in the general short-code dialling memory:

Programming telephone	Secret password		Number of short-code dialling memory	Calling number (100-digit max.)	

> **You cannot use a # character here to conclude your input** because this character can be stored in the number. You have to hang up the receiver instead.
>
> When programming, ensure that you punch in all the digits to the end. **Pulse dialling telephones** with a keypad need a short time after you punch in a digit to display it.
>
> You may not program the **access digit** here.
>
> To **delete,** replace the handset after the number of the short-code dialling memory that you want to delete.

Querying a calling number from the general short-code dialling memory

Querying a calling number from the general short-code dialling memory:

Any telephone	Universal password		Number of short-code dialling memory	Digit-by-digit output of the calling number (followed by an acknowledgement tone)

> If a hash **(#) character** is stored in the calling number this is indicated by the system emitting 12 audible tones; the system indicates a star ∗ **character** by emitting 11 audible tones. In the case of a stored two-second **pause,** you hear a brief continuous tone (lasting about one second); with a 12-second pause, the continuous tone that you hear lasts for about four seconds. The token for switch over to DTMF dialling is signalled by 13 audible signals.

Entering private short-code dialling numbers

Each user is allowed to program ten private short-code dialling numbers. In each case, the short-code dialling numbers 100 to 109 are available for this. However, these numbers can only be dialled at the telephones at which they are programmed. This means that you must program a private short-code dialling number on the telephone set at which you want to use it. (As-delivered, no calling numbers are entered.)

Saving a private short-code dialling number:
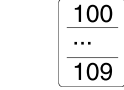
| Appropriate telephone | Universal password | Number of short-code dialling memory | Calling number (20-digit max.) | [Ignore for pulse dial telephones and hang up the receiver instead] |

When programming, ensure that you punch in all the digits to the end. **Pulse dialling telephones** with a keypad need a short time after you punch in a digit to display it.

You can only store calling numbers in these short-code dialling memories that consist of the **digits 0-9.**

You may not program the **access digit** here.

To **delete,** replace the handset after the number of the short-code dialling memory that you want to delete.

Querying private short-code dialling numbers

On your own telephone, you want to query a calling number from your private short-code dialling memory:
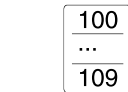
| Appropriate telephone | Universal password | | Number of short-code dialling memory | Digit-by-digit output of the calling number (followed by an acknowledgement tone) |

Emergency call priority function

The default setting of the activated emergency call priority function ensures that it is possible to dial the emergency call short-code dialling numbers even if all the lines are busy (the 1st and 2nd B channels of the available external S_0 port). If somebody dials an emergency call short-code dialling number, an ongoing external call may be interrupted and the emergency call started.

Switching on/off the emergency call priority function in the system:
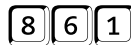
| Programming telephone | | Secret password | | 1: switch on 0: switch off |

Setting the Time

Your PBX needs to be told the current time for the wake-up and day/night mode switching functions. Normally the system automatically updates the time on each subscriber-initiated external call, assuming that the exchange transfers the time. If this does not apply in your case, you can also use this programming function to enter the time. Once you have set the time, it runs automatically until the next system shut-down. The clock does not have battery back-up.

If the **time difference is less than five minutes** between the time in the PBX and the newly entered time, the system does not implement it straight away but rather adjusts it dynamically (that means that the time in the PBX runs a little bit quicker/slower until reaching the right value). This guarantees, for example, that wake-up calls within this five-minute period are kept to.

In the case of a **power failure** the clock time is lost and the system no longer carries out the wake-up functions and automatic (day/night) switchover. These functions cannot be reactivated until the clock has been set either by means of the following programming steps or by an incoming external call. You do not have to reconfigure the wake-up and switch times once again.

Setting the time

Setting the time in the PBX:

| Programming telephone | 8 | Secret password | 4 6 0 | Clock time: 00-23 (hours) and 00-59 (minutes) |

Querying the time

Querying the time in the PBX:

| Any telephone | 8 | Universal password | 4 7 0 | Digit-by-digit output/5th digit corresponds to day of week, 1-7: Monday - Sunday (followed by an acknowledgement tone) |

Setting the date

Setting the date in the PBX:

| Programming telephone | 8 | Secret password | 4 6 1 | Date: 01-31 (day), 01-12 (month), 00-99 (year) |

Querying the date

Querying the date in the PBX:

| Any telephone | Universal password | | Digit-by-digit output (followed by an acknowledgement tone) |

Summer/winter mode switching

The PBX automatically switches over from summer time (daylight savings time) to winter time. You must inform the system in the week before the deadline for switching over. When you have done this, switchover is carried out automatically on the next possible Sunday at 02:00/03:00. The PBX automatically detects whether it is summer or winter, assuming that you have set the date. If you have made this setting by mistake but realize it before the Sunday in question, you can prevent switchover being carried out by making the following inputs:
⑧ ①①①① ④⑥②⓪ (⓪=no).

Announcing summer/winter mode switching next Sunday:

Programming telephone   Secret password   1: Yes, 0: No

💡 If you do not activate the automatic daylight savings time switch, the new time will be transferred after the next self initiated external call from the public exchange.

Day/night mode switching

The PBX allows you to make different settings in the *user program* for some day and night operation functions. The following function allows you to specify whether you want to activate and deactivate day and night operation time-controlled by the PBX's internal clock or whether you want this to be carried out manually at appropriate times, e.g. at the start and end of the working day or at the start of breaks. Even if you have activated automatic day/night mode switching, you may still need to carry it out manually (see chapter *Manually switching over day/night mode* on page 48).

You do not necessarily have to use night operation just for nights, you can also use it for lunch breaks or weekends, for example. To be able to use automatic day/night mode switching, you must already have activated it using the following programming function. The default settings for the switchover times are 7:00 (activate day operation) and 19:00 (activate night operation) and are preset for every day. You can use the supplied user software to change these times.

Programming

Switching on/off automatic day/night mode switching:

Programming telephone   8   Secret password   4 0 2   1: switch on / 0: switch off

💡 When you have activated automatic day/night switching, you can still use manual day/night switching if you need to.

Call charge registration

The PBX can register the quantity of call charge units for each subscriber in case of self initiated external calls.

Switch off charge pulse

The PBX can switch the call charge signal individually for analog extensions. This allows parties to register the charges for external calls on their own telephone set (assuming that the telephone set has a charge display capability). It is not, however, possible to check exactly the number of charge units, since during a query from an external call, for example, the call charge signal cannot be clearly assigned to one or other of the calling parties involved.

Switch on/off the charge pulse transmission to an analog subscriber:

Programming telephone   8   Secret password   1 0 7   Internal extension number (00: all)   1: switch on / 0: switch off

💡 With **fax machines and modems,** the call charge signal should be deactivated (default setting) to prevent data transfer problems.

Sum of charges

The charge sum per subscriber since the last deletion can individually be requested and be deleted by subscriber 31.

Enquire Call Charge Sum for a Subscriber:

Appropriate telephone   7   Universal password   6 1 1   Digit-by-digit output (followed by an acknowledgement tone)

Delete Call Charge Sum for a Subscriber:

31	8	1111	6 1 2	
Programming telephone		Secret password		Internal extension number (00: all)

If you like to have a fixed limit for call charges, you can configure a defined amount of charge units for each subscriber. You can configure call allowance accounts for each subscriber. As soon as these units has been spent, on the corresponding telephone no external call will be possible until the allowance has been increased or configured again.

In the default settings the call allowance of every single subscriber is set to 9999 and therefore without any limit. So if you like to limit the account and activate it, you have to set it to a value between 0000 and 9998. Then you can refill it in certain periods again or increase it by a value between 0000 and 9998 in order to credit the stored charge units to the user of the telephone. But the sum of the existing and added units cannot exceed 9998. You can configure for all subscribers, if the call allowance accounts are charged for all external calls, private calls, or business calls.

Charging of the Call Allowance account for different call types:

31 Programming telephone	8 Secret password	1111	6 0 0

	0 Account is not charged by any call
or	1 only in case of business calls
or	2 only in case of private calls
or	3 only in case of business and private calls

Set Call Allowance account to a certain value:

31 Programming telephone	8	1111 Secret password	6 2 2	Internal extension number (00: all)

0000
...
9998

number of units

or 9 9 9 9

unlimited

Increase Call Allowance account:

| Programming telephone | 8 | Secret password | 6 2 1 | Internal extension number (00: all) | number of units |

💡 To use the function „Call Allowance" without restrictions, you will need the feature „Advice of charge during the call (AOCD)" for your ISDN exchange line. With „Advice of charge at the end of the call (AOCE)" the PBX can only find out at the end of the call, if the Call Allowance has been exceeded.

If you ordered Advice of Charge (AOCD or AOCE) from your network provider, you are able to use only Call-by-Call providers that transmit also charge information. If you like to use other provider in this case, you have to ask you network provider to deactivate the charge information.

Query status of Call Allowance account

Query status of Call Allowance account with a telephone:

| Appropriate telephone | 7 | Universal password | 6 2 0 | Digit-by-digit output (followed by an acknowledgement tone) |

Set charge rate and currency

Set the costs per charge unit:

| Programming telephone | 8 | Secret password | 6 0 2 | Quantity of Cents per charge unit |

Set the currency:

| Programming telephone | 8 | Secret password | 6 0 3 | 1: Euro, 0: former currency |

Call Data Recording

The PBX can record all external calls in a memory buffered against power failures.

The system records the following data per call:
- External calling number, max. 20 digits
- Identification: business/private
- Identification: successful/abortive
- Identification: coming/going

- Extension number
- Date
- Duration of conversation or call duration with abortive conversations
- Time of start of call
- Accrued

At output of this data, the following abbreviations are used:

∗ No calling number transferred   G For outgoing call
I For incoming call   B For business call
P For private call   V For abortive call
Ext 31-34   for external call of Ext 31-34

The system can record up to 1000 calls. If the memory is full, you can enable the recording of additional call data. In this case you have to configure „overwrite the oldest entries". Privacy concerns may be the reason for not recording the called external number, you can configure the PBX to register no external numbers at all or to register an incomplete external number for private calls. In the default setting, the system records all types of calls. With the following configuration you can limit the call data types to be stored to save memory space in order to avoid a too fast filling of the call data memory (e.g. with unsuccessful calls).

Call types that have to be registered/should not be registered:

Programming telephone   Secret password   8   6   4   1 private calls (outgoing)   1: register; 0: do not register

or   2 business calls (outgoing)

or   3 unsuccessful, incoming calls

or   4 successful, incoming calls,

or   5 unsuccessful, outgoing calls

or   6 successful, outgoing calls (free of charge)

or   7 successful, outgoing calls (with charges)

> Here you can set several call types in combination. That means that each type of call will be registered as long as it has not been switched to 0.

Continuous Charge and Call Data Printing (only *COMpact 2104*)

If the printer is always on and you like to see the call data of the call just finished you have to configure the serial port to operation mode „continuous call data output". To be able to

utilize the user software, you have to disconnect the printer from the serial port at times and connect your PC to it. Before doing this, issue the stop command. Once you have connected the printer again, you must issue the start command. Calls that were conducted after the stop command are stored and output after the start command.

Set the operation mode of the serial port:

| Programming telephone | Secret password | | Configuration software only (default settings) |

or [2]

Continuous charge/call data printout

Start-/Stop Command for the continuous Call Data Output:

| Programming telephone | Universal password | 6 9 2 | 1: start 0: stop |

💡 **You can do without** stopping. In this case, you must, however, be aware that the data is lost of the calls that were carried on in the meantime if you remove the printer cable.

Printing charge and call data on demand (only _COMpact 2104_)

Using the following function, you instruct the PBX to print the charge and call data if you set **user software only operating mode** for the serial port. Connect a serial printer to the PBX's serial port after you may have changed the output format of the charge and call data (see _user program_) and enter the instruction for the output.

Printing the charge and call data of one extension:

| Programming telephone | Universal password | 6 9 1 | Internal extension number (00: all) | All calls |

or [1]

Private calls only

or [2]

Business calls only

💡 If you have the PBX store only private calls in the call data memory, for example, you cannot print any business calls here.

In the serial printer that you are using, you must set the **parameters of the serial port** (no protocol, 9600 bps, 8 data bits, 1 stop bit, no parity).

Calling number transfer

In the ISDN, you have the option of transferring your own calling number to your called party. If your partner has an ISDN connection and an ISDN telephone, he or she can see your calling number on their display before starting the call.

If your internal telephones are special CLIP compatible analog telephones, the caller's telephone number will be displayed before you start the call.

Specifying the MSN/DDI to be transferred

Using the following function, you can specify which of your available MSNs/DDIs are transferred to your call partner. In this connection, you can differentiate between individual extensions as well as between the business (going), private (going) and incoming types of call.

This means that from a specific extension, you can, for example, selectively transfer with business calls your office number (from the yellow pages); with private calls your home number (from the normal phone book) and with incoming calls yet another calling number. This allows you to avoid transferring to a customer the MSN/DDI that you normally give to private calling partners, for example. At the extension on which your fax machine is connected, you can transfer your fax number. (In the default setting, the first MSN/DDI is transferred with every extension and every type of call.)

Setting the calling number (MSN/DDI) to be transferred for an extension:

| Programming telephone | Secret password | | | Internal extension number (00: all) | Number of MSN/DDI memory 99: global call number | All calls |

| 01 ... 10 |

| **or** | 1 | Business calls only |

| **or** | 2 | Private calls only |

| **or** | 3 | Incoming calls |

Restricting transfer of the extension calling number

The PBX supports the calling line identification restriction (CLIR) ISDN feature, i.e. using the following function, you can specify whether you want to restrict the transfer of your own calling number with outgoing calls. (In the default setting, the calling number is not restricted). While you restrict calling number identification, the set calling numbers are retained. You can, however, only use this ISDN feature if you have applied for it from your network provider.

Programming

Restrict/do not restrict display of your own calling number with external parties:

Appropriate telephone

`7`

Universal password

`1` `0` `0`

1: restrict
0: do not restrict

💡 To temporarily restrict calling number identification for an individual call, punch in the following **before making the call:** 7 2 1 0 0 1. **After making the call,** punch in 7 2 1 0 0 0.

Number presentation for analog subscribers

On special CLIP compatible analog telephones the callers telephone number may be presented. These telephones can recognize this CLIP information without problems if they get a special defined ringer signal. If you switch on the number presentation with the following programming function, the ringer signals for Wake-up and Distinctive Ringing will only be signalled after a special ringer trailer sequence: A single short ringing followed by a 3-4 seconds of silence. Afterwards you will hear the normal ringer signal and the caller´s number will be presented on the display (for a wake-up call "99" is displayed). Some telephones may suppress this first ringing. In this case the telephone starts to ring not earlier than with the normal ringer signal. Some CLIP compatible telephones can store unsuccessful calls with telephone number, date and time in a caller list. In order to use this function, you can switch on the number presentation with additional time/date information.

You like to switch on/off the analog number presentation:

Programming telephone

`8`

Secret password

`7` `3`

Internal extension number (00: all)

1: switch on without time/date information,
2: switch on with time/date information,
0: switch off

💡 **This function should be switched off for not CLIP compatible telephones.**

Please pay attention that some CLIP compatible telephones do not correctly display if the time/date information is switched on. In this case switch the time/date information off.

If one of your telephones does not display correctly in case of internal calls, configure this subscriber's internal ringer rhythm to "1 x long" (chapter *Choosing the ringing rhythm for internal calls* on page P-72).

If you **did not answer a call,** an analog subscriber with activated number presentation will not be reachable for 10 seconds. The caller will hear the busy tone during this timeframe. This idle time is necessary for the telephone to recognize the number presentation of the next caller correctly.

Tones and Music on Hold

The next few sections will help you to specify the dial tone modes that the PBX uses as well as the circumstances under which a special tone is activated.

Test-listening internal tones and Music on Hold

In your PBX's various different operating status conditions, you can hear a wide variety of different tones. To give you a better idea of how the tones sound, you can use the following function to test-listen to them on your telephone.

Listening to one of the eight tones (or Music on Hold):

Any telephone	Universal password	3 6	0 Music on Hold	Corresponding tone

and/or   1
Continuous dial tone

and/or   2
Extension dial tone (3 short tones)

and/or   3
Acknowledgement Tone

and/or   4
Engaged tone

and/or   5
Special dial tone

and/or   6
Ringing tone

If you are already test-listening a tone, you just need to punch in a digit to choose the **next tone.**

If you want to listen to the **next internal Music on Hold melody,** after entering 0 punch in another 0 Each time you enter another 0 you cycle through the seven different internal Music on Hold melodies. In the eighth slot, you will hear nothing and you can connect external Music on Hold. The system retains the last melody that you set (or silence or external music) when you.

The internal Music on Hold melodies stored in the PBX are **free of copyrights (GEMA).**

If you fade in an announcement into the Music on Hold (see chapter *Switch on/off the Music on Hold announcement* on page 71), you will hear this in addition to Music on Hold.

Programming

Switch on/off the Music on Hold announcement

In addition to the Music on Hold you can fade in an announcement „Please hold the line" for a calling partner waiting in the background. If you switched on the announcement you can test-hear it together with the Music on Hold (see chapter *Test-listening internal tones and Music on Hold* on page 70).

You like to switch on/off the Music on Hold announcement:

Any telephone	8	Universal password	7 2

1: Switch on; 0: switch off

Choosing the dial tone mode

You can choose between three different internal dial tones, i.e. continuous dial tone, extension dial tone or special dial tone, which you can set at individual extensions. The dial tone that you set here can only be heard when the calling party lifts the handset (not with direct exchange line telephones). After dialling the access digit, you hear the external dial tone. In the default setting, the extension dial tone is the internal dial tone.

You want to set a specific dial tone at an extension:

Appropriate telephone — 7 — Universal password — 1 1 4 — 0

Continuous dial tone

or 1

Extension dial tone (3 short tones)

or 2

Special dial tone (interrupted pulsating)

Special dial tone for immediate connection without dialling, call protection and extension call forwarding

If you want to be able to identify by the dial tone a device at which extension call forwarding, immediate connection without dialling or call protection has been programmed, you can use this function to set a special dial tone. You only need to make this setting once. The special dial tone is then triggered on the corresponding telephone set by programming extension call forwarding, immediate connection without dialling or call protection. (In the default setting, the special dial tone is activated).

Switching on/off the special dial tone for an extension:

Appropriate telephone — 7 — Universal password — 1 1 9

1: switch on; 0: switch off

Programming

Choosing ringing rhythms

The next few sections will show you how to choose the ringing rhythms for internal and external calls.

Choosing the ringing rhythm for internal calls

You can choose between two different ringing rhythms for internal calls and set them at the individual extensions. A sensible application would be to differentiate between two telephones in an office, for example. In the default setting, three short tones is set as the ringing rhythm.

Setting a specific ringing rhythm at an extension:

Appropriate telephone	7	Universal password	1 1 5	0 1 long tone

or 1
3 short tones

Choosing the ringing rhythm for external calls

You can choose between eight different ringing rhythms for external calls and set them for the individual MSNs/DDIs. This means that at a telephone to which you have assigned several MSNs/DDIs (e.g. 1st MSN: private, 2nd MSN: business) you can identify which of the MSNs/DDIs the external calling partner is using to call you.

Changing the ringing rhythm for an MSN/DDI:

Programming telephone	8	Secret password	8 4 1	01 ... 10 Number of the MSN/DDI memory (00: all / 99: global call number)	0 1 long tone

or 1
3 short tones

or 2 ... 7
Special rhythm (No. 1-6)

Necessary Settings for External Remote Switching and Programming

If you want to carry out external programming of call forwarding or external room monitoring (see chapter *Perform Room Monitoring* on page 50 and chapter *Configure MSN/DDI call forwarding from an external telephone* on page 46), you must first

- set a **remote switching and programming MSN/DDI** that you can use later to call the PBX from an external phone. You must not, of course, reroute this remote switching and programming MSN/DDI using call forwarding. Equally, if at all possible, you should not assign this MSN/DDI to any other extension (call distribution).

- set **the response time for external remote switching and programming** if you have assigned the remote switching and programming MSN/DDI to another extension.

- **allow external programming of call forwarding** if you want to program call forwarding from an external telephone.

- **change the external password** (see chapter *Change the password* on page 75) if you have allowed external programming of call forwarding. This allows you to prevent unauthorized persons (hackers) from programming call forwarding on your system and making phone calls abroad at your expense, for example. Note that in the default setting, the external password is identical in all Auerswald PBX systems.

- initiate **room monitoring** (see chapter *Initiating room monitoring* on page 49) if you want to carry out external room monitoring.

Setting the remote switching and programming MSN/DDI

Under no circumstances must you use call forwarding to reroute remote switching and programming MSN/DDI because otherwise no external remote switching/programming will be possible. In the default setting, no MSN/DDI is set.

Setting a remote switching and programming MSN/DDI:

Programming telephone

8

Secret password

8 4 2

```
01
...
10
```

Number of the MSN/DDI memory
(99: global call number with PTP connection)

Allowing external programming

Using this function, you allow or forbid programming of call forwarding from an external telephone.

Allowing/forbidding external programming of call forwarding:

Programming telephone	Secret password		

| 8 | | 8 7 | |

0

External programming of call forwarding is forbidden (default setting).

or

1

Set/cancel at an external telephone is allowed

or

2

Setting/cancelling and entering any target calling number in the form of an short-code dialling number at an external telephone is allowed.

or

3

Setting/cancelling and entering any target calling number at an external telephone is allowed.

Note in the latter case that if unknown third parties know your external password, they can program any target number in the world and then dial it **at your expense.**

Response time for external remote switching/programming

If at all possible, you should not assign the remote switching and programming MSN/DDI to any other extension. If this is not the case, however, you must set a response time for the external remote switching and programming functions. If somebody then calls the PBX using the corresponding MSN/DDI the other extensions ring, initially, for the time you set. This allows the people who are present to take the call. If nobody does within the set time, the PBX automatically takes the call. (In the default setting, 30 seconds).

Setting the response time:

| Programming telephone | 8 | Secret password | 8 6 3 | Response time (0-9: 0-90 seconds) |

Programming

Change the password

By keeping your passwords secret, you can ensure that unauthorized people cannot program your PBX.

You always enter a new password twice for security reasons. The change does not become effective until you have punched in exactly the same number twice. You must not use a 0 in your password unless you want it to be less than four digits long. In this case, you must "pad" the password with zeroes at the end until the four places have been filled, e.g. with a password of 67, enter $\boxed{6}\boxed{7}\boxed{0}\boxed{0}$). The external and private passwords must always be four digits long. The universal and secret passwords must not start with the same digits and they must always be at least one-digit-long.

⚠ **Important:** After changing the secret or universal password, you must ensure that from this time on you always replace the digits $\boxed{1}\boxed{1}\boxed{1}\boxed{1}$ or $\boxed{2}$ at the start of a programming step with the new password.

You must **not forget** the new password, since without the password you can no longer carry out a large number of programming steps. If you do forget the password, you must consult the manufacturer.

💡 If you are concerned about keeping **your password secret,** be sure not to store it on an short-code dialling key on your telephone set. If you have a telephone set with an LC display, you should lift the receiver after carrying out every programming step and punch in any digit you like before replacing the handset. This prevents people from recalling your password from the last number redialling memory.

The **changed secret password** becomes effective after you replace the handset.

Changing the universal, secret or external password

Changing the universal password:

| Programming telephone | 8 | Secret password | 7 5 | New password | Repeat new password |

Changing the secret password:

| Programming telephone | 8 | Secret password | 7 6 | New password | Repeat new password |

Changing the external password:

| Programming telephone | 8 | Secret password | 7 7 | New password | Repeat new password |

Changing the Private Password

In the default setting, extension 31's private password is set to 3131, extension 32's to 3232,...,

Changing the private password for an extension:

| Appropriate telephone | 7 | Universal password | 7 8 | Old private password (e.g. of extension 32) | New password | Repeat new password |

Prohibition of Programming for Individual Extensions

You carry out some functions for programming individual extension using the initiating digit 7: Using the following programming function, you can specify whether individual extensions are allowed to carry out these programming steps with or without the universal password. You can, however, completely prohibit extensions from programming these functions. (In the default setting, programming with the universal password is allowed).

Authorise a subscriber for programming:

| Programming telephone | 8 | Secret password | 7 0 | Internal extension number (00: all) |

or

Programming forbidden   0

Programming with password allowed   1

or

Programming without password allowed   2

Assigning a System Display

If a system display (optional accessory) is connected to your PBX, you must assign it to a specific extension. You can then operate the system display from this extension. The extension in question should be a DTMF telephone with a ⃰ key, so that you can also operate the menu control. For more information on the range of functions and operation of the system display, refer to chapter *Operating an SD-420 System Display* on page 51. As-delivered the system display is assigned to Ext 31.

Assigning a system display to an extension:

Programming telephone	8	Secret password	2 4	Internal extension number (00: no system display)

Initialization (Reset)

The following programming functions are for initializing the system. They allow you to return completely to the factory settings the entire system or specific functions. The corresponding settings that you make in this connection are listed in chapter *Default Settings* on page 82.

Initialization of the complete system

This is how you initialize the complete system:

Programming telephone	8	Secret password

9 8

Initializes the PBX with the following exceptions:
Unchanged are: Telephone numbers entered by you, (MSN/DDI, short-code dialling numbers, blocking and release numbers),
the exchange line authorizations,
the external call ringing (call distribution),
the charge sums and
the call data.

or

9 9

Initializes the PBX with the following exceptions:
Unchanged are: Telephone numbers entered by you, (MSN/DDI, short-code dialling numbers, blocking and release numbers).

or

9 0

Completely initializes the system without limitation.

> Please pay attention that the passwords will also be initialized.
>
> Please pay attention when initializing with „99" that no telephone will ring anymore. You have to configure the call distribution (external call ringing) first (see page 17 for PTMP connections and page 23 for PTP connection).

Initializing individual function groups

This is how you initialize individual function groups in your system:

Programming telephone [8] Secret password

[9][5][0]

Initializes outgoing access, direct external access, short-code dialling authorization, activation of block and release numbers (entered calling numbers are retained).

or

[9][5][1]

Initializes all passwords.

or

[9][5][2]

Initializes all tones and ringing rhythms.

or

[9][5][3]

Clears all extension call forwarding, follow-me's, callbacks, reservations, immediate connections without dialling, call protection.

or

[9][5][4]

Initializes all the call data memories and all the and call charge functions.

or

[9][5][6]

Deletes all entered blocking and release numbers.

or

[9][5][7]

Deletes all MSN/DDI call forwarding types.

or

[9][5][8]

Clears all the entered short-code dialling numbers (caution!).

Initializing S_0 port configurations

You use the following initialization to reset the S_0 port configurations including the entered calling numbers, the MSN/DDI assignments (call distribution) and the type of connection.
Note: Since the calling numbers (MSN/DDI) are also cleared, extensions 31, 32, 33 and 34 ring again on every call with any MSN/DDI of your connection.

This is how to initialize your system:

Programming telephone [8] Secret password [9][5][5]

Troubleshooting

Due to the wide range of functions in your PBX, it is possible for **operating errors** to trigger unwanted functions. You could, for example, **punch in a wrong number** when programming using a telephone set. If you punch in a sequence of digits that the PBX doesn't know, you will hear the engaged tone. Punching in a wrong digit, could also produce another valid programming number that has a completely different effect to the one you want.

For this reason, you are strongly advised to carry out as much programming as possible using your PC. If this is not possible and your PBX is in a fault status that you do not know how to remedy, we would advise you to **initialize** individual functions (see chapter *Initialization (Reset)* on page 77). **Quick configuration of individual extensions** (see chapter *Setting Up Various Pieces of Equipment (Quick Configuration)* on page 52) can also help to return your PBX to a defined status.

Another possible source of errors is programming "by mistake". If you want to make a local call, for example, and forget to punch in the access digit 0 first, the PBX could interpret the external calling number as a programming number. A good way to **prevent this** is provided by the **password** that you have to enter first (unless the external calling number matches the password).

While making a call, ensure that you do not call any functions that are invalid in the respective call status, e.g. punching in an short-code dialling number during an ongoing conversation. If you want to call in an ongoing conversation a pulse dialling telephone with short-code dialling number 134, the PBX detects from the first digit onwards that the function is not valid in this call status. The digit 1 is ignored. The system now evaluates the digits 3 and 4 and they result in extension 34 being called (this is a valid function from the ongoing conversation).

In some cases, apparent faults in the telephone system are in fact due to **disturbances to the telephones** (ringer deactivated or similar), **a power failure** or a disturbance to the NT. Note that due to differing **outgoing accesses** of the extensions, **querying** or **transferring** are sometimes not possible. If you have programmed an extension without outgoing access, for example, and you want to transfer an external conversation there, you will hear the engaged tone. The table below describes possible errors like this that can occur as well as possible remedies for them.

If you have ruled out operating errors or external influences, we would advise you to carry out an **automatic firmware update** (see chapter *Automatic Firmware Update* on page 87). It may well be that the malfunctions that occurred in your case have already been eliminated in a newer version of the software. The system of course retains your **call data, wake-up times and configurations.** Only the operating software of your PBX is updated.

Help

No dial tone

Possible Cause
1. Power failure or mains plug not plugged in
2. Defective connecting box or cable between telephone and connecting box
3. System disturbed

Remedy
1. Check the 230-V supply
2. Repair wall jack or cable if defective.
3. Separate the PBX from the 230-V supply for about 5 seconds

External dialling or short-code dialling doesn't work

Possible Cause
1. S_0 ports configured wrongly
2. System is not connected to the NT
3. NT disturbed
4. Telephone does not have outgoing access
5. direct exchange line telephone is set without having first set the dialling mode
6. Charge account is empty

Remedy
1. Correct the configuration
2. Connect the system to the NT
3. Disconnect the NT from the external power supply (Pull the plug) **and** the exchange line for 5 seconds. If the problem is solved, the NT had a malfunction If the problem remains, you can check the function of the NT by directly connecting an ISDN telephone. If you have a Point-to-Point ISDN line, the telephone must be compatible to the Point-to-Point connection). If there is still no telephoning possible, contact your network provider for help.
4. Grant outgoing access from the programming telephone/PC.
5. Switch off direct exchange line telephone again and dial 7 on the corresponding telephone.
6. Increase the charge account from the PC.

short-code dialling doesn't work but external dialling does

Possible Cause
1. No short-code dialling numbers stored
2. Access digit 0 was stored in the short-code dialling number

Remedy
1. Program short-code dialling number
2. Remove the access digit 0

No external calls

Possible Cause
1. Call forwarding is activated
2. No MSN/DDI has been assigned to the telephone
3. The telephone's ringer is faulty or deactivated
4. Telephone does not have outgoing access
5. Call protection is activated

Remedy
1. Deactivate call forwarding
2. Assign MSN/DDI (call distribution)
3. Have the telephone inspected (Try it on another subscriber connection first).
4. Grant outgoing access from the programming telephone/PC
5. Deactivate call protection

No internal calls

Possible Cause
1. Extension call forwarding or call protection activated
2. The telephone's ringer is faulty or deactivated

Remedy
1. Deactivate extension call forwarding or call protection
2. Have the telephone inspected (try it on another subscriber connection first).

Help

No call forwarding from external

Possible Cause

① The extension to which the call was redirected does not have outgoing access

Remedy

① Grant outgoing access from the programming telephone/PC

Transferring external calls doesn't work

Possible Cause

① Extension does not have outgoing access
② Telephone's Flash key is not set correctly

Remedy

① Grant outgoing access from the programming telephone/PC
② Check the Flash key (refer to the telephone's operating instructions) and if necessary set the correct Flash time in the PBX

Query from external calls doesn't work

Possible Cause

① Extension does not have outgoing access
② Telephone's Flash key is not set correctly

Remedy

① Grant outgoing access from the programming telephone/PC
② Check the Flash key (refer to the telephone's operating instructions) and if necessary set the correct Flash time in the PBX

Pick-up doesn't work

Possible Cause

① The subscriber who wants to carry out external pick-up doesn't have appropriate outgoing access.

Remedy

① Grant outgoing access from the programming telephone/PC

Special tone instead of the dial tone

Possible Cause

① Call forwarding, call protection, immediate connection without dialling or an information tone (call data memory more than 80% full) is activated

Remedy

① If necessary, deactivate the corresponding function. Important: with immediate connection without dialling, you must do this within the first two seconds

Crackling on the line shortly after lifting the handset or interruptions in the dial tone

Possible Cause

① Charge transfer at the start of the next call is activated
② The handset cord is faulty

Remedy

① If necessary, deactivate the corresponding function.
② Replace the cord

A conversation is terminated when you press the Flash key

Possible Cause

① The telephone's Flash time is too long.

Remedy

① Check the Flash key (refer to the telephone's operating instructions) and if necessary set the correct Flash time in the PBX.

Help

Appendix

Default Settings

In the default settings of the PBX all telephones (subscriber 31, 32, 33 and 34) ring if an external caller dials one of the MSNs of your PTMP connection. As soon as you enter a MSN/DDI into the PBX, this default settings do not exist anymore and the telephones will not ring until you have correctly configured the external call ringing. The settings listed in the following are selected to use the PBX without problems and without doing any further configurations.

Exchange line authorization:	All subscribers have unrestricted exchange line authorization
Type of Connection of the external S_0 port:	PTMP Connection
Call Waiting:	Switched on for all subscribers (if no other telephone rings on the same MSN/DDI)
Call protection:	Deactivated with all extensions
Call forwarding, Follow-me:	Deactivated
Call forwarding form an external phone:	Deactivated, external programming is **not** allowed
Calling number displayed on external extension:	Enabled
Immediate connection without dialling:	Deactivated with all extensions
Code calling allowed:	Activated with all extensions
direct exchange line telephone:	Deactivated with all extensions
Passive fax switching:	Deactivated
Charge metering:	The system assigns the charges to the extension that initiated the call.
Charge metering pulse:	Deactivated for all subscribers
Call allowance:	Deactivated for all calls, unlimited
Call charge rate:	0,06 EUR/charge unit
Call data recording:	The system records all calls including the calling numbers in the individual call data logging memory
Call pick-up allowed:	Deactivated with all extensions
Hook FLASH function:	Deactivated for all subscribers
Hook FLASH timing for analog telephones:	300 ms
Send ISDN service indicator:	LLC: 3.1 kHz Audio HLC: Omitted
Detect ISDN service indicator:	LLC: 3.1 kHz Audio and Speech HLC: Telephony, fax group 2/3 or none
Ringing rhythms for internal calls:	Three short tones with analog calls
Ringing rhythms for external calls:	One long tone with all MSNs/DDIs
short-code dialling memory 110 and 112:	Calling number 110 and 112
Short-code dial memory199:	Telephone number 05306 9200700 (Auerswald service helpdesk PBX)
short-code dialling memory, other:	No entry
short-code dialling authorization:	Users may only dial short-code dialling numbers if they have appropriate outgoing access

Alternation, conference and call forwarding:	via the second B channel
Emergency call priority function:	Deactivated
Passwords:	2 – universal password / 1111 – secret password / 4321 – external password / 3131, 3232,... – private password
Permission to program:	Users are allowed to carry out their own individual programming with their passwords
Call groups:	Group 1: Subscriber 31-32; group 2: Subscriber 33-34
Special dial tone if single call memory more than 80% full:	Deactivated
Special dial tone for call protection, immediate connection without dialling, call forwarding:	Activated
Restricted numbers, release numbers:	No entry, not activated
System display	is assigned to Ext 31
Day/night switching, automatic	Deactivated, entered times: 07:00 and 19:00
Day/night switching, manual	allowed with extension 31 only
Daytime/night-time operation, different programming:	programmed at the same time for daytime and night-time/ previous settings for daytime and night-time are the same
Dial tone, internal	3 short tones with all extensions
Music on Hold:	Internal melody generator (melody 1) on
Wake-up times:	No entries, deactivated

Safety information

When handling with 230 volt supply voltage and with the units supplied by this voltage the relevant electric safety regulations must absolutely be observed. **Please pay attention to the following general safety advice by all means:**

- All devices must be installed without current. (e.g. in case of maintenance work).
- All devices may only be put into operation if they are properly built into the case.
- Units that operate with external voltage - especially with supply voltage - may only be opened if they were disconnected from the voltage source or from the mains first.
- The mains cables of the electric devices and the connection cables must regularly be checked for damages. If you discover damages, the concerning cables must be replaced.
- The use of tools near or on covered or open circuit lines and circuit boards as

well as on and in devices that are supplied with external power - especially with mains voltage - must be avoided as long as the supply voltage is not switched off and the device is not made free of voltage by discharging existing capacitors. The charge capacitor of the switching power supply unit can be charged for a long time in case of a failure even after being switched off.

- If you use construction elements, components, assembly groups, connections and units, you must absolutely take care of the limitation values for voltage, currency and power consumption indicated in the technical data. Exceeding those limitation values (also short-time) may cause extensive damages.
- The units, unit assemblies or connections mentioned in this operation instructions may only be used as described. If you are not sure how to use the merchandise, please ask a specialist.

Technical Data

Power supply
Mains voltage	230 V ± 10%∿, 50 Hz
Nominal current	52 mA max.(*COMpact 2104* and *COMpact 2104 USB*)
	80 mA max. (*COMpact 2104 DSL*)
Power consumption	12 VA max.(*COMpact 2104* and *COMpact 2104 USB*)
	16 VA max. (*COMpact 2104 DSL*)

S_0 connection
Connection type	S_0 basic access as a PTMP connection or a PTP connection, DSS1 (Euro-ISDN) protocol, the system is fed locally
Termination Resistors	Not available
NT	With galvanic isolation between exchange line and S_0 bus of 2 kV AC min. (e.g. NTs of the Deutsche Telekom)

Broadband connection *COMpact 2104 DSL*
Interface	1 ADSL port (U-R2)

Analog user line
Open-circuit voltage	40 V DC max.
Loop current	23 mA, approx.
Range	2 x 50 Ω, approx. 790 m at 0.6 mm diameter
Ringing voltage	approx. 48 V_{eff}, 50 Hz
Call progress tones	425 Hz ± 5%, interval ± 10%
a/b impedances	symmetrical

Music input
Input level	max. of +3 dB (500 mV_{eff})
Volume	adjustable using a control element
Input resistance	approx. 38 kΩ

Temperature range
Operation	0...+40° Celsius, protect from direct sunshine!
Storage and shipment	-20...+70° Celsius
Humidity	10 - 75%, non-condensing

PC Connection *COMpact 2104*
Interface	Serial
Standard	RS-232-C, V.24
Transfer rate	9600 Baud (8 bit, no parity, 1 stop bit), no protocol

PC Connection *COMpact 2104 USB* and *COMpact 2104 DSL*
Interface	USB (Full Speed)

Other Data
Casing	ABS, Cabinet with cover
Size	217 mm x 157 mm x 65 mm
Weight	app. 900 g (*COMpact 2104* and *COMpact 2104 USB*)
	app. 960 g (*COMpact 2104 DSL*)
Safety	EN 60950, CE

Appendix

Technical Advice

- In some country versions there are Western modular jacks available with the following pinout (see picture at the right) for the connection of analog devices.

- In case of a power failure the PBX cannot support an emergency telephone because the connected analog telephones are not directly usable with ISDN.

- On the case cover you will find a **LED** with the label „S_0 ext." on top of the S_0 connection. This LED is for control and service. It reflects the activities on the S_0 port (LED flickers: a B-channel is busy; LED glows: both B-channels are busy; LED shortly flashes up: D channel message has been received; LED flashes every 2 seconds: level 1 is activated[1]; the LED flashes also after a PBX firmware update when the FLASH-ROM is transferred).
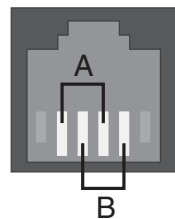
Connecting an SD-420 System Display

The SD-420 system display, which is available as an optional extra, shows you information about the status of the current call and of the system and guides you in an ideal way through operation of your PBX. The system display can be connected to the built-in TAE-jack[2] of the PBX (case closed) or with a remote TAE wall jack (F-coded) similar to other analog telephones. The connection to the clamps „Display" have to be made with telecommunications cable (mainboard; see also chapter *Installation of the wall jacks for telephones and system display* on page 85).

Installation of the wall jacks for telephones and system display
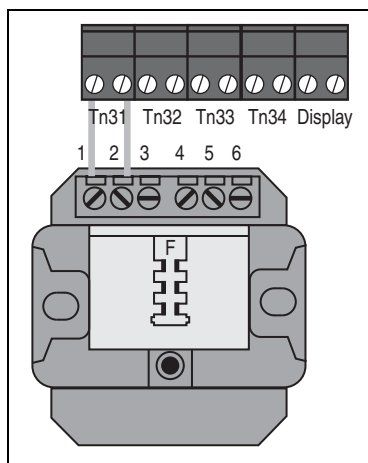
First you lay the cables between the PBX's installation location and the locations of the individual analog devices. For this, use only telephone cable, e.g. 0.6-mm JYY for permanent installations. If you use cable of the specified diameter, the lines between the PBX and the connecting boxes can be up to 800 meters long. To prevent disturbances, lay the lines carefully and twist the pairs. You should also avoid running cables parallel with other wiring for long distances; this applies in particular to power supply lines.

If you only like to connect telephones or FAXTAM machines, simple wall jacks with F code (a socket labelled with „F") are sufficient.

For the connection of fax machines, modems and answering machines you are in need of TAE jacks that have an additional socket with N code. For a system display connected to the clamp „display" you also need the F code.

---

1) In the ISDN definition a so-called layer model is used in order to describe certain conditions of the communication protocol. In order to establish a connection, a setup of the layers 1 to 3 is necessary. The layer 1 (bit transmission layer) is providing the physical transmission of raw data.

2) Or Western modular jack. (depending on the country version; pinout see page 85)

Appendix

Connect the connecting boxes to extension terminal pairs Tn31, Tn32 etc. In each case, the respective terminal label is printed on the PCB in front of the terminal. **You can pull the terminal blocks off the PCB** to make it easier to connect the connecting boxes to the PBX. Ensure that you do not plug in the wrong terminal block or that you plug in the correct one the wrong way round. The leading of the cable has to be done through the opening at the left bottom edge of the case.

Connecting a Device for Feeding in External Music on Hold

Instead of the internal melody generators, you can optionally connect to the PBX an external device for playing music (e.g. the digital speech and music memory DAR-4000 or a CD player). The cinch socket labelled „Audio" is available for this. You set the music volume for external Music on Hold using the control element that is labelled "Lautstärke" and which is located on the PCB behind the cinch socket).

💡 When playing external Music on Hold, note that charges may be levied for some pieces of music. Please get in touch with the responsible authority for more information on this topic (GEMA for Germany).

Remote programming

If you like to have changes to the settings of your PBX to be made by your dealer later, it will not be necessary that a service technician comes to your home. The function remote programming enables a service technician, with help of the corresponding devices, to read the data out of the PBX or to reprogram during an external telephone connection. He needs your permission of course. This means that service technicians cannot carry out (one-off) remote programming until you have given your permission by punching in a specific digit.

Procedures for remote programming (Customer side)

❶ The service technician explains to you the action he or she is going to take with your PBX's configuration data.

❷ If you agree to the operations of the service technician, he will ask you to go to one of your subscriber telephones of your PBX and to dial the digits 99 or F 99. You release the PBX for remote programming or remote reading. Follow the instructions of your service technician.

If the service technician only reads the data out of the PBX first, a repetition of this procedure will be necessary to transfer the data later.

Procedures for remote programming (For the service technician: ISDN PC-controller CAPI 2.0)

The hardware in need is a PC with an ISDN PC-controller operated on the public telephone network. The necessary software consist of the configuration software *COMpact 2104 Set* and the corresponding driver for the ISDN PC-controller with CAPI 2.0 support.

❶ You explain your intended operation in the configuration data of his PBX to the customer during the telephone call.

❷ If the customer agrees with you, you will ask him to pick up the receiver of another sub-scriber telephone of his PBX, to dial ⑨⑨ and to hang up as soon as he will have heard the acknowledgement tone. The conversation between you and your customer may last during the whole procedure.

(The customer is also able to switch the existing call with Ⓡ ⑨⑨. But in this case the call with the customer will be interrupted.)

❸ The customer's PBX is now open for some minutes for programming. Now you can read or program the configuration with the configuration program *COMpact 2104 Set*. Select in the menu under *„options"* the *„interface" „ISDN PC-controller (CAPI 2.0)"*. Start *„open"* or *„save"*, select the remote configuration, enter the external telephone number of the customer's PBX and press „*start*" (if your ISDN PC-controller is connected to the internal S$_0$ port of a PBX, you have to enter the exchange line access number).

Procedures for remote programming (For the service technician: V.24-interface)

The service technician needs:

- An Auerswald PBX connected to the PC and the public telephone network (possible are e.g. ETS-2104 I, ETS-4308 I, ETS-2204 I, ETS-2106 I Rev. 2, COMpact 2104, COM-pact 2104 USB, COMpact 2104 DSL, COMmander Basic or an compatible system).
- The configuration program *COMpact 2104 Set*.

Procedure for remote programming for the service technician

❶ You are talking via telephone of your PBX over an external connection with the customer who uses a telephone of his PBX.

❷ You explain to the customer the action you are going to take with his or her PBX's con-figuration data.

❸ In the menu you select under *„options"* the *„interface" „COM1, COM2, ..."*. Start *„open"* or *„save"* and select the „*remote config.*".

❹ If the customer agrees with you, you will ask him to pick up the receiver of another sub-scriber telephone of his PBX, to dial Ⓡ ⑨⑨ (or ⑨⑨ on an pulse dial telephone) and to hang up as soon as he will have heard the acknowledgement tone.

❺ Then you dial Ⓡ ⑨⑧ on your phone (or ⑨⑧ on an pulse dial telephone). Now you will also hear the acknowledgement tone. Do <u>not</u> hang up the receiver.

❻ The connection between both systems now exist only for a short time. You will have 60 seconds to start the read-out/programming with the configuration program.

❼ You will hear the busy tone (signal to hang up). Hang up the receiver.

Automatic Firmware Update

Stay informed on the news about the firmware of the PBX (on our homepage on the Inter-net). The version number of the software used in this PBX can be requested via a connected system display SD-420 (special accessory) or via telephone.

Request Firmware Version:

Any tele-
phone

8

Universal
password

7 9 0

Output digit by digit (1st digit: place before comma;
2nd digit: place after the comma; 3rd and 4th digit: letter, e. g.
A=01, B=02,..., K=10 etc.) followed by an acknowledgement tone

If the firmware is not up to date, you will have to make an automatic PBX firmware update **after the installation and the configuration**. During this update the PBX will make independently a telephone connection to a server and the current firmware will be transferred while the call data and configurations will remain preserved. Besides of the costs incurred for the necessary telephone connection this update is free of charge.

The update may be initialized via telephone by dialling a sequence of digits or by pressing a button on the case. You should only start this procedure if the PBX is idle (that means not during business hours) because all the calls will automatically be terminated by the PBX. The procedure will last app. 2 minutes.

You like to start the automatic PBX firmware update via button:
In order to start the update, press the update button until the LED next to the key starts to flash slowly. The LED continues flashing during the whole procedure.
If the automatic PBX software update was successful, the LED starts to flash quickly at the end of the procedure (positive acknowledgment, for app. 60 seconds).

If not, the LED glows at the end of the procedure (negative acknowledgment, for app. 60 seconds), and you have to restart the update (e.g. the connection was not established).

If the procedure lasts less than 60 seconds and you get a positive acknowledgement, the PBX firmware has already been up to date.

You like to start the automatic PBX software update via telephone:

Programming
telephone

Internal
dial tone

8

Secret
password

Acknowledge-
ment Tone

9 7 1
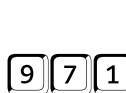
Ringing
tone

Acknowledge-
ment Tone

$\longrightarrow$

After about 3-4 minutes

Acknowledgement Tone

The telephone rings for 60 seconds. If you do not lift the handset, then the PBX still carries out the procedure but you cannot check whether everything functioned correctly (by hearing the **acknowledgement tone**).

If you hear an **engaged tone** instead of the ringing tone or the acknowledgement tone after punching in 9 7 1, the connection is engaged. Replace the handset and try again later.

If you hear an **engaged tone** instead of the acknowledgement tone after the system calls back, this indicates that the update did not function. In this case, you must repeat the entire procedure.

If an external subscriber **calls you during this procedure,** you should complete the call as soon as possible. If you don't do this, the PBX will probably interrupt the call automatically.

If the procedure **takes less than 60 seconds** and you still hear an acknowledgement tone, you already have the latest firmware version.

The system of course retains your **call data, wake-up times and configurations.** Only the operating software of your PBX is updated.

Your PBX already knows the **calling number of the server.** If the calling number for the automatic firmware update should ever change, you can use a programming function to tell the PBX the new number.

Change the telephone number for the automatic PBX firmware update:

31	8	1111	9 7 0		#
Programming telephone		Secret password		Telephone number of the server	[Ignore for pulse dial telephone and hang up the receiver instead]

Request the telephone number for the PBX firmware update:

31	8	1111	9 7 9	
Programming telephone		Secret password		Output digit by digit (then acknowledgement tone)

Copyright

Index

Important Functions – Shortform Operation Guide

After picking up the Receiver

Start external Call:

⓪ 📞	get an exchange line and dial external telephone number
100 ... 299	call short-code dialling number
⑨ ⓪ [3232] ⓪ 📞	start private call with private password
0* ... 4* 📞	start call via different providers

Start internal Call:

📞	call internal subscriber (telephone number 31-34)
③ ⓪ 👥	call a group (1-4)
④ ⓪ 1▪▪▪ 5▪▪▪▪▪	start Distinctive Ringing (1-5)

Pickup:

⑥ ⓪	exchange line pickup
⑥ ①	global pickup
⑥ 📞	selective pick-up of a call for telephone 31-34
⑥ ⑧	take over a call parked on the exchange line

System Display:

＊	Open main menu

Suffix Digits on Busy

After Exchange Line Access Number:

②	reserve exchange line access on busy

After Telephone Number:

②	start recall if subscriber is busy or absent
③	start priority call if subscriber has activated do-not-disturb function
⑥	Pickup if the subscriber is busy

Telephone Number in a simple Call

Start external Query Call:

|	
Ⓡ ⓪ 📞	get an exchange line and dial external telephone number
Ⓡ ⑥ ⓪	accept waiting call on the exchange line

Start internal Query Call:

Ⓡ 📞	call internal subscriber (telephone number 31-34)
Ⓡ ③ ⓪ 👥	call group (1-4)
Ⓡ ④ ⓪ 1▪▪▪ 5▪▪▪▪▪	start Distinctive Ringing (1-5)

Pickup Call/Conversation:

Ⓡ ⑥ ⓪	exchange line pickup
Ⓡ ⑥ ①	global pickup
Ⓡ ⑥ 📞	selective pickup of a call for telephone 31-34

Call Waiting (Knocking):

Ⓡ ⑥ ⓪	accept waiting call on the exchange line
Ⓡ ⑥ ⑨	refuse waiting call on the exchange line

Park a Call:

Ⓡ ⑥ ⑧	park call on exchange line (PTMP connection)
Ⓡ ... Ⓡ	park internal call and accept it again

Finish Query Call:

Ⓡ ⑧	finish call if query subscriber is busy

Telephone Number in the Query Call

Alternation/Conference:

Ⓡ ①	Alternation
Ⓡ ⑥	start conference

Finish Query/Alternation:

Ⓡ ⑧	finish Query – back to a simple call

The most important Programming Functions:

Subscriber Call Forwarding:

7	☎	1 2	🏠	„permanent" CF to internal target number (1200: switch off)
7	☎	1 3	🏠	CF „on busy" to internal target number (1300: switch off)
7	☎	1 4	🏠	CF „if nobody takes the call" to internal target number (1400: switch off)
7	☎	2 0	🏠	Follow-me from internal telephone (2000: switch off)

Day/Night Mode Switching:

8	☎	4 0 0	(1)/(0)	switch day/night mode manually (1: night; 0: day)
8	☎	4 0 1	📞	request mode (2 tones: day mode; 1 tone: night mode)

Call Protection:

7	☎	1 1 3	1/0	switch on/off do-not-disturb function

Call Waiting (Knocking) is de/activated:

7	☎	1 1 1	1/2/0	Call Waiting 0: switched off; 2: always on; 1: on if no other telephone rings

... via programming Telephone:

Automatic PBX firmware Update:

8	☎	9 7 1		perform firmware update

MSN/DDI Call Forwarding:

8	☎	8 5 0	01 ... 10	☎ #	CF „permanent" to external telephone number
8	☎	8 5 1	01 ... 10	☎ #	CF „on busy" to external telephone number
8	☎	8 5 2	01 ... 10	☎ #	CF „on no answer" to external telephone number
8	☎	8 5 3	01 ... 10	0	switch off CF

Call Allowance Accounts:

8	☎	6 2 1	🏠	0000 ... 9998	increase account by ... units
8	☎	6 2 2	🏠	0000 ... 9999	set account to ... units (9999: unlimited)

Programming via an external Telephone:

Please check the following settings that are absolutely necessary for the remote switching and programming of the PBX via an external telephone.

1st You have to know the external password („4321" in the default settings).

2nd You have to configure the remote and programming MSN/DDI.

3rd Check: You have to configure the authorization for call forwarding.

4th Check: You have to start the room monitoring.

Start the Programming from Exchange Line:

Call your PBX on the remote switching and programming MSN/DDI. After the tone dial with DTMF „8" and the external password. Then:

MSN/DDI Call Forwarding:

1	01 ... 10	9	☎	#	CF „permanent" to any external telephone number
1	01 ... 10	110 ... 299			CF „permanent" to entered short-code dialling number
1	01 ... 10	0 0 1			switch on/over CF „permanent"
1	01 ... 10	0 0 0			switch off CF „permanent"
2	01 ... 10	...			CF „on busy" ...
3	01 ... 10	...			CF „if nobody takes the call"...

Room Monitoring:

7 7	Room monitoring

Telephone Number Table for PTMP Connection

Number		Calling number	Ext 31	Ext 32	Ext 33	Ext 34
1st MSN:	01					
2nd MSN:	02					
3rd MSN:	03					
4th MSN:	04					
5th MSN:	05					
6th MSN:	06					
7th MSN:	07					
8th MSN:	08					
9th MSN:	09					
10th MSN:	10					

Telephone Number Table for PTP Connection

PBX phone number	

Number		Calling number	Ext 31	Ext 32	Ext 33	Ext 34
1st DDI:	01					
2nd DDI:	02					
3rd DDI:	03					
4th DDI:	04					
5th DDI:	05					
6th DDI:	06					
7th DDI:	07					
8th DDI:	08					
9th DDI:	09					
10th DDI:	10					
Global no.:	99					